



## 2023 Annual Formal Dam Safety Inspection

**RECIPIENT:** Mr Mike Herschmiller, CVRD  
**SENDER:** Mr Vincent Cormier, WSP Canada Inc.  
**COPY:** Mr David Daw, WSP Canada Inc.  
**DATE:** 27/10/2023  
**SUBJECT:** **Graham Lake Dam 2023 Annual Formal Dam Safety Inspection**  
**WSP Ref.: CA0007822.9373**

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### 1.0 INTRODUCTION

WSP Canada Inc. was retained by CVRD to conduct an Annual Dam Safety Inspection (DSI) of the Graham Lake Dam, in accordance with BC Dam Safety Regulation, B.C. Reg. 40/2016. The Graham Lake Dam is registered as a Significant Consequence dam and thus requires annual formal inspections and yearly consequence classification redeterminations. WSP's Dam Inspector, Vincent Cormier, inspected the dam on August 15, 2023 and this report provides a summary of the DSI observations, redetermination of the consequence classification and a collection of selected photographs of the dam. Recommendations along with high-level cost estimates for potential remedial works are also provided to address some of the dam deficiencies that were observed. Record drawings of the dam are provided in Attachment A, the DSI checklist is provided in Attachment B and selected photographs of the inspection are provided in Attachment C.

### 2.0 DAM SAFETY INSPECTION

The following dam safety issues were noted during the inspection. A ballpark cost estimate for remedial work is also provided to address each issues. These costs are high-level and no detailed review or design has been conducted to confirm them. The costs are based on our experience with similar work completed for other dams in BC.

Issue Description	Recommendation	Cost estimate
The log-boom section located near the left bank appears undersize. It is unclear if the log-boom is efficient at intercepting floating debris. Water levels were too low during inspection to assess its efficiency.	Monitor log-boom at high water levels and replace deficient logs if required.	\$5,000 <sup>1</sup>
The spillway's training walls are too short and could potentially allow for flow by-pass	The training walls should be extended in both upstream and downstream direction. The training walls should be	\$75,000 <sup>2</sup>



Issue Description	Recommendation	Cost estimate
behind the training walls. (see notes section of DSI checklist in attachment B.)	extended into the embankment to prevent any bypass flow that could erode the dam during spill events.	
There is no instrumentation at the dam.	Seepage at downstream toe of embankment in old stream bed location has been noted previously by MFLNRO. Monitoring of this seepage is recommended. See MFLNRO 2017 recommendation.	\$5,000 <sup>1</sup>
Dam Emergency Plan emergency contacts appear to be out of date.	Update DEP	NA <sup>1</sup>
Dried moss and vegetation covering the concrete slab making inspection difficult.	Clean the concrete spillway surface prior to the 2024 DSI.	NA <sup>1</sup>
Downstream scouring under the concrete spillway apron.	Fill the void below the spillway and within the riprap with a cement mixture.	\$15,000
The elevation difference between the spillway and the dam's crest appears to be low, indicating that the dam likely has little freeboard during a flood event.	Conduct a hydraulic review of the spillway to determine the available freeboard during the Inflow Design Flood and confirm that the dam would not overtop and fail during its design event.	\$10,000
Dam signage was not observed near the dam.	Per B.C. Reg. 40/2016, public signage should be installed to make it clear the structures is a dam. Signage should provide direction and emergency contact information to report any issues observed.	\$2,000

1. These costs assume that CVRD can perform the work without external consultants or contractors.
2. Includes design, permitting and construction fees and costs.



### 3.0 CONSEQUENCE CLASSIFICATION

The current consequence classification of the Graham Lake Dam is “Significant”. The current classification appears to be based on a dam safety audit conducted in 2017 by MFLNRO. The main driver for this classification was reported to be the loss of water supply following the dam failure. It was recommended in 2017 to confirm if the water supply intake is sufficiently deep to remain submerged following a dam failure. To WSP’s knowledge, this scenario has not been assessed and thus, it is recommended to maintain the current classification level. Also, there haven’t been any new developments downstream of the dam in the last year that would warrant a consequence classification change. However, it is recommended to conduct a dam breach inundation study to confirm that no permanent downstream residences would be impacted by a dam failure. The consequence of dam failure on the water intake should also be assessed.

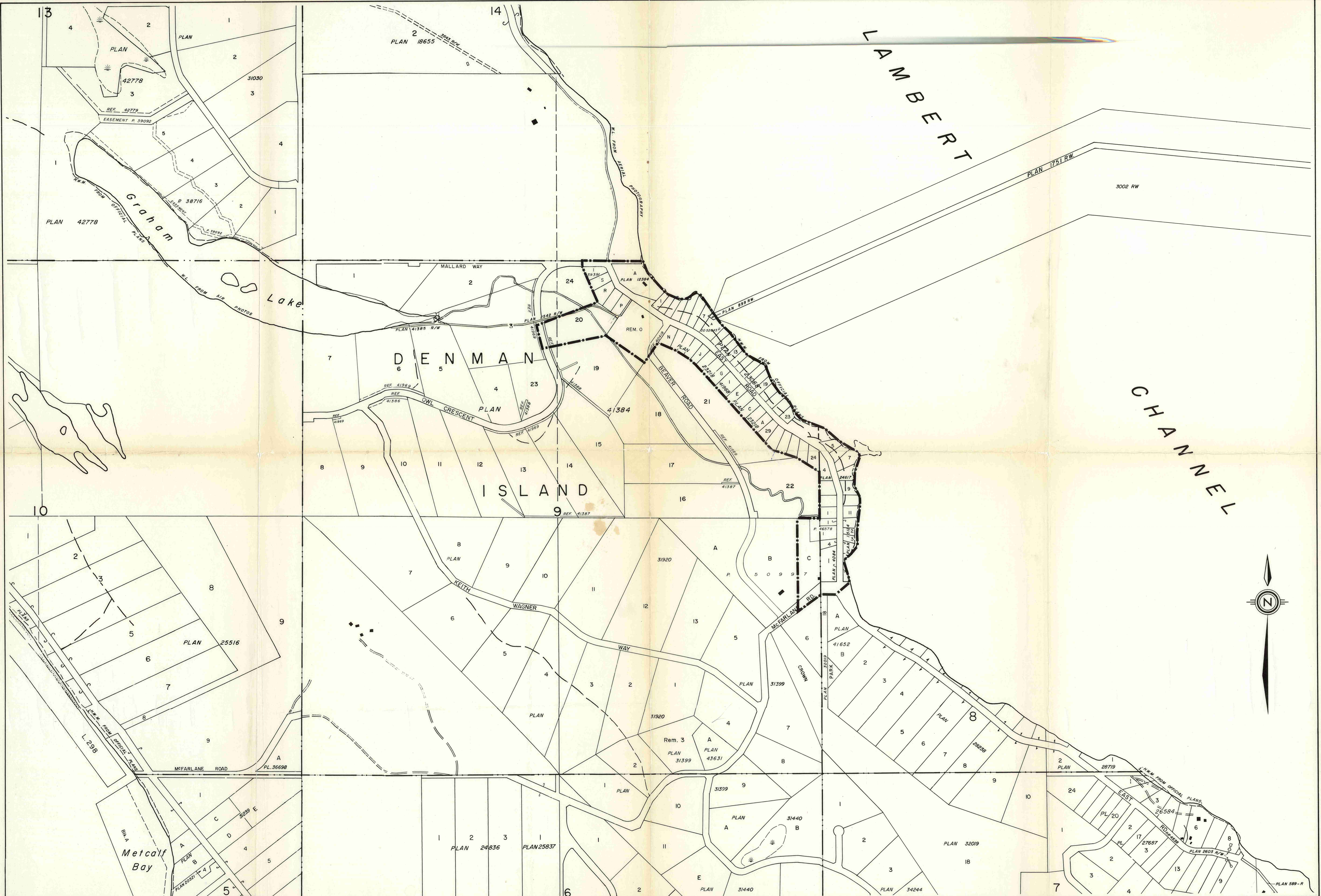
Prepared by: \_\_\_\_\_  
Vincent Cormier, P.Eng., M.Sc.

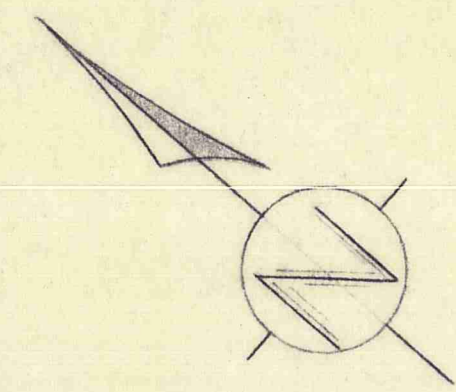
Reviewed by: \_\_\_\_\_  
David Daw, P.Eng.

- Attachment A: Record Drawings
- Attachment B: DSI Checklist
- Attachment C: Selected Site Photos



## Attachment A: Record Drawings

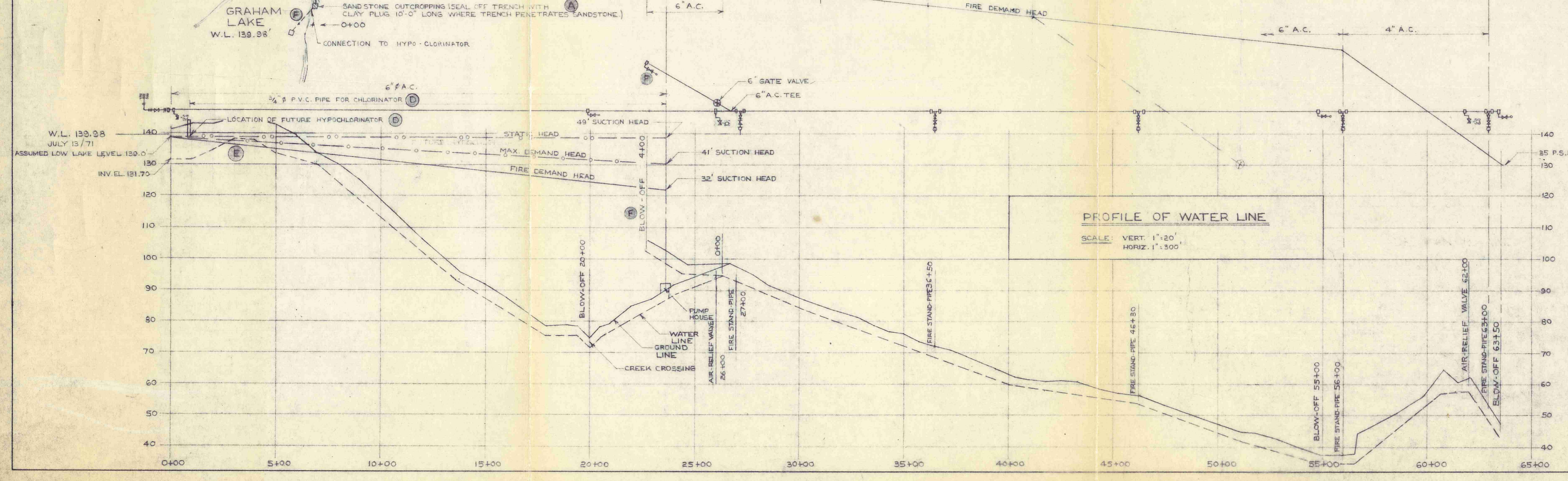
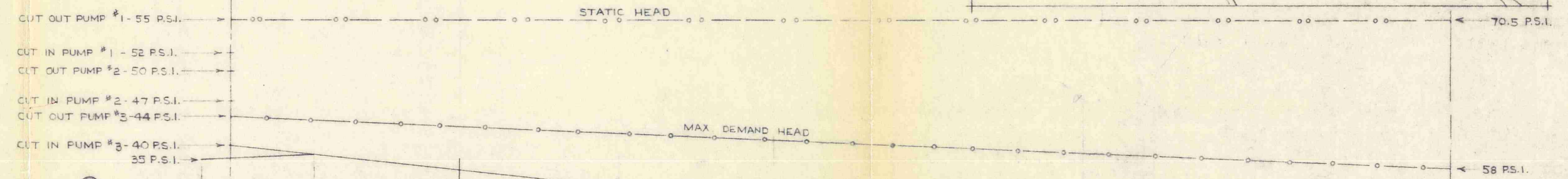
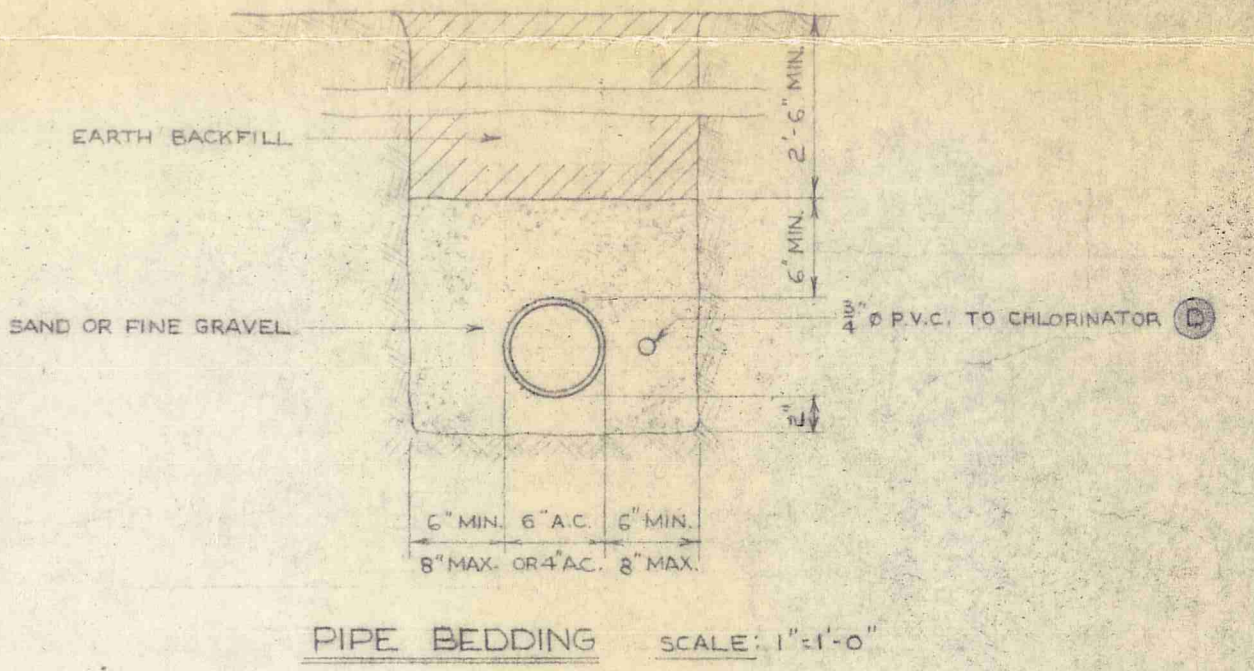
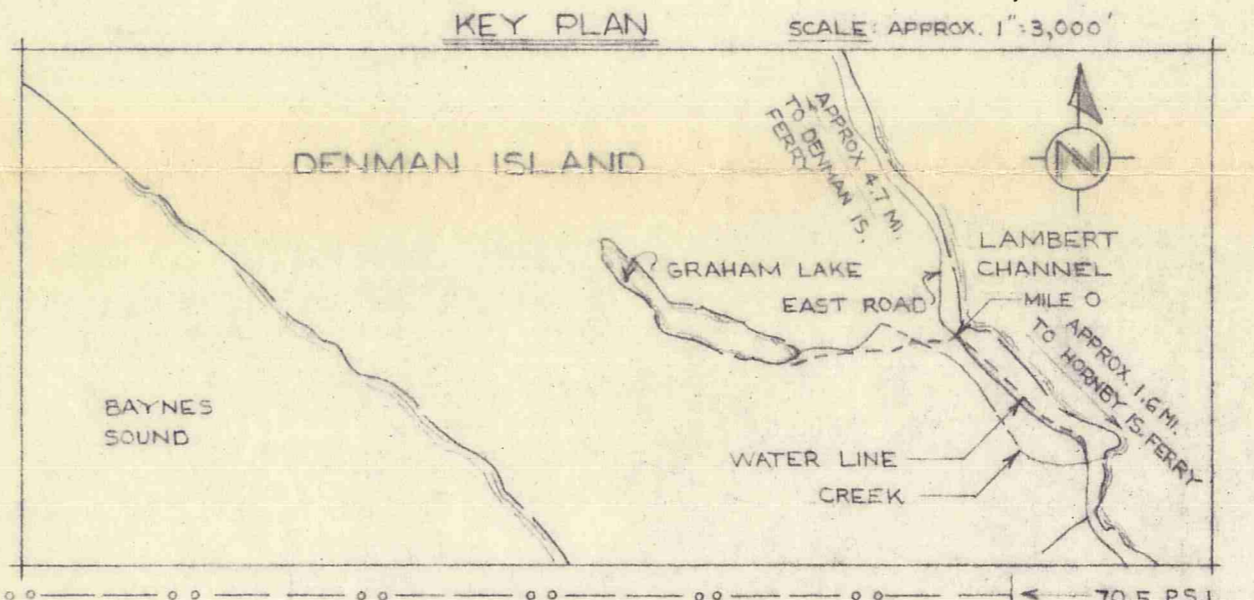
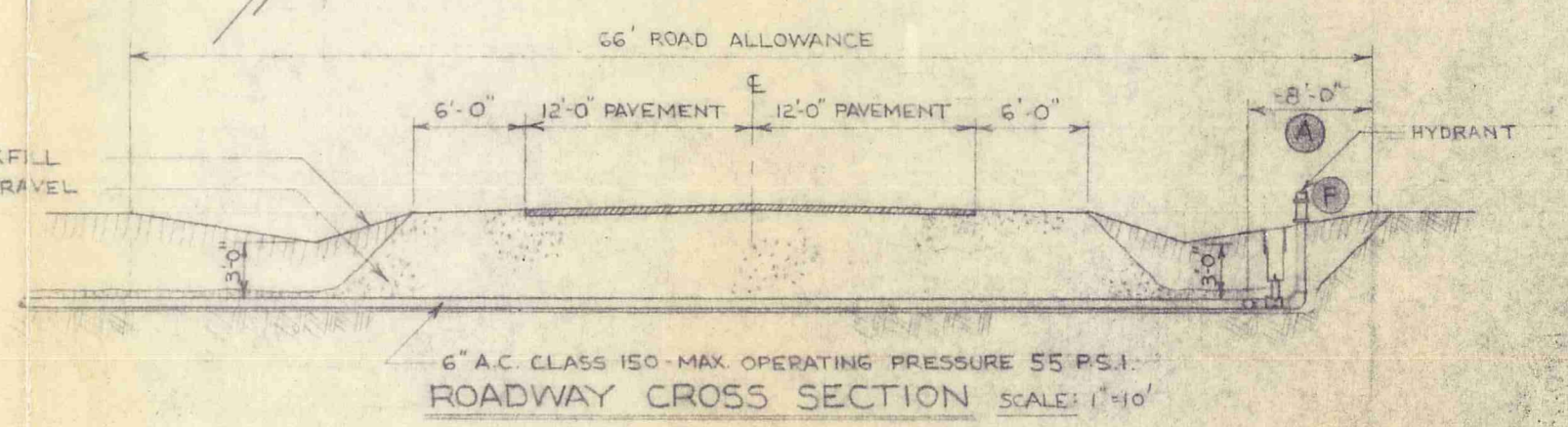
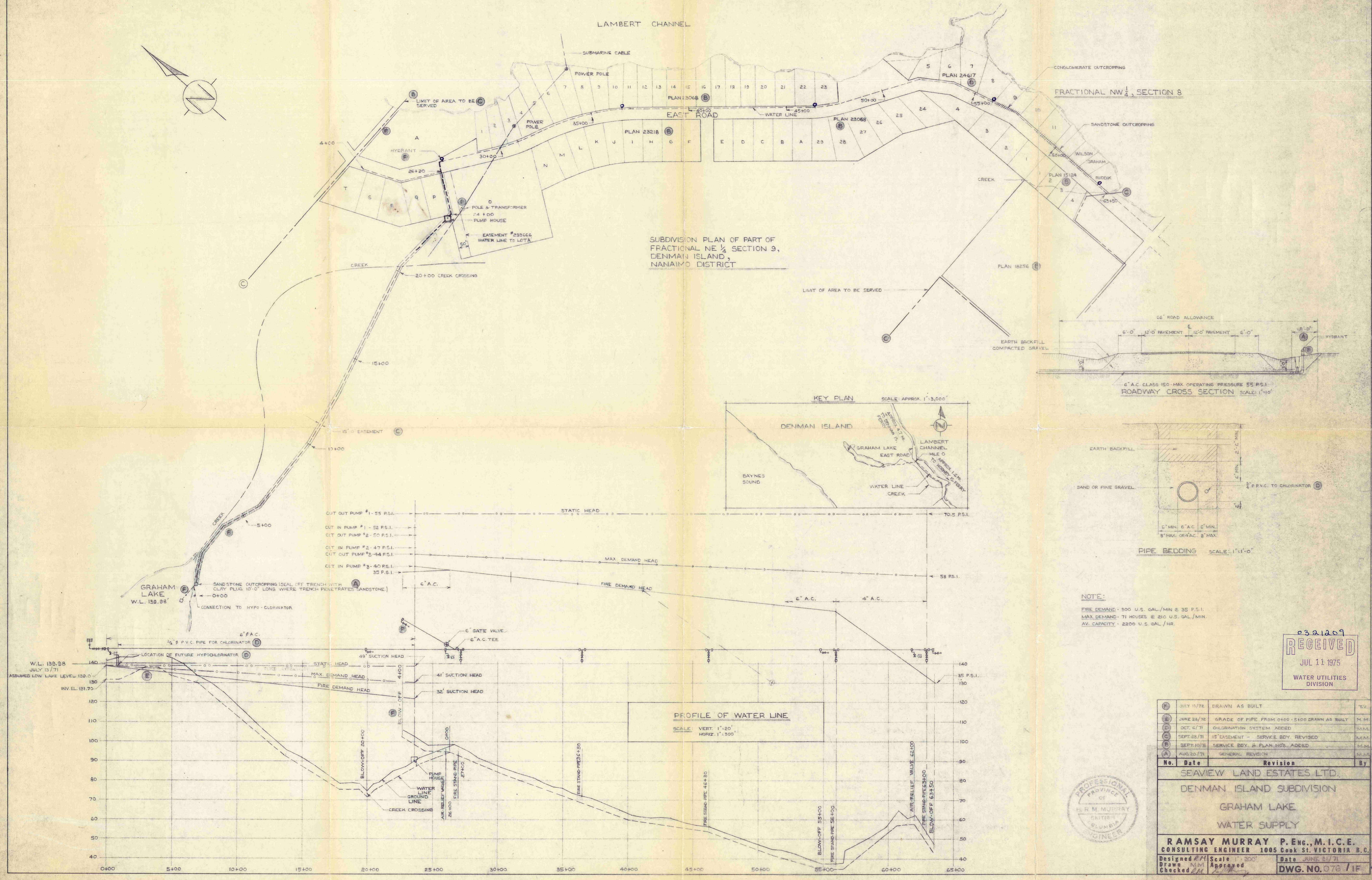




LAMBERT CHANNEL

FRACTIONAL NW 1/4, SECTION 8

SUBDIVISION PLAN OF PART OF FRACTIONAL NE 1/4 SECTION 9, DENMAN ISLAND, NANAIMO DISTRICT



NOTE:  
FIRE DEMAND - 500 U.S. GAL./MIN @ 35 P.S.I.  
MAX DEMAND - 71 HOUSES @ 210 U.S. GAL./MIN.  
AV. CAPACITY - 2200 U.S. GAL./HR.

0321209  
**RECEIVED**  
JUL 11 1975  
WATER UTILITIES  
DIVISION

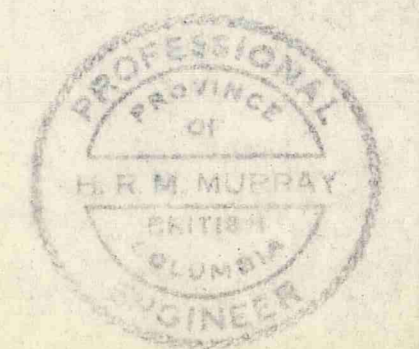
No.	Date	Revision	By
(E)	JULY 19/75	DRAWN AS BUILT	T.V.
(D)	JUNE 28/75	GRADE OF PIPE FROM 0+00 - 5+00 DRAWN AS BUILT	M.M.
(C)	OCT. 6/71	CHLORINATION SYSTEM ADDED	M.M.
(B)	SEPT. 28/71	15' EASEMENT - SERVICE BODY REVISED	M.M.
(A)	SEPT. 19/71	SERVICE BODY & PLAN NOS. ADDED	M.M.
(A)	AUG. 20/71	GENERAL REVISION	M.M.

SEAVIEW LAND ESTATES LTD.  
DENMAN ISLAND SUBDIVISION  
GRAHAM LAKE  
WATER SUPPLY

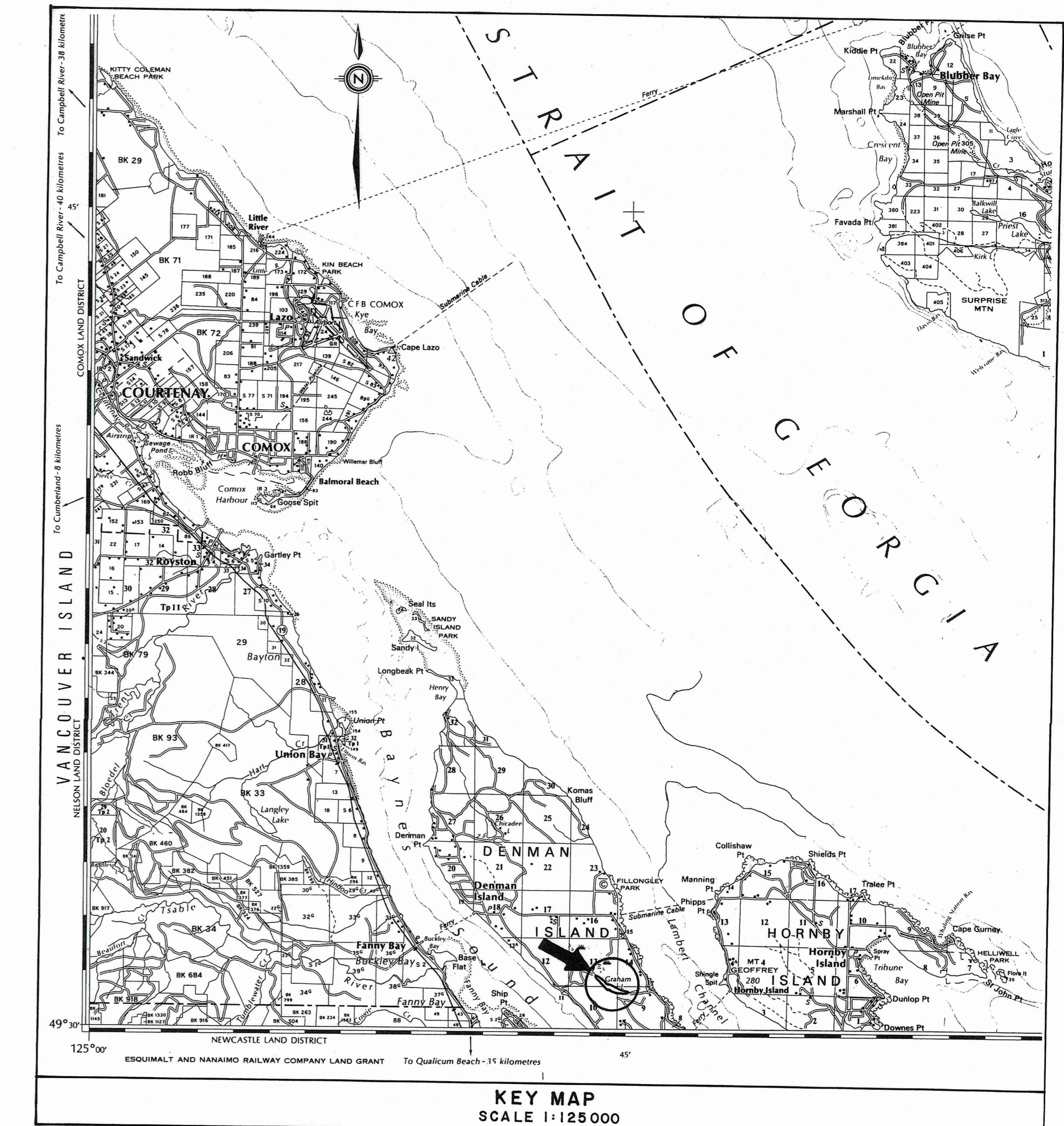
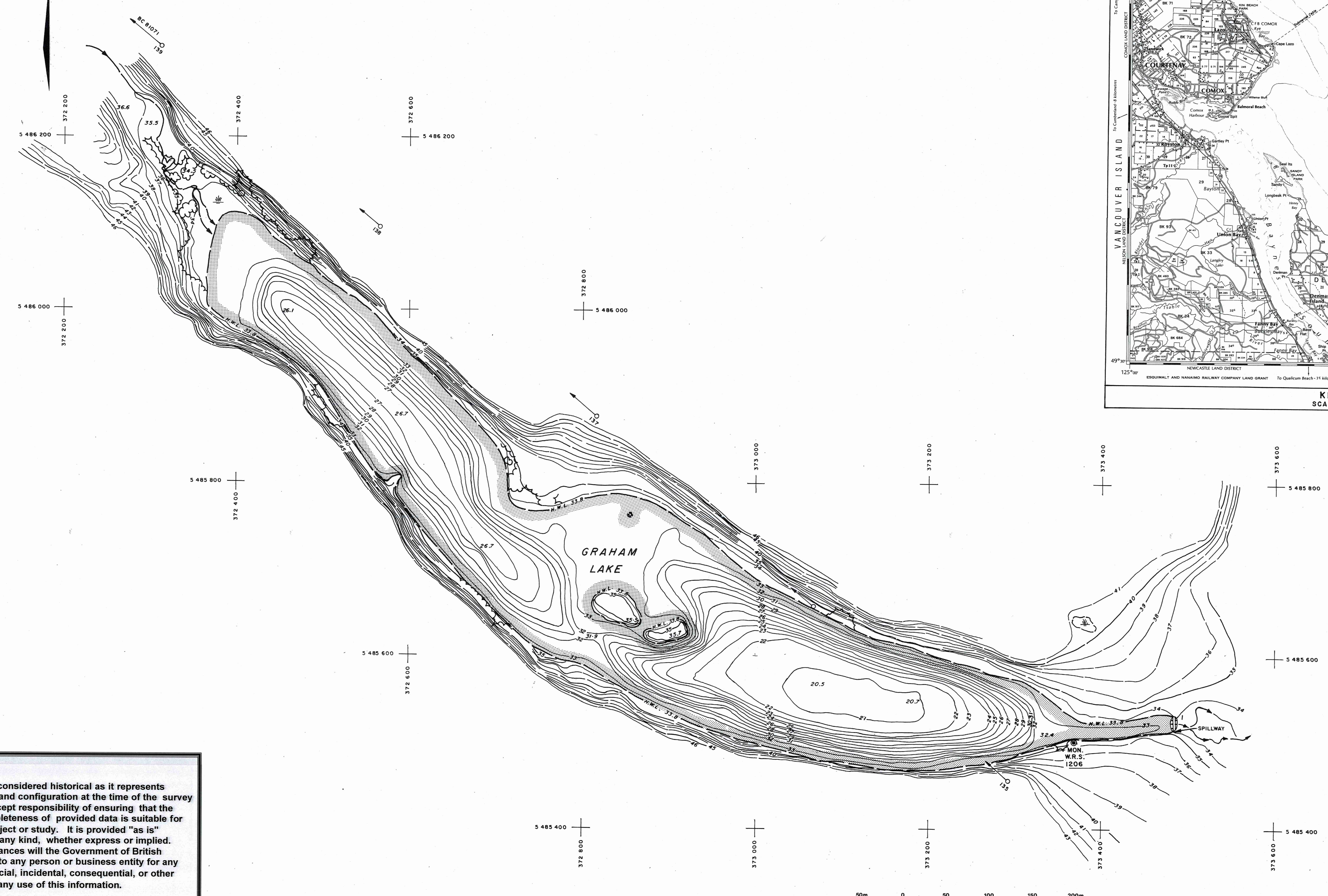
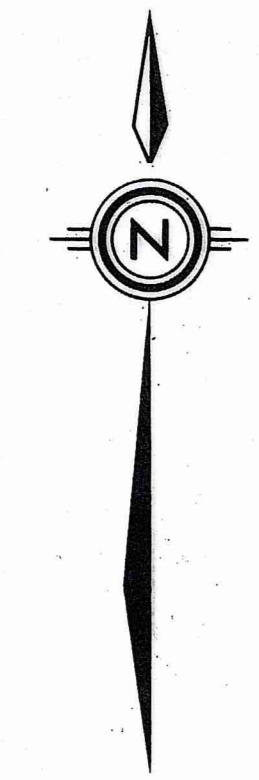
**RAMSAY MURRAY P. Eng., M.I.C.E.**  
CONSULTING ENGINEER 1005 Cook St. VICTORIA B.C.

Designed by Scale 1" = 200'  
Drawn by Approved  
Checked by

Date JUNE 27/75  
DWG. NO. 076 / IF

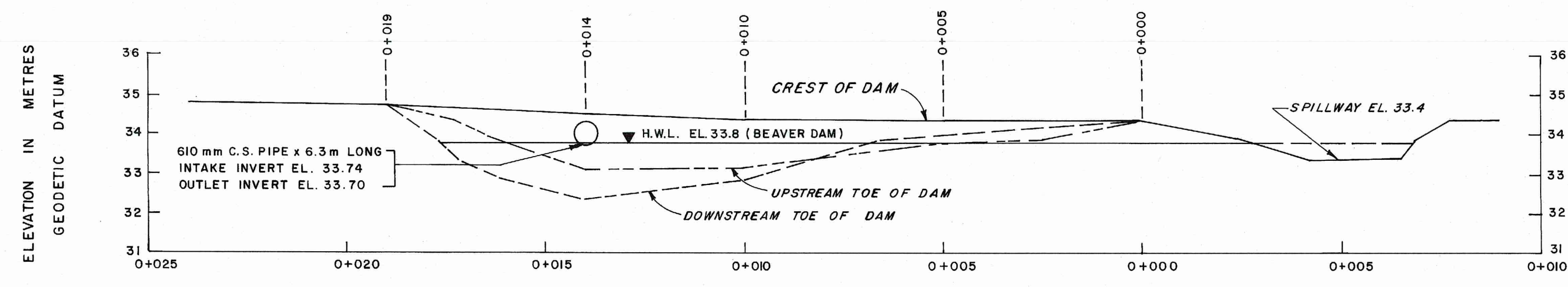


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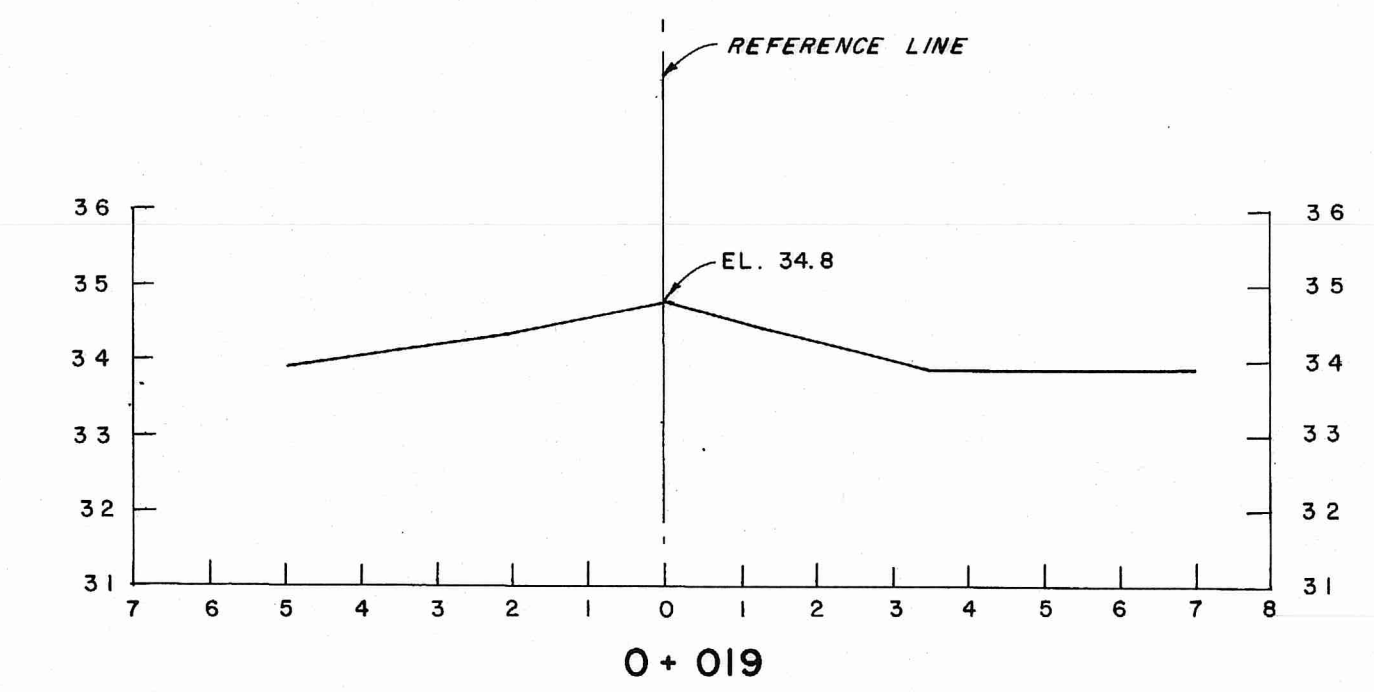
**NOTE:**  
 This information is considered historical as it represents channel conditions and configuration at the time of the survey only. User must accept responsibility of ensuring that the accuracy and completeness of provided data is suitable for the needs of the project or study. It is provided "as is" without warranty of any kind, whether express or implied. Under no circumstances will the Government of British Columbia be liable to any person or business entity for any direct, indirect, special, incidental, consequential, or other damages based on any use of this information.

NOTES		LEGEND			STORAGE LICENCES			REFERENCES			REVISIONS			SURVEYED B. SCHUBERT		Province of British Columbia		Ministry of Environment		WATER MANAGEMENT BRANCH		FILE No.												
1) This map has been prepared from field surveys carried out by the Surveying Section, Water Management Branch, and photogrammetric mapping compiled by the Surveying and Resource Mapping Branch of the Ministry of Environment, Province of British Columbia.	c) Elevations (metres) are referred to the Canadian Geodetic Datum. d) Origin of elevation is based on Bench Mark No. 77-C-824, Buckley Bay, established in 1977. Elevation was transferred to Denman Island, using trigonometric level and "Two Peg" across the channel.	▲ TRIANGULATION STATION ● REFERENCE MONUMENT (P. CON. or P. ROCK) ■ 50 000 HORIZ. CONTROL POINT * 60 000 VERT. CONTROL POINT ◄ T.B.M. TEMPORARY BENCH MARK ○ TEMPORARY REFERENCE POINT ==== ROAD, --- TRAIL, --- CREEK, --- CREEK INTERMITTENT, --- SWAMP --- BASIN, --- SUB BASIN ○ B.C. 81071 AIR PHOTO CENTER	LICENCE	PRIORITY DATE	AUTHORIZED ACRE-FEET	DEVELOPED ACRE-FEET	DWG. No.	DESCRIPTION	DATE	No.	DESCRIPTION	DATE	DATE JUNE 1981	Province of British Columbia	Ministry of Environment	WATER MANAGEMENT BRANCH	FILE No.	0305080-29	Branch	81-S.T.P.-3	SURVEY PROJECT No.	NTS	Map No. 92 F/10	Map Scale 1:50 000	SCALE	1:2 000	NEGATIVE No.	272 487	DRAWING No.	4977-32	SHEET	1 of 1		
2) SURVEY DATA: a) HORIZONTAL control was established by traverse, using Hewlett-Packard Distance Meter Model 3802B. b) Subsequent contours were drawn from depths established by Raytheon depth recorder, Model DE-7108. c) Position control for bathymetry was maintained by simultaneous fixes from theodolites which were set over coordinated shore stations. d) The survey was carried out in June, 1981.	4) FIELD BOOKS: Survey data are recorded in Field Books No. 2329 F1 and I1. 5) AIR PHOTOGRAPHY: I.C. STATION Frames 132-154 inclusive Date of Photography: July 25, 1981 Photo Scale = 1:5000 approx.	6) MON. 1206 → Tag No. 3182 S 30-04-21 E M.R.S. Mon. 1206 S 486 502.363 373 367.836 35.148 Tag No. 3182 (Bearing Tree) on gauge 32.742 Gauge 08B8056 on gauge 32.874	4977-32A	GENERAL PLAN OF DAM	SEPT. 1986							CHECKED J. TAM DATE SEPT. 1986 DRAWN N.F.A. APPROVED HEAD DRAFTING SECTION DATE SEPT. 1986 ENGINEER	APPROVED P. R. Schubert HEAD SURVEYING SECTION	DATE SEPT. 1986																				

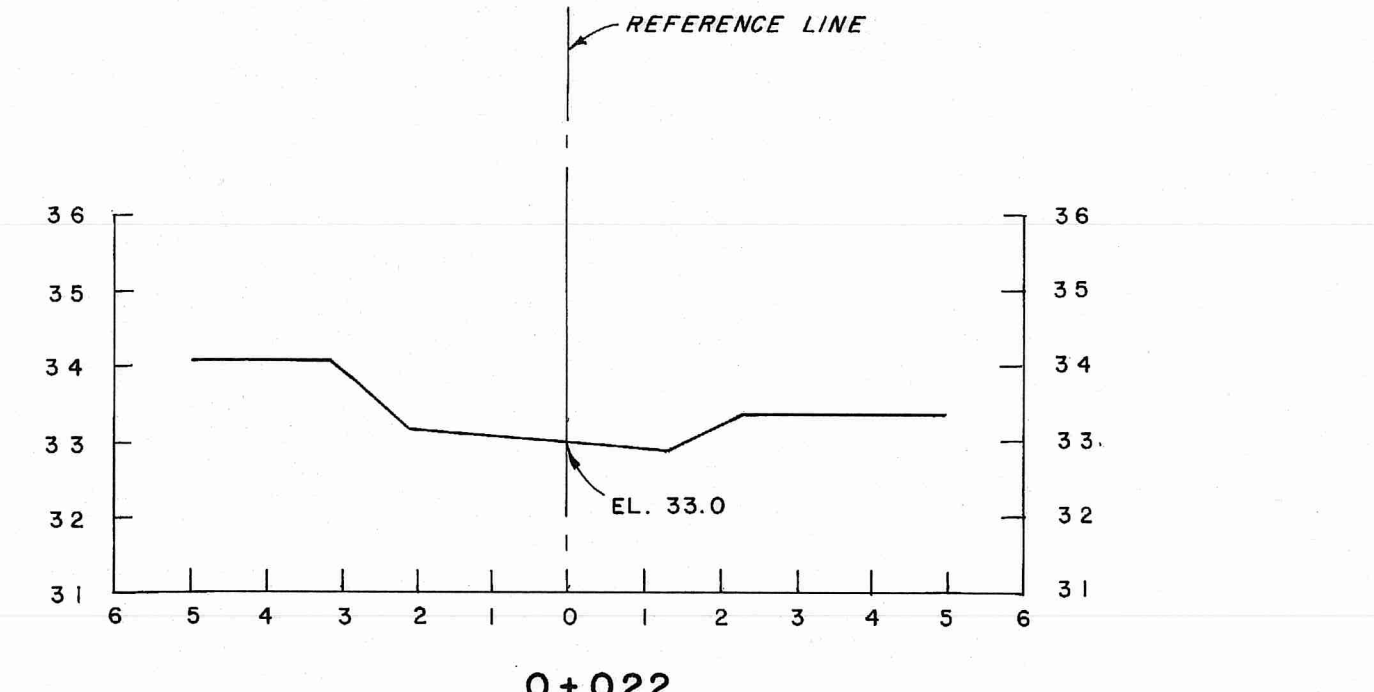


LONGITUDINAL SECTION OF DAM

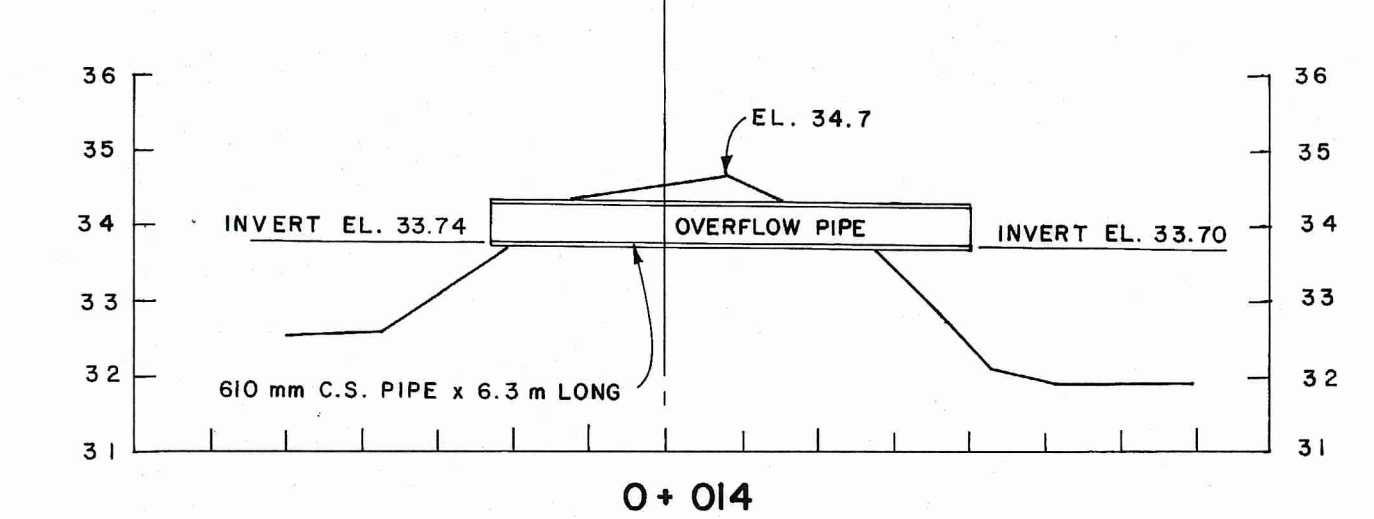
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VERT. 1:100



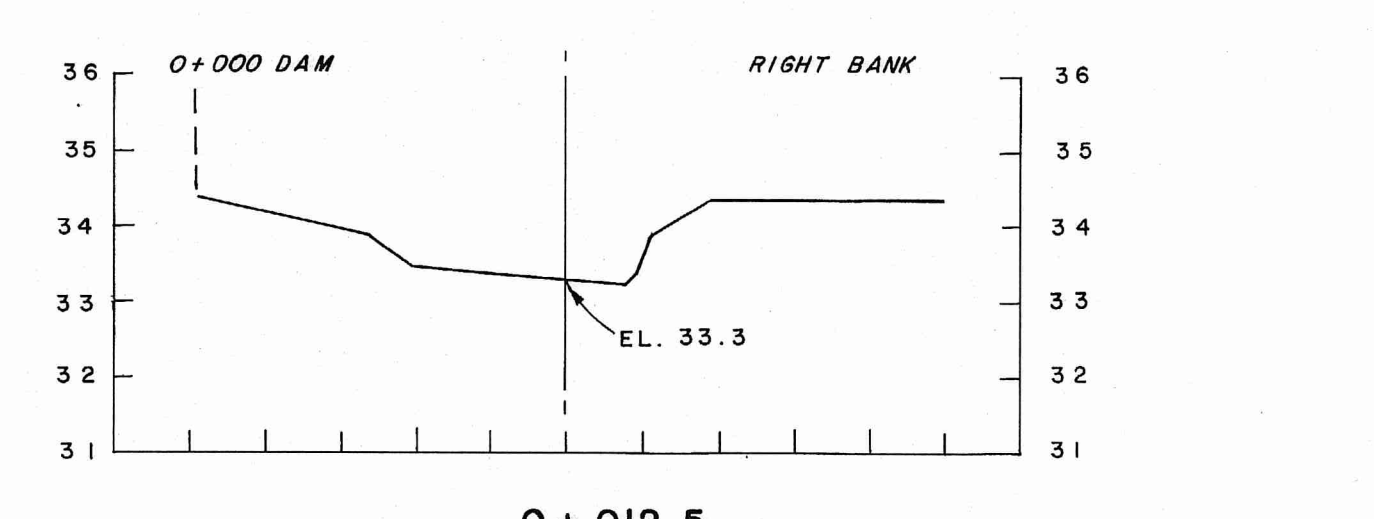
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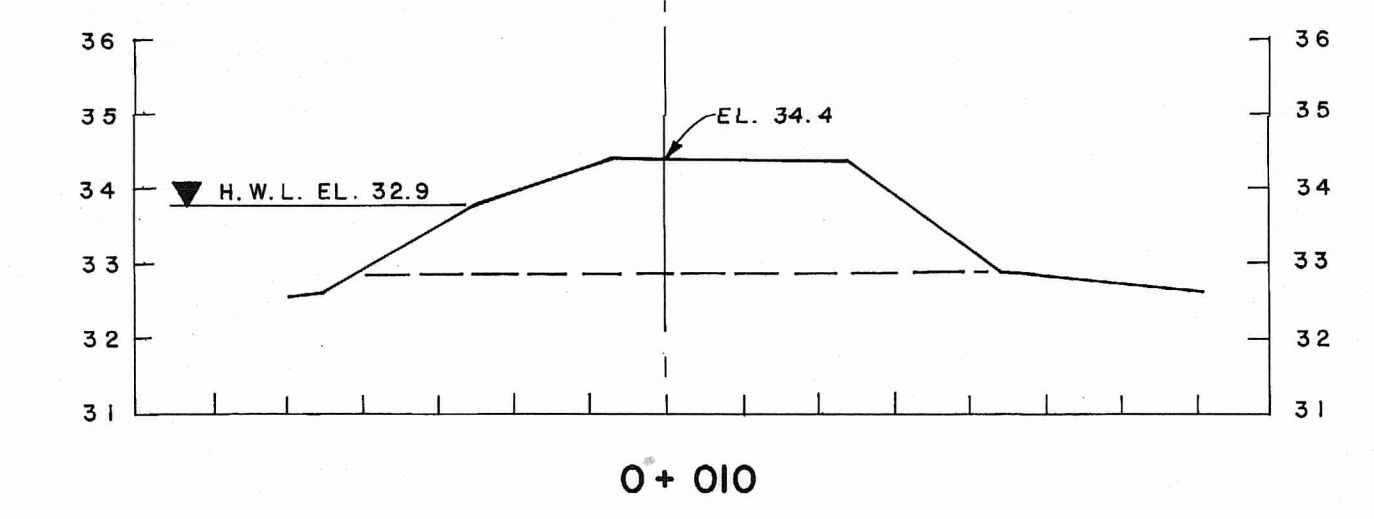
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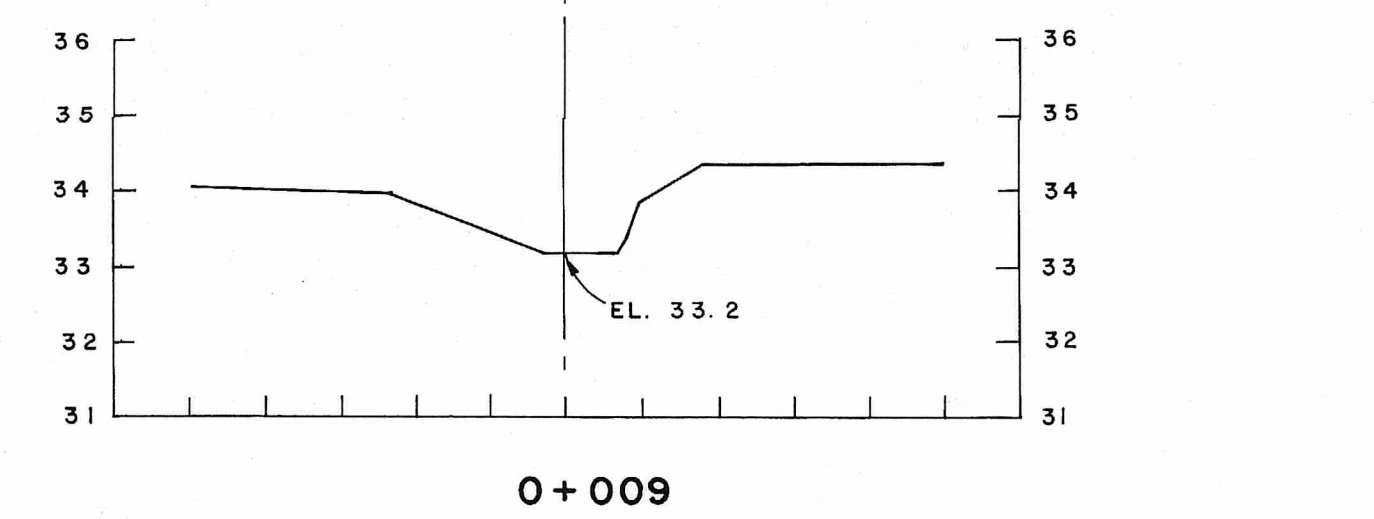
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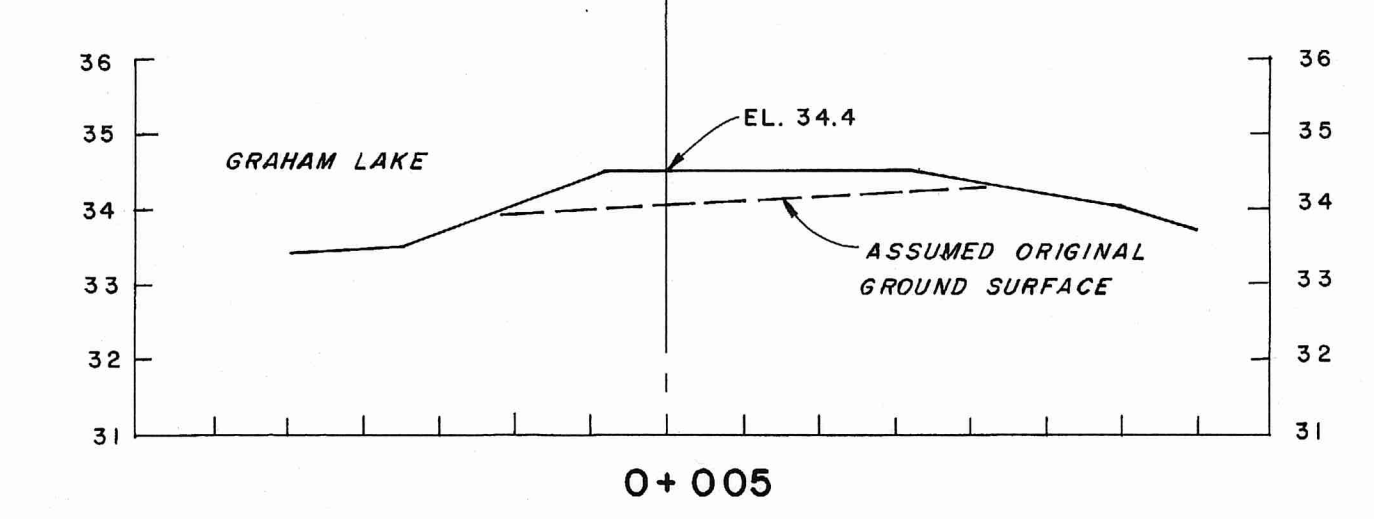
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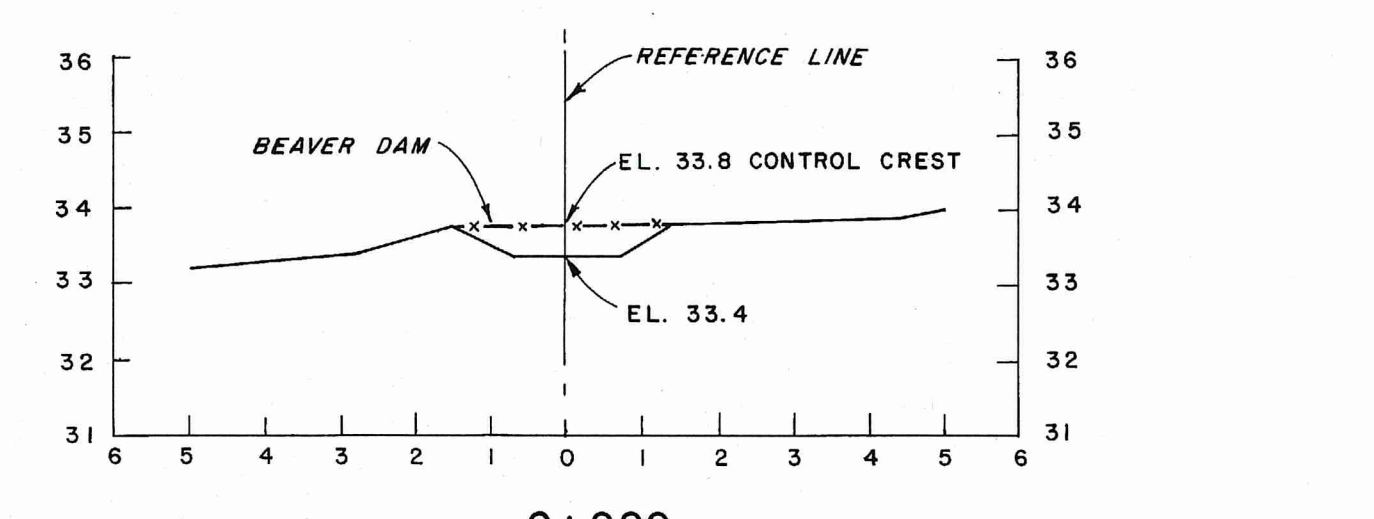
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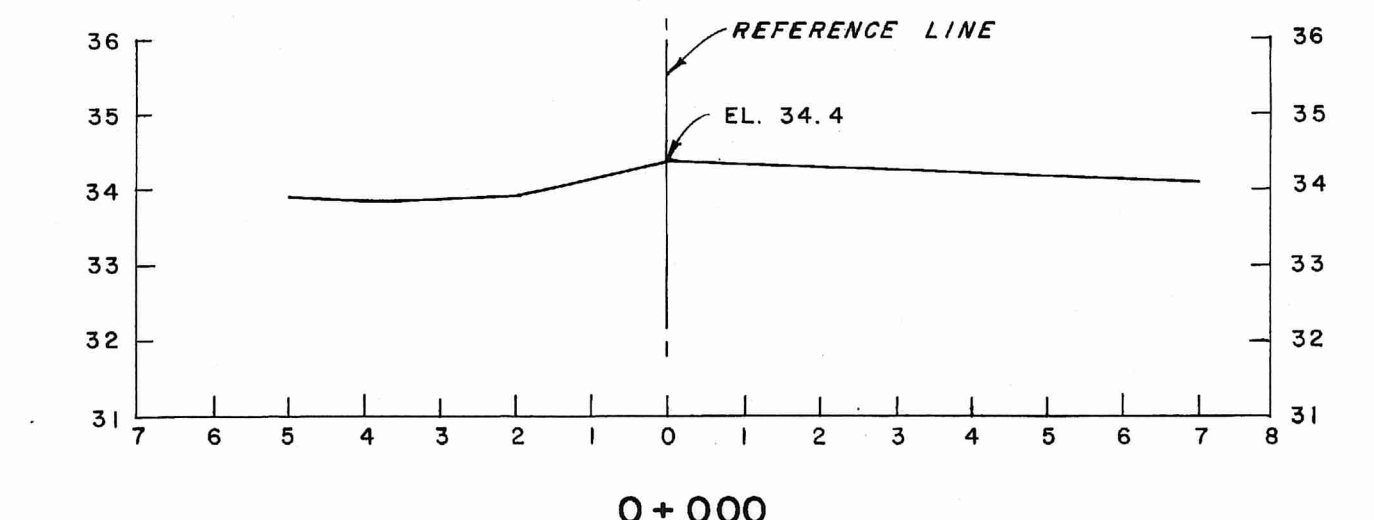
O+009



O+005



O+000



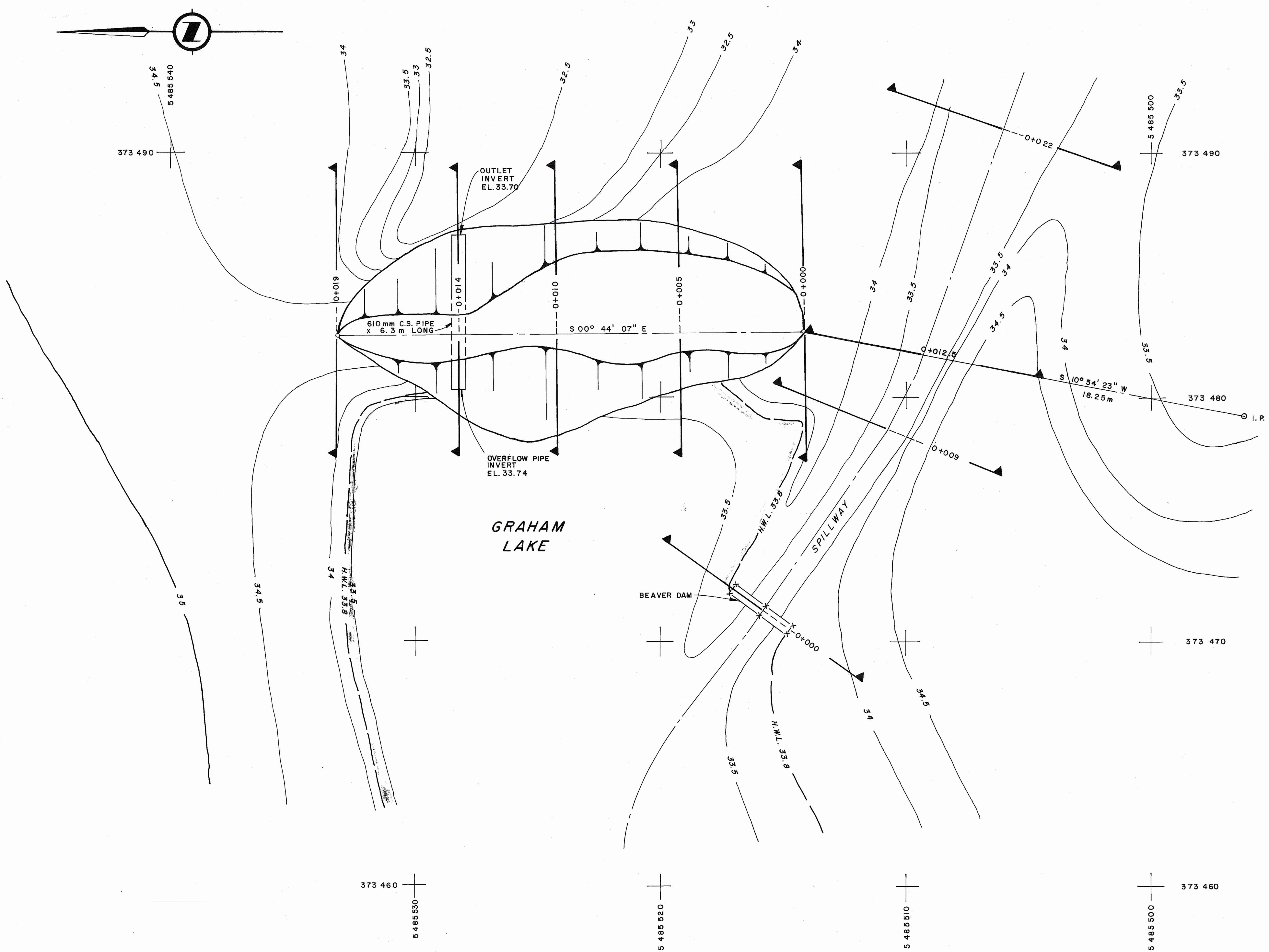
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CROSS-SECTIONS OF DAM

SCALE: HORIZ. 1:100  
VERT. 1:100

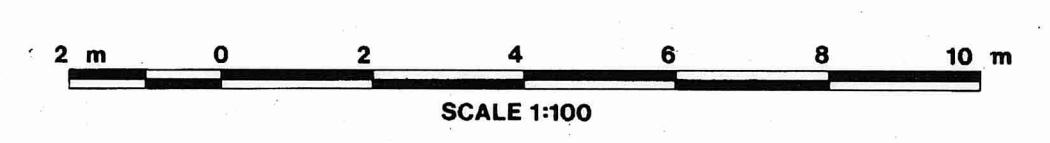
CROSS-SECTIONS OF SPILLWAY

SCALE: HORIZ. 1:100  
VERT. 1:100



GENERAL PLAN OF DAM

SCALE 1:100



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NOTES		LEGEND		STORAGE LICENCES		REFERENCES		REVISIONS		SURVEYED B. SCHUBERT DATE JUNE, 1981 COMPILED R. EDWARD CHECKED DATE SEPT, 1986 DRAWN G. Smith CHECKED DATE SEPT, 1986 ENGINEER		Province of British Columbia Ministry of Environment WATER MANAGEMENT BRANCH STORAGE INVENTORY PROGRAMME DENMAN ISLAND - COASTAL ISLANDS SYSTEM <b>GRAHAM LAKE RESERVOIR</b> GENERAL PLAN OF DAM APPROVED B. R. Schubert HEAD, SURVEYS SECTION DATE SEPT. 1986		FILE No. Branch Inventory 0305080-29 SURVEY PROJECT No. 81-SIP-3 NTS Map No. 92 F/10 SCALE AS NOTED DRAWING No. <b>4977-32A</b> SHEET 1 of 1	
SEE DWG. NO. 4977-32		TRIANGULATION STATION REFERENCE MONUMENT (ECON. or F. ROCK) 50000 HORIZ. CONTROL POINT 60000 VERT. CONTROL POINT AIR PHOTO CENTER ROAD, TRAIL, CREEK, SWAMP CREEK INTERMITTENT, BOUNDARIES BASIN, SUB BASIN				LICENCE PRIORITY DATE AUTHORIZED ACRES-FEET DEVELOPED ACRES-FEET	DWG. No. 4977-32 DESCRIPTION PLAN OF RESERVOIR DATE SEPT. 1986								



## Attachment B: DSI Checklist

# Formal Annual Inspection

## Pre-Inspection Information

Name of Dam: Graham Lake Dam Inspection Date: 18-Aug-23  
Current Weather Sunny Weather During Last Week: Sunny  
Name of Creek, Stream, River: NA Water Licence #: \_\_\_\_\_  
Dam Owner: Comox Valley Regional District  
Address: 770 Harmston Ave  
City, Province: Courtenay Postal Code: V9N 0G8  
Name of Principle Contact Person: Mike Herschmiller  
Principle Contact's Bus Phone: 250-334-6023 Principle Contact's Cell Phone: 250-218-9699  
Principle Contact's Email: mherschmiller@comoxvalleyrd.ca  
Person Responsible for this Inspection: Vincent Cormier Phone #: 604-356-8633  
Other Inspection Participants: Dan Fredlund, Gavin Waterfield

Date of Last Annual Inspection: Unknown Was last Annual Inspection Report reviewed?: 2017 audit reviewed  
Were dam deficiencies identified that required follow-up? \_\_\_\_\_  
Date of Last Dam Safety Report(DSR): NA Was last DSR Report reviewed? NA  
Were recommendations from the last DSR Report implemented? NA  
Repairs or modifications since last formal inspection? (where, when) None  
Failures/Incidents/Breaches since last formal inspection? None reported.  
Has all the maintenance done in the last year been documented? NA  
Are the Works Currently Fully Operationa Yes

### Dam Information

Type of Dam: earthfill Max. Height of Dam: 4  
Are dam materials well known? No Are foundation conditions well known? No  
Are dam construction details well known? No Construction Date: unclear, design drawings dated 1986

### Failure Consequence Classification

Circle current Failure Consequence Classification (based on BC Dam Safety Regulation)  
Low Significant High VeryHigh Extreme

### Emergency Preparedness Plan (EPP)

Has the emergency contact information in the EPP been updated this year and distributed as required? No

### Other Key Information

Person Responsible for Formal Inspection: Vincent Cormier, P.Eng., M.Sc. Date: 2023-08-15



**Required Action**

		None	Monitor	Maintenance	Repair	N / A
<b>INSTABILITIES</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cracks	Transverse/Longitudinal/Other Quantity _____ Length _____ Width _____ Location _____ Notes/Causes _____					
<b>OTHER</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Burrows, Ruts, Other Concerns	Location _____ Notes/Causes _____					

**3. Downstream Slope**

<b>VEGETATION</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Trees</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No Location Near the emergency spillway Notes <a href="#">Large stumps left in place after cutting down the trees.</a>					
<u>Brush</u>	<input checked="" type="radio"/> None <input type="radio"/> Sparse <input type="radio"/> Dense Location _____ Notes _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Ground Cover</u>	Bare <input checked="" type="radio"/> Grass <input type="radio"/> Other Notes _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>SLOPE PROTECTION</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Type</u>	<input checked="" type="radio"/> None <input type="radio"/> Grass <input type="radio"/> Other Notes Riprap close to the emergency spillway					
<b>EROSION</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Yes <input checked="" type="radio"/> No <input type="radio"/>	Location _____ Notes _____					
<b>INSTABILITIES</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Slides</u>	Length _____ Width _____ Location _____ Notes/Causes _____					
<u>Cracks</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No Transverse/Longitudinal/Other Quantity _____ Length _____ Width _____ Location _____ Notes/Causes _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<u>Bulges/Depressions/Hummocky</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No Size _____ Height _____ Depth _____ Location _____ Notes/Causes _____	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>OTHER</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Burrows, Ruts, Other Concerns	Location _____ Notes/Causes _____					
<b>SEEPAGE</b>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Wet Area/Flow/Boil/Sinkhole	<a href="#">The dam wasn't not impounding sufficiently for seepage to occur.</a> Flow Rate _____ Location _____ Aquatic Vegetation Yes/No Rust Colored Deposits Yes/No Sediment in Flow Yes/No Other _____ Notes/Causes <a href="#">The dam wasn't impounding sufficiently for seepage to occur.</a>					
<b>EMBANKMENT DRAINS</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Type	Flow rate _____ Size _____ Number _____ Location _____ Notes _____					
<b>MONITORING INSTRUMENTATION CONDITION</b>		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> None found	<input type="checkbox"/> Piezometers	<input type="checkbox"/> Weir	<input type="checkbox"/> Flume			
Notes	_____					

**Required Action**

None    Monitor    Maintenance    Repair    N / A

**Spillway**

**GENERAL CONDITIONS**

Type Free overflow Gated? - Yes/No No

Notes Training walls inadequate.

**1. Spillway Crest or Control Section**

**OBSTRUCTION**

Debris Yes/No No

Location \_\_\_\_\_

Notes \_\_\_\_\_

Vegetation None/Sparse/Dense

Location \_\_\_\_\_

Notes \_\_\_\_\_

Other (beaver activity, trash rack problems, etc.) \_\_\_\_\_

**LOG BOOM**

Yes/No Yes Required? Yes/No No

Condition: Logs poor Connections Fair Anchors Fair

Notes Logs at the left bank connection is undersize and in poor condition. Log boom efficiency to be reviewed during a spill event.

**SPILLWAY CREST MATERIALS**

Condition Fair

Notes Dried moss and vegetation covering the concrete slab making inspection difficult.

**SPILLWAY GATES**

Yes/No No Type: \_\_\_\_\_

Condition \_\_\_\_\_

Notes \_\_\_\_\_

**OTHER SPILLWAY CREST PROBLEMS**

Damage Training walls do not extend into the embankment, potentially allowing bypass.

Location Upstream and downstream extremities of the training walls.

Notes/Cause \_\_\_\_\_

**2. Spillway Conveyance Section: Channel, Chute or Conduit**

**OPEN CHANNEL CROSS SECTION**

**CHANNEL OBSTRUCTION**

**SPILLWAY CONVEYANCE MATERIALS**

**OTHER SPILLWAY CONVEYANCE PROBLEMS**

Damage \_\_\_\_\_

Location \_\_\_\_\_

Notes/Cause \_\_\_\_\_

**3. Energy-Dissipating or Terminal Section**

**EROSION CONTROL STRUCTURE**

Type Endwall/Headwall/Plunge pool/impact basin/Baffled chute/Rock lined channel/Other None

Notes Rockfill placed at the downstream end of the spillway and further down the channel, on the right bank.

Notes Downstream scouring under the concrete spillway apron.

# Low Level Outlet

There is no LLO. Reservoir lowered through the water supply intake.

## Required Action

None	Monitor	Maintenance	Repair	N / A
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### GENERAL

Gate Type \_\_\_\_\_  None

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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### ACCESS TO VALVE/GATE

Under all circumstances? Yes/No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Not accessible  from shore  Walkway  By boat  Other

Notes \_\_\_\_\_

Walkway Condition \_\_\_\_\_

### LOW LEVEL OUTLET COMPONENTS

Valve Control Device

Yes  None  No Stem  Damaged stem  Other

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Other/Notes \_\_\_\_\_

Operational under all conditions?

Yes  No  Poorly

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Tested Annually? Yes/No Tested as per OMS manual? Yes/No

Notes \_\_\_\_\_

Valve / Gate

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Location \_\_\_\_\_

Condition \_\_\_\_\_

Leakage  Yes  No

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Flow Rate \_\_\_\_\_

Outlet Pipe

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Metal  Plastic  Concrete  Other

Diameter \_\_\_\_\_

Condition \_\_\_\_\_

Outlet Obstruction (note vegetation, sediment blockage, etc.)

Notes \_\_\_\_\_

### OUTLET EROSION CONTROL STRUCTURE

Type \_\_\_\_\_

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Concrete Condition \_\_\_\_\_

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Outlet Area Seepage

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Description \_\_\_\_\_

Flow Estimate \_\_\_\_\_

Location \_\_\_\_\_

Undermining

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Location \_\_\_\_\_

Notes/Cause: \_\_\_\_\_

Downstream Channel

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
--------------------------	--------------------------	--------------------------	--------------------------	--------------------------

Free Draining? \_\_\_\_\_

Blockages or Potential Blockages? \_\_\_\_\_

Erosion Control? Rip-Rap? \_\_\_\_\_

**Required Action**

None  
Monitor  
Maintenance  
Repair  
N / A

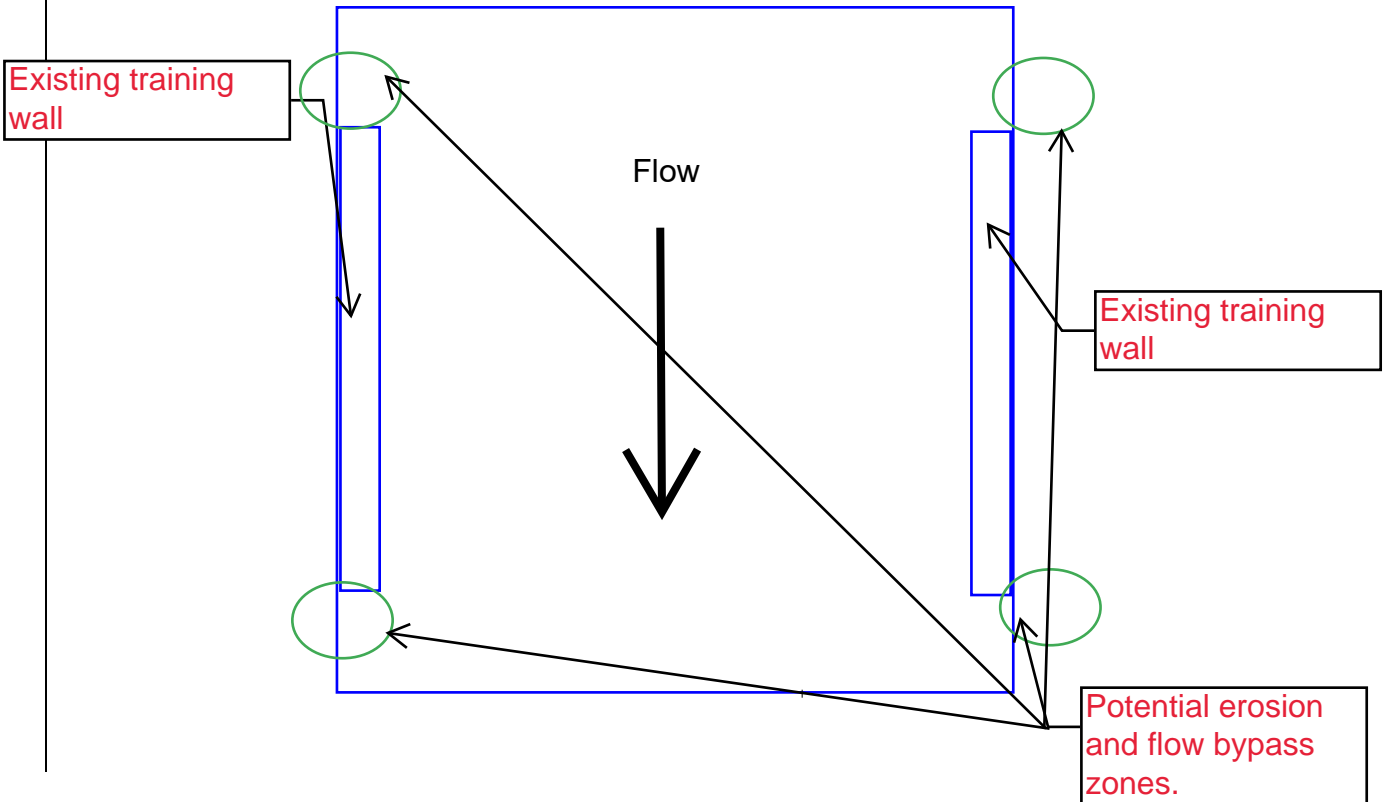
**Other Key Information**

Is site access adequate for safe operation, maintenance and surveillance? **Yes**  
 Instrumentation adequate for site conditions? **\_\_\_ No instrumentation. Seepage monitoring is required in old stream bed location**  
 Are there concerns about reservoir slope stability? **No**  
 Any there other concerns in the watershed that could impact the dam? **No**  
 Operational Constraints that impact Dam Safety? \_\_\_\_\_  
 Are the required Public Safety signs in place (for dams on Crown land)? **\_\_\_ No. Signage to be installed.**  
 Other comments on Public Safety) **No**  
 Should new development in the downstream inundation zone initiate a review of the Failure Consequence Classification? **Yes/no? No**

**Maintenance**

In the last year have the spillway gates been exercised and tested in accordance with the OMS? **NA**  
 If so, when and by whom? **NA**  
 In the last year has the low level outlet gate been exercised and tested in accordance with the OMS? **NA**  
 If so, when and by whom? **NA**  
 Is the instrumentation well maintained? **\_\_\_ NA**

**NOTES:** Training wall issues at the spillway.





## Attachment C: Selected Site Photos

GRAHAM LAKE DAM  
2023 Formal Annual Dam Safety Inspection



**Photo 1**

Minor vegetation on the upstream slope.



**Photo 2**

Dam's crest, looking towards the left abutment.

GRAHAM LAKE DAM  
2023 Formal Annual Dam Safety Inspection



**Photo 3**

Tree stump on the downstream face.



**Photo 4**

Gap and potential erosion between the training walls and the dam.

GRAHAM LAKE DAM  
2023 Formal Annual Dam Safety Inspection



**Photo 5**

Gap and potential erosion behind riprap between the training walls and the dam.



**Photo 6**

Inadequate training wall configuration.

### GRAHAM LAKE DAM 2023 Formal Annual Dam Safety Inspection



**Photo 7**

Undersize log boom towards the left bank (yellow arrow).



**Photo 8**

Dried moss and vegetation covering the spillway.

GRAHAM LAKE DAM  
2023 Formal Annual Dam Safety Inspection



**Photo 9**

Conveyance Channel located downstream of the spillway. Minor erosion upstream of the rock-lined bend.



**Photo 10**

Scouring below concrete slab at spillway downstream end.