

March 6, 2019

AMENDMENT

File: 16-1856

John Baldwin
Dam Safety Officer
Water Protection, Ministry of Forests, Lands, Natural Resource Operations & Rural Development
2080A Labieux Road
Nanaimo, BC, V9T 6J9

Dear Mr. Baldwin:

**RE: GARDOM POND DECOMMISSIONING PLAN SUBMISSION - AMENDMENT
CONTRACT 16-1856**

Further to our recent meeting on January 8, 2019, and pursuant to the Water Sustainability Act Dam Safety Regulation - *Division 3, Section 17 – Removing, Decommissioning, Deactivating or Stopping Operation of a Dam*, please accept this plan as the Owners' request to decommission the Gardom Pond Dam located on North Pender Island, BC, beginning in May 2019. Note that the current decommissioning plan breaches the dam embankment and extends along the original stream outlet channel.

Following the requirements of the legislation, this plan is based on your requested content as provided via email on December 14, 2017, and more recently on January 9, 2019. In summary, the decommissioning work is planned to eliminate the storage of water that requires a water license under the BC Water Sustainability Act (WSA) for a dam. Current full storage (elevation 86.2 meter) is estimated to be approximately 22,000 cubic meters. The decommissioning proposal cuts into the existing dam embankment with a culvert extending into the original stream outlet channel approximately 160 meters to the Harbour Hill Drive road right-of-way (RROW). The channel is to pass a 200-year period design flow. The estimated remaining storage is 4,200 cubic meters. This decommissioning plan includes the following:

1. Criteria for the design
 - a. Decommissioning description, prepared by CRD
 - b. Routing diagram, prepared by JE Anderson & Associates
2. Water License Holders support
 - a. Legal Joint Works Agreement
3. Land encumbrances and permits
4. Signed drawings, prepared by JE Anderson & Associates
5. Schedule of work, prepared by CRD
6. Name of site supervisor
7. Construction Environmental Protection Plan, prepared by Kathy Reimer, QEP
8. Confirmation of water supply for fire fighting

1. Criteria for the Design

The CRD has developed a dam decommissioning concept considering, and in consultation with, the following stakeholders:

- a. The six water license holders held on Gardom Pond dam
- b. The Ministry of Forests, Lands, Natural Resource Operations & Rural Development (FLNRO) Regional Dam Safety Officer, John Baldwin
- c. The Ministry of Transportation and Infrastructure (MoTi), South Island Operations Manager, Ryan Evanoff
- d. Pender Island Fire Rescue, Fire Chief, Charles Boyte
- e. Islands Trust, Regional Planning Manager, Robert Kojima
- f. Island Trust Fund, Manager, Jennifer Eliason
- g. Razor Point Improvement District (RPID) with regards to their land encumbrance for water supply lines, Trustee, Riley Tate

The decommissioning effort will involve modifications to the existing dam embankment, extending across 6606 Harbour Hill Drive (Owned by ██████████) and fortifying the existing stream outlet channel extending to the tie-in point into the MoTi owned Harbour Hill Drive Road RROW.

Specifically, the dam decommissioning proposal provides for the outlet channel to be cut into the existing dam embankment with a 900 mm culvert (inlet invert 84 m, outlet invert 83.9 m) with the downstream channel extending approximately 160 meters to the Harbour Hill Drive RROW (El. 42 m). At the RROW tie-in point a 0.9 m sump, lined with riprap, will be instated. The stream outlet channel would be lined with 150 mm nominal riprap over a geotextile filter cloth and measure approximately 3 m wide by 0.45 m deep.

The channel is to pass a 200-year period design flow of 0.215 m³/s. The pond will be effectively lowered to the original invert of the stream bed elevation of 84 m. The current pond surface elevation fluctuates seasonally between approximately 85.2 to 86.2 m. The dam crest is at elevation 87 m.

The fortification of the existing stream outlet channel would end at the entrance to the Harbour Hill Drive RROW. Harbour Hill Drive was constructed by MoTi after the construction of the Gardom Pond dam and the roadway construction design considered the existing surface run-off and spillway flow from Gardom Pond and the area catchment.

However, considering anticipated future flow intensities greater than the 200-year period due to climate change, modifications will be undertaken further downstream. Accordingly, as part of the decommissioning work, a 600 mm culvert will be installed within the RROW at the junction of Harbour Hill Drive and Razor Point Road. In addition, drainage improvements will be undertaken at 6618 Razor Point Road which will include replacing two 400 mm culverts with 600 mm culverts and fortifying the existing outlet channel.

The existing dam embankment will be lowered by 0.35 m and remain in place and continue to serve as an access road to 6604 and 6602 Harbour Hill Drive. The existing low level outlet pipe extending through the dam embankment will be sealed with concrete.

The RPID has been given notice that their water supply lines will be temporarily disconnected starting June 15, 2019 and they are responsible to make arrangements for alternate water supply.

Following the completion of the decommissioning construction the RPID will reinstate their supply lines.

2. Water License Holder Support

A copy of the joint legal works agreement is appended to this plan submission.

3. Land Encumbrances and Permits

A copy of the License of Occupation that permits the CRD to breach the dam embankment and construct the stream outlet channel across 6606 Harbour Hill Drive is appended to this plan submission.

A copy of the roadworks agreement provided by MoTi for the decommissioning construction effort within their RROW at the tie-in location is appended to this plan submission.

MoTi acknowledges and accepts the CRD proposal to limit the extent of construction to the entrance point to the Harbour Hill Drive RROW with regard to the proposed decommissioning work. CRD's obligation will be to ensure the outlet flow is suitably discharged into the RROW.

4. Signed Drawings

Design drawings and routing diagram are appended to this plan submission provided by JE Anderson and Associates.

5. Schedule of the Work

A schedule of the project milestones, including approvals, procurement and construction, are appended to this plan submission.

6. Name of Site Supervisor

The successful contractor will be providing a dedicated site supervisor for the duration of the decommissioning work. In addition, Jim Buchanan, P.Eng., of JE Anderson and Associates will be conducting appropriate construction site inspection to satisfy the requirements of professional assurance.

7. Construction Environmental Management Plan

The previous Environmental Impact Management Report, prepared by Kathy Reimer, QEP, is appended to the plan submission. A revised Environmental Impact Management Report is forthcoming.

8. Confirmation of Water Supply for Fire Fighting

It is estimated that there will remain sufficient water volume in the decommissioned reservoir to satisfy fire protection provided by the Gardom Pond dry hydrant. The Fire Underwriters Survey (FUS) and NFPA 1142 require a minimum volume of 24,000 imperial gallons in order to supply a flow rate of 200 gallon/minute for two hours. Based on available bathymetry, at a reduced reservoir level of 84 m, the resulting volume would be approximately 900,000 imperial gallons.

Modifications to the existing 6" dry hydrant located on Gardom Lane directly to the west of the dam embankment are detailed on the drawings appended to this plan submission.

A copy of the decommissioning drawings was provided to the Pender Fire Rescue for general review on March 5, 2019.

I am formally requesting a 30 day review period by your office in order to support a tentative May 2019 project start date. I trust this meets with your requirements at this time and please feel free to contact me directly should clarification be required.

Regards,



Ben Martin, P.Eng.
Senior Project Engineer
Parks & Environmental Services Department

BM/mer

Attachment(s): Email correspondence, decommissioning options, received December 14, 2017
Email correspondence, south route deactivation options, received January 9, 2019
Legal Joint Works Agreement
License of Occupation across 6606 Harbour Hill Drive
MoTi RoadWorks Permit
Decommissioning Drawings, prepared by JE Andersons & Associates
Gardom Pond Catchment Routing Diagram, prepared by JE Andersons & Associates
Schedule of Decommissioning Works, prepared by CRD
Construction Environmental Management Plan, prepared by Kathleen Reimer, QEP

CC: John Chapman, PIPRC, via email: [REDACTED]
[REDACTED] Water License Holder, via email: [REDACTED]
[REDACTED] Water License Holder, via email: [REDACTED]
[REDACTED] Water License Holder, via email: [REDACTED]
[REDACTED] Water License Holders, via email: [REDACTED]
[REDACTED] Water License Holders, via email: [REDACTED]
David Howe, SGI Director, via email: directorsgi@crd.bc.ca
Ben Maberley, SGI Alternate, via email: directoraltsgi@crd.bc.ca
Larisa Hutcheson, CRD, via email: lhutcheson@crd.bc.ca
Steve May, CRD, via email: smay@crd.bc.ca
Joshua Frederick, CRD, via email: jfrederick@crd.bc.ca
Shawn Carby, CRD, via email: scarby@crd.bc.ca
Ryan Evanoff, MoTi, via email: ryan.evanoff@gov.bc.ca
Charlie Boyte, Pender Island Fire Rescue, via email: chief@penderfire.ca
Robert Kojima, Islands Trust, via email: rkojima@islandstrust.bc.ca
Jennifer Eliason, Islands Trust, via email: jeliason@islandstrust.bc.ca
Corlynn Strachan, via email: cstrachan@islandstrust.bc.ca
Riley Tate, RPID, via email: [REDACTED]

Ben Martin

From: Baldwin, John FLNR:EX <John.Baldwin@gov.bc.ca>
Sent: Thursday, December 14, 2017 9:46 AM
To: Ben Martin
Cc: Lapcevic, Pat FLNR:EX; Barr, Larry FLNR:EX; Slater, Darryl FLNR:EX
Subject: Gardom Pond Dam December 13th 2017 meeting

Ben – this is a follow up to our meeting on Wednesday Dec. 13th 2017 with Stephen May and Josh Frederick (both CRD staff) to review Gardom Pond dam naturalization/**decommission options**. Two options were discussed – south route (dam site) and existing spillway route. The decommission work is planned to eliminate the storage of water that requires a water licence thus a requirement for a water licence under the BC Water Sustainability Act (WSA) for a dam. Decommission work is planned for late summer 2018. Current full storage (elevation 86.2m) in the pond is reported to be approx. 22 000 cubic metres. Storage at the 84 m elevation is reported to be approx. 5 000 cubic metres. Area/capacity curves for the pond are to be made available by CRD. Water from the pond for firefighting is still required (there are existing pipes in the pond for this purpose) – volume of water required for firefighting is to be confirmed.

- 1. South route** - involves breaching existing dam embankment to 84 metre elevation, and defining stream channel to ocean
The dam site landowner does not support this option. Infrastructure (septic, well etc) is located downstream of embankment.
Embankment is currently used as a driveway and road access to two properties (east side of dam) will be required post any decommissioning.
Razor Point Improvement District (RPID) has water pipe lines in and downstream of embankment.
Stream channel location and any construction still to be confirmed.
This original stream channel location is normally used when decommissioning dams. Reasons for not breaching the dam at this location will be required.
- 2. Existing spillway route** – excavating existing spillway channel to 94m elevation and ability to pass the 1 in 200 maximum daily flow, and defining stream channel to ocean
Current dam owners support this option.
Channel excavation to 84 metre elevation will be mostly on CRD property. Current road crossing culvert invert in spillway in Gardom Lane is reported to be at 84 m elevation.
Any impact on current RPID well and water pipe lines is unknown
The establishment of the **permanent stream** on this route will impact other private land owners and MOTI (Highways) road right of way. Agreement will be required.
Sealing the existing low level cement/asbestos pipe in the dam embankment is to be addressed – options are to remove or to plug this pipe with concrete.

Dam decommission process. An approval under Section 11 of the WSA to work in the stream to remove the dam is required. A decommission plan acceptable to the Dam Safety Officer is required under Section 17 of the Dam Safety Regulations which is to be submitted at least 60 days before work is proposed.

The decommission plan is to include:

1. Criteria for the design
2. Signed drawings
3. Schedule of work
4. Name of site supervisor
5. Construction environmental protection plan

What to do with current water licences so that the CRD holds long term liability for any damages? The six current water licence holders have agreed that the CRD will hold long term liability for damages – this is to address Section 122 of the WSA – liability of owner for damage remains.

Water Licences Report

Scroll to bottom of page for unique count of licences and/or applications found in your search

License No	WR Map/ Point Code	Stream Name	Purpose	Quantity	Units	Qty Flag	Rediv Flag	Licensee	Water District/Precinct	Licenc Stat
C109506	92.B.074.4.4D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N	CAPITAL REGIONAL DISTRICT ACCOUNTS PAYABLE PO BOX 1000 VICTORIA BC V8W2S6	VIC - SHAWNIGAN	Current
C109507	92.B.074.4.4D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current
C109510	92.B.074.4.4D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current
C109511	92.B.074.4.4D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current
C111318	92.B.074.4.4D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current
C111639	92.B.074.4.4D (PD63988)	Gardom Pond	Land Improve: General	4625.55	MY	T	N	TWAM DEVELOPMENTS LTD. 570 BLACKBURN RD SALT SPRING ISLAND, BC V8K2H2	VIC - SHAWNIGAN	Current

Total number of Licences and/or Applications found is 6

I have passed this question on to the Water Licence Authorization Section of FLNRORD here in Nanaimo (Darryl Slater) for advice on method and length of time to cancel these water licences.

Let me know if this covers our discussion?

John B

Ben Martin

From: Baldwin, John FLNR:EX <John.Baldwin@gov.bc.ca>
Sent: Wednesday, January 09, 2019 9:27 AM
To: Ben Martin
Cc: Robinson, David FLNR:EX; Lapcevic, Pat FLNR:EX
Subject: RE: Gardom Pond Design Update & Discussion
Attachments: South Route deactivation concept design Jan 2019.pdf

Ben – this is a follow up to our meeting held on Jan 8th 2019 here at the MFLNRORD Office in Nanaimo to review the new design to decommission Gardom Pond Dam.

Due to landowner issues with the original decommission design to route flows through the existing spillway to the west of the reservoir, the new plan is to route the flows after the dam decommissioning through the South Route directly from the existing embankment location.

CRD has confirmed that negotiations are taking place [Information withheld under s.17 & 22 of FOIPPA](#)

[REDACTED] This work is not directly related to the dam decommissioning and will need to be obtain WSA Section 11 Approval. There are septic and groundwater systems on this property.

Attached is a South Route concept design. CRD's engineering consultant (Jim Buchanan) will be completing the design and the final **decommission plan will be submitted to this office by mid Feb 2019** . Under Section 17 of the Dam Safety Regulation, acceptance by this office of the dam decommission plan will be required before in stream work is undertaken. CRD confirmed that decommission work is planned for late summer of 2019. CRD is to notify MOTI and Razor Point Improvement District in writing of the proposed design change.

There are currently 6 water licences held by different persons. The CRD is acting as the agent for these water licence holders on Gardom Pond. The CRD has requested that the dam be decommissioned BEFORE the water licences are transferred to the CRD who will abandoned all the water licences at a later date. This request has been forwarded to MFLNRORD Authorization (Dave Robinson) for approval.

A copy of the current reservoir area/capacity table was provided by CRD to MFLNRORD.

Please let [REDACTED] (water licence holder) know that we met.

Hope this covered our discussions at the Jan 8th meeting?

John Baldwin
Dam Safety Officer

-----Original Appointment-----

From: Ben Martin [<mailto:bmartin@crd.bc.ca>]
Sent: Friday, December 21, 2018 9:13 AM
To: Jim Buchanan; Baldwin, John FLNR:EX; Stephen May
Subject: Gardom Pond Design Update & Discussion
When: Tuesday, January 8, 2019 10:00 AM-11:00 AM (UTC-08:00) Pacific Time (US & Canada).
Where: John Baldwin's Office - 2080 Labieux Road, Nanaimo, BC

Hi John,

Further to our discussion Jim Buchanan & I will be visiting your office on Tuesday, January 8th at 10 am to discuss some of the decommissioning design items related to the alternate south route through 6606 Harbour Hill Road. For your reference please see attached a high-level design memo Jim Buchanan provided with relation to this alternate route.

██████████ see you on the 8th.

Thanks,

Ben Martin, P.Eng.
Senior Project Engineer
Facilities Management & Engineering
PO Box 1000, 625 Fisgard Street, Victoria, BC V8W 2S6
T: 250.360.3242 | C:250.208.6697 | F:250.360.3270

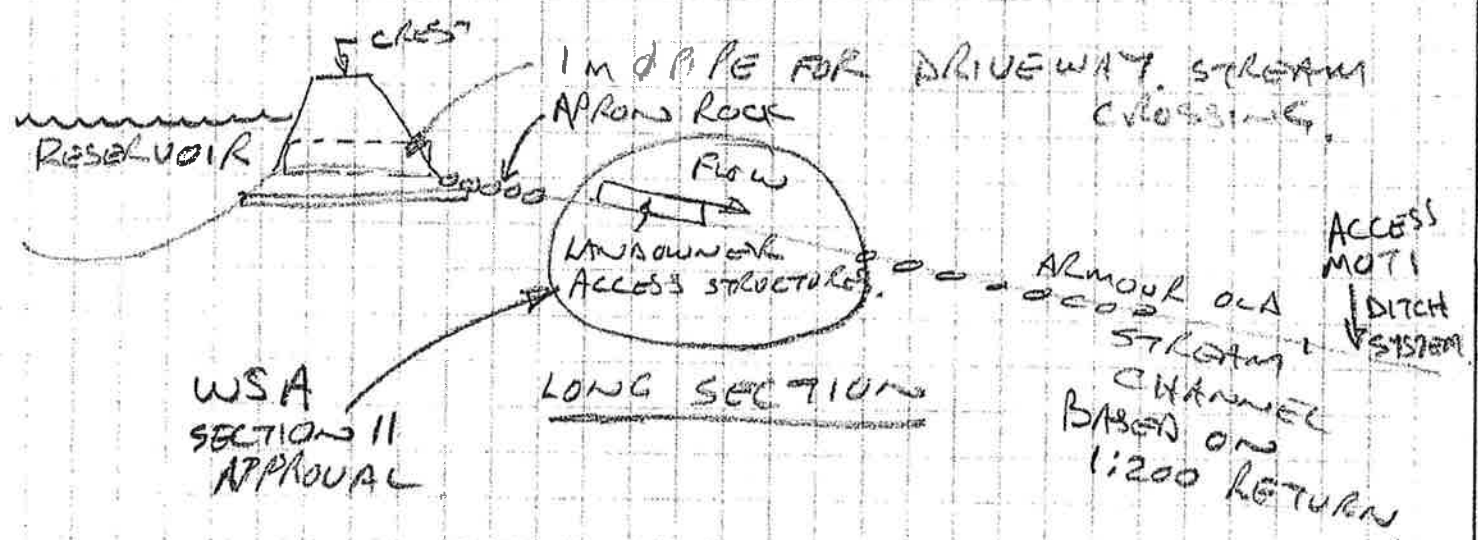
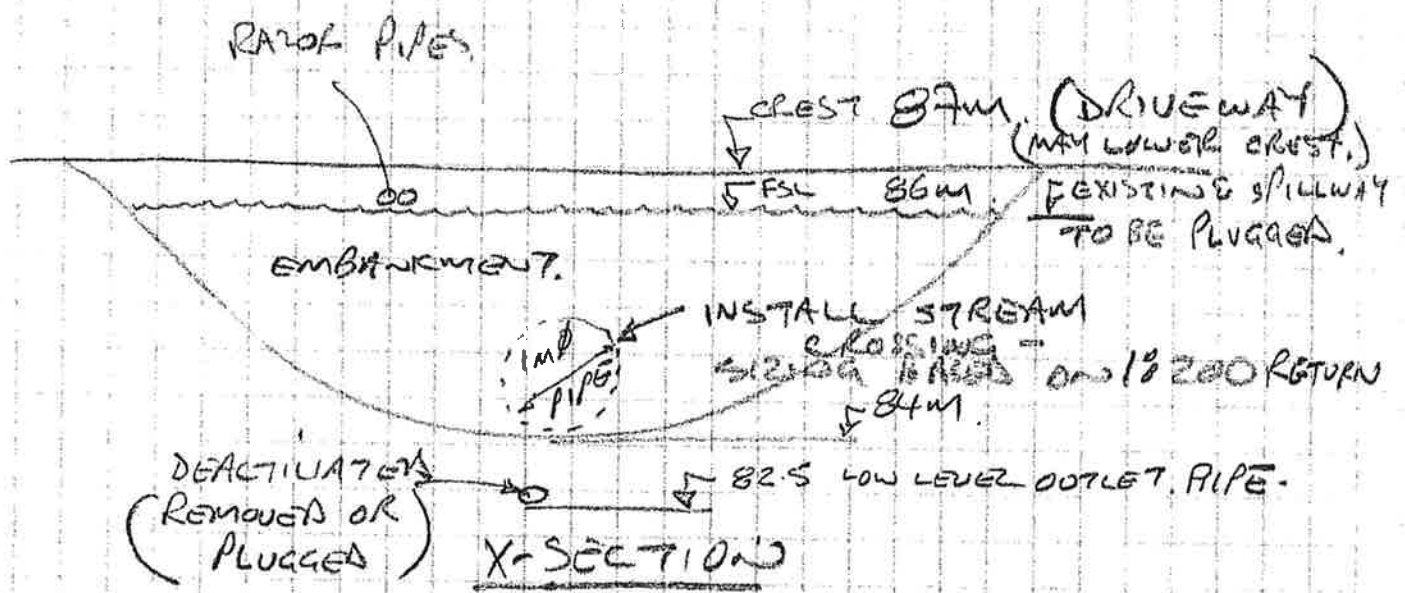
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Please consider the environment before printing this email. << File: 16-1856_JEAnderson_Comments_ProposedDischargethru6606HarbourHill_28-Nov-18.pdf >>

DAM FILE
D730149

- JAN 8 2019.
- CARLOW POND DAM
- SOUTH ROUTE DEACTIVATION MEETING WITH CRD.

DESIGN CONCEPT ONLY



John B.

- 8 JAN 2019
revised.

20190104-89126-gardom-post2020

Prepared by JE Anderson and Associates

HydroCAD® 10.00 s/n 03581 © 2012 HydroCAD Software Solutions LLC

Seattle 24-hr Rainfall=130 mm

Printed 1/7/2019

Stage-Area-Storage for Pond 3P: Gardom Pond

AREA/CAPACITY
TABLE

Elevation (meters)	Surface (hectares)	Storage (Mega-liters)	Elevation (meters)	Surface (hectares)	Storage (Mega-liters)
82.000	0.0010	0.000	84.080	0.4220	4.583
82.040	0.0095	0.043	84.120	0.4280	4.777
82.080	0.0180	0.086	84.160	0.4340	4.971
82.120	0.0266	0.129	84.200	0.4400	5.165
82.160	0.0351	0.172	84.240	0.4460	5.359
82.200	0.0436	0.215	84.280	0.4520	5.553
82.240	0.0521	0.258	84.320	0.4580	5.747
82.280	0.0606	0.301	84.360	0.4640	5.941
82.320	0.0692	0.344	84.400	0.4700	6.135
82.360	0.0777	0.387	84.440	0.4760	6.329
82.400	0.0862	0.430	84.480	0.4820	6.523
82.440	0.0947	0.473	84.520	0.4880	6.717
82.480	0.1032	0.516	84.560	0.4940	6.911
82.520	0.1118	0.559	84.600	0.5000	7.105
82.560	0.1203	0.602	84.640	0.5060	7.299
82.600	0.1288	0.645	84.680	0.5120	7.493
82.640	0.1373	0.688	84.720	0.5180	7.687
82.680	0.1458	0.731	84.760	0.5240	7.881
82.720	0.1544	0.774	84.800	0.5300	8.075
82.760	0.1629	0.817	84.840	0.5360	8.269
82.800	0.1714	0.860	84.880	0.5420	8.463
82.840	0.1799	0.903	84.920	0.5480	8.657
82.880	0.1884	0.946	84.960	0.5540	8.851
82.920	0.1970	0.989	85.000	0.5600	9.045
82.960	0.2055	1.032	85.040	0.5660	9.239
83.000	0.2140	1.075	85.080	0.5699	9.543
83.040	0.2218	1.200	85.120	0.5749	9.791
83.080	0.2297	1.325	85.160	0.5798	10.040
83.120	0.2375	1.449	85.200	0.5848	10.289
83.160	0.2454	1.574	85.240	0.5898	10.538
83.200	0.2532	1.699	85.280	0.5947	10.787
83.240	0.2610	1.824	85.320	0.5997	11.035
83.280	0.2689	1.949	85.360	0.6046	11.284
83.320	0.2767	2.073	85.400	0.6096	11.533
83.360	0.2846	2.198	85.440	0.6146	11.782
83.400	0.2924	2.323	85.480	0.6195	12.031
83.440	0.3002	2.448	85.520	0.6245	12.279
83.480	0.3081	2.573	85.560	0.6294	12.528
83.520	0.3159	2.697	85.600	0.6344	12.777
83.560	0.3238	2.822	85.640	0.6394	13.026
83.600	0.3316	2.947	85.680	0.6443	13.275
83.640	0.3394	3.072	85.720	0.6493	13.523
83.680	0.3473	3.197	85.760	0.6542	13.772
83.720	0.3551	3.321	85.800	0.6592	14.021
83.760	0.3630	3.446	85.840	0.6642	14.270
83.800	0.3708	3.571	85.880	0.6691	14.519
83.840	0.3786	3.696	85.920	0.6741	14.767
83.880	0.3865	3.821	85.960	0.6790	15.016
83.920	0.3943	3.945	86.000	0.6840	15.265
83.960	0.4022	4.070			
84.000	0.4100	4.195			
84.040	0.4160	4.389			

New
input

~~43870000 ltrs~~
4195 m³.

15265 m³.

1m contour

JOINT WORKS AGREEMENT

THIS AGREEMENT dated for reference this day of , 2017.

BETWEEN:

CAPITAL REGIONAL DISTRICT
as holder of Water Licence C109506

625 Fisgard Street
Victoria, BC V8W 1R7

(the "**Regional District**")

AND:


as holders of Water Licence C109507

AND:



as holder of Water Licence C109510

AND:


as holders of Water Licence C111318

AND:



as holder of Water Licence C109511

AND:

N-TWA EQUIPMENT LTD.
as holder of Water Licence C111639

570 Blackburn Road
Salt Spring Island, BC V8K 2W1

(collectively, the "**Licenses**")

WHEREAS:

- A. The Gardom Pond dam and spillway were constructed in approximately 1978.
- B. For the purposes of this Agreement, the Licensees assume that the water licenses are valid and that the Licensees, as water license holders, are jointly responsible for the condition of Gardom Pond dam under the *Water Sustainability Act* and Regulations under that Act.
- C. The Ministry of Forests, Lands and Natural Resources has requested that the Licensees address certain dam safety deficiencies at the Gardom Pond dam.
- D. The Licensees have mutually agreed to decommission the Gardom Pond dam in accordance with the Project Charter dated June 27, 2017, attached to this Agreement as Schedule "A", as modified by this Agreement.
- E. The parties have been advised that grant funding in the amount of up to a maximum of \$460,000 is being made available for the decommissioning of the Gardom Pond dam from Emergency Management British Columbia. (The "Grant Funding")
- F. This Agreement is necessary to identify the sharing of responsibilities and costs of decommissioning the Gardom Pond dam.

IN CONSIDERATION of the promises and the covenants contained in this Agreement, and other good and valuable consideration, the Licensees agree as follows:

1.0 SUBJECT PROPERTIES

- 1.1 The following properties are subject to water licenses to divert and to store water at Gardom Pond:
 - (a) LOT 12, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 12");
 - (b) LOT 4, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 4");
 - (c) LOT 5, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 5");
 - (d) LOT 6, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 6");
 - (e) LOT 7, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 7"); and

- (f) LOT A, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN 38342, EXCEPT PLANS VIP53931, VIP59764, VIP65348 AND VIP 65349 ("LOT A"),

(collectively, the "**Subject Properties**").

- 1.2 Each of the Licensees holds a water licence by virtue of being the owner of one of the Subject Properties.

2.0 IDENTIFICATION OF WORKS

- 2.1 The works that are the subject of this Joint Works Agreement include:

- (a) the Gardom Pond embankment dam located on Lot 6;
- (b) the dam spillway located within Lot 7, Lot 12, and 6610 Harbour Hill Drive; and
- (c) the reservoir located within Lots 4, 5, 6, 7, 12 and Lot A,

all as marked on the Location Map attached to this Agreement as Schedule "B"

(the "**Joint Works**").

3.0 OWNERSHIP OF JOINT WORKS

- 3.1 The Joint Works are deemed to be jointly owned by the Licensees.
- 3.2 For the purposes of this Agreement, each Licensee's proportion of ownership of the Joint Works will be considered to be equal to the ratio of water volume authorized by that Licensee's Water Licence, to the total water volume authorized for Gardom Pond, as shown on the Water Licences Report attached to this Agreement as Schedule "C" (the "**Licensee Proportions**").
- 3.3 The Licensees agree that any liability that may arise from the decommissioning, construction, maintenance, use, operation or failure of the Joint Works shall be shared among the Licensees in accordance with the Licensee Proportions.

4.0 DECOMMISSIONING THE JOINT WORKS

- 4.1 The Licensees mutually agree:
- (a) to decommission the Joint Works (the "**Project**") in substantial accordance with the Project Charter, which forms part of this Agreement and is attached as "Schedule A"; and
 - (b) to pay the capital costs of the Project, after any contribution from the Community Works Fund or any other public funding that may be obtained,

including the Grant Funding, and each Licensee shall pay the amount corresponding to its Licensee Proportions.

- 4.2 Failure to pay any required costs will result in that Licensee's suspension of usage of the Joint Works. Upon completion of the Project and payment in full to the Regional District of all of the Licensees' contributions under this Agreement, the Licensees' obligations under this Agreement are ended.
- 4.3 For certainty, the Regional District is authorized on behalf of the Licensees to carry out the Project.
- 4.4 The Regional District shall notify and consult the Licensees about the following:
- (a) any change in budget above the estimated \$500,000 in capital costs to complete the Project;
 - (b) any material change in the amount of the expected Grant Funding; and
 - (c) any significant change to the scope of the Project resulting in a cost that would exceed the amount of the contingency.

5.0 LICENSEES' DESIGNATE

- 5.1 The Licensees designate the General Manager, Parks & Environmental Services for the Regional District, or the successor to that position (the "General Manager"), to receive, provide and retain information and records in relation to the dam on behalf of the Licensees and in accordance with Section 22 of the *Dam Safety Regulation*.

6.0 MEETINGS

- 6.1 Any Licensee may request a meeting of the Licensees upon giving two weeks notice in writing to all other Licensees.
- 6.2 All matters to be determined at a meeting shall have a quorum of at least 2/3 of the Licensees and be decided by a 2/3 majority of the Licensees represented at the meeting.
- 6.3 If a Licensee cannot attend a meeting referred to in section 6.1, the Licensee may authorize a representative to attend on his or her or its behalf upon 3 days' written notice to the other Licensees identifying the name of the representative.
- 6.4 A notice of representation is valid only for the one meeting specified in the notice.
- 6.5 For certainty, each person listed on the first page of this Agreement is a Licensee.

7.0 WITHDRAWAL FROM AGREEMENT

7.1 It is expressly acknowledged among the Licensees that abandonment, cancellation or transfer of a water licence shall not relieve the Licensee of its obligations under this Agreement, unless that Licensee obtains the written consent of the remaining Licensees, approving such withdrawal from the Agreement.

8.0 NOTICE

8.1 Any notices hereunder or documents or deliveries required hereby may be served to the Licensees by personal delivery or registered mail from within the Province of British Columbia to the addresses listed in this Agreement or at such other address as the Licensees may from time to time notify in writing. Any delivery or service as aforesaid, which is made by registered mail shall be deemed to have been received when actually delivered.

9.0 GENERAL PROVISIONS

9.1 Where there is conflict between the body of this Agreement and the Project Charter, this Agreement shall take precedence.

9.2 This Agreement shall enure to the benefit of and be binding upon the Licensees and their respective successors and permitted assigns, including but not limited to any persons who acquire title to one of the Subject Properties and shall be secured by registration of a covenant under section 219 of the *Land Title Act* against the titles to each of the Subject Properties other than Lot 12, Section 12, Pender Island, Cowichan District, Plan VIP53931, owned by the Regional District, in the form substantially as attached as Schedule "D" to this Agreement before the Regional District commences the Project.

9.3 Prior to selling a Subject Property, a Licensee shall:

- (a) inform any potential purchaser of this Agreement;
- (b) inform the potential purchaser that this Agreement will be binding on the new owner; and
- (c) ensure that the potential purchaser agrees in writing, by way of modification to this Agreement, to be bound by the terms and conditions of this Agreement, including this Article 9.0.

9.4 This Agreement shall be governed by, construed and interpreted in accordance with the laws of the Province of British Columbia.

9.5 Time is of the essence of this Agreement.

9.6 In the event of a dispute between the Parties regarding this Agreement or the Project, that the Parties cannot otherwise resolve, the Parties shall proceed as follows:

- (a) the Parties shall act in good faith to appoint a mutually acceptable person to mediate the dispute within sixty (60) days of the appointment of the mediator, the costs of which shall be divided equally between the two disputing sides to the dispute. If there are more than two positions represented by the disputing parties, then the costs of the mediation shall be divided equally among all licence holders participating in the mediation; and
- (b) if mediation under (a) is not successful, then the dispute shall be submitted to arbitration under the *Arbitration Act* for determination by a single arbitrator mutually acceptable to the Parties and each Party shall bear their own costs of such arbitration.

9.7 Upon the later of:

- (a) the completion of the Project; and
- (b) the Regional District securing cost recovery of the cost of the Project from the Licencees, other than the Regional District by:
 - (i) adoption by the board of the Regional District of an establishing bylaw for the service that secures said cost;
 - (ii) payment in full by the Licencees, other than the Regional District, of said cost; or
 - (iii) by a combination of subparagraphs (i) and (ii),

the Regional District shall support an application to the Comptroller of Water Rights to release or transfer all rights under existing water licenses other than the licence held by the Regional District to the Regional District in accordance with section 27 of the *Water Sustainability Act* (British Columbia).

The headings to the clauses in this Agreement have been inserted as a matter of convenience and for reference only and in no way define, limit or enlarge the scope or meaning of this Agreement or any provision of it.

IN WITNESS WHEREOF the Licensees hereto have executed this Agreement.

HOLDER OF WATER LICENCE C109506:)
CAPITAL REGIONAL DISTRICT by its)
 authorized signatories:)


 Name: LARISA HUTCHESON
 Name: GM, PARKS & ENV. SERVICES
CRD

June 29, 2018
 Date

HOLDERS OF WATER LICENCE C109507:



JUNE 6 2018

JUNE 6, 2018

Date

HOLDERS OF WATER LICENCE C109510:



JUN 6, 2018

Date

HOLDERS OF WATER LICENCE C111318:



June 6/2018

Date

HOLDER OF WATER LICENCE C109511:



June 18/2018


Date

HOLDER OF WATER LICENCE C109510:)
N-TWA EQUIPMENT LTD. by its authorized)
representative:)



June 26/18
Date

Schedule "A"
Project Charter

 <small>Making a difference together</small>	<h2 style="margin: 0;">Project Charter</h2> <p style="margin: 0;">Gardom Pond Mitigation Project Version No. 5, June 27, 2017</p>
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Project Phase:	Phase 1: Decommissioning Proposal , Phase 2: Stakeholder Consultation, Phase 3: Investigation, Phase 4: Design, Procurement and Construction
Project Service Area:	Pender Island Parks and Recreation
Client Department Name / Division Name:	Regional Parks
Budget / Account Code:	CX.029.2023.10 or .66
Contract No.:	16-1856
Prepared By:	Ben Martin, P.Eng, Senior Project Engineer

LIST OF REVISIONS

No.	Name of Document / SharePoint URL
4	Version 5, decommissioning proposal, June 27, 2017 15(1)(i) Gardom%20Pond/16-1856_ProjectCharter_GardomPondMitigation.docx

PROJECT OVERVIEW

Gardom Pond dam is located on North Pender Island, is of earthfill construction, is approximately 40 m long and 4 m in height and retains water in a small 3/4 ha reservoir. The CRD is one of 6 water license holders (WLH) which authorizes water storage; the 5 remaining water license holders are private property owners. The Dam Safety Office has provided notice that the dam no longer meets provincial standards and remedial works are required. The dam was built in approximately 1978 and the BC Dam Safety Branch has classified the Downstream Failure Consequence as 'High' in 1997.

Pursuant to the statutory obligations under Section 21 of the Water Act the WLH are responsible for the condition of the dam. The Province of BC's Ministry of Forests, Lands and Natural Resources (FLNRO) has requested that the WLH address the dam safety deficiencies identified at the Gardom Pond dam.

At its October 12, 2016 meeting, the CRD Board provided direction to prepare a financial plan to remediate the dam which is to include allocating 4/6 of the costs to the electorate via referendum approval. A meeting with the water license holders (WLHs) was held on Pender Island on December 2, 2016 to present this option and seek consensus. The Chair of the Pender Island Parks and Recreation Committee (PIPRC) indicated that on November 27, 2016, the PIPRC passed a motion to request the Electoral Area Director for the Southern Gulf Islands bring forward to the Board an additional option of decommissioning (naturalizing) the dam for the referendum.

CRD Legislative Services referred the matter of two options on a referendum to legal counsel who advised the approach is problematic and should not be pursued. Providing two opposing questions may also result in fragmenting the vote and offer a low likelihood of approval for either proposal.

Subsequently, CRD staff met with provincial staff from the FLNRO to review the potential for naturalization of the pond. Naturalization of the pond would involve lowering the pond water level in a controlled manner and re-establishing an outlet at the original discharge stream bed. All elements of the dam would be removed. The existing road (Gardom Lane) would be maintained. It is estimated that

the level of the pond would be reduced by approximately 2 meters, which would result in a remaining basin approximately 1-2 meters deep. The resulting exposed shoreline would be revegetated.

A meeting with 4 of the 5 private WLHs was held on Pender Island on February 24, 2017 to present this option and seek consensus. The remaining WLH was contacted via telephone on March 3, 2017. All 5 private WLHs have indicated support for naturalizing the pond.

At the April 12, 2017 meeting the CRD Board approved the following approach for the Gardom Pond dam.

1. That a financial plan be prepared for the lowest cost option, which would include:
 - a) completing the required works to lower the water level of the pond to its natural level, and providing vehicle access to the two properties that use the road on top of the dam;
 - b) confirming the approval of the Southern Gulf Islands Electoral Area Director to support funding \$100,000 from the Community Works Fund (CWF) to support the works;
 - c) funding the PIPRC portion of the works from the existing capital reserve;
 - d) estimating the annual borrowing costs of the remaining 5/6 of the project cost over a 15-year period;
 - e) estimating any required annual maintenance cost for the pond area and any ongoing costs required for the road access; and
2. That a petition be prepared to request the establishment of a Service Area consisting of the 5 private water license holders' properties for the purpose of completing the works listed in Item 1 above.

Naturalization of the pond would result in the CRD assuming all the water licenses resulting the in the CRD being the sole WLH. Once the naturalization was complete the remaining WL's would be abandoned by the CRD.

A meeting with all 5 private WLHs was held on Pender Island on May 17, 2017 to address WLH's concerns and execute the Project Charter. All 5 private WLH's agreed to sign the Project Charter once the following revisions were complete:

1. **Fire Protection:** Clarification of fire protection requirements and impact of decommissioning the dam must be included in the Project Charter.

Clarification: A 6" standpipe is located on Gardom Lane and a 2" standpipe is located at Harbour Hill and Razor Point Road. To be recognized as a water source, the FUS and NFPA 1142 require a minimum volume of 24,000 imperial gallons (including 2 feet of clearance from bottom and allowance for seasonal volume fluctuations) in order to supply a flow rate of 200 gallon/minute for two hours. Based on preliminary calculations with available bathymetry we've estimated that a reduced Gardom Pond level of 84 m the resulting volume would be ~900,000 imperial gallons. At a reduced level of 82.5 m the resulting volume would be ~42,000 imperial gallons.

Should the residual water volume at Gardom Pond be greater than 24,000 imperial gallons the existing 6" standpipe would remain and no changes or alterations would be required.

Should the residual water volume at Gardom Pond be less than 24,000 imperial gallons a new storage tank greater than 24,000 imperial gallons would need to be installed to serve the Harbour Hill residents. The existing 6" dry stand pipe on Gardom Lane would be connected to the new storage tank that could be located on CRD land next to the pond.

The previous subdivisions by Twam on Harbour Hill Road (Phase I & II) required the installation of the 2" standpipe at Razor Point Road and the 6" standpipe at Gardom Lane. A proposed subdivision by Twam (Phase III) north of Gardom Lane (proposed Lots 11, 12, 13, 14 & 15) is

currently in abeyance. Covenant EK127432 is issued against this subdivision proposal requiring the existing 2" hydrant on Razor Point Road be upgraded to a 6" line and connected to Gardom Pond. The terms of the covenant could be amended to require Twam to provide access to an equivalent water source as a condition of subdivision.

2. Conservation Covenant on 6604 Harbour Hill Road: Clarification and process of resolution of the impacts of the proposed decommissioning effort on the Conservation Covenant must be included in the Project Charter.

Clarification: Based on discussions with Jennifer Eliason of Islands Trust, it's our current understanding that the Owners of 6604 Harbour Hill Road would remain in good standing with the Covenant as long as no action occurs on the covenanted land. Lowering the pond level would not be considered works occurring on 6604 Harbour Hill Road. The current proposed spillway alignment is located on 6604 Harbour Hill Road adjacent Harbour Hill Road. This alignment may be placed within the road right-of-way and if so the spillway would be constructed on land other than the covenanted land.

Upon execution of the Project Charter the CRD will submit a letter of intent to the Pender Island Conservancy Association and the Trust Fund Board outlining the proposed decommissioning effort and request their confirmation of general conformance to the covenant.

3. Project Charter - Signoff on Budget Control: The WLH's requested to be included in the Budget Changes Authorization sign-off.

Clarification: The CRD agreed to amend the Charter to require the WLH's be 'Notified & Consulted' of any budget changes in excess of the established project contingency.

CORPORATE PROJECT PURPOSE

Ensure the safety of the general public by championing a project in which all 6 WLH's are in agreement to satisfy the requirements of the BC Dam Safety Branch.

CRITICAL SUCCESS FACTORS

- Satisfying the requirements of the BC Dam Safety Branch
- Confirm legal mechanism of water license transfer and abandonment
- Confirmation of fire protection requirements and obligations to the private WLH's
- Confirmation of the protection of the existing conservation covenant issued against 6604 Harbour Hill Road
- Obtain joint agreement amongst the 6 WLH with respect to dam management and specifically on the decommissioning or naturalization program and cost sharing formula
- Establishment of a new Service Area consisting of the 5 private water license holders properties to fund the decommissioning
- Effective communication with stakeholders
- Delivery of a clear public message

SCOPE

In Scope	Out of Scope
Phase 1: Decommissioning Proposal	Hire new consultant
Phase 2: Stakeholder Consultation	Consultation restricted to existing stakeholders
Phase 3: Investigation	Procuring new engineering study
Phase 4: Design, Procurement and Construction	Hire new consultant (continue with AECOM)

PROJECT DELIVERABLES

No.	List of Project Deliverables	Acceptance Criteria
1	Decommissioning Proposal	Consensus amongst WLH's and FLNRO, Execution of Project Charter
2	Stakeholder Consultation Plan	Sponsor approval, communication approval
3	Investigation	Confirmation of environmental impact, covenant impact, land acquisition impact, obtaining site survey, fire service impact, confirmation of design parameters with FLNRO, development of risk register
4	Establishment of a new Service Area consisting of the 5 private water license holders properties to fund the decommissioning	Legislative approval
5	Design, tender and construction	Design drawings, tender ready specifications, tender, award and monitoring of construction

TIMELINES

Milestones, etc.	Due Date
Sign Project Charter	July 2017
Joint Dam Agreement	August 2017
Establishment of new service area consisting of 5 private WLH	Summer 2017
Site investigation	Summer/Fall 2017
Design development and contract document development	Fall 2017
Tender and award	late 2017
Construction	Summer 2018

BUDGET

See attached current capital cost estimate (Class D accuracy).

ADDITIONAL ASSUMPTIONS / CONSTRAINTS

No.	Description
1	Capital funds will be available for this project in 2017/2018
2	The 6 WLH will agree with process
3	Failure of approval of Alternative 1 (ref. March 15, 2017 Report to Electoral Area Services Committee meeting) will result in a decommissioning plan being developed with costs recovered from the individual water license holders and presented to the Board for consideration
4	Items identified within Investigation Deliverable are resolved
5	Razor Point Improvement District funds works associated with their water supply pipes
6	Potential disruption to local WLH's during construction

INTERRELATIONSHIPS WITH OTHER PROJECTS / PROGRAMS

- CRD Regional Parks - Brad Drew (Background information)
- IWS Inspection - Fraser Hall (responsible for dam inspections)

PROJECT TEAM

Role	Team Member	Anticipated		Contact Made?
		Timeframe of Work	Hours Required	
Project Sponsor	Larisa Hutcheson/CRD			Yes
Budget Manager	Peggy Dayton / CRD			Yes
Project Manager	Joshua Frederick/ CRD			Yes
Project Engineer	Ben Martin/ CRD			Yes
Communications	Brit-Marie Phaneuf/ CRD			Yes
Legislative	Brent Reems & Kristen Morley/ CRD			Yes
Risk	Nancy Moore / CRD			Yes
Real estate	Stephen Henderson/ CRD			Yes
Parks	Brad Drew/ CRD			Yes
Legal	Colin Stewart/ Stewart McDannold Stuart			Yes

KEY STAKEHOLDERS

Stakeholder	How Stakeholder is Affected by/Interested in Project	Role or Involvement in Decision Making
FLNRO & BC Dam Safety Branch (John Baldwin - Dam Safety Officer) (Larry Barr - Director, Resource Management)	Authority having Jurisdiction	Approval
David Howe - Southern Gulf Islands Director	Local area elected official	Consulted/Decision Making
John Chapman	Pender Island Parks & Recreation Commission (PIPRC)	Consulted/Decision Making
Adam Olsen	MLA Saanich North and the Islands	Consulted
CRD ELT		Consulted/Decision Making
CRD Board		Consulted/Decision Making
CRD Pender Island Parks & Recreation	Water license holder	Consulted/Decision Making
	Water license holder	Consulted/Decision Making
	Water license holder	Consulted/Decision Making
	Water license holder	Consulted/Decision Making

	Water license holder	Consulted/Decision Making
TWAM Developments Ltd., 570 Blackburn Rd. Salt Spring Island	Water license holder	Consulted/Decision Making
Razor Point Improvement District	Owner of underground water supply pipes & responsible for timely removal	Notified & accepts funding commitment for water supply pipe works

COMMUNICATIONS

Internal		Required (yes / no)
Should any of the following be informed about this project?	CRD Director	Yes
	Management Teams (i.e. ELT, Corporate Team)	Yes
External		Required (yes / no)
Does the project require any of the following: *If yes, please consult your department's communications expert for direction when preparing the project plan.	Public Consultation	Yes
	Advertising in print, web, etc.	Yes
	Politically sensitive updates to stakeholders	Yes
	Development of print materials for public consumption	Yes

CHANGE MANAGEMENT CONSIDERATIONS

Standard Environmental Engineering change management procedure where relevant.

RISK IDENTIFICATION

No.	Risks Identification (Related to scope, schedule, budget, stakeholders, etc.)	High Level Risk Response Strategy (If applicable)
1	Failure of dam	The CRD along with other WLH would be responsible
2	Failure of Project Charter and/or joint use agreement/cost sharing formula	CRD proceed with decommissioning plan and recover costs from WLH's and present to Board for consideration
3	Failure of establishment of new service area	

SIGNOFF REQUIRED

Item	Signoff Required					
	Project Mgr.	Sponsor	Budget Mgr.	Stakeholder Leader	Project Planning	WLH's
Project Charter	✓	✓	✓	✓	✓	✓
Project Plan	✓	✓	✓	✓	✓	✓
Budget Changes	>Project Contingency	✓	✓	✓		✓*
		✓	✓	✓		
Schedule Changes	Less than ____	✓	✓	✓		
	More than ____	✓	✓	✓		
Scope Changes (significant)	✓	✓	✓			✓

*The WLH's are to be 'Notified & Consulted' of any budget changes in excess of the established project contingency

SIGNOFF

Position/Title	Print Name / Signature	Date
Project Sponsor	Larisa Hutchinson, General Manager, P&ES	
Project Manager	Joshua Frederick, Senior Manager, EE	
Budget Manager	Peggy Dayton, Senior Financial Analyst	
Communications	Britt-Marie Phaneuf, Communications	
Project Engineer	Ben Martin, Senior Project Engineer, EE	
Legislative	Brent Reems, Senior Manager, Legislative	
	Kristen Morley, Contracts	
Real Estate		

	Stephen Henderson, Manager Real Estate	
	(Water License Holder)	
	(Water License Holder)	
	(Water License Holder)	
	(Water License Holder)	
TWAM Developments Ltd., 570 Blackburn Rd. Salt Spring Island	(Water License Holder)	
Pender Island Parks & Recreation Commission (PIPRC)	John Chapman, PIPRC Chair	
Southern Gulfs Islands Electoral Area Director	David Howe, Electoral Director	

Attachments: Report to Electoral Area Services Committee, meeting of March 15, 2017 (note that this was approved at the April 12, 2017 Board meeting)
 Stakeholder meeting minutes, dated February 24, 2017
 Stakeholder meeting minutes, dated May 17, 2017
 Legal Map, Gardom Pond and Spillway
 Capital Cost Estimate, Decommissioning Proposal (Class D Accuracy)

ENVS-2016927238-7988



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EEE 17-09

**REPORT TO THE ELECTORAL AREA SERVICES COMMITTEE
MEETING OF WEDNESDAY, MARCH 15, 2017**

SUBJECT Gardom Pond Dam

ISSUE

To consider an alternative approach to the Gardom Pond Dam mitigation strategy.

BACKGROUND

The Capital Regional District (CRD) is 1 of 6 water licence holders (WLHs) tied to lands adjacent to Gardom Pond and held as part of the Pender Island Parks and Recreation Service. The WLHs have been advised by the provincial Dam Safety Officer that the Gardom Pond Dam, classified as "high consequence", is in poor condition and remedial works are required.

At its October 12, 2016 meeting, the CRD Board approved the following approach for rehabilitation of Gardom Pond dam:

1. *That a financial plan be prepared to remediate the dam, which would include:*
 - (a) *Completing the required works to update the dam to provincial standards including construction of a spill-way;*
 - (b) *Establishing a cost sharing formula whereby 1/6 of the costs would be apportioned to the 5 private water licence holders and 4/6 to the Pender Island Parks and Recreation Service, which would seek elector approval from residents within the entire service area to borrow this share of the funds;*
 - (c) *Confirming the approval of the Southern Gulf Islands Electoral Area Director to support funding of the remaining 1/6 of the capital project from the Electoral Area Community Works Fund, and;*
 - (d) *Estimating any required annual maintenance cost for the pond area.*
2. *That a loan authorization bylaw be prepared for the purpose of completing the capital works listed in 1. above; and*
3. *That a meeting with the water licence holders be held to propose this option and request their approval to proceed as listed above.*

A meeting with the water licence holders (WLHs) was held on Pender Island on December 2, 2016 to present this option and seek consensus. The Chair of the Pender Island Parks and Recreation Committee (PIPRC) indicated that on November 27, 2016, the PIPRC passed a motion to request the Electoral Area Director for the Southern Gulf Islands bring forward to the Board an additional option of decommissioning (naturalizing) the dam for the referendum.

CRD Legislative Services referred the matter of two options on a referendum to legal counsel who advised the approach is problematic and should not be pursued. Providing two opposing questions may also result in fragmenting the vote and offer a low likelihood of approval for either proposal.

ENVS-1846500539-5453

Subsequently, CRD staff met with provincial staff from the Ministry of Forests, Lands and Natural Resource Operations (FLNRO) to review the potential for naturalization of the pond. Naturalization of the pond would involve lowering the pond water level in a controlled manner and reestablishing an outlet at the original discharge stream bed. All elements of the dam would be removed. The existing road (Gardom Lane) would be maintained. It is estimated that the level of the pond would be reduced by approximately 2 metres, which would result in a remaining basin approximately 1-2 meters deep. The resulting exposed shoreline would be revegetated.

A meeting with 4 of the 5 private WLHs was held on Pender Island on February 24, 2017 to present this option and seek consensus. The remaining WLH was contacted via telephone on March 3, 2017. All 5 private WLHs have indicated broad support for naturalizing the pond.

ALTERNATIVES

That the Electoral Area Services Committee recommend to the CRD Board:

Alternative 1

1. That a financial plan be prepared for the lowest cost option, which would include:
 - a) completing the required works to lower the water level of the pond to its natural level, and providing vehicle access to the two properties that use the road on top of the dam;
 - b) confirming the approval of the Southern Gulf Islands Electoral Area Director to support funding \$100,000 from the Community Works Fund (CWF) to support the works;
 - c) funding the PIPRC portion of the works from the existing capital reserve;
 - d) estimating the annual borrowing costs of the remaining 5/6 of the project cost over a 15-year period;
 - e) estimating any required annual maintenance cost for the pond area and any ongoing costs required for the road access; and
2. That a petition be prepared to request the establishment of a Service Area consisting of the 5 private water licence holders' properties for the purpose of completing the works listed in Item 1 above.

Alternative 2

That staff work with the Board Solicitor to prepare a plan to decommission the dam and recover the costs from the individual water licence holders (5 private land owners and the Pender Community Parks Service) and bring the plan back to the Board for consideration.

FINANCIAL IMPLICATIONS

The cost of naturalization, estimated at approximately \$500,000, is significantly less than rehabilitation. Potential additional costs, yet to be determined, may include property acquisition, fire protection and environmental measures.

It is proposed that the project cost be funded \$100,000 from the CWF (see schedule in Appendix A), with the remaining \$400,000 to be divided between the 6 licencees according to the same weighting as the annual water quantity allocated to each licence (5 WLHs at 12.5% and 1 WLH at 37.5%). The CRD's share (approximately \$50,000) would be funded from the PIPRC

capital reserve fund, which had a balance of \$110,472 as of March 7, 2017, while the remaining \$350,000 would be funded by the 5 private WLHs through new MFA debt over 15 years. In order to secure the MFA borrowing, a new service must be established with the approval of the Inspector of Municipalities. The necessary bylaws will be brought back to the Board for approval once consent of the participants is achieved through formal petition.

RISK IMPLICATIONS

The CRD, as holder of a water licence, has statutory obligations under Section 31 of the *Water Sustainability Act*. As a result, the CRD, along with the other WLHs, would be responsible for a failure of the dam. By decommissioning, or naturalizing, the dam, the CRD is able ultimately to abandon the water licence and thus eliminate any statutory obligations arising from the regulatory authority.

ENVIRONMENTAL IMPLICATIONS

Naturalization of the Gardom Pond dam does not fully preserve current water levels of the pond and will impact local ecology; however, by removing the dam, the pond is restored to its natural water basin level. One of the properties has an environmental covenant attached to a portion of the property, restricting the use and allowable works. The Islands Trust has confirmed that, in spite of the covenant, they will allow the works needed to address the dam safety deficiencies, and will waive any clauses in conflict with the remediation.

CONCLUSION

Discussions with the water licence holders over the risk and condition of the dam have been ongoing for numerous years. The Dam Safety Officer requires that the WLHs address the dam safety issues identified with the Gardom Pond dam. Preliminary work has been completed on the option to naturalize the dam and a cost sharing formula is proposed that apportions costs to the 5 private licence holders and the Pender Community Parks Service, striking a balance that is fair and affordable for those directly impacted. Naturalization of the pond mitigates future risk and statutory obligations.

RECOMMENDATION

That the Electoral Area Services Committee recommend to the Capital Regional District Board:

1. That a financial plan be prepared for the lowest cost option, which would include:
 - a) completing the required works to lower the water level of the pond to its natural level, and providing vehicle access to the two properties that use the road on top of the dam;
 - b) confirming the approval of the Southern Gulf Islands Electoral Area Director to support funding \$100,000 from the Community Works Fund to support the works;
 - c) funding the Pender Island Parks and Recreation Committee portion of the works from the existing capital reserve;
 - d) estimating the annual borrowing costs of the remaining 5/6 of the project cost over a 15-year period;
 - e) estimating any required annual maintenance cost for the pond area and any ongoing costs required for the road access; and

Electoral Area Services Committee – March 15, 2017
Gardom Pond Dam

4

2. That a petition be prepared to request the establishment of a Service Area consisting of the 5 private water licence holders' properties for the purpose of completing the works listed in item 1 above.

Submitted by:	Dan Telford, P.Eng., Senior Manager, Environmental Engineering
Concurrence:	Larisa Hutcheson, P.Eng., General Manager, Parks & Environmental Services
Concurrence:	Robert Lapham, MCIP, RPP, Chief Administrative Officer

PD/BM:ab

Attachment: 1 – Appendix A: Southern Gulf Islands Community Works Funds



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CAPITAL REGIONAL DISTRICT
Gardom Pond Stakeholder Meeting Minutes
Contract 16-1856

Friday, February 24, 2017 @ 9:30 am at Pender Island Community Hall

1 Introduction and Roles

The following project stake holders attended the meeting:

- Gary Holman – MLA
- Capital Regional District
 - John Chapman, Rob Burnett – PIPRC
 - Joshua Frederick, Ben Martin – CRD
- Private Water License Holders (WLH's)
 - [REDACTED] (LOT 5)
 - [REDACTED] (LOT 7)
 - [REDACTED] (LOT 6)
 - [REDACTED] (LOT 4)

Note that missing WLH's include [REDACTED] (LOT REMA). Also note that the Razor Point Improvement District (RPID) Trustees Lynda Challis, Joanne Munroe & Riley Tate were made aware of the meeting however unable to attend. They requested they all be included in the meeting minute distribution.

2 Review of December 2, 2016 Meeting Action Items

Meeting Action Item 1: CRD to confirm with Legislative Services whether two options (Decommissioning and Rehabilitation) could be added to a referendum.

CRD Legislative Services advised that providing two options on a referendum is problematic and should not be pursued. Providing two opposing questions would result in fragmenting the vote and offer a low likelihood of approval for either.

Meeting Action Item 2: CRD to revise Project Charter based on WLH feedback.

[REDACTED] provided minor comments to the CRD.

Meeting Action Item 3: CRD to meet with Razor Point Improvement District Trustees.

CRD has not met with the RPID Trustees however have included the Trustees with all meeting minutes. The CRD received a letter from the RPID Trustees on December 11, 2016 (attached for reference).

Meeting Action Item 4: CRD to provide update to John Baldwin (Dam Safety Office).

The CRD met with John Baldwin on January 26, 2017 to provide an update and discuss alternative options regarding decommissioning or naturalizing the pond.



Meeting Action Item 5: CRD to review AECOM pond catchment areas and cost estimates.

The CRD reviewed the AECOM pond catchment areas and anticipated flow volumes. CRD is in the process of evaluating cost estimates for decommissioning or naturalizing the pond.

3 Decommissioning or Naturalizing the Pond

Considering the Legislative Services response with regard to a dual referendum and perceived local support indicated by the PIPRC and SGI Director, CRD staff were directed to further evaluate decommissioning or naturalization of the pond.

Naturalization of the pond would generally involve lowering the pond in a controlled manner and re-establishing an outlet at the invert (lowest level) of the original stream bed on Lot 6. All elements of the dam (spillway, embankment, low level pipes, gates, etc.) would be removed. The existing road way on Gardom Lane would be maintained and would be required to pass a 1 in 200 year maximum daily flow. The invert of the original stream bed is estimated at approximately 84 m (further verification required). A draft graphic was distributed showing the approximate extent of the pond at an elevation of 84 m (see attached).

AECOM has provided a cost estimate (19-Jun-2013) for decommissioning the dam at a construction value of \$422,763. Should this option be pursued opportunities for potential cost savings will be reviewed.

The cost for naturalizing the pond would be shared amongst the 6 WLH's and follow the same weighting of annual water quantity allocated to each license for the specified purpose (see attached summary of WL's). Financing for the 5 private WLH's may be offered in the form of a new CRD debt service.

The SGI Director has committed to request Board support for an allocation from the Community Works Funds (CWF).

Naturalization of the pond would result in the CRD assuming all the WL's resulting in the CRD being the sole WLH. Once the naturalization was completed the remaining WL would be abandoned by the CRD.

Naturalization of the pond would remove the risk of dam failure.

All parties present at the meeting indicated pond naturalization, as presented, may be a favorable option with the following exceptions:

1. [REDACTED] Indicated they intend to continue their efforts with obtaining funding from FLNRO to contribute to rehabilitating the dam however they will also not stand in the way of the consensus needed to implement the CRD proposal of decommissioning or naturalizing the pond.
2. [REDACTED] commented the conditions of the protective covenant registered on Lot 5 will need to be addressed as inherent restrictions exist.



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4 Project Next Steps

The CRD will be communicating this proposal with the outstanding WLH ([REDACTED] – LOT REMA).

Following WLH support a detailed Project Charter would be developed by CRD for review with the WLH's and project stakeholders. CRD to provide update to WLH's by end of March 2017.

5 Comments & Questions

- a. Question by [REDACTED] What is the proposed reduction in water from the pond (i.e. ratio of water removed by the proposed naturalization)?
CRD will provide estimate
- b. Question by [REDACTED]: Will lowering the pond affect the capacity of adjacent water wells? The CRD is not aware of any studies that indicate lowering the pond elevation will impact the capacity of adjacent water wells with the exception of the following statement provided in the AECOM report dated March 3, 2015, Task 4, Page 6 'Gardom Pond helps to some degree, in recharging groundwater that supplies local domestic wells'.
- c. Comment by [REDACTED]
[REDACTED] Gary Holman committed to approaching the Minister and coordinating further interaction with regard to [REDACTED] request.
- d. Comment from [REDACTED] noted that summer pond height is approximately 85.27 m and winter height is approximately 86.27 m.
- e. Question from [REDACTED] Will the private WLH's have the option providing full payment for their portion of the works? Yes
- f. Question from [REDACTED] Will there be any changes to the outflow from the marsh lands located to the northwest of Gardom Pond? Generally no however the CRD will provide further information
- g. Question from [REDACTED] Will WLH's be required to pay for additional firefighting protection if pond is naturalized? CRD will provide confirmation
- h. Question from [REDACTED] How will the riparian zone be affected if the pond is naturalized? CRD will provide confirmation
- i. Question from [REDACTED] What treatment will occur at the newly exposed land at the pond perimeter? CRD will consider a re-vegetation program and also consider additional effects of lowering the pond such as resulting grades, etc.



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- j. Comment from [redacted] A protective covenant is registered on [redacted] lot and any works will need to consider the covenant.
- k. Comment from [redacted] made request to have opportunity to review resulting cost estimate during project planning stage.

Yours truly,

Capital Regional District

Ben Martin, P.Eng.
Project Engineer
Environmental Engineering

Attach: Letter from RPID Trustees, received December 11, 2016 via email
Draft graphic showing approximate extent of lowered pond, by CRD
Water License Report for Gardom Pond Holders, <http://a100.gov.bc.ca/>

Cc: Joshua Frederick, CRD, via email: jfrederick@crd.bc.ca
 Ben Martin, CRD, via email: bmartin@crd.bc.ca
 Peggy Dayton, CRD, via email: pdayton@crd.bc.ca
 Gary Holman, MLS, via email: marina.holdnos@leg.bc.ca & gary.holman.mla@leg.bc.ca
 John Chapman, PIPRC, via email: [redacted]
 Rob Burnett, PIPRC, via email: [redacted]
 [redacted] WLH, via email: [redacted]
 [redacted] WLH, via email: [redacted]
 [redacted] WLH, via email: [redacted]
 [redacted] WLH, via email: [redacted]
 David Howe, SGI Director, via email: directorsg1@crd.bc.ca
 Leriea Hutcheson, CRD, via email: lhutcheson@crd.bc.ca
 Dan Telford, CRD, via email: dtelford@crd.bc.ca

For information: Lynda Chalfie, RPID Trustee, via email: [redacted]
 Joanne Munroe, RPID Trustee, via email: [redacted]
 Riley Tate, RPID Trustee, via email: [redacted]

December 11, 2016

Mr. Ben Martin

Senior Project Engineer

CRD

RE: Dec 2, 2016 Meeting Pender Island Gardom Pond Dam

Dear Mr. Martin

Thank-you for including the RPID in the distribution of the meeting minutes held on Pender Island December 02/16. It is refreshing to see alternatives and timelines to finally resolve the dam issue.

As you are aware the RPID has a vital R.O.W. for its supply lines from Lot 18 to its distribution system located on Razor Point Road.

Our Views on the Following:

Alternative 1

The path of the R.O.W. may have to be relocated somewhat should alternative 1 be chosen. We believe there will be minimal disruption to the existing R.O.W. other than removing the existing lines and header from the dam. While the remediation work is going on to de-commission the dam, a temporary connection can be made outside of the dam to allow for uninterrupted flow of domestic water to the RPID members. When de-commissioning is complete we should be able to relocate the supply lines close to the original location and re-connect to our existing distribution system downstream of the former dam.

This option would be the least disruptive and most cost effective to all parties involved. Negotiating an alternate right of way with 6 or 7 different parties would probably take more time than it has taken to get to this point with the dam resolution so far.

Alternative 2

If the decision is made to retain the dam then a new route must be found for the RPID's supply line. This would be a 4" Diameter PVC line. The simple solution would be to follow Gardom Lane from lot 18 to Lot 6 and re-connect to our existing distribution system downstream of the dam; this would have the least impact on the WL holders. We are not sure of the status of Gardom Lane but we believe the Department of Highways has jurisdiction over it. Should this be the case then we do not believe that a R.O.W. will be required for this portion of the line relocation as utilities are covered under the Department of Highways act through a permit application system.

In summation, the RPID are fully supportive of a suitable resolution to the problem the dam poses to our domestic water supply system as well as our members downstream of the dam.

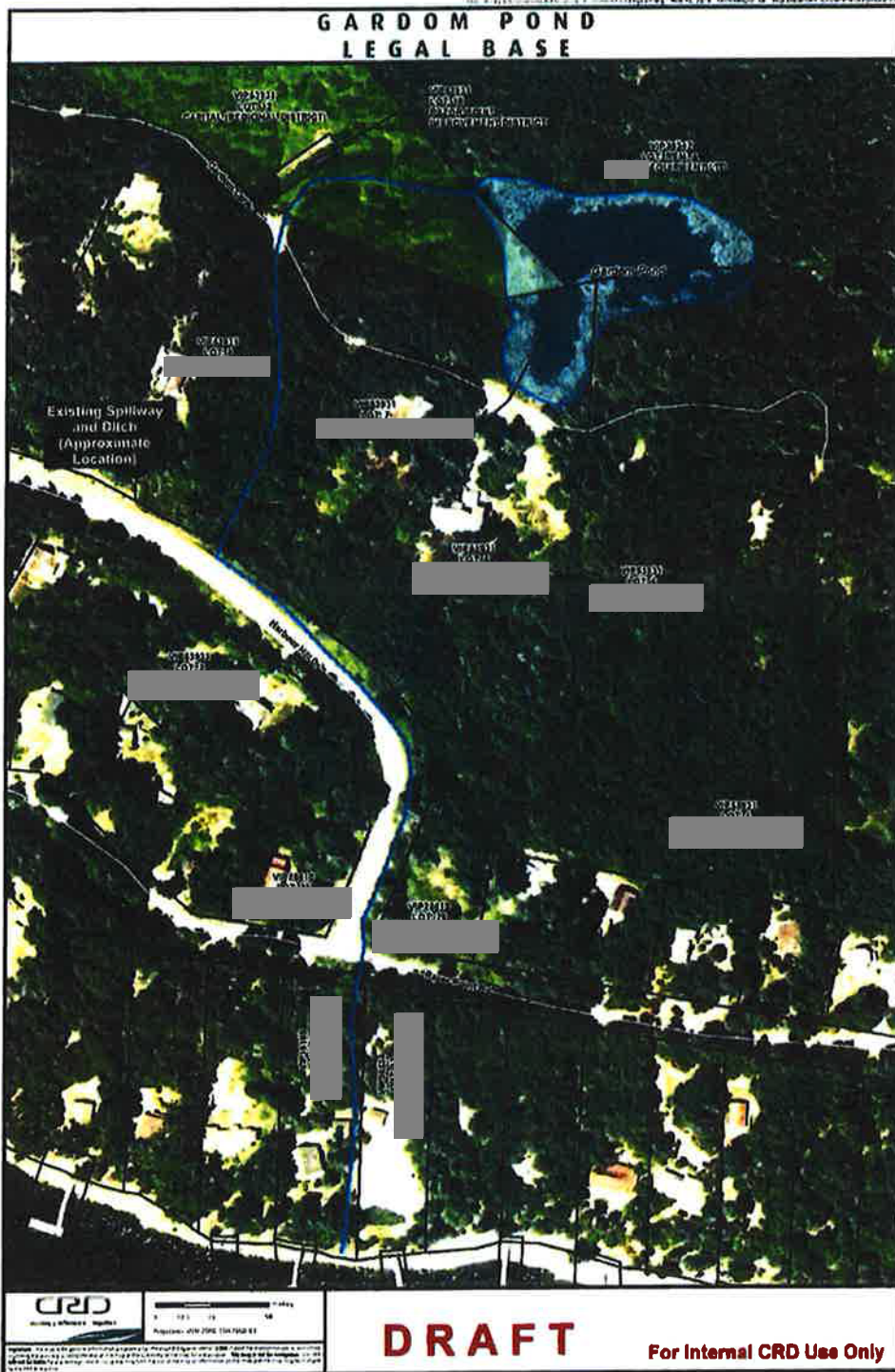
It is our intention to fully cooperate with the remediation process while ensuring our membership that their source of water will be maintained at expenses affordable to a very small water system.

Sincerely,

Riley Tate RPID Trustee

Lynda Chellis RPID Chairperson

Joanne Munroe RPID Trustee



Water Licences Report

Water Licences Report

Scroll to bottom of page for unique count of licences and/or applications found in your search

License No	WR Map Point Code	Stream Name	Purpose	Quantity	Units	Qty Flag	Reds Flag	Licensee	Water District/Province	License Status	Process Status	Priority Date	Issue Date
C109506	92.B.074.4.4 D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N	CAPITAL REGIONAL DISTRICT ACCOUNTS PAYABLE PO BOX 1000 VICTORIA BC V8W2S6	VIC - SHAWNIGAN	Current	N/A	19950404	19961118
C109507	92.B.074.4.4 D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118
C109510	92.B.074.4.4 D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118
C109511	92.B.074.4.4 D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118
C111318	92.B.074.4.4 D (PD63988)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118
C111619	92.B.074.4.4 D (PD63988)	Gardom Pond	Land Improve: General	4635.55	MY	T	N	TWAM DEVELOPMENTS LTD. 570 BLACKBURN RD SALT SPRING ISLAND, BC V8K2H2	VIC - SHAWNIGAN	Current	N/A	19950404	19961118

Total number of Licences and/or Applications found is 6

[New Query](#)

Use the [BACK](#) button on the browser to return previous search criteria

http://a100.gov.bc.ca/pub/wtrwhse/water_licences.output?p_Source_Name=gardom+pond&p_Licenc... 27/02/2017



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CAPITAL REGIONAL DISTRICT
Gardom Pond Stakeholder Meeting Minutes
Contract 16-1856

Wednesday, May 17, 2017 @ 9:30 am at Pender Island Community Hall

1 **Introduction and Roles:**

The following project stakeholders attended the meeting:

- Capital Regional District
 - John Chapman, Rob Burnett – PIPRC
 - Ben Martin – CRD
- Private Water License Holders (WLH's)
 - [REDACTED] (LOT 5)
 - [REDACTED] (LOT 7)
 - [REDACTED] (LOT 6)
 - [REDACTED] (LOT 4)
 - [REDACTED] (LOT REM A)
- Razor Point Improvement District (RPID)
 - Riley Tate (RPID Trustee Chair)
 - [REDACTED]

2 **Ben Martin (CRD) provided a brief overview of the overall project status:**

Note: See Project Overview section of the Project Charter for detailed project overview – below is a summary of the proposed decommissioning effort.

On April 12, 2017 the CRD Board approved the proposed decommissioning or naturalizing of Gardom Pond dam.

Naturalization of the pond would generally involve lowering the pond in a controlled manner and re-establishing an outlet at the invert (lowest level) of the original stream bed on Lot 6 or on Lot 12/8 at the existing spillway. All elements of the dam (spillway, embankment, low level pipes, gates, etc.) would be removed. The existing roadway on Gardom Lane would be maintained and would be required to pass a 1 in 200 year maximum daily flow. The invert of the original stream bed is estimated at approximately 84 m (further verification required).

AECOM has provided a cost estimate (19-Jun-2013) for decommissioning the dam at a construction value of \$422,763. Should this option be pursued opportunities for potential cost savings will be reviewed.

The cost for naturalizing the pond would be shared amongst the 6 WLH's and follow the same weighting as the annual water quantity allocated to each license for the specified purpose. Financing for the 5 private WLH's would be offered in the form of a new CRD debt service.

The Southern Gulf Island (SGI) Director and CRD Board support the allocation of \$100,000 from the Community Works Funds (CWF).



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Naturalization of the pond would result in the CRD assuming all the WL's resulting in the CRD being the sole WLH. Once the naturalization was completed the remaining WL would be abandoned by the CRD.

Naturalization of the pond would remove the risk of dam failure.

3 Razor Point Improvement District – Water Supply Lines:

Riley Tate and [REDACTED] attended the meeting to gain a better understanding of the proposed decommissioning effort, the resulting outlet of the remaining water body and general timing of the proposed work such that the RPID can plan for the removal of the water supply lines currently within the earth dam.

[REDACTED] and understands that a dedicated drainage channel may affect [REDACTED] property. Both Riley and [REDACTED] recognized that the proposed decommissioning effort will likely require temporary displacement and/or relocation of the RPID water supply lines currently present within the Gardom Pond earth dam.

Riley Tate confirmed that the RPID understand their responsibility to remove the water pipes within the earth dam.

Not directly related to the proposed decommissioning effort the RPID indicated their intent to replace their 2 existing water storage tanks with 1 tank.

Question: The RPID was seeking confirmation if the proposed decommissioning effort would in any way restrict their use of their current ROW (Plan VIP 76018).

Answer: The final outlet channel has not been selected (either via Lot 6 or Lot 12/8). Regardless the current AECOM report shows the outlet through Lot 6 adjacent to the existing RPID ROW.

4 Regulatory Requirements Update:

a. Weekly Inspections

As many of you are aware CRD IWS staff no longer have the resources to allocate to the weekly inspection effort. To minimize costs I have arranged to have the weekly inspections to be conducted by Chris Watson from the local CRD Building Inspection office. A joint weekly dam inspection was conducted with Chris Watson, [REDACTED] and Ben Martin on May 3, 2017 in order to orientate Chris on the inspection procedure. As a result of the joint inspection we will be installing permanent staff gauges near Gardom Pond Lane and at the valve chamber at the downstream toe of the dam.

We understand that Chris Watson will be allocating approximately the same labour effort as the IWS staff have historically charged.

Chris will typically be conducting the weekly inspections on Mondays. Chris can be contacted at the following:



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E: cwatson@crd.bc.ca
O: 250-629-3424
C: 250-589-7253

b. Annual Inspection

Fraser Hall, Technical Lead of Hydrology & Dam Safety, of the CRD conducted the annual dam inspection in April of 2017. I have received the report and will be forwarding a copy of the WLH's shortly.

c. Operations, Maintenance & Surveillance (OMS) & Emergency Preparedness Plan (EPP) Documents

I will be working with CRD staff and the local authority to ensure that the current OMS and EPP are up-to-date and the regulatory authority has the most recent copies.

5 Decommissioning Proposal:

The following questions were submitted to the CRD in response to the initial circulation of the Project Charter.

WLH Feedback & Concerns

- a. Will the TBD costs (obtaining easements/statutory right-of-way) for spillway, environmental costs, & fire protection) identified in the Capital Project Estimating form be included in the overall project cost?

Answer: Yes.

- b. Will there be sufficient water retained in the decommissioned reservoir to satisfy fire protection provided by the Gardom Pond Land draught pipe?

Answer: Based on my preliminary discussions with Shawn Carby, CRD Senior Manager – Protective Services, it is my current understanding this item has been previously reviewed. It's my understanding that the Fire Underwriters Survey (FUS) & NFPA 1142 require a minimum volume of 24,000 imperial gallons in order to supply a flow rate of 200 gallon/minute for two hours.

Based on preliminary calculations on available bathymetry we've estimated that at a reduced reservoir level of 84 m the resulting volume would be ~900,000 imperial gallons. At a reduced level of 82.5 m the resulting volume would be ~42,000 imperial gallons.

- c. Regarding the plan for revegetation of the exposed perimeter of the reservoir how would steep slopes be treated?

Answer: The newly exposed terrain would need to be stabilized and if necessary reshaped to ensure safety for the property owners.



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- d. Could a longer than 15 year debt service term be made available to the private WLH's?

Answer: A repayment term of up to 25 years could be made available to the private water license holders. A provincial program is available such that this charge could be deferred for the entire term, allocated against their property, however would be due upon the sale of the property.

The Province has set some criteria that homeowners must meet in order to be eligible to defer their taxes. For example, the property owner must be 55 or older, a Canadian citizen or permanent resident and he/she must have lived in BC for at least 1 year. Also the property must be the owner's principal residence and the owner must have at least 25% equity in the property. This is a useful site describing the program requirements:

https://www.sbr.gov.bc.ca/documents_library/forms/0051Guide.pdf

- e. What level of confidence is there with the assumption that a reduction to an 84 m level would achieve a decommissioning of the reservoir?

Answer: This level is based on a review of existing reports and documents and through preliminary discussions with the Dam Safety Office. We understand that the 2013 AECOM report indicates a lower level. Further verification is required to confirm the minimum acceptable level of the lake to achieve decommissioning.

Questions from February 24th Stakeholder Meeting:

- a. Question by [REDACTED] What is the proposed reduction in water from the pond (i.e. ratio of water removed by the proposed naturalization)?

Answer: Preliminary estimates indicate the following: Winter level – 86.27 m, 23,298 m³, Summer level – 85.27 m, 12,796 m³ (~55%), Reduced 84 m level – 4,100 m³ or 900,000 gallons (~18%).

- b. Question from [REDACTED] Will there be any changes to the outflow from the marsh lands located to the northwest of Gardom Pond?

Answer: Generally none is anticipated however the CRD will provide further information once the decommission design is further developed.

- c. Question from [REDACTED] Will WLH's be required to pay for additional firefighting protection if pond is naturalized?

Answer: CRD will provide confirmation.



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- d. Question from [REDACTED] How will the riparian zone be affected if the pond is naturalized?

Answer: CRD will provide further information once the detailed design is underway. Generally the riparian zone will need to be adequately protected considering the proposed decommissioning effort.

- e. Question from [REDACTED] What treatment will occur at the newly exposed land at the pond perimeter?

Answer: CRD will consider a re-vegetation program and also consider additional effects of lowering the pond such as resulting grades, etc. Resulting steep grades would be regraded to obtain stability (typically 2:1 slope minimum).

- f. Comment from [REDACTED] A protective covenant is registered on her lot and any works will need to consider the covenant.

Answer: CRD recognizes the intent of the Covenant and has been in preliminary discussions with the Islands Trust Fund regarding the proposed decommissioning effort. We agree that any change to the Covenant would be initiated by due process, mainly a request to amend the agreement and a subsequent decision of the Trust Fund Board and the Pender Island Conservancy Association Board.

- g. Comment from [REDACTED] request to have opportunity to review resulting cost estimate during project planning stage.

Answer: CRD will make available the capital cost estimates as they are developed and become available (i.e. Class 'D', 'C', 'B' & 'A').

Next Steps:

a. Project Charter Execution

A discussion amongst all present ensued regarding remaining impediments to signing the Project Charter. All agreed to sign the Charter once the following revisions were complete:

1. Fire Protection: Clarification of fire protection requirements and impact of decommissioning the dam must be included in the Project Charter.
2. Conservation Covenant on 6604 Harbour Hill Road: Clarification and process of resolution of the impacts of the proposed decommissioning effort on the Conservation Covenant must be included in the Project Charter.
3. Project Charter – Signoff on Budget Control: The WLH's requested to be included in the Budget Changes authorization sign-off. The CRD agreed to amend the Charter to require the WLH's be 'Notified & Consulted' of any budget changes in excess of the established project contingency.



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The clarified above items 1, 2 & 3 will be integrated into the Project Charter and presented to the WLH's for consideration by the end of June 2017.

b. Project Schedule & Milestones

The proposed project schedule and milestones were discussed:

Execute Project Charter	July 2017
Execute Joint Dam Agreement	Summer 2017
Establishment of New Debt Service	Summer 2017
Site Investigation, Regulatory Review, etc.	Fall 2017
Design and Contract Development	Winter 2017/2018
Tender and Award	Early 2018
Construction	Summer 2018

c. Funding

The CRD has identified a possible funding source with the Emergency Management BC – National Disaster Mitigation Program (NDMP). The CRD is preparing to apply for this grant funding on behalf of all WLH's however will need confirmation of the project path via an executed Project Charter.

d. Questions & Comments:

1. [REDACTED] (LOT 4) indicated [REDACTED]
2. [REDACTED] (LOT 5) indicated that the private WLH's have recently received an increased Water License bill from the FLNRO [REDACTED]

***Answer:** The CRD has no jurisdictional authority to request an exemption on the behalf of the private WLH's.*



Yours truly,
Capital Regional District

Ben Martin, P.Eng.
Project Engineer
Environmental Engineering

Attach: Meeting Sign-In Sheet

Cc: Joshua Frederick, CRD, via email: jfrederick@crd.bc.ca
Ben Martin, CRD, via email: bmartin@crd.bc.ca
Peggy Dayton, CRD, via email: pdayton@crd.bc.ca
John Chapman, PIPRC, via email: [REDACTED]
Rob Burnett, PIPRC, via email: robburnett@piprc@gmail.com
[REDACTED] WLH, via email: [REDACTED]
[REDACTED] WLH, via email: [REDACTED]
[REDACTED] WLH, via email: [REDACTED]
[REDACTED] WLH, via email: [REDACTED]
[REDACTED] WLH, via email: [REDACTED]
David Howe, SGI Director, via email: directorsgi@ord.bc.ca
Larisa Hutcheson, CRD, via email: lhutcheson@crd.bc.ca
Dan Telford, CRD, via email: dtelford@crd.bc.ca

For information: Joanne Munros, RPID Trustee, via email: [REDACTED]
Riley Tate, RPID Trustee, via email: [REDACTED]



GARDOM POND DAM MITIGATION

CONTRACT 16-1856

Site Meeting ^{17th}
 Wednesday, May 16, 2017 at 9:30 a.m.
 Pender Island Community Hall

SIGN IN SHEET

REPRESENTATIVE & COMPANY NAME (please print CLEARLY)	PHONE # AND EMAIL ADDRESS (please print CLEARLY)
1. Rob BARNETT Pender's Parks & Rec	Phone: [REDACTED] Email: RobBarnettPARK@gmail.com
2. John Chapman PIPAC	Phone: [REDACTED] Email: [REDACTED]
3. [REDACTED]	Phone: [REDACTED] Email: [REDACTED]
4. [REDACTED]	Phone: [REDACTED] Email: [REDACTED]
5. [REDACTED]	Phone: [REDACTED] Email: [REDACTED]
6. [REDACTED]	Phone: [REDACTED] Email: [REDACTED]
7. [REDACTED]	Phone: [REDACTED] Email: [REDACTED]
8. Riley TATE RIPAC	Phone: [REDACTED] Email: [REDACTED]
9. [REDACTED]	Phone: [REDACTED] Email: [REDACTED]





**ENVIRONMENTAL ENGINEERING DIVISION
CAPITAL PROJECT ESTIMATING FORM**

Type: Class 'D' estimate indicative in nature (+/-30%)
 PROJECT NAME: GARDOM POND DECOMMISSION COST ESTIMATE DATE: 2-Mar-17

1.0 CONSTRUCTION CONTRACTS		Breach at Dam*
1.1 Preliminary Construction Cost Estimate*		\$281,175.00
1.2 Allowance for Construction Contingencies (5%-30% of Item 1.1)	30%	\$84,352.50
1.3 Allowance for Design Contingencies (0%-25% of Item 1.1)	5%	\$14,058.75
1.4 Allowance for Inflation since estimate/during Project	6.0%	\$16,870.50
1.5 TOTAL ESTIMATED CONSTRUCTION COST		\$396,456.75
2.0 ENGINEERING		
2.1 CRD Engineering Project Management	LS	\$25,000.00
2.2 Consultant Fees	LS	\$45,000.00
2.3 TOTAL ESTIMATED ENGINEERING COST		\$70,000.00
3.0 CONTRACT ADMINISTRATION (% of Line 1.5)		
3.1 Tender and Contract Administration	1.5%	\$5,946.85
4.0 TRAVEL COSTS - (% of Line 1.5)	1.5%	\$5,946.85
5.0 PROJECT SPECIFIC COSTS **		
5.1 Obtaining Easements/SRW's for Existing Spillway and Future Maintenance	TBD	TBD
5.2 Provision of alternate/equivalent fire protection for WLH properties	TBD	TBD
5.3 Environmental Costs	TBD	TBD
5.4 Removal of RPID water services from the dam	TBD	TBD
6.0 SUB-TOTAL		\$478,350.45
7.0 OTHER COSTS***		
7.1 MFA Cost of Issue, Interim Finance Costs and Finance Department Charge	Fixed	\$5,000.00
7.2 Allowance for Bylaw Contingencies for changes in scope, approved by Board	Fixed	\$7,500.00
7.3 Total Other Costs		\$12,500.00
9.0 TOTAL CAPITAL PROJECT BUDGET		\$490,850.45

*Based on 2013 & 2014 AECOM 'Gardom Pond Dam Evaluation' & 'Alternative Spillway/Breach Evaluation', dated 19 June 2014 & 5 February 2014 ("Class D Estimate"), includes treatment of low level pipe

**Additional Costs:
 (i) Costs associated with necessary easements or SRW for drainage course to the ocean. These costs will include legal surveys, negotiated costs, acquiring and registering costs and final staking costs
 (ii) Costs associated providing equivalent fire protection service to the WLH properties. These costs include reviewing fire protection requirements NFPA 1141 and ensuring compliance.
 (iii) Costs associated with undefined environmental measures associated with decommissioning the pond. These costs may include items related to regulated environmental covenants and items identified during the environmental assessment
 (iv) Costs associated with removal of the RPID water services from the dam (currently RPID have provided correspondence indicating they will cover this cost)

***Cost estimates to be confirmed with CRD Finance

10.0 Annual Operating, Maintenance & Reserve Costs		
10.1 Annual reserve fund contribution for maintenance, repair and capital works related to spillway	Fixed	\$2,500.00
SUB-TOTAL		\$2,500.00

(Project Engineer) (Date)

Approved (Senior Manager, Environmental Engineering)

Schedule "B" Location Map



Schedule "C"
Licensee Proportion Table

Licence No	WR Map/ Point Code	Stream Name	Purpose	Quantity	Units	Qty Flag	Rediv Flag	Licensee	Water District/ Precinct	Licence Status	Process Status	Priority Date	Issue Date	Licensed Storage Volume	Proportion of Total Licensed Volume
C109506	92 B 07 4.4.4 D (PD639 88)	Gardom Pond	Land Improve: General	1541.85	MY	T	N	CAPITAL REGIONAL DISTRICT ACCOUNTS PAYABLE PO BOX 1000 VICTORIA BC V8W2S6	VIC - SHAWNIGAN	Current	N/A	19950404	19961118	1.25 AF	12.5 %
C109507	92 B 07 4.4.4 D (PD639 88)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118	1.25 AF	12.5 %
C109510	92 B 07 4.4.4 D (PD639 88)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118	1.25 AF	12.5 %
C109511	92 B 07 4.4.4 D (PD639 88)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118	1.25 AF	12.5 %
C111318	92 B 07 4.4.4 D (PD639 88)	Gardom Pond	Land Improve: General	1541.85	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19961118	1.25 AF	12.5 %
C111639	92 B 07 4.4.4 D (PD839 88)	Gardom Pond	Land Improve: General	4825.55	MY	T	N		TWAM DEVELOPMENTS LTD. 570 BLACKBURN RD SALT SPRING ISLAND, BC V8K2H2	VIC - SHAWNIGAN	Current	N/A	19950404	19961118	3.75 AF

Schedule "D"
Section 219 Covenant

TERMS OF INSTRUMENT - PART 2

WHEREAS:

- A. The Transferor is the registered owner in fee-simple of those lands and premises located within the Electoral Area of the Southern Gulf Islands, in the Province of British Columbia, more particularly described as:

PID _____

(the "Lands").

- B. The Transferee is the Capital Regional District.
- C. The Transferor and Transferee have entered into a Joint Works Agreement dated _____, 2017 (the "Joint Works Agreement") regarding the use of the Lands as an embankment dam and/or water reservoir and the Transferor and Transferee wish to secure the obligations of the Transferee regarding the decommissioning of the embankment dam and/or the discontinuance of the use of the Land as a water reservoir.
- D. The Transferor acknowledges that it is in the public interest that the use of the Lands be limited and wishes to grant this covenant to the Transferee.
- E. Section 219 of the *Land Title Act* provides that a covenant, whether of negative or positive nature, may be granted in favour of the Capital Regional District and may be registered as a charge against the title to land, and may contain provisions respecting the following:
- the use of land or the use of a building on or to be erected on land;
 - that land is to be built on in accordance with the covenant;
 - that land is not to be built on or subdivided except in accordance with the covenant;
 - that land is not to be used, built on or subdivided;
 - that separate parcels of land are not to be sold or transferred separately;
 - that land or specified amenities be protected, preserved, conserved, maintained, enhanced, restored or kept in its natural or existing state.

NOW THEREFORE THIS AGREEMENT WITNESSES that under section 219 of the *Land Title Act*, and in consideration of the premises and the mutual covenants and agreements contained herein, and the sum of ONE (\$1.00) DOLLAR of lawful money of Canada now paid to the Transferor by the Transferee (the receipt and sufficiency of which is hereby acknowledged), and for other good and valuable consideration the parties covenant and agree each with the other as follows:

1. In this Agreement, the following words have the following meanings:

(a) "Licence" means [Insert relevant water licence number];

17.11.08 / V3 / Gardom Pond Section 219 Covenant Terms CLEAN / 111 1703 / CS-Jn

- (b) **"Joint Works Agreement"** includes the Joint Works Agreement with all Schedules, but for land title registration purposes, Schedules "A", "B", and "D" have been omitted and are available on file at the offices of the Capital Regional District; and
 - (c) **"Project"** means the Project as defined in the Joint Works Agreement attached as Schedule "A" to this Agreement.
2. The Transferor covenants and agrees with the Transferee that following the completion of the Project it shall not use or permit the use of the Lands for an embankment dam, water reservoir or any appurtenances to the embankment dam or water reservoir.
 3. The Transferor covenants and agrees that it will cooperate with the Transferee in the completion of the Project to decommission the embankment dam and water reservoir and covenants and agrees that the Transferee may enter in and use the Lands as reasonably required for the purpose of completing the Project described in the Joint Works Agreement attached hereto as Schedule "A".
 4. The Transferor shall indemnify and save harmless the Transferee from any and all claims, causes of action, suits, demands, fines, penalties, costs or expenses or legal fees whatsoever which anyone has or may have against the Transferee or which the Transferee incurs as a result of any loss or damage or injury, including economic loss, (the "Liability") arising out of or connected with:
 - (a) the breach by the Transferee of any covenant in this Agreement or the Joint Works Agreement; and
 - (b) the Project except insofar as such Liability arises from the negligence of the Transferee, its officers or employees, contractors or agents.
 5. At the Transferor's expense, the Transferor must do everything necessary to secure priority of registration and interest for this Agreement and the section 219 covenant it creates over all registered and pending charges and encumbrances of a financial nature against the Lands.
 6. Nothing contained or implied in this Agreement shall prejudice or affect the rights and powers of the Transferee in the exercise of its functions under any public or private statutes, bylaws, orders and regulations, all of which may be fully and effectively exercised in relation to the Lands as if the Agreement had not been executed and delivered by the Transferor.
 7. Time is of the essence of this Agreement.
 8. The Transferor covenants and agrees for itself, its heirs, executors, successors and assigns, that it will at all times perform and observe the requirements and restrictions set out in this Agreement and they shall be binding upon the Transferor as personal covenants only during the period of its respective ownership of any interest in the Lands.
 9. The Transferee shall cause this covenant to be released and discharged from title to the

17.11.06 / V3 / Gardom Pond Section 219 Covenant Terms CLEAN / 111 1703 / CS-Jn

Lands at the cost of the Transferor upon completion of the Transferor's obligations under the Joint Use Agreement, including, without limitation, payment to the Transferee of the Transferor's contributions under section 4.2 of the Joint Use Agreement within sixty (60) days written notice to the Transferor that such payment is due.

10. It is mutually understood, acknowledged and agreed by the parties hereto that the Transferee has made no representations, covenants, warranties, guarantees, promises or agreements (oral or otherwise) with the Transferor other than those contained in this Agreement.
11. The waiver by a party of any breach of this Agreement or failure on the part of the other party to perform in accordance with any of the terms or conditions of this Agreement is not to be construed as a waiver of any future or continuing failure, whether similar or dissimilar, and no waiver shall be effective unless it is in writing signed by both parties.
12. Wherever the singular, masculine and neuter are used throughout this Agreement, the same is to be construed as meaning the plural or the feminine or the body corporate or politic as the context so requires.
13. No remedy under this Agreement is to be deemed exclusive but will, where possible, be cumulative with all other remedies at law or in equity.
14. The enforcement of this Agreement shall be entirely within the discretion of the Transferee and the execution and registration of the Agreement against title to the Lands shall not be interpreted as creating any duty on the part of the Transferee to the Transferor or to any other person to enforce any provision of the breach of any provision of this Agreement.
15. The restrictions and covenants herein contained shall be covenants running with the Lands and shall be perpetual, and shall continue to bind all of the Lands when subdivided, and shall be registered in the Victoria Land Title Office pursuant to section 219 of the *Land Title Act* as covenants in favour of the Transferee as a first charge against the Lands.
16. The Transferor agrees to execute all other documents and provide all other assurances necessary to give effect to the covenants contained in this Agreement.
17. If any part of this Agreement is found to be illegal or unenforceable, that part will be considered separate and severable and the remaining parts will not be affected thereby and will be enforceable to the fullest extent permitted by law.
18. This Agreement is to be construed in accordance with and governed by the laws applicable in the Province of British Columbia.
19. This Agreement may be executed in counterpart with the same effect as if all parties had signed the same document. Each counterpart shall be deemed to be an original. All counterparts shall be construed together and shall constitute one and the same Agreement. This Agreement may be delivered by electronic means.

20. *, the registered holder of a charge by way of * against the Lands and registered under No. _____ (the "Charge") in the Land Title Office at Victoria, British Columbia, under number *, for and in consideration of the sum of One (\$1.00) Dollar paid by the Transferee to the said Chargeholder (the receipt whereof is hereby acknowledged), agrees with the Transferee, its successors and assigns, that the within section 219 covenant shall be an encumbrance upon the Lands in priority to the Charge in the same manner and to the same effect as if it had been dated and registered prior to the Charge.

The Transferor and Transferee acknowledge that this Agreement has been duly executed and delivered by the parties executing Forms C and D (pages 1 and 2) attached hereto.

JOINT WORKS AGREEMENT

THIS AGREEMENT dated for reference this day of , 2017.

BETWEEN:

CAPITAL REGIONAL DISTRICT
as holder of Water Licence C109506

625 Fisgard Street
Victoria, BC V8W 1R7

(the "Regional District")

AND:

[Redacted]

as holders of Water Licence C109507

[Redacted]

AND:

[Redacted]

as holder of Water Licence C109510

[Redacted]

AND:

[Redacted]

as holders of Water Licence C111318

[Redacted]

AND:

[Redacted]

as holder of Water Licence C109511

[Redacted]

AND:

N-TWA EQUIPMENT LTD.
as holder of Water Licence C111639

570 Blackburn Road
Salt Spring Island, BC V8K 2W1

(collectively, the "Licensees")

WHEREAS:

- A. The Gardom Pond dam and spillway were constructed in approximately 1978.
- B. For the purposes of this Agreement, the Licensees assume that the water licenses are valid and that the Licensees, as water license holders, are jointly responsible for the condition of Gardom Pond dam under the *Water Sustainability Act* and Regulations under that Act.
- C. The Ministry of Forests, Lands and Natural Resources has requested that the Licensees address certain dam safety deficiencies at the Gardom Pond dam.
- D. The Licensees have mutually agreed to decommission the Gardom Pond dam in accordance with the Project Charter dated June 27, 2017, attached to this Agreement as Schedule "A", as modified by this Agreement.
- E. The parties have been advised that grant funding in the amount of up to a maximum of \$460,000 is being made available for the decommissioning of the Gardom Pond dam from Emergency Management British Columbia. (The "Grant Funding")
- F. This Agreement is necessary to identify the sharing of responsibilities and costs of decommissioning the Gardom Pond dam.

IN CONSIDERATION of the promises and the covenants contained in this Agreement, and other good and valuable consideration, the Licensees agree as follows:

1.0 SUBJECT PROPERTIES

- 1.1 The following properties are subject to water licenses to divert and to store water at Gardom Pond:
 - (a) LOT 12, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 12");
 - (b) LOT 4, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 4");
 - (c) LOT 5, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 5");
 - (d) LOT 6, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 6");
 - (e) LOT 7, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931 ("LOT 7"); and

- (f) LOT A, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN 38342, EXCEPT PLANS VIP53931, VIP59764, VIP65348 AND VIP 65349 ("LOT A"),

(collectively, the "**Subject Properties**").

- 1.2 Each of the Licensees holds a water licence by virtue of being the owner of one of the Subject Properties.

2.0 IDENTIFICATION OF WORKS

- 2.1 The works that are the subject of this Joint Works Agreement include:

- (a) the Gardom Pond embankment dam located on Lot 6;
- (b) the dam spillway located within Lot 7, Lot 12, and 6610 Harbour Hill Drive; and
- (c) the reservoir located within Lots 4, 5, 6, 7, 12 and Lot A,

all as marked on the Location Map attached to this Agreement as Schedule "B"

(the "**Joint Works**").

3.0 OWNERSHIP OF JOINT WORKS

- 3.1 The Joint Works are deemed to be jointly owned by the Licensees.
- 3.2 For the purposes of this Agreement, each Licensee's proportion of ownership of the Joint Works will be considered to be equal to the ratio of water volume authorized by that Licensee's Water Licence, to the total water volume authorized for Gardom Pond, as shown on the Water Licences Report attached to this Agreement as Schedule "C" (the "**Licensee Proportions**").
- 3.3 The Licensees agree that any liability that may arise from the decommissioning, construction, maintenance, use, operation or failure of the Joint Works shall be shared among the Licensees in accordance with the Licensee Proportions.

4.0 DECOMMISSIONING THE JOINT WORKS

- 4.1 The Licensees mutually agree:
- (a) to decommission the Joint Works (the "**Project**") in substantial accordance with the Project Charter, which forms part of this Agreement and is attached as "Schedule A"; and
 - (b) to pay the capital costs of the Project, after any contribution from the Community Works Fund or any other public funding that may be obtained,

including the Grant Funding, and each Licensee shall pay the amount corresponding to its Licensee Proportions.

- 4.2 Failure to pay any required costs will result in that Licensee's suspension of usage of the Joint Works. Upon completion of the Project and payment in full to the Regional District of all of the Licensees' contributions under this Agreement, the Licensees' obligations under this Agreement are ended.
- 4.3 For certainty, the Regional District is authorized on behalf of the Licensees to carry out the Project.
- 4.4 The Regional District shall notify and consult the Licensees about the following:
- (a) any change in budget above the estimated \$500,000 in capital costs to complete the Project;
 - (b) any material change in the amount of the expected Grant Funding; and
 - (c) any significant change to the scope of the Project resulting in a cost that would exceed the amount of the contingency.

5.0 LICENSEES' DESIGNATE

- 5.1 The Licensees designate the General Manager, Parks & Environmental Services for the Regional District, or the successor to that position (the "General Manager"), to receive, provide and retain information and records in relation to the dam on behalf of the Licensees and in accordance with Section 22 of the *Dam Safety Regulation*.

6.0 MEETINGS

- 6.1 Any Licensee may request a meeting of the Licensees upon giving two weeks notice in writing to all other Licensees.
- 6.2 All matters to be determined at a meeting shall have a quorum of at least 2/3 of the Licensees and be decided by a 2/3 majority of the Licensees represented at the meeting.
- 6.3 If a Licensee cannot attend a meeting referred to in section 6.1, the Licensee may authorize a representative to attend on his or her or its behalf upon 3 days' written notice to the other Licenses identifying the name of the representative.
- 6.4 A notice of representation is valid only for the one meeting specified in the notice.
- 6.5 For certainty, each person listed on the first page of this Agreement is a Licensee.

7.0 WITHDRAWAL FROM AGREEMENT

- 7.1 It is expressly acknowledged among the Licensees that abandonment, cancellation or transfer of a water licence shall not relieve the Licensee of its obligations under this Agreement, unless that Licensee obtains the written consent of the remaining Licensees, approving such withdrawal from the Agreement.

8.0 NOTICE

- 8.1 Any notices hereunder or documents or deliveries required hereby may be served to the Licensees by personal delivery or registered mail from within the Province of British Columbia to the addresses listed in this Agreement or at such other address as the Licensees may from time to time notify in writing. Any delivery or service as aforesaid, which is made by registered mail shall be deemed to have been received when actually delivered.

9.0 GENERAL PROVISIONS

- 9.1 Where there is conflict between the body of this Agreement and the Project Charter, this Agreement shall take precedence.
- 9.2 This Agreement shall enure to the benefit of and be binding upon the Licensees and their respective successors and permitted assigns, including but not limited to any persons who acquire title to one of the Subject Properties and shall be secured by registration of a covenant under section 219 of the *Land Title Act* against the titles to each of the Subject Properties other than Lot 12, Section 12, Pender Island, Cowichan District, Plan VIP53931, owned by the Regional District, in the form substantially as attached as Schedule "D" to this Agreement before the Regional District commences the Project.
- 9.3 Prior to selling a Subject Property, a Licensee shall:
- (a) inform any potential purchaser of this Agreement;
 - (b) inform the potential purchaser that this Agreement will be binding on the new owner; and
 - (c) ensure that the potential purchaser agrees in writing, by way of modification to this Agreement, to be bound by the terms and conditions of this Agreement, including this Article 9.0.
- 9.4 This Agreement shall be governed by, construed and interpreted in accordance with the laws of the Province of British Columbia.
- 9.5 Time is of the essence of this Agreement.
- 9.6 In the event of a dispute between the Parties regarding this Agreement or the Project, that the Parties cannot otherwise resolve, the Parties shall proceed as follows:

- (a) the Parties shall act in good faith to appoint a mutually acceptable person to mediate the dispute within sixty (60) days of the appointment of the mediator, the costs of which shall be divided equally between the two disputing sides to the dispute. If there are more than two positions represented by the disputing parties, then the costs of the mediation shall be divided equally among all licence holders participating in the mediation; and
- (b) if mediation under (a) is not successful, then the dispute shall be submitted to arbitration under the *Arbitration Act* for determination by a single arbitrator mutually acceptable to the Parties and each Party shall bear their own costs of such arbitration.

9.7 Upon the later of:

- (a) the completion of the Project; and
- (b) the Regional District securing cost recovery of the cost of the Project from the Licencees, other than the Regional District by:
 - (i) adoption by the board of the Regional District of an establishing bylaw for the service that secures said cost;
 - (ii) payment in full by the Licencees, other than the Regional District, of said cost; or
 - (iii) by a combination of subparagraphs (i) and (ii),

the Regional District shall support an application to the Comptroller of Water Rights to release or transfer all rights under existing water licenses other than the licence held by the Regional District to the Regional District in accordance with section 27 of the *Water Sustainability Act* (British Columbia).

The headings to the clauses in this Agreement have been inserted as a matter of convenience and for reference only and in no way define, limit or enlarge the scope or meaning of this Agreement or any provision of it.

IN WITNESS WHEREOF the Licensees hereto have executed this Agreement.

HOLDER OF WATER LICENCE C109506:)
CAPITAL REGIONAL DISTRICT by its)
authorized signatories:)

_____))
Name:)

_____))
Date)

_____))
Name:)

HOLDERS OF WATER LICENCE C109507:

Name: _____
Name: _____

Date

HOLDERS OF WATER LICENCE C109510:

Name: _____

Date

HOLDERS OF WATER LICENCE C111318:

Name: _____
Name: _____

Date

HOLDER OF WATER LICENCE C109511:

Name: _____

Date

HOLDER OF WATER LICENCE C109510:)
N-TWA EQUIPMENT LTD. by its authorized)
representative:)

Name:



Date

Schedule "C"
Licensee Proportion Table

License No	WR Map Point Code	Stream Name	Purpose	Quantity	Units	Qty Flag	Redfr Flag	Licensee	Water District/ Precinct	License Status	Process Status	Priority Date	Issue Date	Licensed Storage Volume	Proportion of Total Licensed Volume
C109506	V2 B 07 4 4 4 D (PD639 88)	Gardom Pond	Land Improve: General	154185	MY	T	N	CAPITAL REGIONAL DISTRICT ACCOUNTS PAYABLE PO BOX 1099 VICTORIA BC V8K2S6	VIC - SHAWNIGAN	Current	N/A	19950404	19981118	1.25 AF	12.5 %
C109507	92 B 07 4 4 4 D (PD639 88)	Gardom Pond	Land Improve: General	154185	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19981118	1.25 AF	12.5 %
C109510	92 B 07 4 4 4 D (PD639 88)	Gardom Pond	Land Improve General	154185	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19981118	1.25 AF	12.5 %
C109511	92 B 07 4 4 4 D (PD639 88)	Gardom Pond	Land Improve General	154185	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19981118	1.25 AF	12.5 %
C111375	92 B 07 4 4 4 D (PD639 88)	Gardom Pond	Land Improve: General	154185	MY	T	N		VIC - SHAWNIGAN	Current	N/A	19950404	19981118	1.25 AF	12.5 %
C111639	92 B 07 4 4 4 D (PD639 88)	Gardom Pond	Land Improve: General	482555	MY	T	N	TWAM DEVELOPMENTS LTD 570 BLACKBURN RD SALT SPRING ISLAND, BC V8K2H2	VIC - SHAWNIGAN	Current	N/A	19950404	19981118	2.75 AF	37.5 %

LICENSE OF OCCUPATION

THIS AGREEMENT is dated for reference the 23 day of December, 2018,

BETWEEN:



("Licensor")

AND:

CAPITAL REGIONAL DISTRICT
625 Fisgard Street
Victoria, BC V8W 2S6

("Licensee")

WHEREAS:

- A. The Licensor is the registered owner in fee simple of the real property legally described as

LOT 6, SECTION 12, PENDER ISLAND, COWICHAN DISTRICT, PLAN VIP53931
PID 017-727-341

(the "**Licensor's Lands**");
- B. The Licensee is the Capital Regional District, and is the registered owner of Lot 12, Section 12, Pender Island, Cowichan District, Plan VIP53931 (the "**Licensee's Lands**");
- C. The Licensor's Lands and the Licensee's Lands are at adjoining corners to one another;
- D. The Licensee requires a License of Occupation over a portion of the Licensor's Lands as approximately shown outlined in dashed line on the sketch attached hereto as Schedule "A" (the "License Area"),
- E. The Licensor and Licensee are two of six landowners that hold licences to store water on nearby Gardom Pond by means of a dam constructed on the pond (the "**Dam**");
- F. The landowners have agreed to decommission the Dam in accordance with the Joint Works Agreement attached as Schedule "B" to this Agreement (the "**Joint Works Agreement**"), in which the Dam and all associated appurtenances are deemed to be the property of all of the licence holders, but the Licensee is authorized to carry out the decommissioning;

- G. In order to decommission the Dam, the Licensee must make modifications to the existing stream outlet from Gardom Pond which exists across the Licensor's Lands, which modifications include partial removal of the dam embankment and appurtenances, widening the stream outlet, and lining it with rip rap;
- H. The Licensor has agreed to grant the Licensee this license of occupation (the "License") over the License Area in accordance with the terms of this Agreement, to permit the Licensee to construct the Stream Outlet and associated works.

IN CONSIDERATION OF the mutual covenants and agreements in this Agreement, the parties covenant and agree as follows:

1. DEFINITIONS

1.1 In this Agreement

"**Agreement**" means this licence of occupation;

"**Commencement Date**" means January 15, 2019;

"**Fee**" means the fee set out in section 5;

"**Improvements**" includes anything made, constructed, erected, built, altered, repaired or added to, in or on the License Area, and attached to it or intended to become a part of it;

"**Stream Outlet**" means a channel, conduit or ditch constructed to carry water from Gardom Pond across the Licensor's Lands, and all associated works, including any rip rap, culverts, and appurtenances.

"**Term**" means the period of time set out in section 3.

2. GRANT

The Licensor hereby grants, conveys, confirms and transfers, for the term of the License, to the Licensee the full, free and uninterrupted right, license, liberty, privilege, permission and right of way to excavate, lay down, install, construct, entrench, alter, remove, bury, cleanse, string, and otherwise establish a Stream Outlet, upon, over, under and across the License Area.

The Licensor covenants and agrees to and with the Licensee that the Licensee shall:

- (a) for itself and its servants, agents, workers, contractors and all other licensees of the Licensee;
- (b) together with machinery, vehicles, equipment, and materials;

- (c) upon, over, under and across the License Area;
- (d) as may be considered necessary, useful, or convenient by the Licensee for the purposes in section 4; and
- (e) in connection with the operations of the Licensee in relation to the Stream Outlet;

be entitled at all times to enter, use, pass and repass, survey, labour, construct, erect, install, dig, carry away soil or other surface or subsurface materials, remove any growth, seedlings, trees, brush, buildings or obstructions now or hereafter in existence, store machinery, vehicles, equipment, materials and supplies used or to be used in connection with the construction of the Stream Outlet, and place or store the surface or subsurface material to be excavated from the Licensor's Lands;

3. TERM AND EXPIRATION DATE

The Agreement becomes effective on the Commencement Date, notwithstanding the actual dates of execution by the parties, subject to the other terms and conditions set out in this Agreement, and unless terminated earlier in accordance with the other terms and conditions set out in this Agreement, the Term will be for one (1) year and will terminate on January 14th, 2020 unless renewed pursuant to section 12 herein.

4. PURPOSE

Subject to the terms and conditions of this Agreement, the licence is granted for the non-exclusive use by the Licensee of the Licence Area for constructing the Stream Outlet and associated works.

5. FEES

In consideration of the sum of One (\$1.00) dollar of lawful money of Canada, now paid by the Licensee to the Licensor (the receipt and sufficiency of which is hereby acknowledged by the Licensor);

6. LIENS

- 4.1 The Licensee will not suffer or permit any lien under the *Builders' Lien Act* or like statute to be registered against title to the Licence Area by reason of labour, services or materials supplied or claimed to have been supplied to the Licensee. If any such lien is registered, the Licensee will procure registration of its discharge immediately after the lien has come to the notice of the Licensee. The Licensor may, but will not be obliged to, discharge any such lien at any time if, in the Licensor's judgment, the Licence Area becomes liable to any forfeiture or sale or its otherwise in jeopardy and any amount paid by the Licensor in so doing, together with all reasonable costs and expenses of the Licensor, will be reimbursed to the Licensor by the Licensee immediately on demand.

7. ENVIRONMENTAL RESPONSIBILITY

- (a) The Licensee will comply with all applicable environmental laws and will assume any environmental liabilities and perform any environmental obligations that result from the

contravention of any environmental laws from the Licensee, its employees, agents or contractors, including the cost of complying with any remediation order and any liability for clean-up of any pollutant on, under or emanating from the Licence Area resulting from any release of such pollutant arising from the Licensee's acts or omissions under this Agreement.

- (b) The Licensee will use the Licence Area in a manner to prevent the occurrence of any adverse events and minimize potential hazards that may affect the Licensor and its contractors, invitees, licensees, employees, agents and servants, the public and the environment; and in connection with any occurrence the Licensee will implement effective control measures and immediately notify the Licensor and all concerned parties.
- (c) Except as expressly authorized by the Licensor and in compliance with all applicable laws, the Licensee will not release, deposit, store or transport any pollutant, explosive or waste within the Licence Area and will not permit any person under its direction or control to do so.
- (d) The Licensee will immediately notify the Licensor of any potential contravention of environmental, health or safety laws relating to its operations within the Licence Area and upon inspection or investigation by governmental authority. The Licensee will, at its expense, comply with all reasonable directions of the Licensor with respect to environmental risks in its use and occupation of the Licence Area.

8. COMPLIANCE WITH LAWS AND REGULATIONS

The Licensee will comply with all laws, by-laws and regulations, Federal, Provincial, Municipal or otherwise, applicable to the Licence Area and any work on improvements carried out in the Licence Area.

9. ASSUMPTION OF RISK AND LIABILITY BY THE LICENSEE

- (a) The Licensor has made no representations or given any warranties, express or implied, with respect to the Licence Area and the Licensor disclaims any implied representations, warranties or conditions relating to the quality or condition of the Licence Area.
- (b) The Licensee shall release, indemnify and hold harmless the Licensor and its servants, agents, employees, invitees or contractors, from and against all losses, claims, demands, payments, suits, actions, damages, judgments and expenses, including legal fees, of every nature and description brought or recovered against or incurred by the Licensor and its servants, agents and employees, arising out of or related to the Licensee's breach of this Agreement, or the granting of this Licence or the use of the Licence Area by the Licensee, its elected and appointed officers, employees, agents, contractors, servants or invitees. Furthermore, the Licensee hereby releases and agrees to indemnify and hold the Licensor and its employees, agents, contractors, servants or invitees harmless from any costs, expenses, claims, responsibility and

liability, whether arising in tort (including negligence), contract or otherwise in respect of loss, damage or personal injury or death arising from, attributable to, or caused by the:

- (i) Condition of the buildings or any other part of the Licence Area, or
 - (ii) Activities on the Licence Area by the Licensee or its employees, agents, contractors or permitted assigns.
- (c) The Licensee assumes all risk of damage to the property of, or injury to the Licensee and the Licensee's contractors, invitees, licensees, employees, agents and servants in connection with the exercise of the privileges under this Agreement.
- (d) The Licensee will immediately pay for all damage resulting directly or indirectly from any act or omission of the Licensee, whether negligent or otherwise, and will immediately reimburse the Licensor for all expenses including, but not limited to, expenses incurred for fighting fires, resulting directly from the licensee's acts or omissions under this Agreement whether or not negligent.
- (e) The Licensee will indemnify and save harmless the Licensor against all claims or liabilities asserted by third persons resulting directly or indirectly from the Licensee's acts or omissions.
- (f) The Licensee will immediately comply with CRD's rules and directions relating to the use and occupation of the Licence Area.

The Licensee will not interfere with the Licensor's operations in the Licence Area.

10. INSURANCE

The Licensee shall, at its own expense, provide and maintain during the term of this Agreement the following insurance in a form acceptable to the Licensor with a company duly registered and authorized to conduct insurance business in the Province of British Columbia:

- (a) Commercial General Liability Insurance
- i) The Licensee shall purchase Commercial General Liability Insurance covering losses to a third party for bodily injury or death, property damage, and unlicensed vehicle and attached equipment operations, and
 - ii) this insurance shall be in an amount not less than FIVE MILLION (\$5,000,000.00) on an occurrence basis, and
 - iii) the Licensor shall be named as an additional insured, and
 - iv) this policy shall contain the separation of insureds, cross liability clause in the condition of the policy, and

- v) all such policies shall provide that no cancellation or material alteration in the policy shall become effective until 30 days after written notice of such cancellation, or alteration has been given to the Licensor, and
- vi) the Licensee shall provide the Licensor with a certificate or certificates of insurance as evidence that such insurance is in force including evidence of any insurance renewal. Every certificate, or certificates of insurance shall include, certification by the insurance agent or the insurer that the certificate of insurance specifically conforms to all of the provisions required herein.

The Licensee shall maintain Third Party Legal Liability Insurance in an amount not less than TWO MILLION (\$2,000,000) per occurrence in respect of all vehicles owned and / or operated by The Licensee in connection with this agreement.

Maintenance of such insurance and the performance by the Licensee of its obligations shall not relieve the Licensee of liability under the indemnity provisions set forth in this Agreement.

11. TERMINATION AND SUSPENSION.

- (a) If the Licensee defaults on its obligations under this Agreement, all privileges terminate 30 days after Licensor gives notice of default to the Licensee, if the default is not remedied within such time. The Licensor's termination of this Agreement will not prejudice the Licensor's right to collect damages on account of the Licensee's breach.
- (b) Any failure to exercise the Licensor's right to terminate this Agreement in case of default does not constitute a waiver of the Licensee's obligations to perform strictly in accordance with the terms of this Agreement. Any such right to terminate remains in effect and may be exercised as long as the default continues.
- (c) Upon termination or earlier expiry of this Agreement, the Licensee will remove its equipment and supplies, and any improvements made by it which the Licensor requires it to remove or the parties have agreed the Licensee may remove on the termination or expiry of this Agreement, within 30 days following written notice from the Licensor to do so and if not removed within this period, the Licensor may, at its option and without liability to the Licensee for loss, damage or compensation, take, keep or use the Licensee's machinery, equipment, supplies or any buildings, structures or improvements as its own property.

12. RENEWAL If the Licensor and the Licensee mutually agree in writing, this Agreement may be renewed for one (1) further term of one (1) year, on the same terms and conditions save and except rent and this Renewal provision.

13. NON-ASSIGNMENT

Neither this Agreement nor the privileges in it may be assigned by the Licensee, in whole or in part by operation of law or otherwise, without the prior written consent of the Licensor, which consent may be arbitrarily withheld. The Licensee will not sub-licence the Licence Area or permit any persons to enter the Licence Area unless they are authorized to do so.

14. NO SPECIAL DAMAGES

Neither party will be liable to the other for any consequential or indirect damages.

15. NOTICES

All notices required under this Agreement will be delivered by hand to the party for which it is intended, sent by email, fax or sent by prepaid courier directed to such party at its address or fax number set out in this Agreement, or at such other address or fax number as either party may stipulate by written notice to the other. Any notice delivered by hand or prepaid courier will be deemed to be received on the date of actual delivery thereof.

16. BINDING EFFECT

This Agreement will enure to the benefit of, and will be binding upon, the respective heirs, successors and permitted assigns of the parties.

17. GOVERNING LAW

This Agreement will be construed, interpreted and enforced in accordance with, and the respective rights and obligations of the parties will be governed by, the laws of the Province of British Columbia and the federal laws of Canada where applicable and the parties hereby attorn to the exclusive jurisdiction of the courts of the Province of British Columbia.

18. COUNTERPARTS

This Agreement may be executed in any number of counterparts and each counterpart, when executed and delivered (whether by email fax or otherwise), will be deemed to be an original and all of which taken together will be deemed to constitute one and the same instrument.


19. OTHER TERMS

- (a) The Licensor recognizes that the existing stream outlet is recognized as a "stream" under the Riparian Areas Regulation and has had the opportunity to seek independent legal advice regarding restrictions and requirements of this regulation.
- (b) The Licensee covenants to thoroughly clean all lands to which it has had access under this Agreement of all rubbish and construction debris created or placed thereon by the Licensee and to leave such lands in a neat and clean condition.
- (c) After the Licensee has constructed the Steam Outlet and no later than **January 14, 2020**, it shall:

- (i) install a footbridge over the Stream Outlet within fifty (50) metres of the dam embankment at a location approved by the Licensor;
- (ii) maintain vehicle parking for up to two (2) vehicles at either the existing parking area east of the driveway and south of the dam embankment or create an equivalent parking area west of the driveway;
- (iii) during and post all construction activity ensure that the construction of the Stream Outlet has no negative impacts on the existing septic system;
- (iv) re-plant those portions of the Licensor's Lands disturbed by the construction of the Stream Outlet in accordance with the Licensor's approved landscaping plan, and maintain such plantings for a period of one (1) year;

IN WITNESS WHEREOF the parties hereto have executed this Agreement as of the date first before written.

SIGNED on behalf of the **CAPITAL REGIONAL DISTRICT** by its authorized signatory this 22 day of January 2018:9

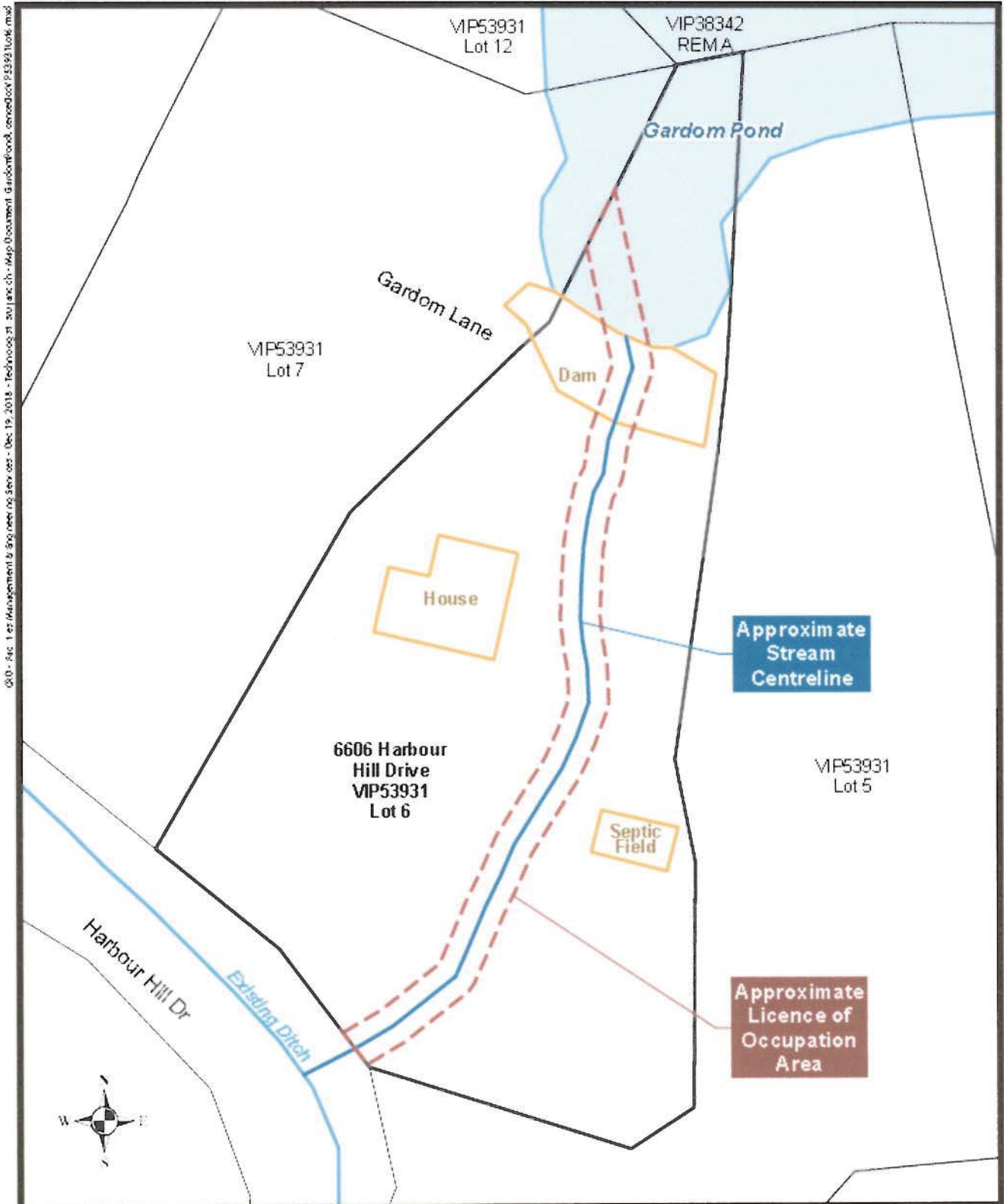


Authorized Signatory
Print name: **Larisa Hutcheson, P.Eng.**
General Manager
Capital Regional District
Parks & Environmental Services

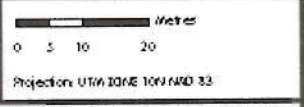
SIGNED on behalf of **KENT and GLORIA ALLAN** this 23 day of Dec., 2018:



SCHEDULE "A" License Area



030 - Fac 1 - Management & Engineering Services - Dec 19, 2018 - Technical - Map Document - Gardom Pond - amended P-5393-10-16.mxd



SCHEDULE A
APPROXIMATE LICENCE OF OCCUPATION AREA
LOT 6, 6606 HARBOUR HILL DRIVE

Important: This map is for general information purposes only. The Capital Regional District (CRD) makes no representation or warranty regarding the accuracy or completeness of this map or the suitability of the map for any purpose. This map is not for navigation. The CRD will not be liable for any damage, loss or injury resulting from the use of the map or information on the map and the map may be changed by the CRD at any time.



PERMIT TO CONSTRUCT, USE, AND MAINTAIN WORKS WITHIN THE RIGHT-OF-WAY OF A PROVINCIAL PUBLIC HIGHWAY

PURSUANT TO TRANSPORTATION ACT AND/OR THE INDUSTRIAL ROADS ACT AND/OR THE MOTOR VEHICLE ACT AND/OR AS DEFINED IN THE NISGA'A FINAL AGREEMENT AND THE NISGA'A FINAL AGREEMENT ACT.

BETWEEN:

The Minister of Transportation and Infrastructure

Saanich Area Office
240-4460 Chatterton Way
Victoria, British Columbia V8X 5J2
Canada

("The Minister")

AND:

Capital Regional District, Environmental Services Department
625 Figgard Street
PO Box 1000
Victoria, British Columbia V8W 2S6
Canada

("The Permittee")

WHEREAS:

A. The Minister has the authority to grant permits for the auxiliary use of highway right of way, which authority is pursuant to both the Transportation Act and the Industrial Roads Act, the Motor Vehicle Act, as defined in the Nisga'a Final Agreement and the Nisga'a Final Agreement Act;

B. The Permittee has requested the Minister to issue a permit pursuant to this authority for the following purpose:

The installation, operation, and maintenance of access for construction of modification to the existing storm drainage outlet into Harbour Hill Drive road dedication in conjunction with the Gardom Pond Dam Decommissioning; as per application dated 2018/01/24 and as shown on submitted Design Brief.

C. The Minister is prepared to issue a permit on certain terms and conditions;

ACCORDINGLY, the Minister hereby grants to the Permittee a permit for the Use (as hereinafter defined) of highway right of way on the following terms and conditions:

- 1. That the construction and maintenance of the said works is carried out to the satisfaction of the Regional Director, Transportation.
2. That, before opening up any highway or interfering with any public work, intimation in writing of the intention to do so must be given to the District Official at least seven days before the work is begun.
3. That any person appointed by the Regional Director, Transportation, for the purpose shall have free access to all parts of the works for the purpose of inspecting the same.
4. (a) The highway must at all times be kept open to traffic. The roadway must be completely restored for traffic as soon as possible. At all times the permittee must safeguard the traveling public.
(b) That, unless with the consent of the Regional Director, Transportation, no more than forty-five (45) metres of pipe-track or other excavation in any public highway is to be kept open at one time.



(c) All excavation work must be carried out in accordance with the BC Occupational Health and Safety Regulation. Care shall be taken to protect adjacent property.

(d) That all excavations shall be carefully back-filled with suitable material, which is to be tamped into place, and that the permittee shall restore the surface of the road and shoulders and ditches at his own expense. All surplus material is to be removed from the Provincial Crown lands, or deposited where and as required by the District Official of the Ministry of Transportation and Infrastructure. The permittee is financially responsible for any maintenance works required on said ditch for a period of one year. The Ministry will carry out the necessary remedial work and invoice the permittee monthly.

(e) The pipeline crossing installation is to be placed by drilling and (or) jacking in such a manner as to afford minimum grade settlement. No water jetting will be permitted. That where, in the opinion of the District Official, an excavation or opening for a pipeline crossing installation could be made which would not be detrimental to the highway or its users, permission will be granted for said works. On throughways, freeways, and main highways no open cuts will be allowed.

(f) That all pipelines in excess of a nominal diameter of 5 cm., whether gas, oil, water, pressure sewers, conduits, etc., shall be installed where indicated by the District Official, encased in a steel casing-pipe or conduit-pipe of sufficient strength to withstand all stresses and strains resulting from the location, such casing to extend the full width of the highway right-of-way if deemed necessary to the District Official. The ends of the casing-pipe shall be suitably sealed and, if required, properly vented above the ground with vent-pipes not less than 5 cm. in diameter, and extending not less than 1.2 metres above ground surface. Vent-pipes shall be connected 30 cm. from the ends of the casing-pipe, and the top of each vent shall be fitted with a turn-down elbow, properly screened and equipped with identification markers.

All pipelines of non-rigid material, i.e., plastic or copper, of any diameter, shall be cased, or embedded in sand.

The inside diameter of the casing-pipe shall be at least 25 percent larger than the outside diameter of the pipeline. The casing-pipe shall be installed with an even bearing throughout its length, and in such a manner so as to prevent leakage, except through the vents.

The top of the casing-pipe, or the pipeline where casing is not required, shall be located as directed by the District Official, and shall in no case be less than 1.2 metres below the surface of the highway and not less than 75 cm below the highway ditches. Pipelines must not obstruct drainage structures or ditches or interfere with traffic on the highway or with highway maintenance.

5. That where the work for which permission is hereby granted comes in contact with any bridge, culvert, ditch, or other existing work, such existing work must be properly maintained and supported in such manner as not to interfere with its proper function during the construction of the new work, and on the completion of the new work the bridge, culvert, ditch, or other existing work interfered with shall be completely restored to its original good condition.
6. That when necessary all excavations, materials, or other obstructions are to be efficiently fenced, lit, and watched, and at all times every possible precaution is to be taken to ensure the safety of the public.
7. The Permittee shall indemnify and save harmless the Ministry, its agents and employees, from and against all claims, liabilities, demands, losses, damages, costs and expenses, fines, penalties, assessments and levies made against or incurred, suffered or sustained by the Ministry, its agents and employees, or any of them at any time or times, whether before or after the expiration or termination of this permit, where the same or any of them are based upon or arise out of or from anything done or omitted to be done by the Permittee, its employees, agents or Subcontractors, in connection with the permit.
8. That the permission herein granted to use and maintain the works is only granted for such times as the land or public work in, upon, or over which the said works are constructed is under the jurisdiction of the Minister of Transportation and Infrastructure. This permission is not to be construed as being granted for all time, and shall not be deemed to vest in the permittee any right, title or interest whatsoever in or to the lands upon which the works are constructed. Should the lands affected at any time be included within that of an incorporated municipality or city, this permission shall become void, unless the works are on a highway duly classified as an arterial highway pursuant to Section 45 of the Transportation Act.
9. That after receiving notice in writing of the intention on the part of the Provincial Government to construct, extend, alter, or improve any public work, the person or persons responsible for the maintenance of the works for which permission is hereby granted shall within six weeks move or alter such work at his or their own expense to such new positions or in such manner as may be necessitated by the construction, extension, alteration, or improvement proposed to be carried out by the Provincial Government.
10. That while reasonable care will be taken on the part of the Provincial Government to do as little damage as possible to any private work in the carrying-out of the construction, extension, alterations, improvement, repair, or maintenance of any public work adjacent thereto, the Provincial Government can accept no responsibility for any kind of such damage.
11. That the permission hereby granted to construct, use, and maintain work is granted without prejudice to the provisions of the Transportation Act, or other Acts governing Crown lands and public works or their use by the public.
12. That this permission shall be in force only during such time as the said works are operated and maintained by the Permittee, to the entire satisfaction of the Regional Director, Transportation.



- 13. That the Ministry will not be responsible for grade changes on accesses caused by reconstruction of any Provincial highway.
- 14. This permit is valid only for the specific works stated herein. Any alterations or additions must be covered by a separate permit.
- 15. This permit may be canceled, at the discretion of the Minister, without recourse, should the permittee fail to comply with all the terms of the permit. Thirty days notice will be given before cancellation.
- 16. When the requirements of the Ministry necessitate use of the said lands for Provincial purposes, at the discretion of the Minister, this permit may be cancelled.
- 17. That these works shall be identified with this permit number in a manner satisfactory to the District Official of the Ministry of Transportation and Infrastructure.
- 18. As a condition of this permit, the permittee unconditionally agrees with the Ministry of Transportation and Infrastructure that the permittee is the prime contractor or will appoint a qualified prime contractor, as described in Section 118 of the Workers Compensation Act, for the purposes of the work described by this permit, at the work location described in this permit, and that the permittee or designated prime contractor will observe and perform all of the duties and obligations which fall to be discharged by the prime contractor pursuant to the Workers Compensation Act and the Occupational Health and Safety Regulation.
- 19. The permittee is advised and acknowledges that the following hazards may be present at the work location and need to be considered in co-ordinating site safety: overhead hazards, particularly electrical or telecommunications lines; buried utilities, particularly electrical, telecommunication, and gas lines; traffic, danger trees, falling rocks, and sharp or infectious litter.
- 20. Any works within the Ministry right-of-way that fall within the scope of "engineering" under the Engineers and Geoscientists Act will be performed by a Professional Engineer, and shall comply with this Ministry's "Engineer of Record and Field Review Guidelines". The Guidelines can be viewed on the Ministry's website at <http://www2.gov.bc.ca/assets/gov/driving-and-transportation/transportation-infrastructure/engineering-standards-and-guidelines/technical-circulars/2009/t06-09.pdf>
- 21. The permittee is responsible for preventing the introduction and spread of noxious weeds on the highway right-of-way as defined by the British Columbia Weed Control Act and Weed Control Regulation.
- 22. The Permittee shall be responsible for the preservation during construction of all geodetic benchmarks, survey monuments and property markers on the right-of-way. The Permittee shall use, at no expense to the Ministry, a British Columbia Land Surveyor to replace any survey monuments destroyed or damaged as a result of the Permittee's negligence. At locations where construction work will cover or destroy such markers, the Permittee shall not move or remove them until written direction is received from the Ministry Representative.
- 23. The Permittee shall ensure all equipment working on or hauling material on to and from the Site does not damage or deposit material onto any part of an existing roadway. Materials spilled onto the public roadways or driveways opened to public traffic shall be cleaned up immediately. The Permittee has the full responsibility to repair any damage to existing highways, local roads and driveways caused by its construction equipment and/or operations.
- 24. The Permittee shall, at his cost, supply, erect, and maintain standard traffic control devices in accordance with the Ministry of Transportation and Infrastructure Traffic Control Manual for Works on Roadways and Occupational Health and Safety Regulation.
- 25. All unsuitable material and inorganic debris shall be removed from the project area. All surplus or unsuitable organic waste and debris shall be removed from the site unless its complete burning is approved by the Designated Ministry Official in compliance with the B.C. Open Burning Smoke Control regulation.
- 26. Harvesting of Timber on Highway Right-of-way
Permittee is to contact the Ministry of Forests, Lands and Natural Resource Operations to obtain the necessary approval for removal of merchantable timber within the Highway right-of-way.
Merchantable timber shall be cold decked and loaded from approved access locations. Merchantable timber shall not be loaded from the traveled roadway or road shoulder.
- 27. The Permittee shall ensure that the outlet flow is suitably detained prior to discharging into the Ministry's existing drainage system.

The rights granted to the Permittee in this permit are to be exercised only for the purpose as defined in Recital B on page 1.

Dated at Victoria, British Columbia, this 1 day of February, 2018

On Behalf of the Minister

CAPITAL REGIONAL DISTRICT

**GARDOM POND, NORTH PENDER ISLAND
DAM NATURALIZATION**

CONTRACT 16-1856C

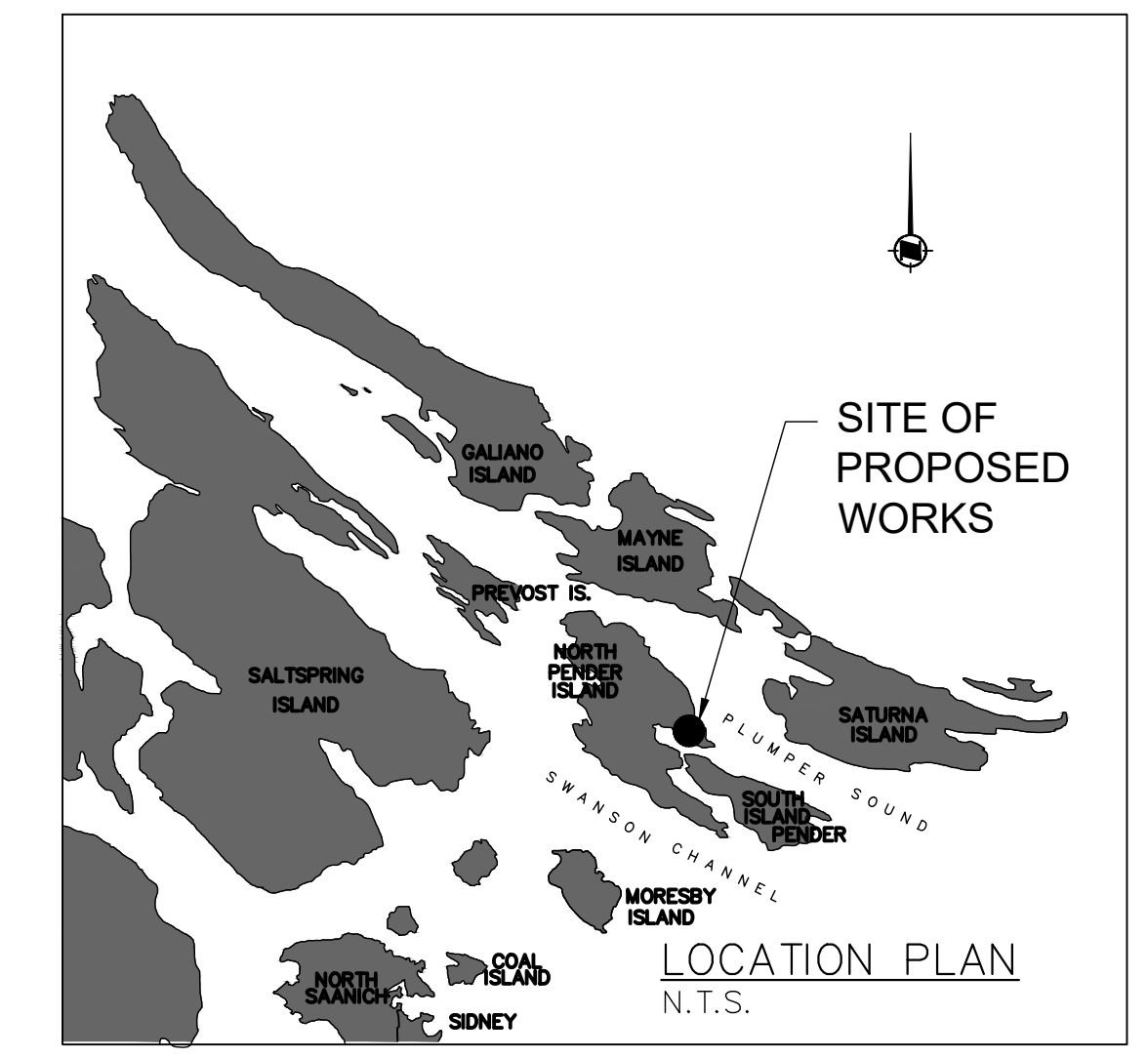
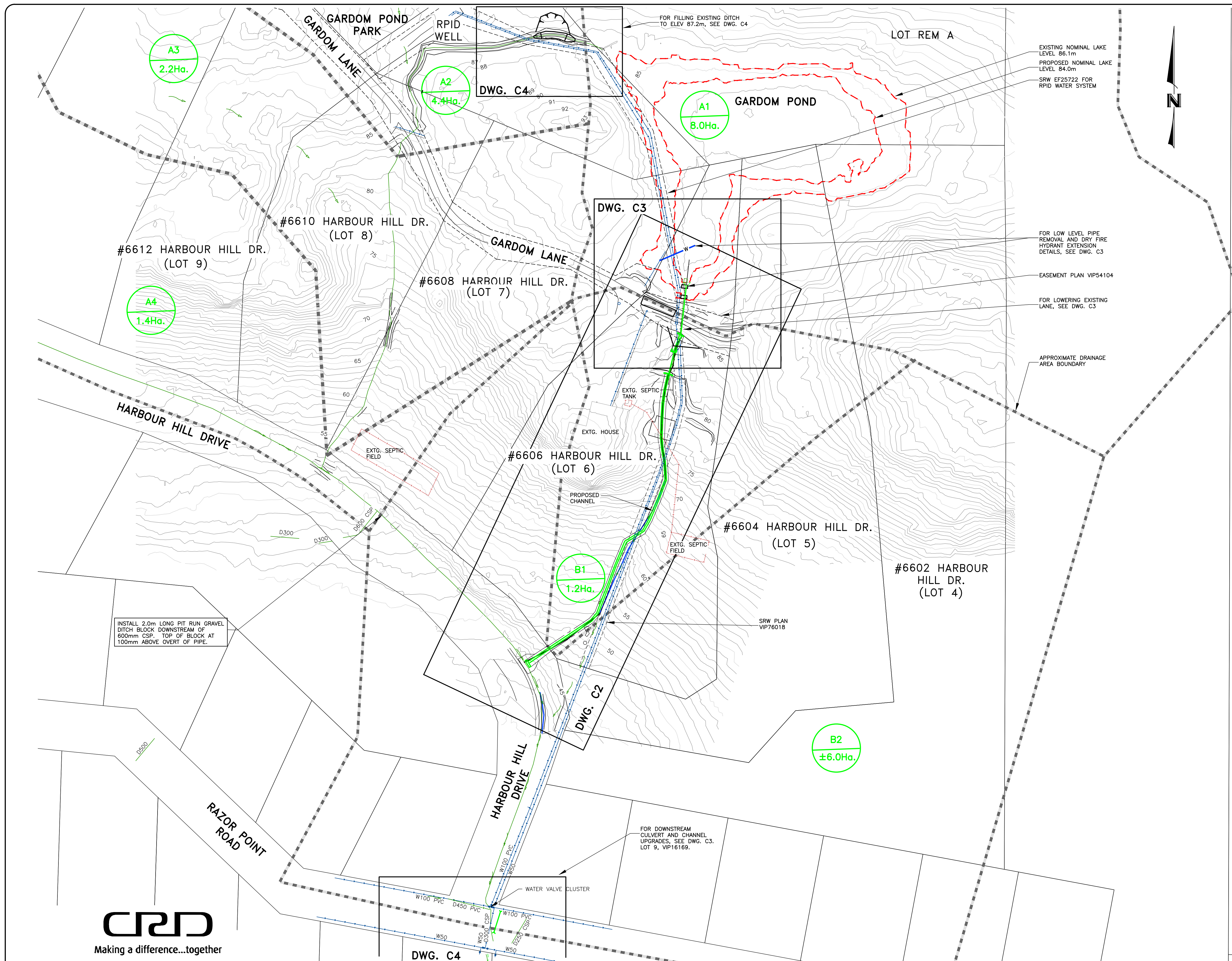
LIST OF DRAWINGS

DWG. No.	TITLE
27-M156-C1	DRAINAGE AREA PLAN / SITE PLAN
27-M156-C2	POND OUTLET PLAN AND PROFILE
27-M156-C3	DAM AREA DETAILS
27-M156-C4	DOWNSTREAM WORKS / DETAILS / SILT CONTROL



Making a difference...together

Capital Regional District | Parks & Environmental Services
625 Fisgard Street, PO Box 1000
Victoria, BC V8W 2S6



GENERAL NOTES:

1. THE LOCATIONS AND ELEVATIONS OF EXISTING SERVICES ARE APPROXIMATE ONLY. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM ALL LOCATIONS, SIZE, MATERIAL AND ELEVATIONS PRIOR TO CONSTRUCTION AND INFORM THE ENGINEER OF ANY DISCREPANCY.
2. CONTACT BC HYDRO, TELUS, SHAW, AND FORTIS BC (BC ONE CALL), A MINIMUM 3 DAYS PRIOR TO START OF ANY WORK.
3. SURVEY PROVIDED BY CRD.
4. THE LOCATION OF UNDERGROUND SERVICES IS BASED ON SURFACE INFORMATION. THE LOCATIONS UNDERGROUND ARE ASSUMED BASED ON EXISTING SRW LOCATIONS AND SURFACE INFORMATION. ACTUAL LOCATION IS UNKNOWN.
5. CONTRACTOR TO REPAIR ALL DAMAGE THEY DO TO EXISTING DRIVEWAYS, SERVICES, WORKS ETC.
6. ALL PROPERTIES TO BE REPAIRED TO THE SATISFACTION OF THE PROPERTY OWNERS.

SERVICING NOTES:

1. ALL WORK TO CRD WATERWORKS, MoTI (DRAINAGE), AND ELECTRICAL CODE STANDARDS.
2. FILL UNDER EXPOSED, NEW, AND RE-INSTALLED SERVICES TO BE STRUCTURAL FILL COMPACTED TO MINIMUM 95% MPD.
3. MIN 100mm BASE GRAVEL UNDER, 150mm BASE GRAVEL EACH SIDE, AND 300mm BASE GRAVEL OVER SERVICES.
4. ALL PIPE BEDDING TO BE BASE GRAVEL.
5. DUE TO POND LEAKAGE, THE DITCH ROUTE MAY REMAIN WET ALL SUMMER. CONTRACTOR TO CONSIDER THIS WHEN CHOOSING BEDDING AND FILL MATERIALS.
6. EXISTING WATERMAIN PIPE MAY BE SCHEDULE 20 PVC. THIS IS LIGHTER WALL THAN THE STANDARD SCHEDULE 40 PVC. ALL NEW WATER PIPE REPAIRS TO BE 150 PSI WORKING PRESSURE.

CULVERTS

1. BEDDING TO BE MMCD BASE GRAVEL COMPACTED TO MINIMUM 95% MPD.
2. BACKFILL ABOVE PIPE ZONE AND BELOW THE ROAD STRUCTURE TO BE MMCD 150mm MINUS PIT RUN GRAVEL COMPACTED TO MINIMUM 95% MMCD. (NOT TO BE OVERLY PERMEABLE OR FINE).
3. CULVERTS TO BE INSTALLED TO MoTI STANDARDS.
4. MATERIAL:
 - 900mm CULVERT TO BE REINFORCED CONCRETE CLASS 3 MINIMUM TO ASTM C76M C/W FLEXIBLE GASKET JOINTS TO ASTM C443M.
 - 600mm CULVERTS TO BE BOSS 2000 320 kPa.

ROCK WALL AREA

1. EXISTING ROCK IN ROCK WALL AREA CAN BE USED AS RIP RAP ON LOW SLOPES.
2. REMOVE CHICKEN WIRE RELATED TO ROCKS
3. SPREAD INTERNAL MATERIAL AS DIRECTED BY HOME OWNER (TOPSOIL EXPECTED).

DITCH ALONG EXISTING WATERMAIN SRW

1. DITCH EXCAVATION CAN BE SIDECAST AND COMPACTED OVER EXISTING WATER SRW TO CREATE A FLAT AREA FOR ACCESS. MINIMUM ADDITIONAL DEPTH APPROXIMATELY 300mm EXCEPT DEEPER AT WATERMAIN DITCH CROSSINGS.
2. DITCH TO BE LOCATED WELL BEYOND THE RIGHT OF WAY WHERE POSSIBLE
3. RIPRAP MIN. 250mm OF CLASS 10 RIPRAP WITH ROCK OVER 225mm REMOVED. ON SITE ROCKS OF SUITABLE SIZE AND DURABILITY CAN ALSO BE USED.

POND EMPTYING NOTES

1. POND WATER LEVEL TO BE LOWERED TO ELEVATION 83.85m MINIMUM 10 DAYS PRIOR TO START OF CONSTRUCTION TO ALLOW GROUND WATER LEVELS TO DROP.
2. THERE IS APPROXIMATELY 12,000 CUBIC METRES OF WATER BETWEEN ELEVATION 85.0m AND 84.0m. GROUND WATER ADDITIONAL.
3. POND TO BE LOWERED AT MAXIMUM 1,000 CUBIC METRES PER DAY BETWEEN ELEVATION 86 AND 85. 700 CUBIC METRES PER DAY BETWEEN 85 AND 83.85. THIS IS APPROXIMATELY 1.1L/s TO 8.1L/s. AT 11.6L/s, A 75mm PIPE FLOWS 2.6 m/s AT A HEAD OF 9m/100m (CHW=140)
4. SET UP A 75mm SYPHON - SOLID PIPE BETWEEN POND (ELEV. 83.5) AND UNDERGROUND CROSSING LANE TO ELEV. 81.0m. APPROX. 50m LENGTH. VALVE EACH END C/W FITTINGS AS REQUIRES AT FILLING POINT. FILL PIPE AND START A SYPHON. RUN WATER IN A 75mm FIRE HOSE TO THE HARBOUR HILL DRIVE DITCH. ALTERNATE / BACKUP IS A PUMP SYSTEM. FINAL METHOD IS UP TO THE CONTRACTOR. ALL TO BE OPERATED AND MAINTAINED BY THE CONTRACTOR. A SLOW EMPTYING OF THE POND WILL ALLOW AMPHIBIANS TO ADJUST.

LANDSCAPING

1. UNLESS DETERMINED OTHERWISE BY CRD, FINISH THE DISTURBED AREAS TO THE SATISFACTION OF THE PROPERTY OWNERS, AND HYDROSEED.

TRAFFIC CONTROL / ACCESS

1. TRAFFIC CONTROL TO MoTI STANDARDS. FOLLOW REQUIREMENTS OF MoTI PERMIT.
2. MINIMUM SINGLE LANE TRAFFIC TO BE MAINTAINED FOR ROADS AND DRIVEWAYS UNLESS OTHERWISE COORDINATED WITH AFFECTED PROPERTIES.



LEGAL DESCRIPTION	VIP 53931, VIP 38342, AND VIP 28575
PROJECT DATUM	ELEVATIONS ARE GEODETIC AND TO NAD83

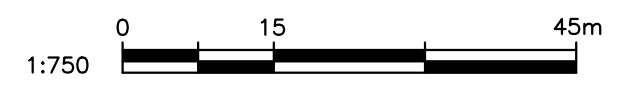
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0	ISSUED FOR COORDINATION	FEB 4/19	JB	

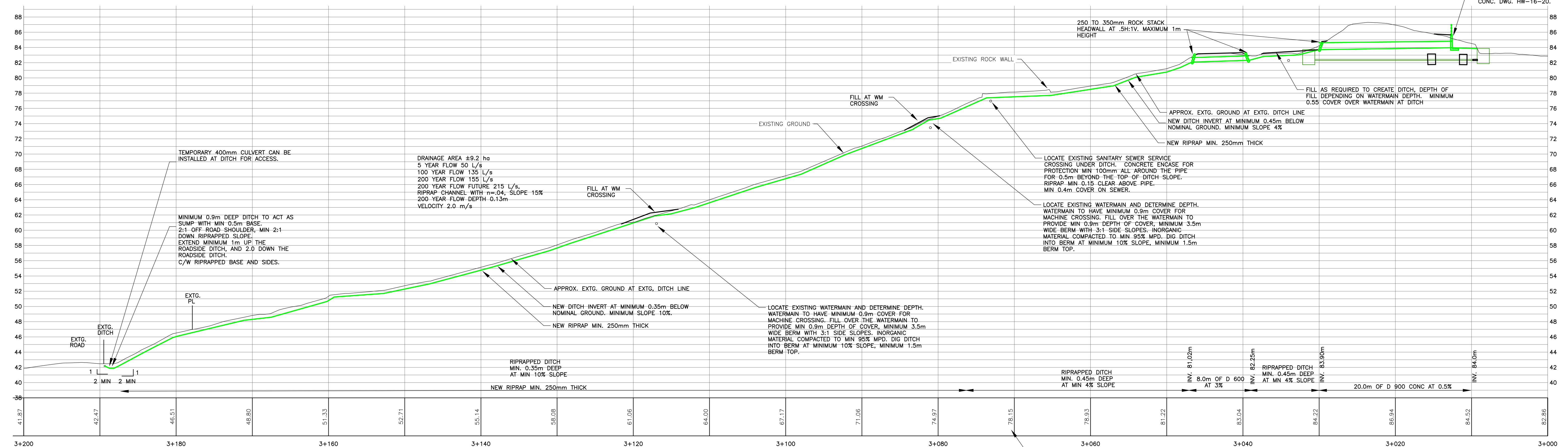
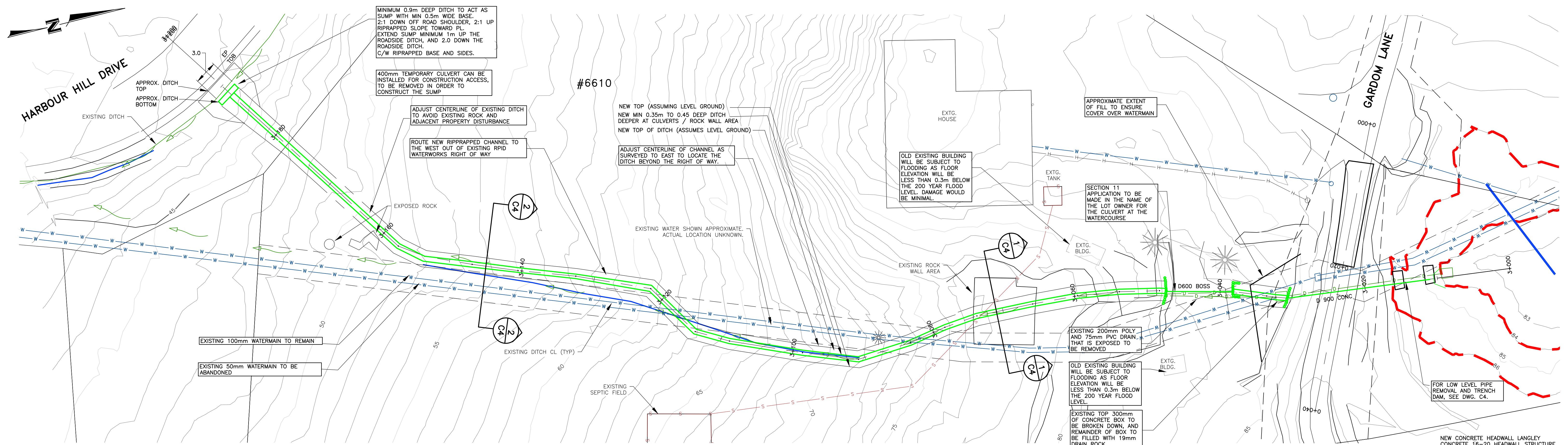
LEGEND	
LAMP STANDARD	LS
POLE (Hydro, Tel.)	PP
U/G WIRING	UGH
GAS	G
WATER	W
SEWER	S
DRAIN	D
CLEANOUT	o
CATCHBASIN	□
MANHOLE	○
SERVICE RISER	●
MOUNTABLE CURB	—MC—
NON-MOUNT. CURB	—NMC—
EDGE ASPHALT	—
DITCH	—
METER	⊗
FLUSH VALVE	⊕
VALVE	⊞
REDUCER	▷
HYDRANT	⊖
AIR VALVE	⊙

JEA J.E. ANDERSON & ASSOCIATES SURVEYORS -- ENGINEERS
 1A - 3411 SHENTON ROAD, NANAIMO, B.C. V9T 2H1
 TEL: 250 - 758 - 4631 FAX: 250 - 758 - 4660
 E-MAIL : nanaimo@jeanderson.com

JURISDICTION	CRD
SCALE:	1:750 HORZ.
JEA PROJECT	89126
DESIGN:	JB
DRAWN:	MP

CLIENT	CAPITAL REGIONAL DISTRICT
	PARKS AND ENVIRONMENTAL SERVICES
PROJECT	GARDOM POND, NORTH PENDER ISLAND DAM NATURALIZATION DRAINAGE AREA PLAN / SITE PLAN CONTRACT # 16-1856C
	27-M156-C1
	ISSUE 1





GENERAL NOTES:

- FOR GENERAL ROAD AND SERVICING NOTES, REFER TO DRAWING C1.
- THE LOCATIONS AND ELEVATIONS OF EXISTING SERVICES ARE APPROXIMATE ONLY, IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM ALL LOCATIONS, SIZE, MATERIAL AND ELEVATIONS PRIOR TO CONSTRUCTION AND INFORM THE ENGINEER OF ANY DISCREPANCY.
- CONTACT BC HYDRO, TELUS, SHAW, AND FORTIS BC (BC ONE CALL), A MINIMUM 3 DAYS PRIOR TO START OF ANY WORK.
- FOR GENERAL SERVICING, CULVERT INSTALLATION, ROCK WALL AREA, DITCH ALONG EXISTING WATERMAIN SRW, AND POND EMPTYING NOTES, SEE DWG. C1.



LEGAL DESCRIPTION	VIP 53931, VIP 38342, AND VIP 28575
PROJECT DATUM	ELEVATIONS ARE GEODETIC AND TO NAD83

NO.	REVISION DESCRIPTION	DATE	CHECK	APPR.
1	ISSUED FOR TENDER	FEB 27/19	JB	
0	ISSUED FOR COORDINATION	FEB 4/19	JB	

LAMP STANDARD		CLEANOUT		DITCH	
LS	LS	○	○	—	—
PP	PP	□	□	⊙	⊙
U/G WIRING	U/G WIRING	○	○	○	○
GAS	GAS	○	○	○	○
WATER	WATER	○	○	○	○
SEWER	SEWER	○	○	○	○
DRAIN	DRAIN	○	○	○	○

JEA & ASSOCIATES
SURVEYORS -- ENGINEERS

1A - 3411 SHENTON ROAD, NANAIMO, B.C. V9T 2H1
TEL: 250 - 758 - 4631 FAX: 250 - 758 - 4660
E-MAIL : nanaimo@jeanderson.com

JURISDICTION	CRD
SCALE:	1:250 HORIZ. 1:250 VERT.
JEA PROJECT	89126
DESIGN:	JB
DRAWN:	MDP

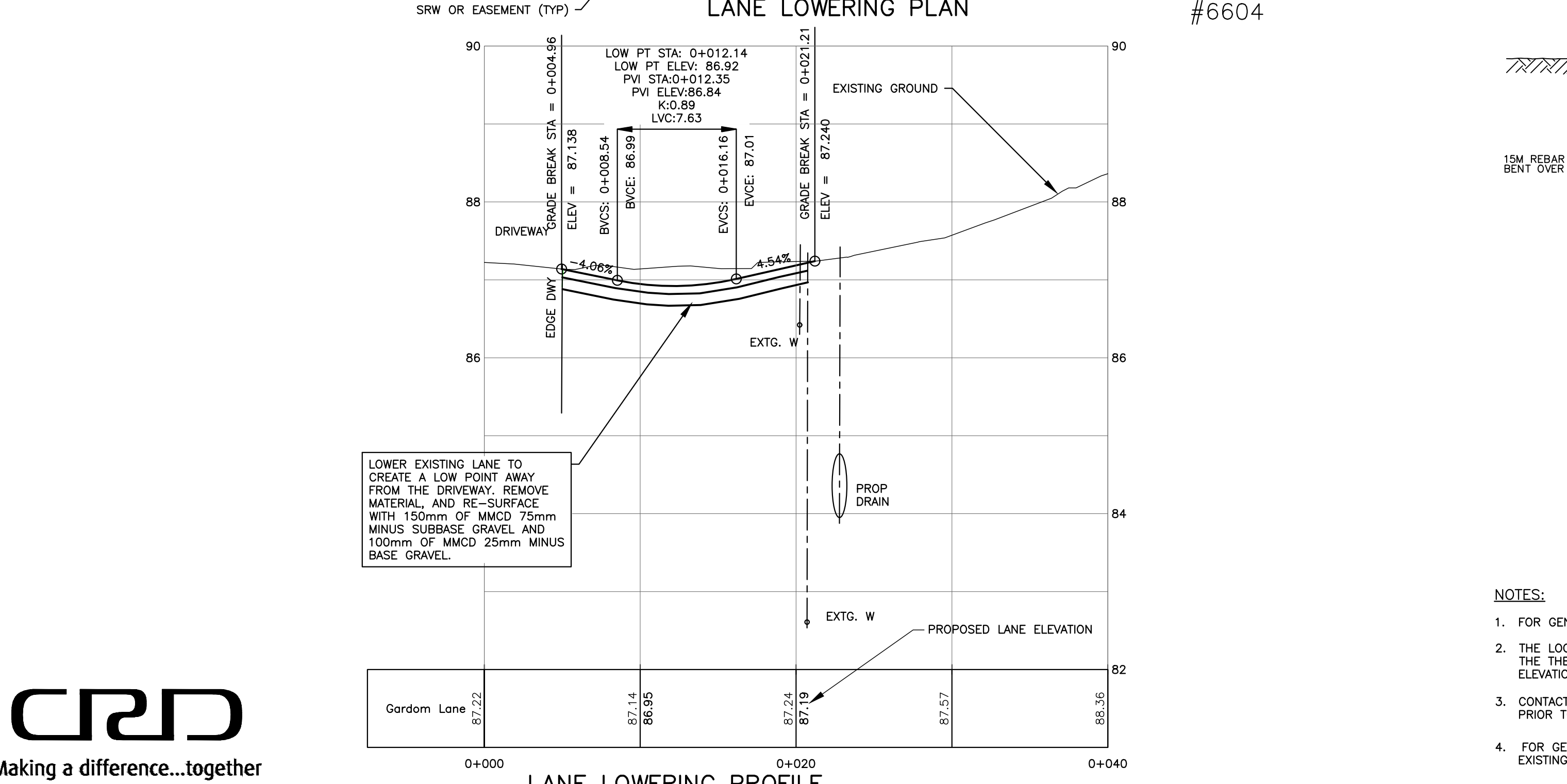
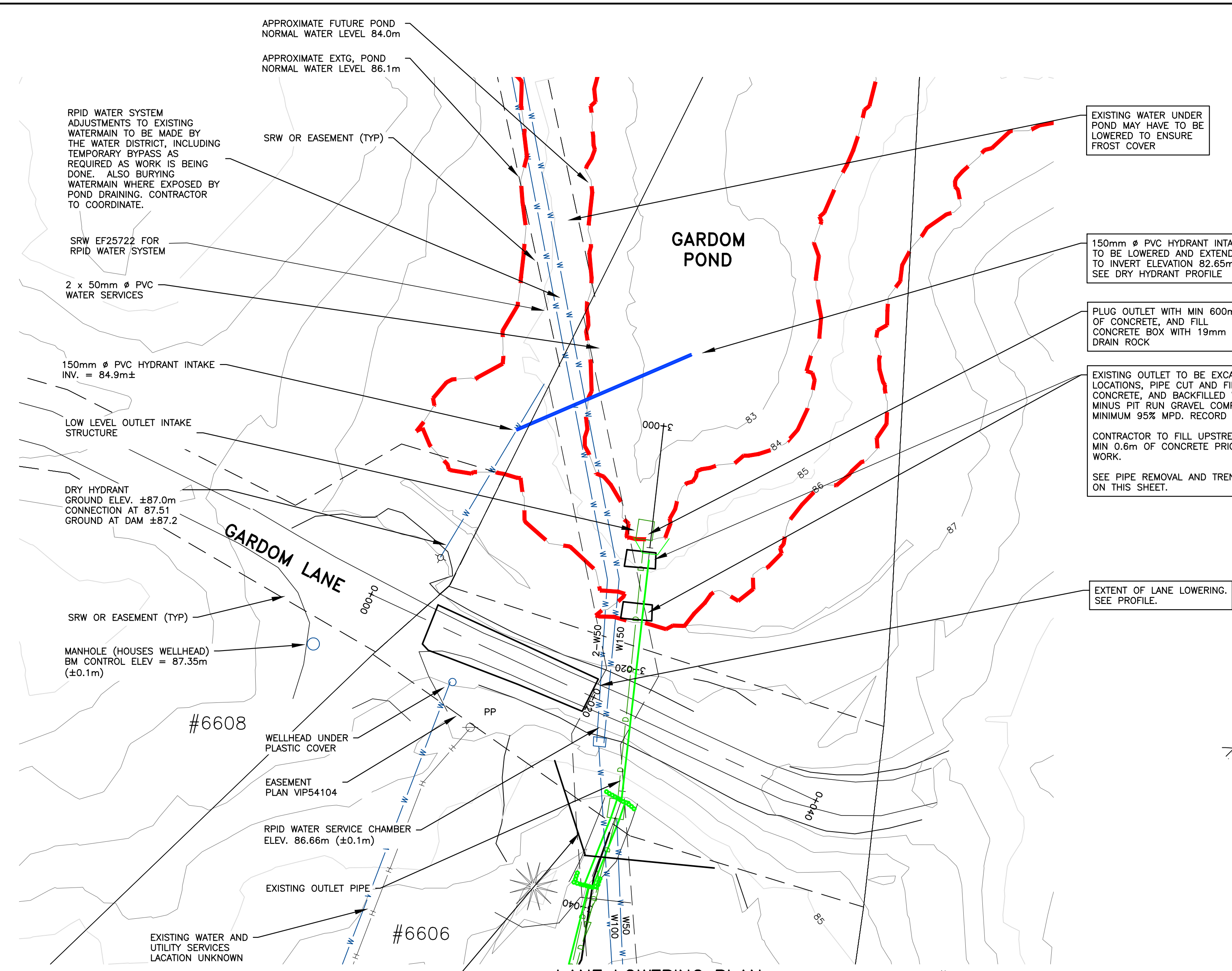
CAPITAL REGIONAL DISTRICT
PARKS AND ENVIRONMENTAL SERVICES

PROJECT
GARDOM POND, NORTH PENDER ISLAND
DAM NATURALIZATION
POND OUTLET PLAN AND PROFILE
CONTRACT # 16-1856C

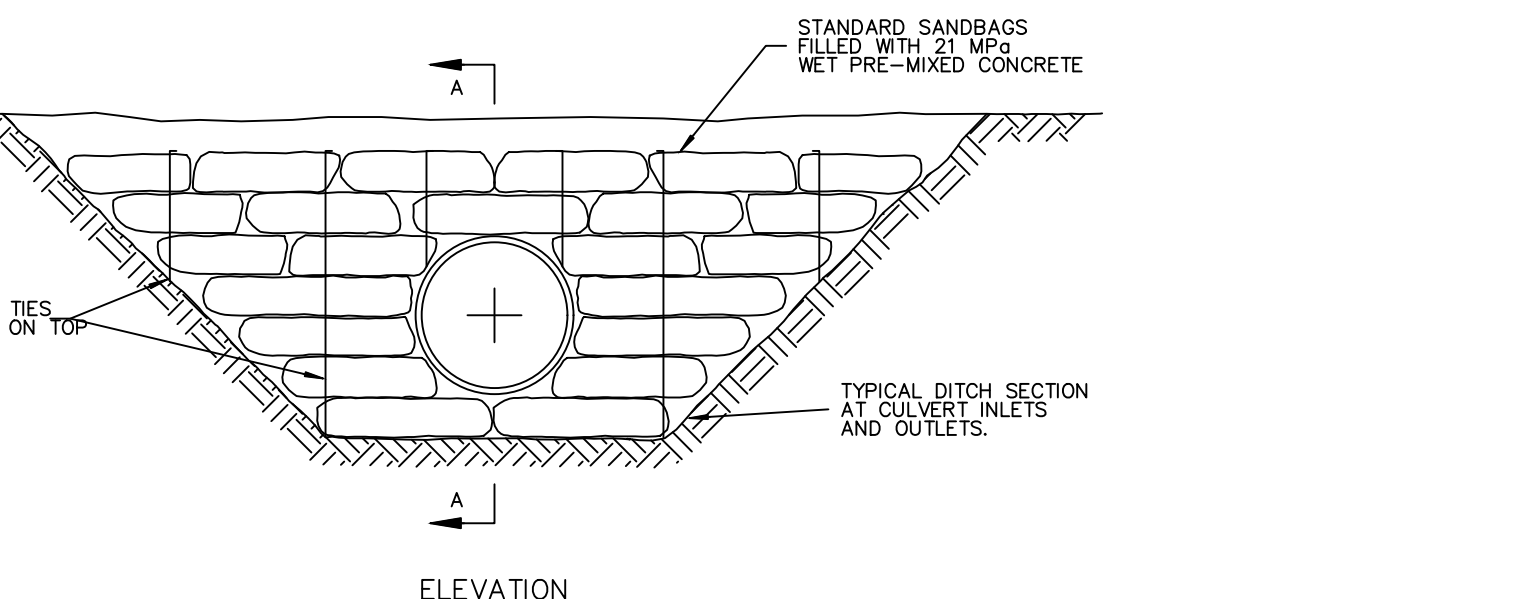
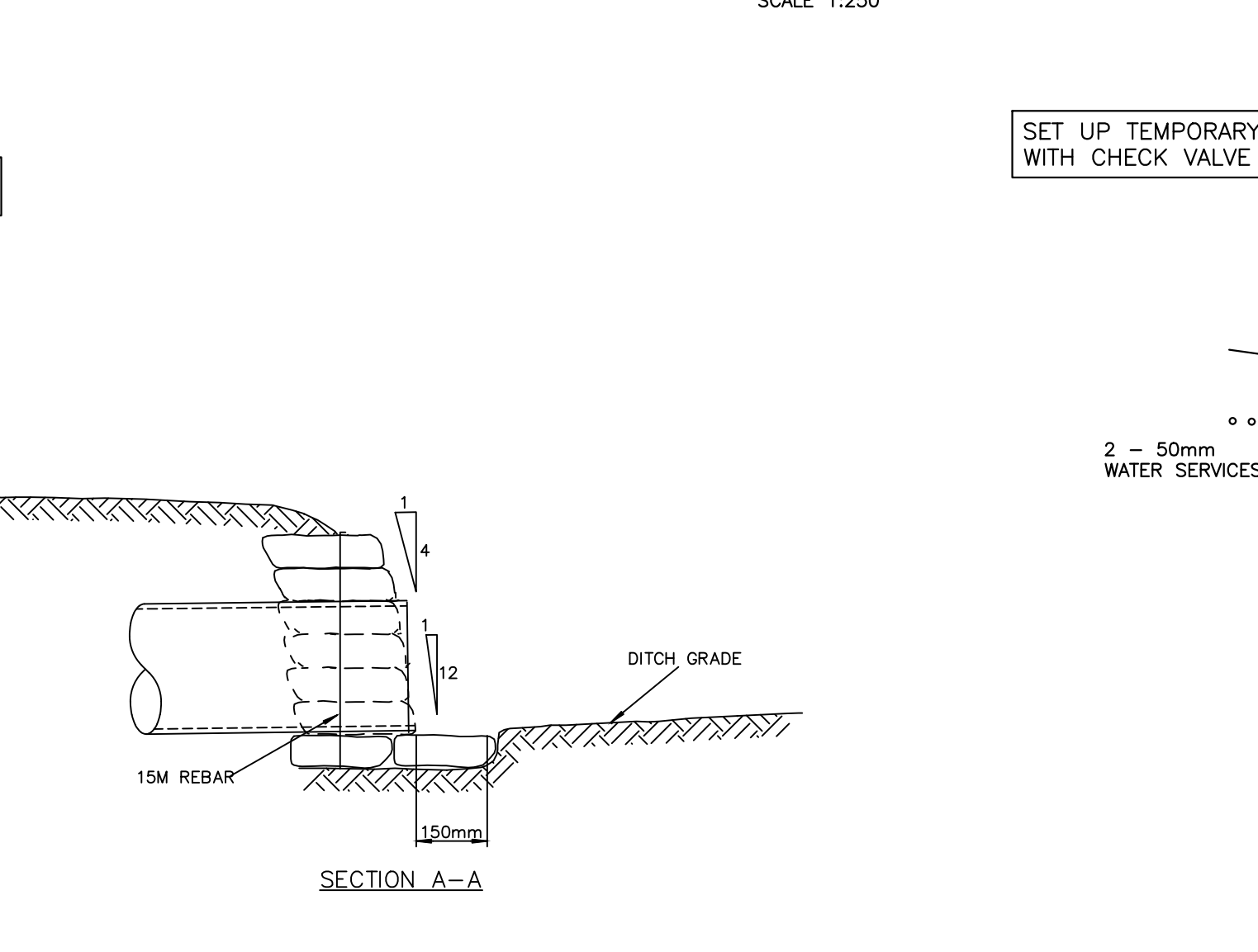
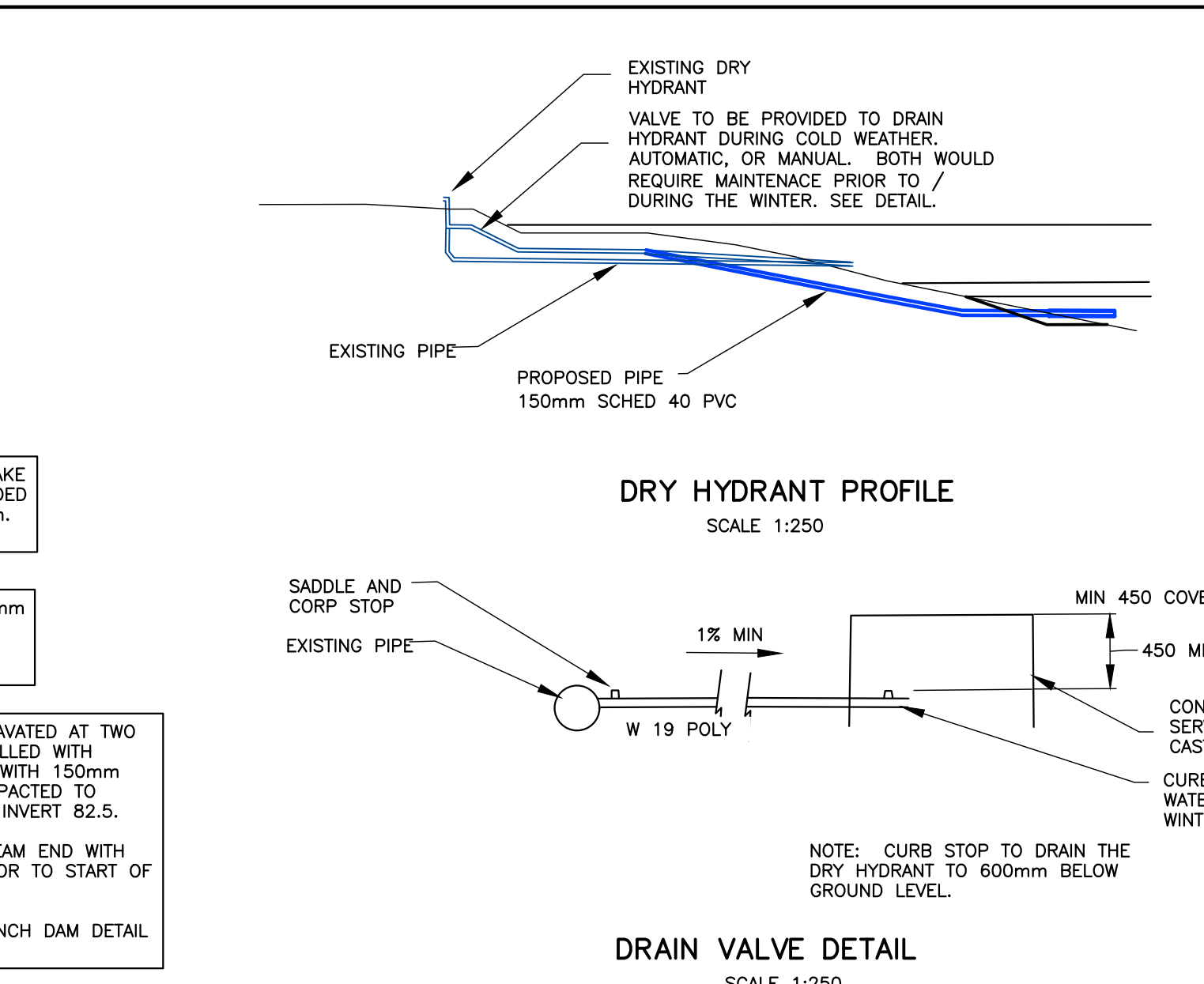
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ISSUE 1

SHEET 2 OF 4



NO.	REVISION DESCRIPTION	DATE	CHECK	APPR.
1	ISSUED FOR TENDER	FEB 27/19	JB	
0	ISSUED FOR COORDINATION	FEB 4/19	JB	



PERIOD	PRE-DEVELOPMENT	POST-DEVELOPMENT (2020)		POST-DEVELOPMENT (2100)	
	POND	DITCH	POND	DITCH	POND
Q2			30	35	35
Q5			45	50	60
Q10			60	70	
Q100			120	135	
Q200			135	155	215
			WL 84.28		WL 84.34

24 HOUR RAINFALL INTENSITIES BASED ON VICTORIA INTERNATIONAL AIRPORT AS FOLLOWS:

2020	2100
i2 = 55mm/hr	i2 = 60mm/hr
i5 = 70mm/hr	i5 = 77mm/hr
i10 = 84mm/hr	i10 = 84mm/hr
i100 = 115mm/hr	i100 = 132mm/hr
i200 = 122mm/hr	i200 = 140mm/hr

CULVERT CAPACITIES BASED ON SQUARE EDGE HEADWALLS:

900mm CULVERT 900 L/s AT HW/D = 1
600mm CULVERT 400 L/s AT HW/D = 1

FLAWS BASED ON SCS TR-20 METHOD WITH:

CN = 74 FOR FOREST ABOVE POND
CN = 75 FOR FOREST/DEVELOPED
CN = 98 FOR POND
RAINFALL: SEATTLE 24hr GAMMA 250
POND ASSUMED 100mm ABOVE INVERT AT START OF STORM
10 L/s ADDED FOR GROUNDWATER FLOWS. THIS IS 10mm/day OVER THE 8 HA DRAINAGE AREA



JEA J.E. ANDERSON & ASSOCIATES SURVEYORS -- ENGINEERS

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TEL: 250 - 758 - 4631 FAX: 250 - 758 - 4660
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JURISDICTION	CRD
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JEA PROJECT	89126
DESIGN:	JB
DRAWN:	MP

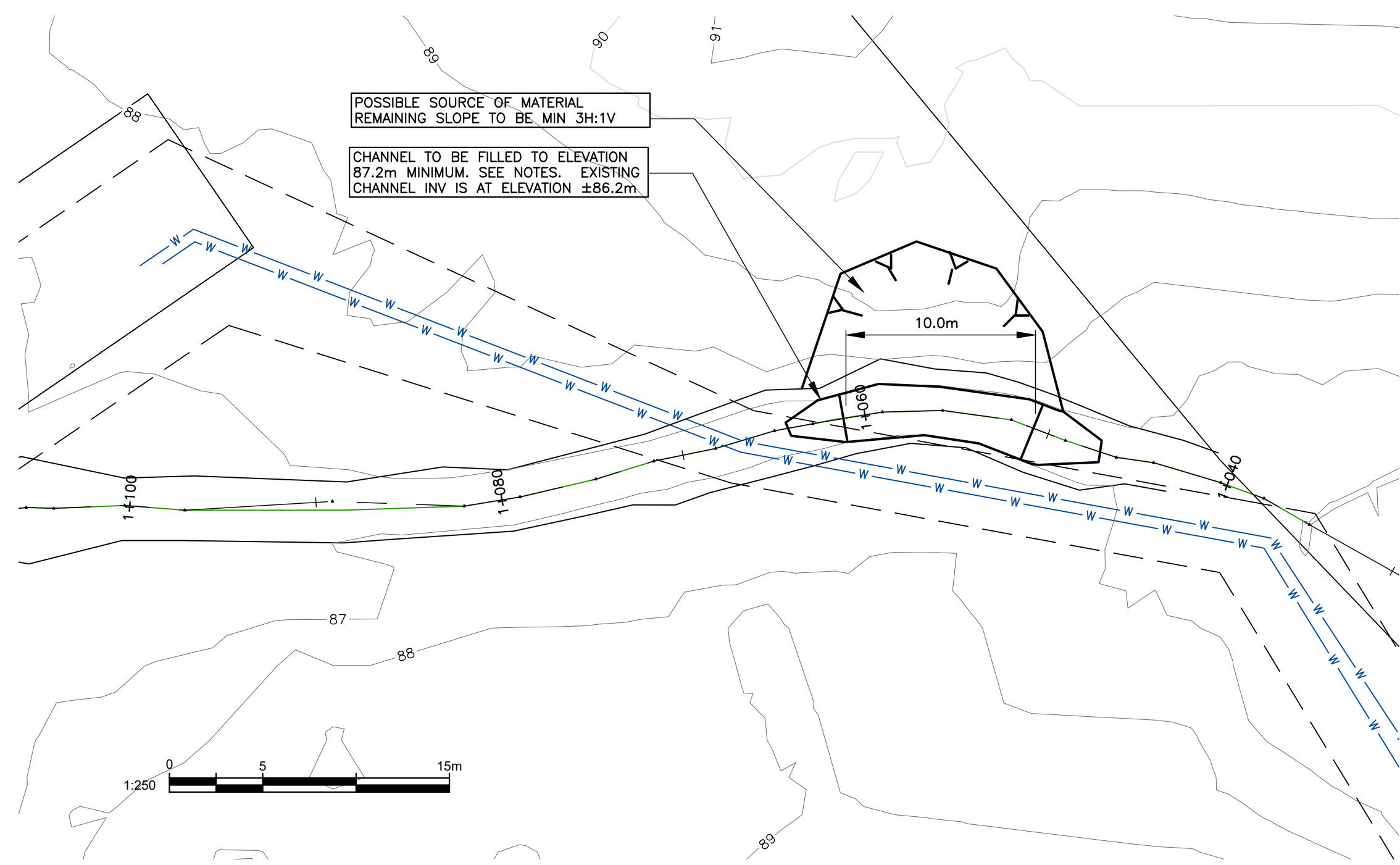
CLIENT: CAPITAL REGIONAL DISTRICT
PARKS AND ENVIRONMENTAL SERVICES

PROJECT: GARDOM POND, NORTH PENDER ISLAND
DAM NATURALIZATION
DAM AREA DETAILS
CONTRACT # 16-1856C

27-M156-C3 ISSUE 1

SHEET 3 OF 4

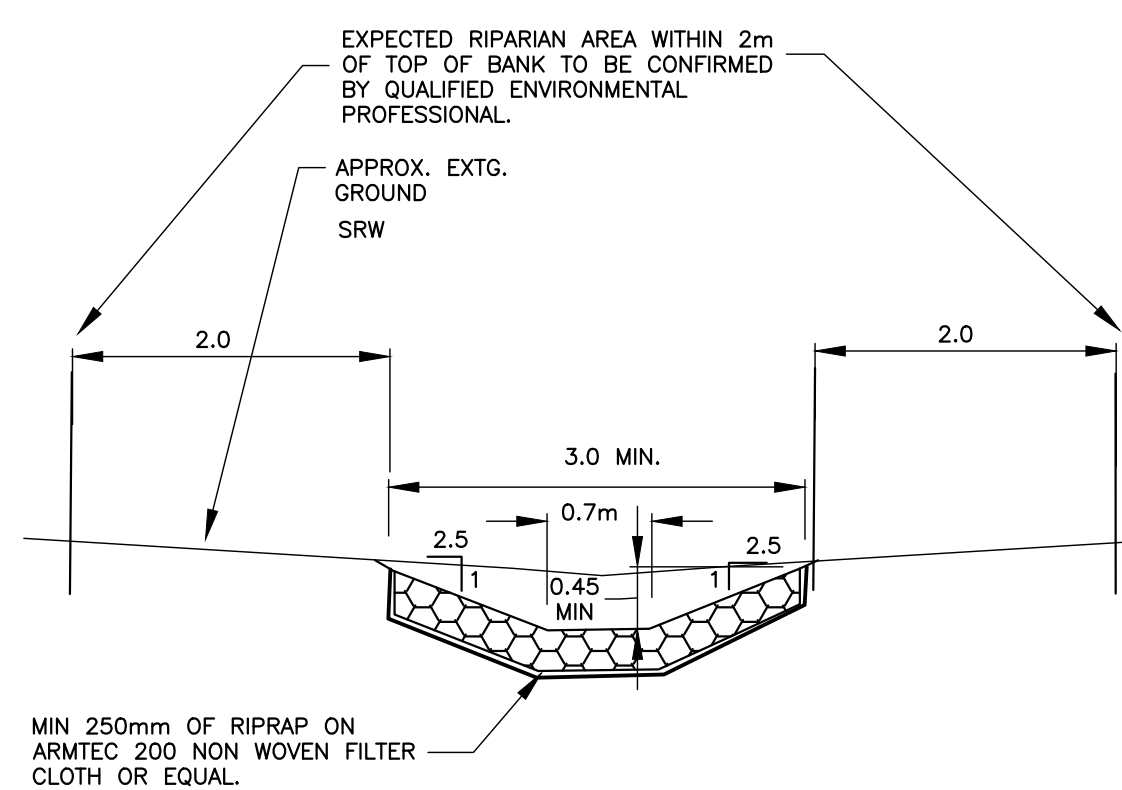




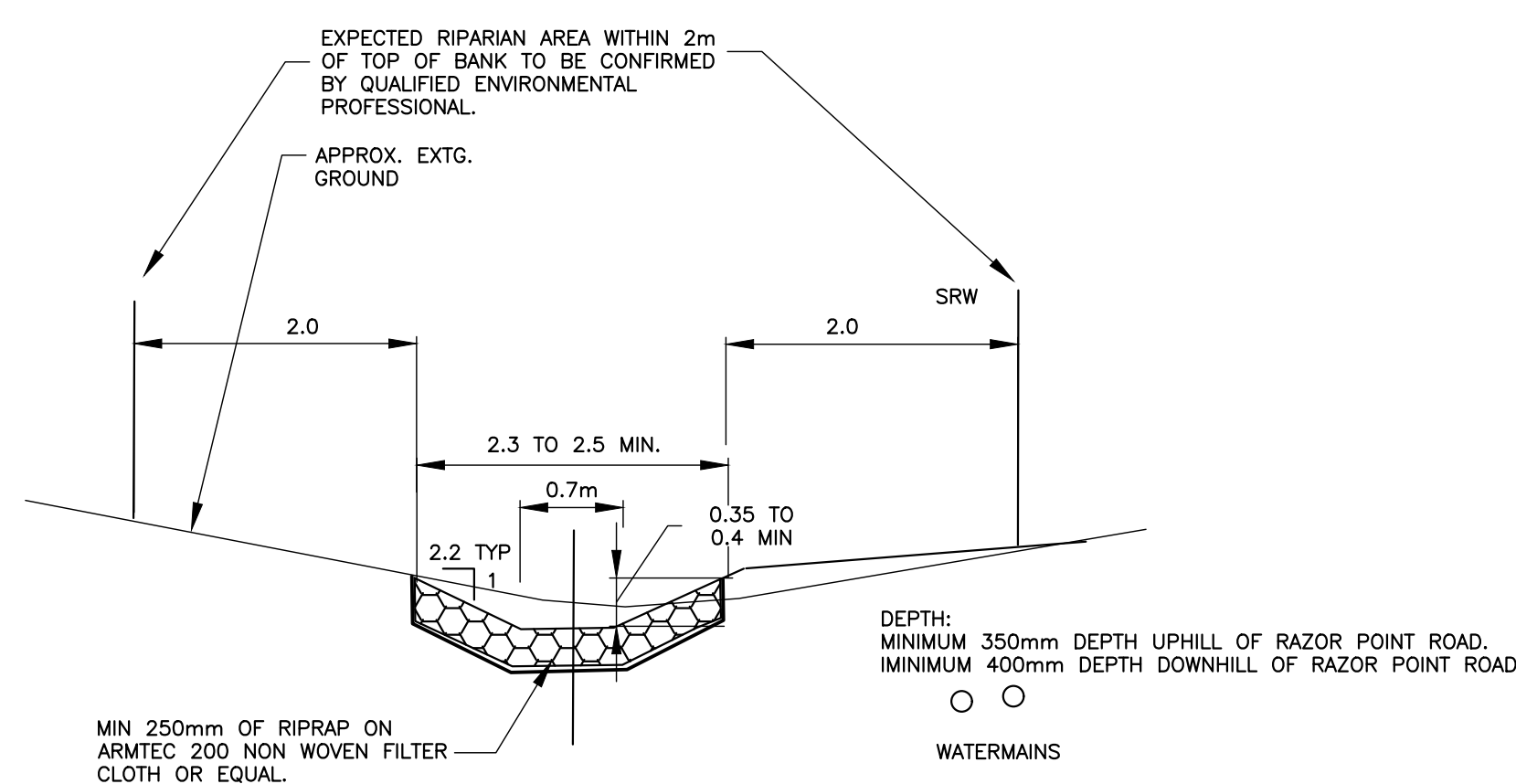
EXISTING CHANNEL FILLING
SCALE 1:250

EXISTING CHANNEL FILLING NOTES

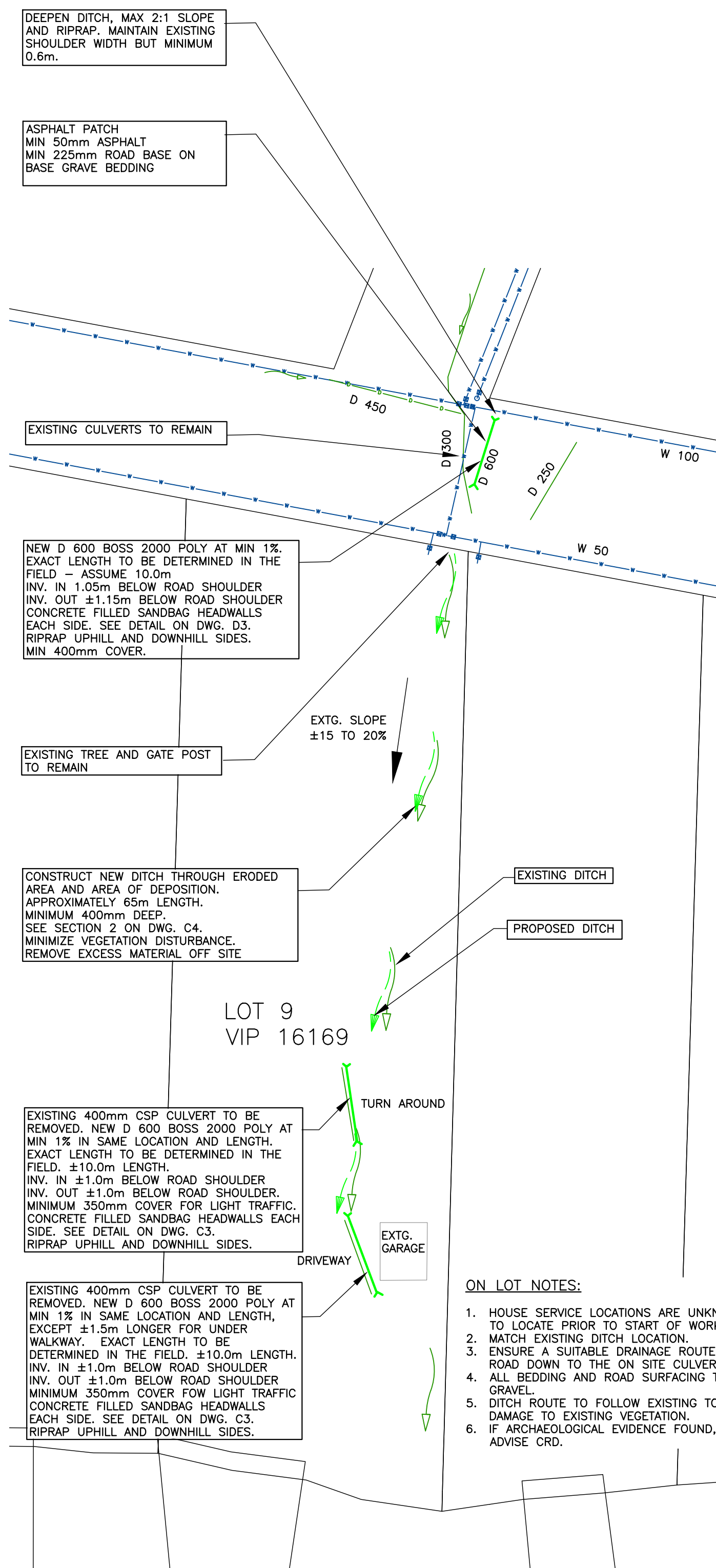
1. LOCATE AND PROTECT EXISTING WATER SERVICES PRIOR TO START OR CONSTRUCTION. NO FILLING WITHIN 1.0m OF WATER SERVICES.
2. CLEAR EXISTING TREES AND REMOVE STUMPS AND ORGANIC MATERIAL IN FILL AREA.
3. MIN. TOP OF FILL LENGTH AT 87.3m TO BE 10m LONG
4. SIDE SLOPES DOWNSTREAM 3:1, UPSTREAM 4:1
5. USE SUITABLE INORGANIC SOIL COMPACTED TO MINIMUM 90% MPD, EXCEPT TOP SURFACE TO BE 300mm OF TOPSOIL. A SMALL AMOUNT (LESS THAN 10%) ORGANIC MATERIAL WILL BE ACCEPTABLE IN THE BACKFILL.
6. MATERIAL CAN BE SUITABLE EXCAVATED MATERIAL FROM ROAD, CULVERTS OR DITCHES.



CRD / ENGINEERED TYPICAL SECTION
SCALE ±1:50



CRD / ENGINEERED TYPICAL SECTION
SCALE ±1:50

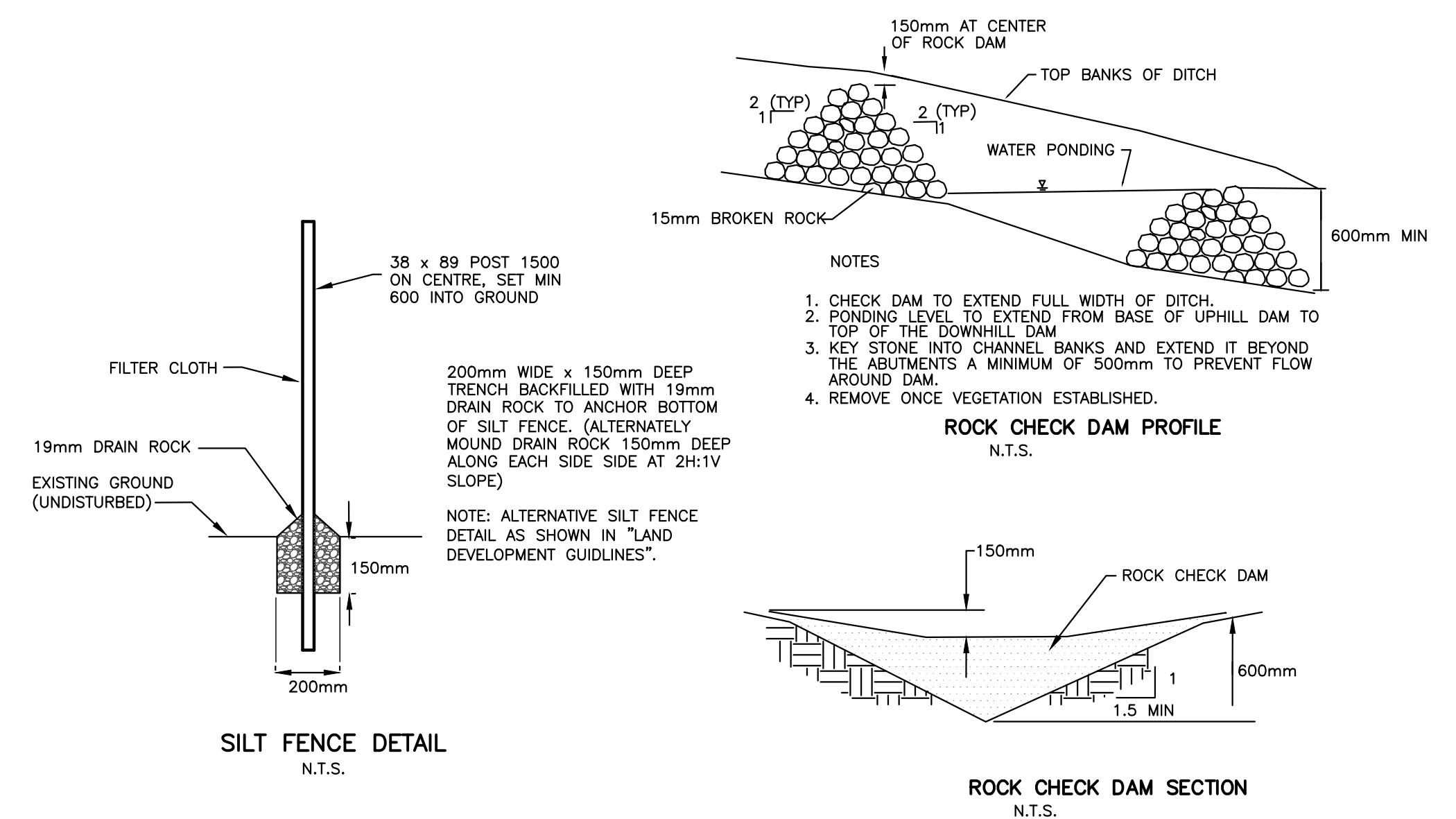


DOWNSTREAM IMPROVEMENTS
SCALE 1:500

LOT 9
VIP 16169

ON LOT NOTES:

1. HOUSE SERVICE LOCATIONS ARE UNKNOWN. CONTRACTOR TO LOCATE PRIOR TO START OF WORK.
2. MATCH EXISTING DITCH LOCATION.
3. ENSURE A SUITABLE DRAINAGE ROUTE FROM RAZOR POINT ROAD DOWN TO THE ON SITE CULVERTS.
4. ALL BEDDING AND ROAD SURFACING TO BE 25mm BASE GRAVEL.
5. DITCH ROUTE TO FOLLOW EXISTING TO ENSURE MINIMUM DAMAGE TO EXISTING VEGETATION.
6. IF ARCHAEOLOGICAL EVIDENCE FOUND, STOP WORK AND ADVISE CRD.



SILT FENCE DETAIL
N.T.S.

EROSION AND SEDIMENT CONTROL

1. EROSION AND SEDIMENT CONTROL FOR THIS PROJECT WILL BE AS OUTLINED IN THE FISHERIES AND OCEANS CANADA AND MINISTRY OF WATER, LANDS, AND AIR PROTECTION HANDBOOK ENTITLED "LAND DEVELOPMENT GUIDELINES FOR THE PROTECTION OF AQUATIC HABITAT, SEPTEMBER 1993" AND "ENVIRONMENTAL BEST MANAGEMENT PRACTICES FOR URBAN AND RURAL LAND DEVELOPMENT IN BRITISH COLUMBIA, JUNE 2004".
2. THE CONSULTANT ASSUMES NO RESPONSIBILITY FOR DAMAGES RESULTING FROM IMPROPER EROSION AND SEDIMENT CONTROL MEASURES UNDERTAKEN BY THE CONTRACTOR.
3. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT NO MUD, SOIL, SILT, OR ANY OTHER SUBSTANCES ARE SPILLED, DROPPED, WASHED, OR TRACKED ONTO ADJACENT PROPERTIES.
4. PRIOR TO CONSTRUCTION, INSTALL A TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT TO LIMIT TRACKING OF SITE SOILS ONTO OFFSITE ROADWAYS. THE WIDTH OF THE PAD SHOULD NOT BE LESS THAN THE FULL WIDTH OF POINT OF INGRESS OR EGRESS AND IN ANY CASE SHOULD NOT BE LESS THAN 6m WIDE WITH A LENGTH OF THE PAD TO BE NOT LESS THAN 20m AND HAVING A MINIMUM THICKNESS OF 200mm (8") OF COURSE GRANULAR MATERIAL. COURSE GRANULAR MATERIAL SUCH AS 75mm SHOT ROCK OR FRACTURED DRAIN ROCK UNDERLAIN WITH GEO-TEXTILE FABRIC IS RECOMMENDED.
5. THE ENTRANCE SHOULD BE MAINTAINED FOR THE DURATION OF CONSTRUCTION, IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY, OR AREAS THAT LEAD TO CATCH BASINS CONNECTED TO PUBLIC SYSTEMS. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL MATERIAL AS CONDITIONS DEMAND.
6. PRIOR TO CONSTRUCTION, CLEARLY FLAG OR FENCE AREAS OF NO DISTURBANCE AS WELL AS ANY DESIGNATED TREES AND SHRUBS THAT ARE TO BE PRESERVED. MARKINGS ARE TO REMAIN IN PLACE THROUGHOUT CONSTRUCTION.
7. STRIP AND GRUB ONLY THOSE AREAS NECESSARY FOR THE CURRENT CONSTRUCTION. STAGE CONSTRUCTION OPERATIONS TO LIMIT DISTURBANCE AND DO NOT STRIP ANY AREA UNTIL REQUIRED.
8. GRADE WORK AREAS AWAY FROM ADJACENT PROPERTIES AND TOWARDS THE SEDIMENT POND ON THE SITE FOR DISPERSAL AND INFILTRATION.
9. REVEGETATE AREAS AS SOON AS POSSIBLE IN THE FALL.
10. SILT FENCING IS TO BE INSTALLED AROUND ALL STOCK/SPOIL PILES, OR PILES ARE TO BE OTHERWISE COVERED TO LIMIT EROSION AND SEDIMENT GENERATION.
11. ROUTINE INSPECTION AND MAINTENANCE OF THE SYSTEM COMPONENTS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHOULD DESIGNATE AN ON-SITE PERSON TO BE RESPONSIBLE FOR DAY-TO-DAY MANAGEMENT OF THE ESCP. AT A MINIMUM, INSPECT ALL BMP'S WEEKLY TO ENSURE PROPER FUNCTION WITH INSPECTION REPORTS PROVIDED TO THE ENGINEER FOR REVIEW.
12. DURING AND/OR FOLLOWING EACH SIGNIFICANT STORM EVENT, THE DESIGNATED SITE PERSON SHOULD OBSERVE THE SETTLEMENT PONDS AND STORM DRAIN TO CONFIRM THAT TURBID WATERS FROM SOURCES ASSOCIATED WITH CONSTRUCTION ARE NOT ENTERING THE STORM DRAINAGE SYSTEM. TAKE IMMEDIATE CORRECTIVE ACTION IF INSPECTION INDICATES A PROBLEM. RECORD INSPECTION DATES, ANY SIGNIFICANT OBSERVATIONS, AND ACTIONS TAKEN, THEN INFORM THE ENGINEER IN CHARGE AND THE CITY OF NANAIMO.

SILT CONTROL APPLICABLE TO THIS SITE:

- COMPLETE WORK IN DRY WEATHER
- LOWER POND LEVEL WELL BEFORE EXCAVATION AT THE LOWER LEVELS
- RE-DIRECT RUNOFF AWAY FROM DISTURBED AREAS
- DIRECT SILTY WATER INTO ADJACENT VEGETATION FOR CLEANING
- INSTALL SILT FENCE AT CRITICAL AREAS
- INSTALL CHECK DAMS ON DITCHES AND SWALES
- COMPLETE WORK INCLUDING HYDROSEEDING DISTURBED AREAS BY SEPTEMBER 15.
- USE POND WATER AND A PUMP AND FIRE HOSES TO WET DOWN AREA PRIOR TO HYDROSEEDING. 25mm DEPTH OF WATER 2 DAYS PRIOR AND 25mm OF WATER 1 DAY PRIOR TO HYDROSEEDING (FOR AREAS WITHIN 100m OF POND)
- HYDROSEED SITE AT THE OPPORTUNE TIME IN LATE SUMMER / EARLY FALL

NOTES:

1. FOR GENERAL ROAD AND SERVICING NOTES, REFER TO DRAWING C1.
2. THE LOCATIONS AND ELEVATIONS OF EXISTING SERVICES ARE APPROXIMATE ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO CONFIRM ALL LOCATIONS, SIZE, MATERIAL AND ELEVATIONS PRIOR TO CONSTRUCTION AND INFORM THE ENGINEER OF ANY DISCREPANCY.
3. CONTACT BC HYDRO, TELLUS, SHAW, AND FORTIS BC (BC ONE CALL), A MINIMUM 3 DAYS PRIOR TO START OF ANY WORK.
4. FOR GENERAL, SERVICING, CULVERT INSTALLATION, ROCK WALL AREA, DITCH ALONG EXISTING WATERMAIN SRW, AND POND EMPYING NOTES, SEE DWG. C1.

LEGAL DESCRIPTION	VIP 53931, VIP 38342, AND VIP 28575
PROJECT DATUM	ELEVATIONS ARE GEODETIC AND TO NAD83

NO.	REVISION DESCRIPTION	DATE	CHECK	APPR.
1	FOR TENDER - ON LOT 9, MATCH EXTG. DITCH/CULV LOCATION	FEB 28/19	JB	
00	ISSUED FOR TENDER	FEB 27/19	JB	
0	ISSUED FOR COORDINATION	FEB 4/19	JB	

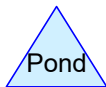
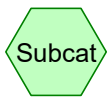
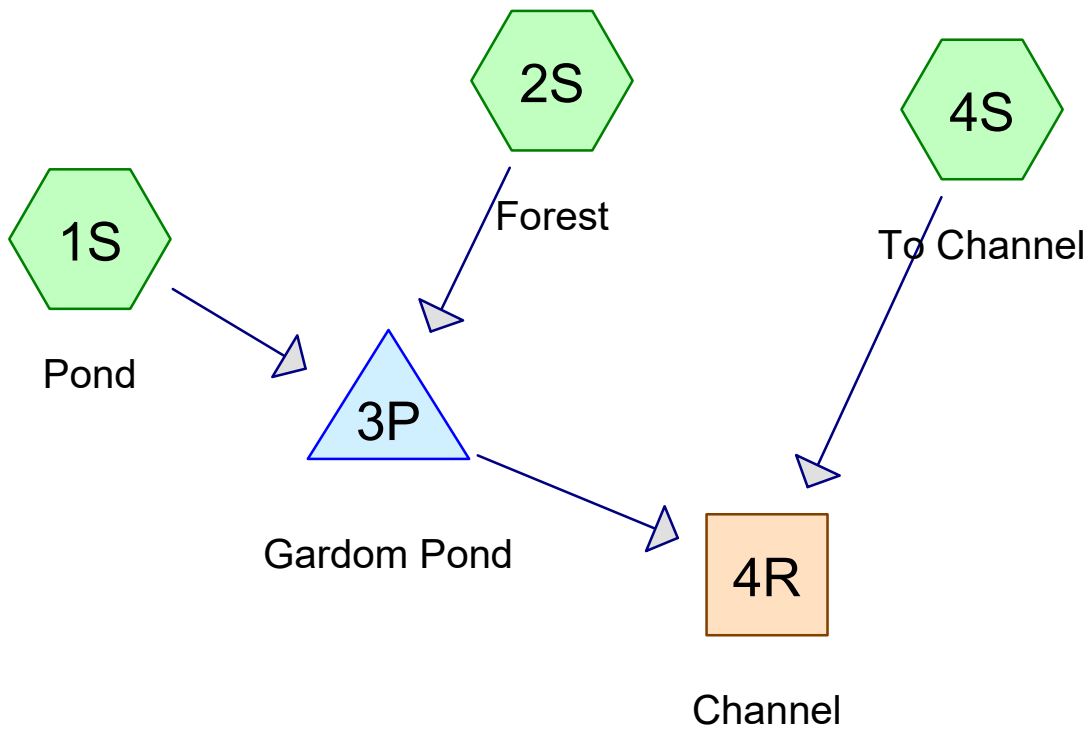
LEGEND	
LAMP STANDARD	○
POLE (Hydro, Tel.)	⊕
U/G WIRING	—
GAS	—
SERVICE RISER	○
WATER	—
SEWER	—
DRAIN	—
CLEANOUT	○
CATCHBASIN	⊞
MANHOLE	○
SERVICE RISER	○
MOUNTABLE CURB	—MC—
NON-MOUNT. CURB	—NMC—
EDGE ASPHALT	—
DITCH	—
METER	⊞
FLUSH VALVE	⊞
VALVE	⊞
REDUCER	▷
HYDRANT	⊞
AIR VALVE	⊞

JEA J.E. ANDERSON & ASSOCIATES
SURVEYORS -- ENGINEERS
1A - 3411 SHENTON ROAD, NANAIMO, B.C. V9T 2H1
TEL: 250 - 758 - 4631 FAX: 250 - 758 - 4660
E-MAIL : nanaimo@jeanderson.com

JURISDICTION	CRD
SCALE:	1:250 HORIZ.
JEA PROJECT	89126
DESIGN:	JB
DRAWN:	MP

CLIENT: CAPITAL REGIONAL DISTRICT
PARKS AND ENVIRONMENTAL SERVICES
PROJECT: GARDOM POND, NORTH PENDER ISLAND
DAM NATURALIZATION
DOWNSTREAM WORKS / DETAILS / SILT CONTROL
CONTRACT # 16-1856C
27-M156-C4
ISSUE 1
SHEET 4 OF 4





Routing Diagram for 20190202-89126-gardom-all
 Prepared by JE Anderson and Associates, Printed 2/27/2019
 HydroCAD® 10.00 s/n 03581 © 2012 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Pond

Runoff = 0.0638 m³/s @ 7.90 hrs, Volume= 0.545 MI, Depth=109 mm

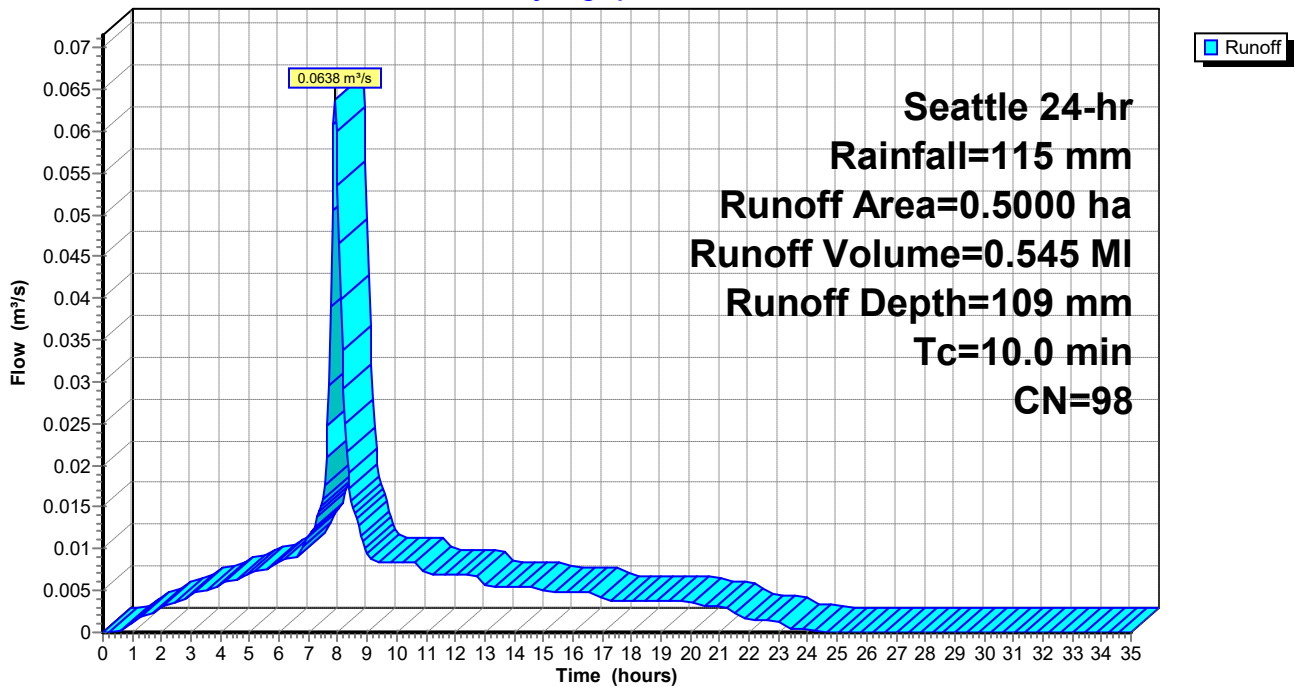
Runoff by SCS TR-20 method, UH=Gamma-250, Time Span= 0.00-35.00 hrs, dt= 0.05 hrs
 Seattle 24-hr Rainfall=115 mm

Area (ha)	CN	Description
* 0.5000	98	
0.5000		100.00% Impervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
10.0					Direct Entry,

Subcatchment 1S: Pond

Hydrograph



Summary for Subcatchment 2S: Forest

Runoff = 0.2040 m³/s @ 8.28 hrs, Volume= 3.798 MI, Depth= 51 mm

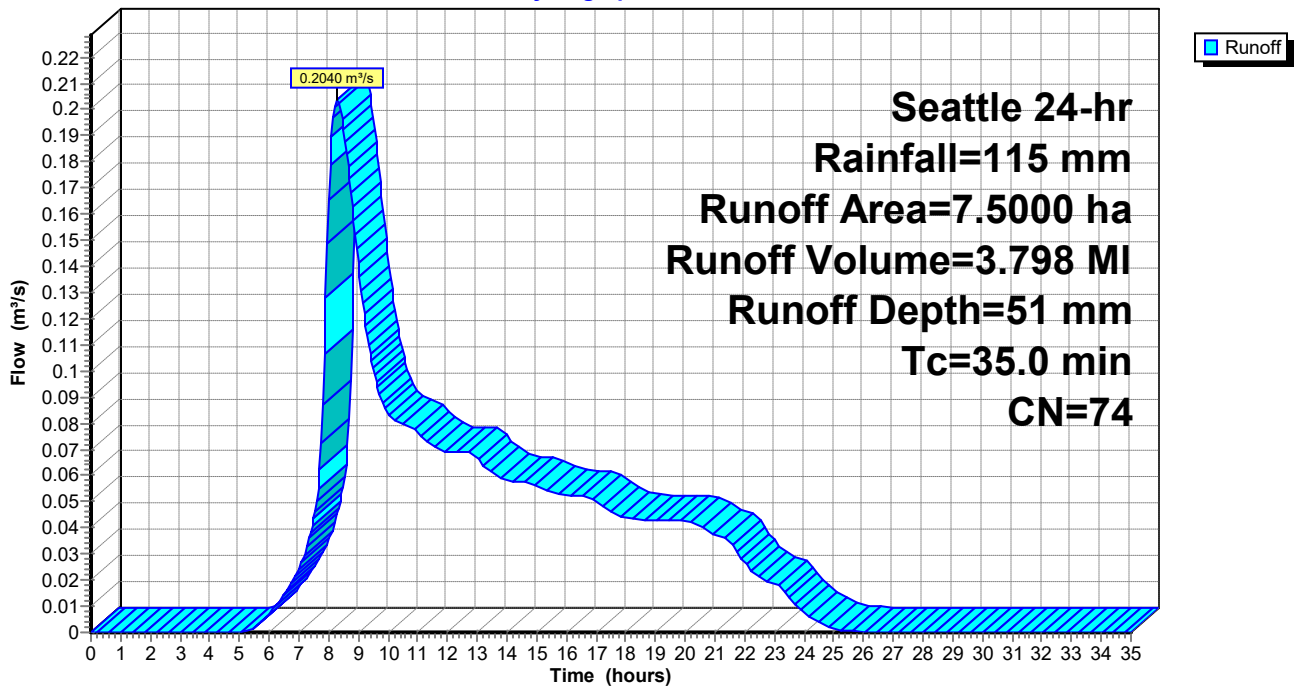
Runoff by SCS TR-20 method, UH=Gamma-250, Time Span= 0.00-35.00 hrs, dt= 0.05 hrs
 Seattle 24-hr Rainfall=115 mm

Area (ha)	CN	Description
* 7.5000	74	
7.5000		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
35.0					Direct Entry,

Subcatchment 2S: Forest

Hydrograph



Summary for Subcatchment 4S: To Channel

Runoff = 0.2337 m³/s @ 8.20 hrs, Volume= 3.895 MI, Depth= 53 mm

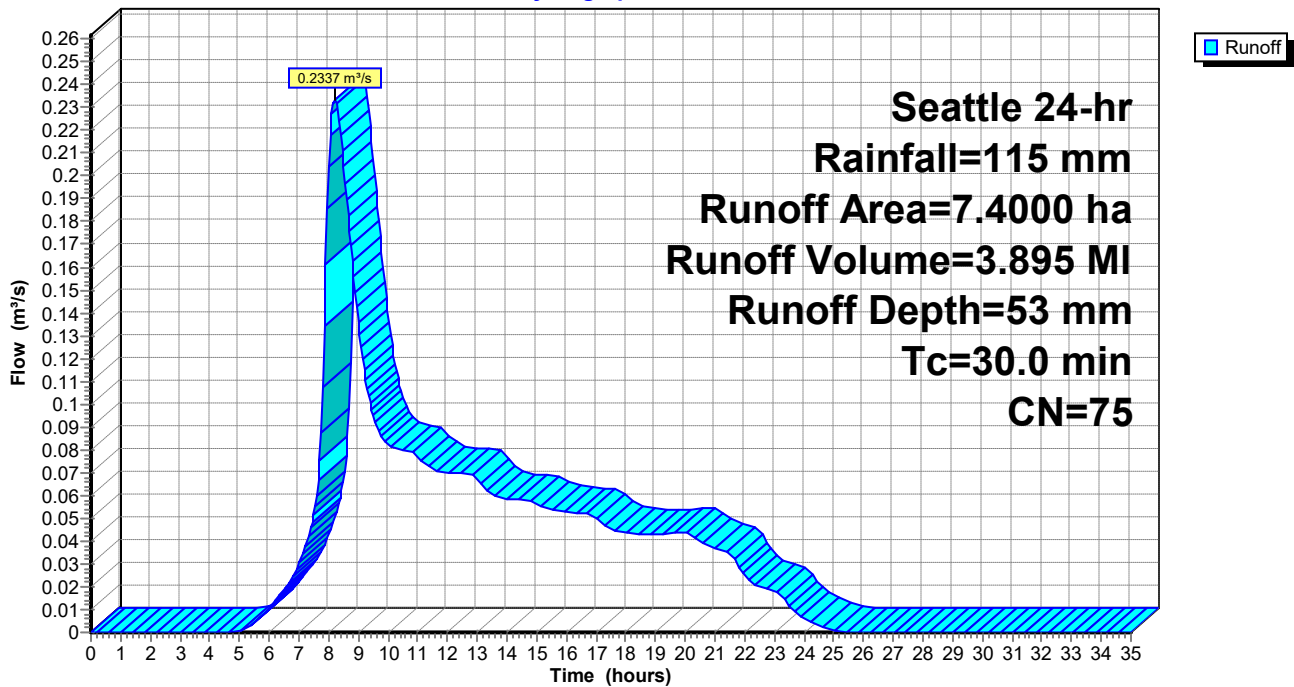
Runoff by SCS TR-20 method, UH=Gamma-250, Time Span= 0.00-35.00 hrs, dt= 0.05 hrs
 Seattle 24-hr Rainfall=115 mm

Area (ha)	CN	Description
* 7.4000	75	
7.4000		100.00% Pervious Area

Tc (min)	Length (meters)	Slope (m/m)	Velocity (m/sec)	Capacity (m ³ /s)	Description
30.0					Direct Entry,

Subcatchment 4S: To Channel

Hydrograph



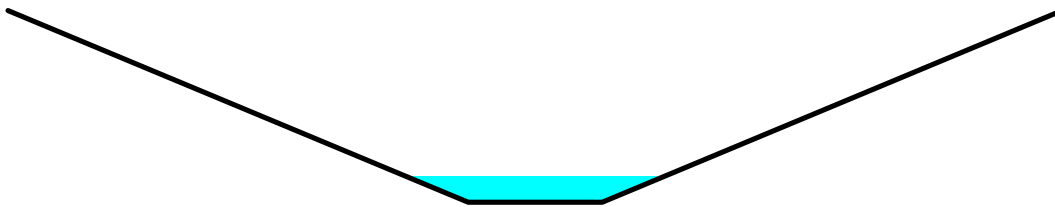
Summary for Reach 4R: Channel

Inflow Area = 15.4000 ha, 3.25% Impervious, Inflow Depth = 53 mm
 Inflow = 0.2933 m³/s @ 8.29 hrs, Volume= 8.237 MI
 Outflow = 0.2933 m³/s @ 8.29 hrs, Volume= 8.237 MI, Atten= 0%, Lag= 0.2 min

Routing by Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.05 hrs
 Max. Velocity= 2.08 m/s, Min. Travel Time= 0.2 min
 Avg. Velocity = 1.20 m/s, Avg. Travel Time= 0.4 min

Peak Storage= 4.2 m³ @ 8.29 hrs
 Average Depth at Peak Storage= 0.14 m
 Bank-Full Depth= 1.00 m Flow Area= 3.10 m², Capacity= 19.5443 m³/s

Custom cross-section, Length= 30.00 m Slope= 0.1500 m/m
 Constant n= 0.040
 Inlet Invert= 82.000 m, Outlet Invert= 77.500 m

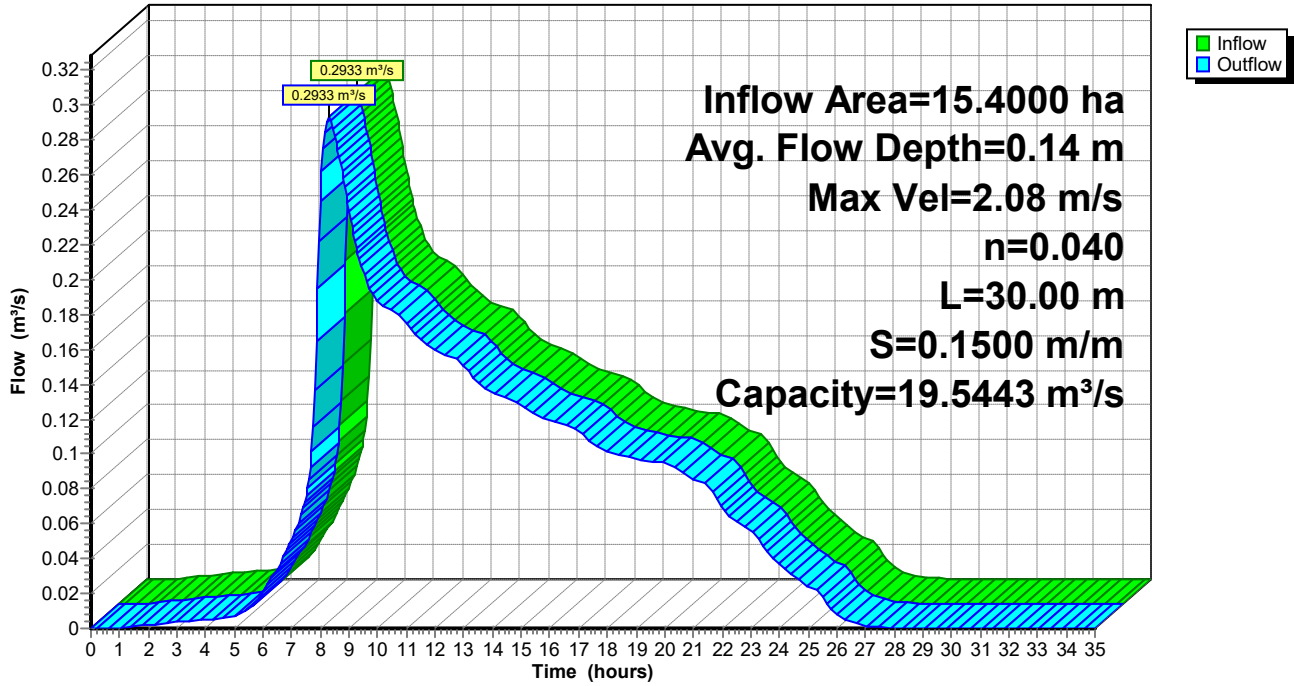


Offset (meters)	Elevation (meters)	Chan.Depth (meters)
-0.400	83.300	0.00
2.000	82.300	1.00
2.700	82.300	1.00
5.100	83.300	0.00

Depth (meters)	End Area (sq-meters)	Perim. (meters)	Storage (cubic-meters)	Discharge (m ³ /s)
0.00	0.00	0.70	0.0	0.0000
1.00	3.10	5.90	93.0	19.5443

Reach 4R: Channel

Hydrograph



Summary for Pond 3P: Gardom Pond

Inflow Area = 8.0000 ha, 6.25% Impervious, Inflow Depth = 54 mm
 Inflow = 0.2306 m³/s @ 8.16 hrs, Volume= 4.343 MI
 Outflow = 0.1086 m³/s @ 9.51 hrs, Volume= 4.343 MI, Atten= 53%, Lag= 81.0 min
 Primary = 0.1086 m³/s @ 9.51 hrs, Volume= 4.343 MI

Routing by Stor-Ind method, Time Span= 0.00-35.00 hrs, dt= 0.05 hrs
 Peak Elev= 84.256 m @ 9.51 hrs Surf.Area= 0.4360 ha Storage= 0.756 MI

Plug-Flow detention time= 110.5 min calculated for 4.343 MI (100% of inflow)
 Center-of-Mass det. time= 110.4 min (878.3 - 767.9)

Volume	Invert	Avail.Storage	Storage Description
#1	84.100 m	4.365 MI	Custom Stage Data (Prismatic) Listed below

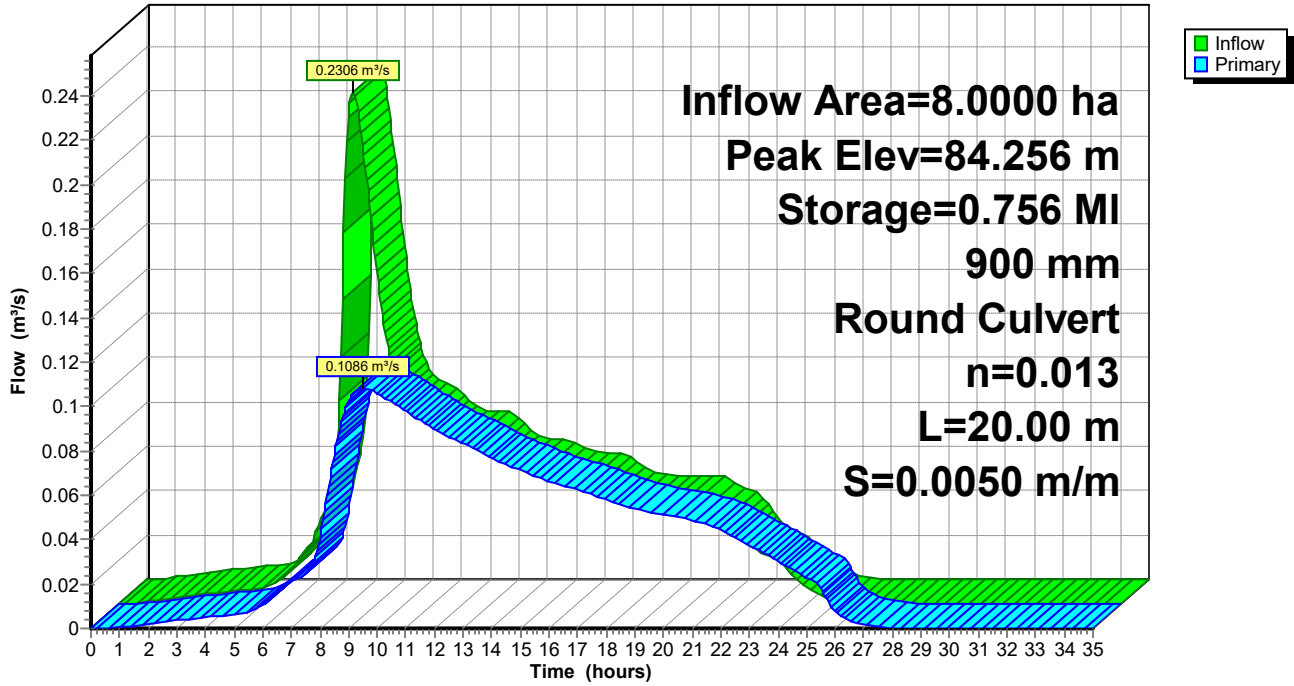
Elevation (meters)	Surf.Area (hectares)	Inc.Store (Mega-liters)	Cum.Store (Mega-liters)
84.100	0.4100	0.000	0.000
85.000	0.5600	4.365	4.365

Device	Routing	Invert	Outlet Devices
#1	Primary	84.000 m	900 mm Round Culvert L= 20.00 m RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 84.000 m / 83.900 m S= 0.0050 m/m Cc= 0.900 n= 0.013, Flow Area= 0.636 m²

Primary OutFlow Max=0.1085 m³/s @ 9.51 hrs HW=84.256 m (Free Discharge)
 ↑**1=Culvert** (Barrel Controls 0.1085 m³/s @ 1.09 m/s)

Pond 3P: Gardom Pond

Hydrograph



ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors	March	April	May	June	July	August	September
1		Environmental Management Plan	52 days	Mon 07/01/19	Tue 19/03/19								
2		Land Encumbrances	20 days	Mon 03/12/18	Fri 28/12/18								
3		Legal Joint Agreement	25 days	Fri 04/05/18	Thu 07/06/18								
4		Fire Department Notification of Amendment (previous review in May 2018)	1 day	Tue 05/03/19	Tue 05/03/19								
5		Decommissioning Plan Submitted to Dam Safety Office	30 days	Wed 06/03/19	Tue 16/04/19	1,2,3							
6		Islands Trust Notification of Amended Plan	1 day	Tue 05/03/19	Tue 05/03/19								
7		Tender Period	15 days	Tue 16/04/19	Mon 06/05/19	5							
8		Award, Contract Execution, Notice to Proceed	10 days	Mon 06/05/19	Fri 17/05/19	7							
9		Lower Water Level of Gardom Pond	30 days	Mon 27/05/19	Fri 05/07/19								
10		RPID Temporary Water Line Installation	10 days	Mon 08/07/19	Fri 19/07/19	8,9							
11		Construction Period	60 days	Tue 02/07/19	Mon 23/09/19	8							

Project: 16-1856C_GardomPon Date: Wed 06/03/19	Task		Project Summary		Manual Task		Start-only		Deadline	
	Split		Inactive Task		Duration-only		Finish-only		Progress	
	Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
	Summary		Inactive Summary		Manual Summary		External Milestone			



Kathleen Reimer, MSc., R.P. Biologist.
Box 289, Ganges P.O.
Salt Spring Island, B.C. V8K 2V9

email: [REDACTED]

To: Ben Martin
CRD Engineering and Planning
479 Island Highway, Victoria, BC V9B 1H7

May 14, 2018

Environmental Impact Management report:
Gardom Pond, Pender Island B.C.
Dam decommissioning and new outlet stream construction

Dear Mr. Martin:

This letter deals with the management of the environmental impacts of the construction of the outlet stream on Gardom pond on North Pender Island. All documentation related to the decommissioning of the existing dam has been provided by the Capital Regional District (CRD). Background information has also been provided by some of the Gardom Pond property owners ([REDACTED] 2018, personal communication). The purpose of this report is to provide measures to manage the environmental aspects of the new spillway construction and minimize the impact on the aquatic habitat of the pond.

1. Introduction

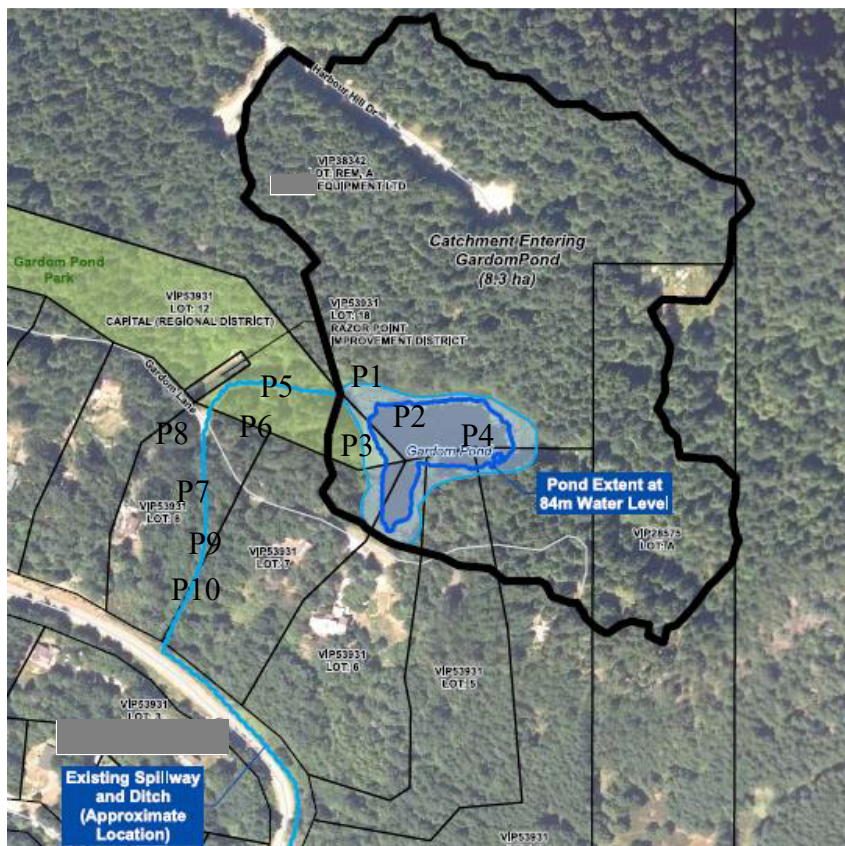
The present earthen dam on Gardom Pond has been assessed by the Provincial Dam Safety office and found to be at a risk of failing with a “High” consequence of damage for downstream properties and local inhabitants. The land around the pond is owned by 5 separate property owners and CRD Parks who have the larger portion of land along the outlet of the dam (Map 1). The park is maintained by the Pender Island Parks Commission.

After years of engineering studies, the Capital Regional District and property owners are proceeding with a plan to decommission the dam. The dam outlet stream will be reconstructed to pass a 1 in 200 year rain event, lowering the water levels of the reservoir by approximately 2 meters. The new outlet stream will be excavated and fortified, mainly through the park land. The first 30 meters of the channel from the wetland is on private property belonging to [REDACTED]

There has been a history of stocking the pond with trout although local residents state there have been none present for several years (personal communication). In 2009 when a Riparian Areas Assessment report was completed, the remains of an old fish fence were seen at the outlet of the pond (Reimer, 2009). Since there have been fish present at some time in the past, provision must be made to salvage any of them if necessary during the decommissioning process. Although it is unlikely that any will be found. The pond is known to support populations of redlegged frogs and rough skinned newts. Both of these species are protected under the British Columbia Wildlife Act. (personal communication)

The riparian vegetation, including the cattails (also known as Bull Rushes) along the foreshore of the pond, provides excellent habitat for nesting birds. The nesting times vary between June and August depending on the species. As red winged blackbirds use the cattails extensively, the area along the pond that will be excavated at the new outlet should not be disturbed until later in the summer.

Map 1. Shows Gardom Pond, property owners, outlet stream construction route and photograph locations



2. Outlet stream reconstruction description

The new outlet stream will be excavated to an elevation of 84m. This will result in an excavation that is 2-2.5 meters deep with sloped banks, impacting a width of approximately 5 meters.

The first 25 meters of the new outlet channel closest to the wetland will be within the area where the water level has been lowered. Photographs 1-4 show the existing vegetation and the wetland. There are sedges, waterlilies and bull rushes (cattails) present in the riparian areas.

The next 100 meters along the new spillway are naturally vegetated with a second growth Douglas fir forest, the trees ranging from 20-30 cm. in diameter (Photograph 5). The entire new channel is within the catchment area of the Razor Point community well that is situated just off Gardom Lane.

Photograph 6 shows the outlet stream above the culvert on Gardom Lane. From Gardom Lane to Harbour Hill Drive, the new channel will be 3.5 m wide and 0.6 m deep and lined with rip rap rock, approximately 0.35 meters thick. (Photos 7-10)

3. Managing Impacts of the Outlet Channel reconstruction

3a. The new outlet stream near Gardom Pond (Map 2, Photos 1- 4)

The important environmental concern is the section of the excavation that takes place within the present wetland boundaries. The work area will extend into the pond, so it is important to lower the water slightly below 84m. The pond water should also be at low level for at least one month before the excavation takes place in order to ensure that the work area is completely dry.

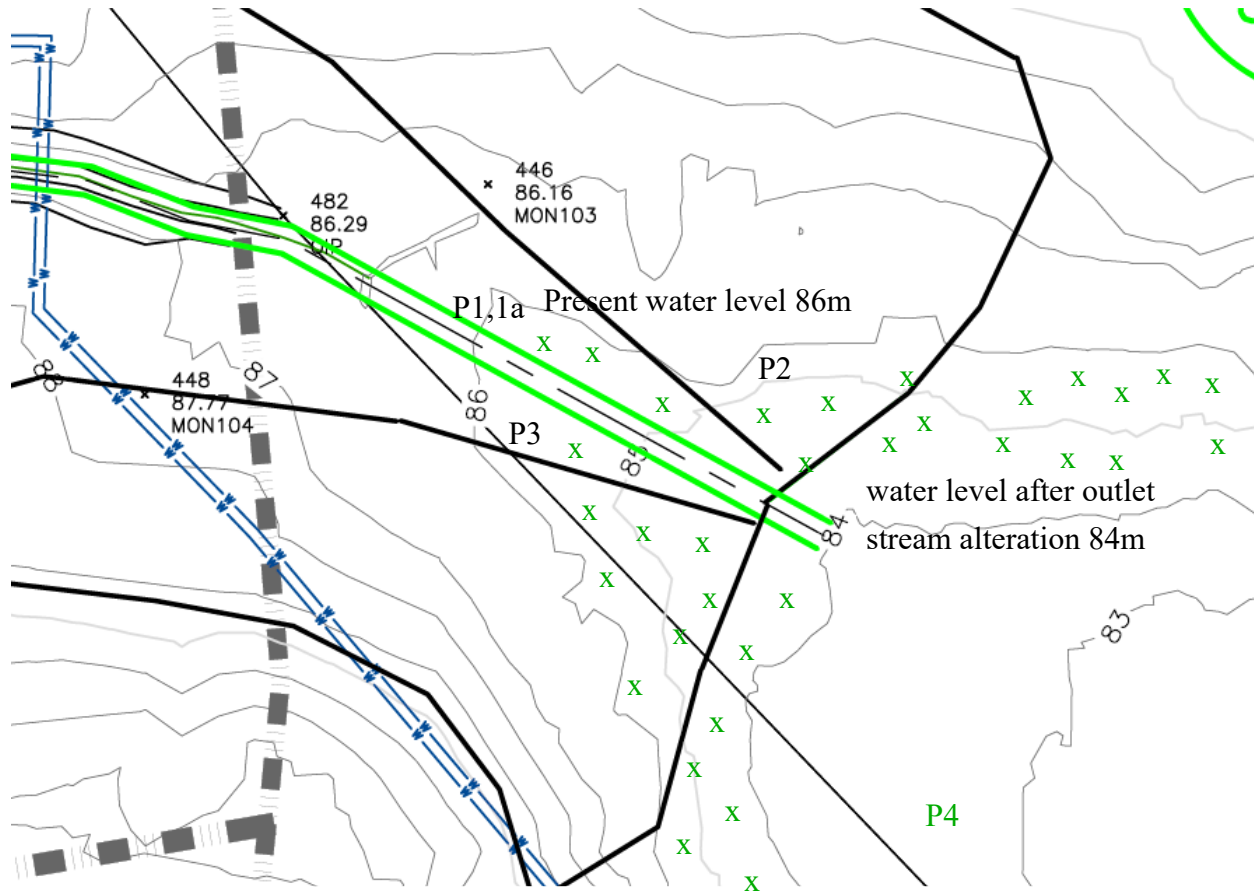
Monitoring will be necessary when the water level is being lowered. After the water in pond has reached the new level it should also be monitored regularly to ensure there are no fish or amphibians such as redlegged frogs or rough skinned newts in distress.

A silt fence will be necessary to prevent sediment from the disturbed area from entering further into the pond. The placement of the fence can be decided once the pond level is lowered. Some straw bales may be necessary as well to help support the fence.

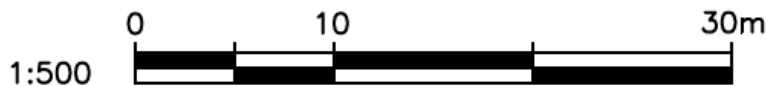
This area has cattails (*Typha sp.*), sedges (*Carex sp.*) and native water lilies (*Nuphar sp.*) growing near the present high water mark. These all provide habitat for the birds and amphibians. Any of the aquatic vegetation that is suitable for the post development wetland restoration should be carefully placed aside.

After the excavation is complete the disturbed area should be stabilized, reseeded from surrounding plants and mulched with straw where necessary until planting is completed.

Map 2. Shows the area of the proposed reconstruction of the outlet stream of Gardom Pond and Photograph location (P1—P4). Also shows the present and future high water marks.



Exposed shoreline and Riparian Restoration Areas xxxx



3b. The new outlet stream between the pond and Gardom Lane

The outlet channel reconstruction work will result in a 5 meter wide ditch excavated through a second growth Douglas fir forest (Photograph 6). There many small trees that will be removed. These are mainly young Douglas fir. Other trees that are adjacent to the new channel and could be impacted should be protected by wrapping them with heavy landscape fabric to prevent accidental equipment scrapes. Excess fill from the channel excavation should not be placed around the remaining important trees in the riparian area

Since this entire section of outlet stream reconstruction is within the catchment zone for the community well, it is important to save as many trees as possible.

Any large woody debris suitable for restoration work around the wetland should be set aside. This includes root wads with the tree stem attached.

3c. The new outlet stream between Gardam Lane and Harbour Hill Drive.

When this section of the outlet stream is excavated it is important that any naturally wet rain water retention areas such as puddles and swales should not be eliminated as the runoff from the pond is very beneficial for the entire downstream forest ecosystem (Photos 7-10).

4. Environmental Management of the Construction activities

Any sensitive areas that should not be disturbed must be clearly marked with Riparian survey tape so the contractor is aware of them. There should be no need for any heavy machinery intrusion below the new water level of the pond.

4a. Timing

All excavation work should be completed in the dry season. (July-October 2018) Planting the disturbed riparian areas may continue after the construction is complete. The foreshore work can take place after the red winged blackbird nesting time period.

4b. Equipment maintenance

All machinery should be regularly checked so fuel leaks can be detected. This is important within the well catchment zone. A fuel spill kit must be present on site.

4c. Erosion and Sedimentation Control

The guidelines from “Land development Guidelines for the protection of Aquatic Habitat: www.dfo-mpo.gc.ca/Library/165353.pdf” are still recommended for use for projects near sensitive water bodies. The measures for silt control include the standards for silt fences and sedimentation ponds. These measures must remain in place until all the construction work is completed and there is no possibility of storm water damage to the site.

There must be silt fencing installed along the pond waterfront of the disturbed area and it should be left in place until all excavation is completed and there is no chance of erosion occurring along the new channel.

There must be no deposition of loose excavated material into the remaining water behind the dam.

5. Mitigation of Impacts

5a. Impacts on fish if they are found to be present

The pond should be lowered only to the level required in case there are still fish present. The draining should be monitored to make sure there are no stranded fish or amphibians in the newly shallow areas. The QEP will obtain a fish salvage permit and fish salvage equipment that will be on hand in case there are any fish that may require relocation. There should be a small boat on site for this purpose.

5b. Impacts on amphibians and other aquatic species

If the decommissioning takes place in the late summer the redlegged frogs will have left the water. There may be rough skinned newts present year round. During the pond draining there may be pockets of water where there are amphibians in need of rescue and relocation to deeper areas of the pond. This is unlikely to be an issue, but can be managed in case of an unexpected occurrence.

6. Riparian restoration and Vegetation Replacement

A planting plan should be completed once the extent of the vegetation disturbance is determined. Land owner permission will be required as there are several private properties around the pond. The QEP will advise and assist if necessary with the planting plan and the riparian restoration.

All the exposed soils should be reseeded with fall rye or a wetland mix after the machine work is done. In some areas around the pond, mulching with straw will also be necessary to help prevent silty water runoff during the rainy season.

Suitable species for planting along the newly exposed riparian areas are native sedges and Cattails (*Typha sp.*). Pacific willow and Scoulers willow, (*Salix sp.*) and native wild roses. Red alder and Douglas fir are suitable for tree replacement.

All the trees and shrubs will require after-planting care for approximately one year.

7. Post development clean up and monitoring

Removal of sediment containing silt fencing and hay bales must be done with great care and all the collected silt must be disposed of away from the pond.

The QEP must conduct a site visit after the winter rains begin in order to ensure there is no probability of erosion and sedimentation. There should be a post development report submitted to the Provincial Dam Safety Office, the CRD and Islands Trust.

List of References

BC Ministry of Environment and Department of Fisheries and Oceans 1992. "Land development Guidelines for the protection of Aquatic Habitat: www.dfo-mpo.gc.ca/Library/165353.pdf

DFO Measures to prevent Harm to fish and Aquatic Species at Risk

<http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html>

Gardam Pond property owners: [REDACTED] 2018 Personal Communication

Island Stream and Salmon Enhancement Society 2019-2017. Personal communication regarding the decommissioning of two dams on Salt Spring Island

Ministry of Environment. Standards and Best Practices for Instream works.
<http://www.env.gov.bc.ca/wld/instreamworks/.htm>

Reimer, Kathleen, 2009. Gardom Pond: Riparian Areas Assessment Report prepared for property owner [REDACTED]

8. Conclusion

These recommendations can be adapted as conditions at the site may change. Please let me know if you need more information.

Sincerely,

Kathleen Reimer

Kathleen Reimer MSc.,
Registered Professional Biologist
Island Stream and Salmon Enhancement Society

(to be signed and stamped)

Photograph 1. The outlet of the pond where the old fish fence was located.



Photograph 1a. Sedges near photograph 1.



Photograph 2. Looking to the east from the outlet along the wetland riparian area, shows the cattails and water lilies



Photograph 3. Looking south along the pond from the outlet



Photograph 4. View of the pond from Gardam Lane in the area near the water release structure. The cattails are very numerous, and they will reseed the future exposed shoreline.



Photograph 5 . The new outlet stream will cut through the second growth forest inside the well catchment zone. Several small conifers will be removed.



Photograph 6. Just upstream of the culvert under Gardom Lane. This area will not be disturbed



Photograph 7. Looking downstream from the culvert on Gardom Lane



Photograph 8. Looking north at the culvert under Gardam Lane. The sedges on the right of the picture indicate that this is a water catchment area. The area beneath the culvert is suitable for a small pool.



Photograph 9. Along the channel upstream from Harbour Hill Drive



10. Upstream of Harbour Hill Drive. This channel will be excavated 0.25m and lined with rock rip rap.

