

# Request for Proposals: Gates Lake Potable Water Project



**SQUAMISH - LILLOOET**  
REGIONAL DISTRICT

Issue date: June 1, 2026

Closing Date: July 3, 2026

Contact: Ali Chapple

# Request for Proposals: Gates Lake Potable Water Project

**Issue date:** June 1, 2026  
**Closing Time and Date:** July 3, 2026 at 4:30pm

## QUERIES

Queries and requests for clarification related to this Request for Proposals (“**RFP**”) are to be submitted, in writing, to the following contact person (the “**Contact Person**”).

Ali Chapple, Project Manager, Squamish-Lillooet Regional District  
Box 219, Pemberton, BC, V0N 2L0  
E-mail: [ACHapple@slrd.bc.ca](mailto:ACHapple@slrd.bc.ca)

The Squamish-Lillooet Regional District (“**Regional District**”) will determine, at its sole discretion, whether the query requires response and such responses will be made available to all by issue of addenda posted on the Regional District’s website ([www.slrd.bc.ca](http://www.slrd.bc.ca)). No verbal conversation will affect or modify the terms of this RFP.

The Request for Proposals consists of the following:

- This Page;
- Section 1 Administrative Requirements;
- Section 2 Instructions to Proponents;
- Section 3 Project Details;
- Section 4 Schedules; and
- Section 5 Appendices.

## PROPOSERS SITE MEETING

A site meeting will be held on June 18th at 1:00pm until 2:00 pm. This is not a mandatory meeting. However, confirmation of attendance is required by email no later than June 11th at 4:30pm

## PROPOSER SECTION:

(A person authorized to sign on behalf of the Proponent **must** complete and sign below and submit this page as part of the Proposal)

- **The accompanying Proposal is submitted in response to the above-referenced Request for Proposals, including any addenda.**
- **Through submission of the Proposal, the Proponent agrees to the terms and conditions of the Request for Proposals and agrees that any inconsistent provisions in the Proposal will be as if not written and do not exist.**
- **The Proponent has carefully read and examined the Request for Proposals (including the Administrative Requirements) and has conducted such other investigations as were prudent and reasonable in preparing the Proposal.**
- **The Proponent agrees to be bound by statements and representations made in Proposal.**

*Legal Name and Address of Proponent (include “Doing Business As” name, if applicable):*

\_\_\_\_\_  
\_\_\_\_\_

*Phone Number of Proponent:* \_\_\_\_\_

*Email Address of Proponent:* \_\_\_\_\_

*Signature of Authorized Representative:* \_\_\_\_\_

*Name and Title (i.e. President, Director, etc.):* \_\_\_\_\_

# 1. Administrative Requirements

## A. Definitions

Throughout this RFP, the following definitions apply:

“Contract” means the written agreement resulting from this RFP executed by the SLRD and the Contractor;

“Contractor” means the successful Proponent to this RFP who enters into a written Contract with SLRD;

“must”, or “mandatory” means a requirement that must be met in order for a Proposal to receive consideration;

“Proponent” means an individual or company that submits (or intends to submit) a Proposal;

“Proposal” means the document submitted by the Proponent;

“SLRD” means the Squamish-Lillooet Regional District;

“RFP” means the process described in this document;

“should” or “desirable” means a requirement having a significant degree of importance to the RFP.

## B. Terms and Conditions

The following terms and conditions will apply to this RFP. Submission of a Proposal in response to this RFP indicates acceptance of all the terms herein and that are included in any addenda issued by the SLRD. Provisions in Proposals that contradict any of the terms of this RFP will be as if not written and do not exist.

## C. Acknowledgment Form

The Proponent is advised to complete and return the Acknowledgment Form attached hereto as Schedule A. This form may be delivered by fax or email and will facilitate the further receipt by the Proponent of any addenda to the RFP.

## D. Addenda

Whether or not the Proponent has returned the Acknowledgment Form, the Proponent is required to regularly check the SLRD’s website for any updated information and addenda issued before the closing date. If there is any discrepancy in the RFP documentation, the SLRD’s original file will prevail.

## E. Late Proposals

A Proposal will be marked with its receipt time at the closing location. Only a Proposal received and marked before the closing time will be considered to have been received on time. A Proposal received after the closing time may not be considered. In the event of a dispute, the receipt time of the Proposal is as recorded by the SLRD at the closing location will prevail. The Proponent is advised to verify prior to the closing time that the SLRD has received the Proposal.

## F. Eligibility

A Proposal may not be evaluated if the Proponent’s current or past corporate or other interests may, in the SLRD’s opinion, give rise to a conflict of interest in connection with the project described in this RFP. If a Proponent is in doubt as to whether there might be a conflict of interest, the Proponent is advised to consult with the Contact Person prior to submitting a Proposal.

## G. Evaluation

The evaluation of the Proposal will be by staff of the SLRD but may include consultants/contractors of the SLRD. The SLRD’s intent is to enter into a Contract with

the Proponent who has been evaluated as having the most desirable proposal.

The SLRD may, at its discretion, request clarifications or additional information from Proponents with respect to any Proposals, make such requests to only selected Proponents, and consider such clarifications or additional information in evaluating the Proposals.

## H. Negotiation/Negotiation Delay

The SLRD reserves the right, prior to awarding the Contract, to negotiate changes to the scope of work (including pricing to meet budget) with the successful Proponent without advising any other Proponent or allowing any other Proponent to vary their Proposal as a result of the changes to the scope of work or to the contract documents and the SLRD may enter into a changed or different contract with the successful Proponent without liability to Proponents who were not awarded the Contract.

If a Contract cannot be negotiated within 14 days of notification of the successful Proponent, the SLRD may, at its sole discretion at any time thereafter, terminate negotiations with such Proponent and either negotiate a Contract with the next qualified Proponent, reissue the RFP, or terminate the RFP process and not enter into a Contract with any of the Proponents.

## I. Request for Debriefing

Unsuccessful Proponents may request a debriefing with the SLRD, which may, at the SLRD’s option, be conducted via telephone or email. However, the SLRD will not provide information regarding the other Proposals.

## J. Alternative Solutions

If alternative solutions are to be offered, the Proponent should consult with the Contact Person prior to submitting the Proposal.

## K. Changes to Proposals

By submission of a clear and detailed written notice, the Proponent may amend or withdraw its Proposal prior to the closing date and time. Upon closing time, all Proposals become final. The Proponent will not change the wording of the Proposal after closing and no words or comments will be added to the Proposal unless requested by the SLRD for purposes of clarification.

## L. Proponents’ Expenses

The Proponent is solely responsible for its own expenses in preparing the Proposal and in subsequent negotiations with the SLRD, if any. Regardless of whether or not the SLRD elects to reject all Proposals, the SLRD will not be liable to any Proponent for any claims, whether for costs or damages incurred by the Proponent in preparing the Proposal, loss of anticipated profit in connection with any final Contract, or any other cause of action whatsoever.

## M. Limitation of Damages

Further to the preceding paragraph, the Proponent, by submitting a Proposal, agrees that it has no cause of action, for any reason whatsoever, relating to the Contract or in respect of the competitive process, in excess of an amount equivalent to the reasonable costs incurred by the Proponent in preparing the Proposal and the Proponent, by submitting a Proposal, waives any claim for loss of profits if no Contract is made with the Proponent.

- N. Proposal Validity**  
Proposals will be open for acceptance for at least 90 days after the closing time. The accuracy and completeness of the Proposal shall be the sole responsibility of the Proponent and any errors or omissions shall be corrected at the Proponent's expense.
- O. Firm Pricing**  
Prices will be firm for the entire Contract period unless this RFP specifically states otherwise.
- P. Currency and Taxes**  
Prices quoted are to be:
- in Canadian dollars;
  - inclusive of all fees;
  - exclusive of disbursements, for which a detailed estimate shall be provided by the Proponent; and
  - inclusive of all applicable taxes, broken out.
- Q. Completeness of Proposal**  
By submitting the Proposal, the Proponent warrants that, if this RFP is to design, create or provide a system or manage a program, all components required to run the system or manage the program have been identified in the Proposal or will be provided by the Contractor at no charge.
- R. Subcontracting**  
The use of a subcontractor(s) (who should be identified in the Proposal) may be acceptable. This includes a joint submission by two Proponents having no formal corporate links. However, in this case, one of these Proponents must be prepared to take overall responsibility for successful performance of the Contract and this should be defined in the Proposal.
- However, a proposed subcontractor whose current or past corporate or other interests may, in the SLRD's opinion, give rise to a conflict of interest in connection with the subject-matter of the RFP may not be acceptable. This includes, but is not limited to, a subcontractor involved in the preparation of this RFP. If a Proponent is in doubt as to whether a proposed subcontractor may give rise to a conflict of interest, the Proponent should consult with the Contact Person prior to submitting a Proposal.
- Where applicable, the names of approved sub-contractors listed in the Proposal will be included in the Contract. The addition of new subcontractors, or any other changes to the subcontractor list, as set out in the Contract will not be allowed without the written consent of the Regional District.
- S. Acceptance of Proposals**  
This RFP is not an agreement to purchase goods or services. The SLRD is not bound to enter into a Contract with the Proponent who submits the lowest priced Proposal or with any Proponent. The SLRD will assess Proposals in light of the evaluation criteria. The SLRD is under no obligation to receive further information, whether written or oral, from any Proponent.
- Neither acceptance of the Proposal nor execution of a Contract will constitute approval of any activity or development contemplated in any Proposal that requires any approval, permit or license pursuant to any federal, provincial, regional district or municipal statute, regulation or by-law.
- T. Definition of Contract**  
Notice in writing to a Proponent that it has been identified as the successful Proponent and the subsequent full execution of a written Contract will constitute a Contract for the goods or services, and no Proponent will acquire any legal or equitable rights or privileges relative to the goods or services until the occurrence of both such events.
- U. Contract**  
By submitting a Proposal, the Proponent agrees that should its Proposal be successful the Proponent will enter into a Contract with the SLRD in substantially the terms set out in Schedule D, "Draft Services Agreement".
- V. Liability for Errors**  
While the SLRD has used considerable efforts to ensure information in this RFP is accurate, the information contained in this RFP is supplied solely as a guideline for the Proponents. The information is not guaranteed or warranted to be accurate by the SLRD, nor is it necessarily comprehensive or exhaustive. Nothing in this RFP is intended to relieve the Proponents from forming their own opinions and conclusions with respect to the matters addressed in this RFP.
- W. Modification of Terms**  
The SLRD reserves the right to modify the terms of this RFP at any time in its sole discretion. This includes the right to cancel this RFP at any time prior to entering into a Contract with the successful Proponent.
- X. Ownership of Proposals**  
All Proposals submitted to the SLRD become the property of the SLRD. They will be received and held in confidence by the SLRD, subject to the provisions of this RFP and the *Freedom of Information and Protection of Privacy Act*.
- Y. Use of Request for Proposals**  
Any portion of this document, or any information supplied by the SLRD in relation to this RFP may not be used or disclosed, for any purpose other than for the submission of the Proposal. Without limiting the generality of the foregoing by submission of the Proposal, **the Proponent agrees to hold in confidence all information supplied by the SLRD in relation to this RFP.**
- Z. Reciprocity**  
The SLRD may consider and evaluate a Proposal from other jurisdictions on the same basis that the government purchasing authorities in those jurisdictions would treat a similar Proposal from a British Columbia supplier.
- AA. No Lobbying or Solicitation**  
The Proponent must not attempt to communicate directly or indirectly with any employee, contractor or representative of the SLRD, including the members of the evaluation team and any elected officials of the SLRD, or with members of the public or the media, about the project described in this RFP or otherwise in respect of the RFP, other than as expressly directed or permitted by the SLRD herein or otherwise.
- BB. Collection & Use of Personal Information**  
The Proponent is solely responsible for familiarizing itself and for ensuring that it complies, with the laws applicable to the collection and dissemination of information, including resumes and other personal information concerning employees and employees of any subcontractors. If this RFP requires the Proponent to provide the SLRD with personal information of employees or subcontractors who have been included as resources in response to this RFP, the Proponent will ensure that it has obtained written consent from each of those persons before forwarding such personal information to the SLRD. Such written consents are to specify that the personal information may be forwarded to the SLRD for the purposes of responding to this RFP and use by the SLRD for the purposes set out in the RFP. The SLRD may, at any time, request the original consents or copies of the original consents from the Proponent, and upon such request being made, the Proponent will immediately supply such originals or copies to the SLRD.

# Gates Lake Potable Water Project Supply and Installation Services

## Introduction

The SLRD is requesting proposals from qualified and experienced firms for the design and supply and installation of a potable water treatment plant at Gates Lake Community Park, near Birken, BC, Electoral Area C. The WTP is required to treat groundwater from an existing well to meet Canadian Drinking Water Quality Guidelines. The plant must serve a single drinking water dispensing station at a design flow of 10 GPM (38 L/min).

The scope of the project is to be completed by **October 1, 2026**.

Proponents must submit a solution that meets the full scope of the project as described below. If teaming is required to meet the objectives outlined in this RFP, vendors are encouraged to form partnerships. The proposal must clearly identify the Prime Contractor who will be responsible for the overall performance of the contract. The Prime Contractor will take full responsibility for all aspects of the contract, including the performance of any subcontractors.

## Terms and Abbreviations

The following terms and definitions are used herein:

ANSI - American National Standards Institute  
AWWA - American Water Works Association  
CCDC - Canadian Construction Documents Committee  
CDWQ - Canadian Drinking Water Quality Guidelines  
SLRD - Squamish-Lillooet Regional District  
CSA - Canadian Standards Association  
DWPA - Drinking Water Protection Act (BC)  
GWUDI - Groundwater Under the Direct Influence of Surface Water  
NSF - National Sanitation Foundation  
NTU - Nephelometric Turbidity Units  
RFP - Request for Proposal  
UV - Ultraviolet Disinfection  
VFD - Variable Frequency Drive  
WTP - Water Treatment Plant  
CT - Chlorine Contact Time (mg/L × min)  
GPM - Gallons Per Minute  
DWO – Drinking Water Officer  
P&ID – Piping and Instrumentation Diagram  
O&M – Operations and Maintenance  
NaOH – Sodium Hydroxide  
HDPE – High-Density Polyethylene  
SS – Stainless Steel  
PVC – Polyvinyl Chloride  
SCADA – Supervisory Control and Data Acquisition  
GARP – Groundwater at Risk of Pathogens  
USEPA – United States Environmental Protection Agency  
CCME – Canadian Council of Ministers of the Environment  
mJ/cm<sup>2</sup> – Millijoules per square centimeter

## **Water System Overview**

Gates Lake Community Park is a 1.27-hectare site located on the north shore of Gates Lake, near the small community of Birken in Electoral Area C, accessed from Portage Road. The Park is operated seasonally, from spring through fall, and serves primarily local area residents.

The Squamish-Lillooet Regional District (SLRD) wishes to provide a safe potable water supply at Gates Lake Park. An existing water well is the proposed source. Water quality analysis confirms the source meets most Canadian Drinking Water Quality Guidelines; however, the source is classified as GWUDI, requiring treatment.

The proposed treatment train consists of cartridge filtration, UV disinfection and chlorination. pH correction is also included to address the slightly acidic source water.

The plant will serve a single drinking water dispensing station. No fire flow or other potable water demands exist at this site. The plant equipment will be weather-protected and housed in a 12 ft x 8 ft structure with an in-ground storage tank of 1,500 gallons (5,678 L).

## **Terms of Payment**

The successful Proponent will be required to invoice on a monthly basis unless otherwise agreed. The successful proponent can invoice for work completed on a linear meter basis or as agreed with the SLRD.

## **Scope of Work**

The scope of work is divided into five phases as described below. All work shall conform to the technical requirements of this SOW, the reference TM, applicable BC regulations, and NSF/ANSI standards.

### **Phase 1 - Pre-Construction Review & Permitting Support**

The Contractor shall:

1. Review the Design Basis Technical Memorandum (Rev. D, Feb 25 2026) and confirm all design parameters remain valid.
2. Conduct or review a GARP (Groundwater at Risk of Pathogen) assessment, or non-GARP equivalency documentation, to formalize the GWUDI classification and associated log-reduction credit assignments for each treatment barrier.
3. Obtain or verify current water quality data for the subject well, if new sampling shall be conducted, results should be compared to CDWQ guidelines.
4. Verify the static water level and safe yield of the well. Confirm that the existing well pump can sustainably deliver a minimum of 10 GPM (38 L/min) to the WTP.
5. Prepare and submit all documentation required for BC Drinking Water Officer (DWO) approval, including stamped P.Eng. drawings, equipment submittals, NSF certification letters, and CT/UV dose calculations.
6. Confirm site access, servicing routes, electrical supply availability, and drainage provisions at the park.

### **Phase 2 - Detailed Design & Equipment Procurement**

The Contractor shall:

7. Prepare final, stamped P.Eng. construction drawings, including site plan, general arrangement, P&ID, structural drawings for the enclosure, and civil/electrical drawings for site servicing.
8. Procure all equipment in accordance with Section 5 (Equipment Schedule). All equipment in contact with potable water shall be NSF/ANSI 61 certified; the UV system shall be NSF 55 Class A certified.
9. Submit shop drawings and equipment datasheets to SLRD for review prior to fabrication or delivery.
10. Coordinate with the civil and electrical sub-trades for site preparation, electrical panel supply and installation, and in-ground tankage installation.

### **Phase 3 - Supply & Installation**

The Contractor shall supply and install the complete WTP system, including but not limited to:

#### **3a Well & Raw Water Supply**

- Supply and install the electric submersible pump with VFD, constant pressure manifold, SS pressure tank, pitless adapter, locking well cap, and drop pipe.
- Install all raw water inlet piping from wellhead to WTP enclosure
- Provide positive drainage away from the wellhead and install protective fencing with lockable gate around the well as shown on the site plan
- All trench excavation for pipe and electrical cable from well to WTP enclosure

#### **3b Treatment Train**

The treatment train shall be installed in the following sequence within the 12 ft × 8 ft weather-protected enclosure:

- pH correction - Static mixer with NaOH chemical injection upstream of cartridge filters
- Pre-filtration - 20 µm cartridge
- Intermediate filtration - 5 µm cartridge
- Final filtration - 1 µm absolute cartridges in parallel, with individual online turbidimeters on each filter effluent line
- UV disinfection (flow-based dose monitoring, UV intensity monitoring)
- Primary chlorination (injection downstream of UV reactor and upstream of contact tank)
- Chlorine contact tank: 1,500 US gal (5,678 L) in-ground tank with high/low level sensors
- Secondary (residual) chlorination maintained through the distribution system

#### **3c Distribution & Instrumentation**

- Treated water pressure pump (VFD automatic booster pump)
- Online chlorine analyzer (continuous monitoring and alarm on low chlorine)
- Online turbidimeters (data logged at 5min intervals maximum)
- pH analyzer (continuous monitoring)
- Four pressure gauges with monitoring points at key process locations
- Control panel and electrical panel within enclosure (all wiring to meet BC Electrical Code)

- Eyewash station within enclosure
- 2" waste water drain at 6" above ground

#### **Phase 4 - Commissioning & Performance Testing**

The Contractor shall:

11. Commission all mechanical, electrical, and instrumentation systems and verify correct operation of all alarms and interlocks.
12. Conduct a minimum 72-hour continuous commissioning run at design flow, recording turbidity, chlorine residual, pH, UV dose, and flow data at  $\leq 5$ -minute intervals.
13. Verify UV dose delivery at minimum design flow.
14. Verify CT calculation at minimum water temperature conditions and confirm 4-log virus inactivation is achieved.
15. Submit two (3) sets of water samples to an accredited laboratory for bacteriological analysis (E. coli, total coliforms) and turbidity confirmation during commissioning.
16. Submit a Commissioning and Performance Test Report to the SLRD and Drinking Water Officer within 10 business days of commissioning completion.

#### **Phase 5 - Documentation, Training & Handover**

The Contractor shall provide:

17. Operations & Maintenance Manual, including daily, monthly, and annual inspection checklists, chemical dosing protocols and safety data sheets, filter cartridge and UV lamp replacement procedures, alarm response procedures, and emergency shutdown protocols.
18. As-built drawings (electronic PDF and AutoCAD/DWG format) for all civil, mechanical, electrical, and instrumentation work.
19. All equipment warranties, certification documentation, and manufacturer manuals.
20. Minimum one full-day on-site operator training session for SLRD operations staff.
21. DWO Handover documentation confirming compliance with permit conditions.

## Equipment Schedule

The following table lists the minimum required equipment. Equivalent substitutions may be considered subject to written approval from SLRD and the Engineer of Record and Vancouver Coastal Health.

All equipment supplied and installed shall be NSF-rated and shall conform to the equipment sizing and specifications outlined in the Gates Lake WTP Design Basis Technical Memorandum (Mangat Environmental Solutions Inc., February 25, 2026).

All piping, pipe fittings and jointing methods must comply with the latest requirements of the BC Plumbing Codes and AWWA Standards.

#	Item	Specification	Qty	NSF Req'd
1	<b>Well Pump System</b>	Franklin Electric 1.5 HP, 25 GPM FS Series; Subdrive VFD; Constant Pressure Manifold; 18 L SS Pressure Tank; 1.25" Pitless Adapter; 6" Locking Well; NSF 61 PVC80 Drop Pipe c/w SS Coupling	1	NSF 61
2	<b>Chemical Injection Skid</b>	NaOH & Sodium Hypochlorite dosing - Stenner S Series pumps c/w 7.5-gallon tank	1	NSF 61
3	<b>Cartridge Filter - 20 µm</b>	Harmsco WB 40SC-2 SS304, HC/40-20-AM	1	NSF 61
4	<b>Cartridge Filter - 5 µm</b>	Harmsco WB 40SC-2 SS304, HC/40-5-CB	1	NSF 61
5	<b>Cartridge Filter - 1 µm (Absolute)</b>	Harmsco WB 40SC-2 SS304, PP-HC-40-1 (dual units in parallel for redundancy)	2	NSF 61
6	<b>UV Disinfection System</b>	Viqua Pro10 - NSF 55 Class A; min. 40 mJ/cm <sup>2</sup> at 10 GPM; true flow-based dose monitoring; UV intensity monitor	1	NSF 55 Class A
7	<b>Treated Water Pressure Pump</b>	DAB ESYBox automatic VFD booster pump	1	NSF 61
8	<b>Treated Water Storage Tank</b>	1,500 US gal (5,678 L) in-ground tankage	1	NSF 61
9	<b>Instrumentation Package</b>	Chlorine monitoring (ATI or Hach); Turbidity monitoring (Hach, online, ≤5-min interval); pH monitoring; 4× pressure gauges c/w ¼" monitoring points	1 set	-
10	<b>Plumbing &amp; Structure</b>	All plumbing PVC80 c/w ball valves & fittings; 12 ft × 8 ft weather-protected enclosure	-	NSF 61

## Deliverables

#	Deliverable	Description
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1	<b>Pre-Construction Review Report</b>	Confirms design parameters, updates water quality data if required, verifies well performance, and documents any deviations from the TM.
2	<b>Site-Specific Engineering Drawings</b>	Stamped P.Eng. construction drawings including site plan, general arrangement, piping & instrumentation diagram (P&ID), and structural details for the enclosure and in-ground tankage.
3	<b>Permit / Approval Documentation</b>	Complete application package for BC Drinking Water Officer (DWO) approval under the DWPA, including supporting calculations, equipment submittals, and NSF certifications.
4	<b>Installed WTP System</b>	Fully commissioned water treatment plant per Section 4 equipment list, housed in a 12 ft × 8 ft weather-protected enclosure with in-ground 1,500-US-gal storage tank.
5	<b>GARP / GWUDI Assessment</b>	Formal Groundwater at Risk of Pathogen (GARP) assessment or equivalent, documenting pathogen log-reduction credits assigned to each treatment barrier.
6	<b>Operations &amp; Maintenance Manual</b>	O&M manual covering startup/shutdown procedures, chemical dosing protocols, alarm setpoints, filter change schedule, UV lamp replacement, and emergency response.
7	<b>Operator Training</b>	Minimum one full-day on-site training session for SLRD operations staff covering daily monitoring, chemical handling, troubleshooting, and regulatory reporting.
8	<b>Commissioning &amp; Performance Test Report</b>	Documented commissioning results demonstrating that all treatment objectives are met, including turbidity logs, CT calculations, UV dose verification, and bacteriological results.

### **Assumptions & Clarifications**

- Grid electrical power (120/240 V, single-phase) is available at the park and the Contractor will connect to the existing panel or a new panel as required.
- Site access is available via Portage Road during the construction season for delivery of equipment and materials.
- The existing well structure (casing, wellhead) is in satisfactory condition and does not require remediation prior to pump installation.
- No provincial or federal environmental assessment is triggered by this project. The Contractor shall confirm this assumption during Phase 1.
- All chemical dosing rates will be determined during commissioning based on actual source water quality; the TM assumptions (pH 7, 1.0 mg/L chlorine setpoint) are starting points only.

- Water quality data from 2019 is considered sufficient for design purposes. Updated sampling is a prerequisite to pre construction stage.
- The Drinking Water Officer has not required a GARP assessment as a precondition to permit issuance; however, the Contractor shall prepare one as a deliverable for long-term regulatory compliance.

## **Proposal Format and Evaluation**

Proponents, at a minimum shall submit all basic information requirements described as well as a pricing schedule. Failure to respond to any of the information requirements or to fully complete a pricing schedule may result in the proposal being considered incomplete. Failure to respond to any of the information requirements may result in the proposal being considered incomplete and not given any consideration in the assessment process.

Proponents are encouraged to provide information demonstrating an understanding of the SLRD's goals and objectives and describe an appropriate work plan. The SLRD is open to consider any innovative or alternate approaches as may be presented by vendors.

The SLRD's Evaluation Committee will evaluate the Proponents' responses, including financial data, Proponents' references, Proponents' experience and other data relating to the Proponents' responsibility and qualifications to perform the Project satisfactorily. Weighting information is provided further below.

## **Project Understanding**

- Demonstrate a clear understanding of the SLRD's objectives requirements and needs, and your approach to meeting those objectives.
- Identify opportunities and challenges that may surface and plans to mitigate those challenges.

## **Proposed Solution**

- Describe approach and methods for communicating, planning, scheduling, and managing supply and installation services for the Gates Lake WTP.
- Describe the methods by which you will design, supply, and install the treatment train components.
- Identify the specific employees, engineers (P.Eng. required), and subcontractors that will be involved in each phase of the project.
- Provide cost control procedures and discuss your method for monitoring the project timeframe, quality of installation work, and budget.
- Describe your experience with dispute resolution.
- Provide equipment specifications, including make, model, NSF certification details, expected service life, and maintenance requirements for all major components.
- Describe any additional requirements, warranty terms, or commissioning support offered.

## **Firm Qualifications and Experience**

For the Proponent and their subcontractors each:

- Provide a list of projects completed in the last 3 years.

- Provide project descriptions for the three most relevant projects in terms of staff and scope. Ideally the experience will focus on communities of a comparable size and scope. Add other criteria (e.g., working collaboratively with First Nations, working in remote areas etc.) Include a reference with phone number with each project.
- For Proponent teams, identify experience working together on relevant projects.

## **Proposed Project Team**

Provide resumes for all management, supervisory and field staff (including subcontractor staff) who will be involved in the project; identify clearly their role in the project.

## **Pricing**

**Phase 1: Provide a cost for pre-construction review, design confirmation, permitting support, and project management activities.**

**Phase 2: Provide a detailed, itemized cost that includes all equipment supply, installation, civil works, electrical, instrumentation, commissioning, and project management activities.**

**Phase 3: Provide annual operation and maintenance costs for the first five years, including consumables (filter cartridges, UV lamps, chemicals), preventive maintenance, and any monitoring service fees.**

Consider cost risks that may impact the project (e.g., permitting, remote site access, weather, seasonal operation constraints) and explain how they will be mitigated.

Optional items and pricing must be clearly identified. SLRD may request SCADA or remote monitoring capabilities as an optional add-on.

The SLRD is looking to secure pricing until project completion. We understand that prices can be subject to fluctuations, but all prices in a pricing schedule shall remain firm for the period of the contract.

## **Project Schedule**

Provide a project timeline outlining the major tasks, phases, timeframes, and milestones. Consider what components of the project could be undertaken without being adversely impacted by winter weather conditions.

## **Queries**

Queries and requests for clarification related to this RFP are to be submitted, in writing (via email only), to the Contact Person:

Ali Chapple, Project Manager,  
Squamish-Lillooet Regional District  
E-mail: [ACHapple@slrd.bc.ca](mailto:ACHapple@slrd.bc.ca)

The Regional District will determine, at its sole discretion, whether queries require responses and such responses will be made available to all by issue of addenda posted on the Regional District's website ([www.slrd.bc.ca](http://www.slrd.bc.ca)) and BC Bid. No verbal conversation will affect or modify the terms of this RFP.

## **Terms of Payment**

The successful Proponent will be required to invoice on a monthly basis unless otherwise agreed. The successful proponent can invoice for work completed on a units installed basis or as agreed with the SLRD.

## **Evaluation**

### **Mandatory Criteria**

Proposals not clearly demonstrating that they meet the following mandatory criteria will be excluded from further consideration during the evaluation process.

- Proposals must be received within the submission deadline.
- The proposal must include a cover page that is signed by an authorized representative of the Proponent.
- Proposals must be submitted to the Regional District in electronic form via email to [AChapple@slrd.bc.ca](mailto:AChapple@slrd.bc.ca). Paper documentation will not be accepted. Submissions must be less than 15 MB. Any submission greater than 15 MB must be separated into 2 emails.
- Schedule must conform to completion date identified herein.

### **Weighted Criteria**

Proposals meeting all mandatory criteria will be further assessed against the following weighted criteria.

Weighted Criteria	Weight (%)
Project Understanding	5
Proposed Solution	30
Firm Qualifications and Experience	30
Proposed Project Team	10
Pricing	25

### **Price Evaluation**

The lowest priced Proposal will receive full points for pricing. All other prices will be scored using the following formula: lowest priced proposal/price of this proposal = total points available for price.

## **Schedule**

Activity	Date
RFP Issued	June 1 <sup>st</sup> , 2026
Non-mandatory Site Visit	June 18 <sup>th</sup> , 2026
Deadline for Questions	July 1 <sup>st</sup> , 2026
RFP Closing Date	July 3 <sup>rd</sup> , 2026
Evaluations	July 13 <sup>th</sup> , 2026
Award and Notice to Proceed	July 20 <sup>th</sup> , 2026

## **General Conditions**

### ***Insurance***

The Proponent must have the following insurance coverage:

- Commercial general liability insurance providing coverage for death, bodily injury, property loss and damage and all other losses arising out of or in connection with the provision of the Services in an amount not less than three million dollars (\$3,000,000) per occurrence and five million dollars (\$5,000,000) in the aggregate, naming the SLRD as additional insured;
- Automobile liability insurance providing coverage on all vehicles owned, operated or licensed in the name of the Proponent in an amount not less than two million dollars (\$2,000,000) per occurrence for bodily injury, death and damage to property;
- Proponent's equipment insurance in an all-risks form covering machinery and equipment used for the performance of the Services.

### ***WorkSafeBC***

The Proponent must provide proof of WorkSafeBC coverage (or if applicable proof that WorkSafeBC coverage is not required).

### ***Compliance***

The work to be carried out must comply with and be in accordance with all provincial and local government laws, permits, regulations and policies.

### ***Indemnity***

Except to the extent arising out of the negligent acts or omissions of the SLRD and its directors, officers, employees, volunteers, contractors, agents, successors and assigns, as determined by a court of competent jurisdiction, the Proponent/Contractor shall release, indemnify and save harmless the SLRD and its directors, officers, employees, volunteers, contractors, agents, successors and assigns from and against any and all liabilities, actions, damages, claims, losses, costs and expenses whatsoever (including, without limitation, the full amount of all legal fees and disbursements) in any way directly or indirectly arising out of or caused, in whole or in part, by the Proponent/Contractor, its employees, agents, or assigns in the performance of the Services herein, as determined by a court of competent jurisdiction. This release and indemnity shall survive notwithstanding the completion of the Services under this Agreement and/or the expiry or termination of this Agreement.

The indemnity provided by the Proponent/Contractor to the SLRD will not in any way be limited or restricted by the insurance requirements or by limitations on the amount or type of damages, compensation or benefits payable under the Workers' Compensation Act or any other similar statute.

### ***Provisions***

The Proponent shall provide, maintain, and utilize sanitation facilities for the work force at the site. Solid waste shall be removed and disposed of so as not to attract wildlife.



## **Schedules**

SCHEDULE "A": Draft Services Agreement

THIS AGREEMENT dated \_\_\_\_\_ is

BETWEEN:

**SQUAMISH-LILLOOET REGIONAL DISTRICT**

(the "Regional District")

AND:

**NAME** doing business as **NAME**

(the "Contractor")

GIVEN THAT the Regional District wishes to engage the Contractor for design and construction of the **Gates Lake Potable Water Project**, the scope of such services and each of the service locations are specified in the Terms of Reference (as defined below); and

The Contractor wishes to provide such services to the Regional District in accordance with the terms and conditions of the agreement;

This Agreement is evidence that in consideration of the promises exchanged below, the Regional District and the Contractor agree with each other as follows:

## **Definitions**

1. In this Agreement, in addition to the words defined above,
  - a. "**Terms of Reference**" means the terms of reference for performance of the Services attached here as Schedule "A" which forms part of this Agreement; and
  - b. "**Services**" means the acts, services and work described in the Terms of Reference and all acts, services and work necessary to achieve the objectives set out in the Terms of Reference.

## **Services to be Performed by the Contractor**

2. The Contractor agrees to perform the Services during the Term, in accordance with the Terms of Reference, on the terms and conditions of this Agreement.

## **Term and Renewal**

3. The term of this Agreement commences on or about DATE and ends on the earlier of the completion of the Services or DATE (the "**Term**"), unless terminated earlier in accordance with this Agreement.

### **Warranty as to Quality of Services**

4. The Contractor represents and warrants to the Regional District that:
  - a. **it will perform the Services with that degree of care, skill, and diligence normally applied in the performance of services of a similar nature and magnitude to those contemplated by this agreement at the time and place the Services are rendered;**
  - b. it will perform the Services in accordance with sound current professional practices;
  - c. **the Contractor and any of its employees which undertake the Services have the education, training, skill, experience and resources necessary to perform the Services;**
  - d. **the Services will be performed in accordance with all applicable enactments and laws and in compliance with all relevant codes, rules, regulations and standards of any relevant professional or industry organization or association; and**

and the Contractor acknowledges and agrees that the Regional District has entered into this Agreement relying on the representations and warranties in this section.

### **Remuneration and Reimbursement**

5. The Regional District must pay the Contractor for the Services in the amount provided in the Terms of Reference in accordance with this Agreement.

### **Invoice**

6. Not more than once each month, the Contractor may deliver an invoice to the Regional District, in respect of the immediately preceding month, setting out the aggregate amount of fees claimed for Services performed in that preceding month for each of the service locations specified in the Terms of Reference. For greater clarity, the invoice must clearly break out the fees claimed for Services delivered in respect of each of the service locations set out in the Terms of Reference.

### **Payment by the Regional District**

7. The Regional District must, to the extent it is satisfied the fees are for Services reasonably and necessarily performed by the Contractor and subject to section 8 and subject to any right of set-off that the Regional District may have, pay the Contractor

the fees claimed in the invoice delivered in accordance with section 6, within 30 days after delivery of the invoice to the Regional District.

### **Termination or Suspension at the Discretion of the Regional District**

8. Despite any other section of this Agreement, the Regional District may, in its sole discretion, terminate or suspend all or any part of the Services by giving the Contractor notice of termination or suspension, as the case may be, with such effective date of termination or suspension so noted thereon. If the Regional District terminates or suspends all or part of the Services under this section, then the Contractor is entitled to deliver an invoice to the Regional District for the period between the end of the time period for which the last invoice was delivered by the Contractor under section 6 and the effective date of termination or suspension. The Regional District must, to the extent that it is satisfied the fees and disbursements are for Services reasonably and necessarily performed by the Contractor, pay the Contractor the fees and disbursements claimed in such invoice, within 30 days after delivery of such invoice to the Regional District. The Contractor is not entitled to, and irrevocably waives and releases, damages or compensation for costs incurred, loss of profit, or loss of opportunity, directly or indirectly arising out of termination or suspension of all or any part of the Services.

### **Termination for Breach**

9. The Regional District may, by giving the Contractor notice of termination, immediately terminate all or any part of the Services, if the Contractor:
  - a. **is in breach of this Agreement and within 5 days of receiving notice of such breach from the Regional District, the Contractor has not cured the breach or is not, to the satisfaction of the Regional District in its sole discretion, diligently pursuing a cure for the breach; or**
  - b. **becomes bankrupt or insolvent, a receiving order is made against the Contractor, an assignment is made for the benefit of the Contractor's creditors, or the Contractor takes the benefit of any enactment relating to bankrupt or insolvent debtors.**

Without limiting any other right or remedy available to the Regional District, if the Regional District terminates all or any part of the Services under this section, the Regional District may arrange, upon such terms and conditions and in such manner as it considers appropriate, for performance of any part of the Services remaining to be completed, and the Contractor is liable to the Regional District for any expenses reasonably and necessarily incurred by the Regional District in engaging the services of another person to perform those Services. The Regional District may set off against, and withhold from amounts due to the Contractor such amounts as the Regional District determines, acting reasonably, are necessary to compensate and reimburse the Regional District for the expenses described in this section.

## **Confidential Information**

10. Except as required by law, the Contractor must not, during or after the Term, divulge or disclose any secret or confidential information, or divulge or disclose any information that the Contractor receives or observes in connection with this Agreement and the performance of the Services which in good faith or good conscience ought not to be disclosed.

## **Records**

11. The Contractor must:
  - a. keep proper accounts and records of its performance of the Services, including invoices, receipts and vouchers, which must at all reasonable times be open to audit and inspection by the Regional District, which may make copies and take extracts from the accounts and records;
  - b. keep reasonably detailed records of performance of the Services by the Contractor, which must at all reasonable times be open to inspection by the Regional District, which may make copies and take extracts from the records;
  - c. afford facilities and access to accounts and records for audit and inspection by the Regional District and must furnish the Regional District with such information as the Regional District may from time to time require regarding those documents; and
  - d. preserve and keep available for audit and inspection, all records described in section 11(a) through (c) for at least two years after completion of the Services or termination of this Agreement, whichever applies.

## **Delivery of Records**

12. If the Regional District terminates all or part of the Services under this Agreement, the Contractor must immediately deliver to the Regional District, without request, all Services-related documents in the Contractor's possession or under its control as well as all keys issued to the Contractor by the Regional District.

## **Agreement for Services**

13. This is an Agreement for the performance of services and the Contractor is engaged under the Agreement as an independent contractor for the sole purpose of providing the Services. Except as is otherwise expressly prescribed in this Agreement, neither the Contractor nor any of its employees, contractors and representatives is engaged by the Regional District as an employee or agent of the Regional District. The Contractor is solely responsible for any and all remuneration and benefits payable to its employees, contractors and representatives, and all payments or deductions required to be made by any enactment, including those required for Canada Pension Plan, employment insurance, workers' compensation and income tax. This Agreement

does not create a joint venture or partnership, and the Contractor has no authority to represent or bind the Regional District in any way.

### **Assignment of Agreement/Subcontracting of Services**

14. The Contractor must not assign this Agreement (or any part thereof) or subcontract any or all of the Services to be performed under this Agreement without the prior written consent of the Regional District, such consent may be unreasonably withheld. The Regional District may refuse its consent if, among other reasons, it is not satisfied that the proposed assignee or proposed subcontractor, as the case may be, has the education, training, skill, experience or resources necessary to perform the Services. Any assignment or subcontract duly consented to by the Regional District does not relieve the Contractor from any obligation already incurred or accrued under this Agreement or impose any liability upon the Regional District.

### **Time of the Essence**

15. Time is of the essence of this Agreement.

### **Release and Indemnification**

16. Except to the extent arising out of the negligent acts or omissions of the Regional District and its directors, officers, employees, agents, successors and assigns, as determined by a court of competent jurisdiction, the Contractor must release, indemnify and save harmless the Regional District and its directors, officers, employees, agents, successors and assigns from and against any and all liabilities, actions, damages, claims, losses, costs and expenses whatsoever (including, without limitation, the full amount of all legal fees and disbursements) in any way directly or indirectly arising out of or caused, in whole or in part, by the Contractor, its employees, agents, or assigns in the performance of the Services herein, as determined by a court of competent jurisdiction.
17. The indemnity provided in section 16 by the Contractor to the Regional District will not in any way be limited or restricted by the insurance set out in section 19 or by limitations on the amount or type of damages, compensation or benefits payable under the *Workers' Compensation Act* or any other similar statute.
18. The indemnity provided in section 16 by the Contractor to the Regional District will survive notwithstanding the completion of all Services and the obligations and duties under this Agreement; for clarity, the release and indemnity shall survive the expiry or the termination of this Agreement for any reason.

### **Insurance Requirements**

19. The Contractor must obtain and maintain throughout the Term automobile liability insurance on all vehicles, owned, operated or licensed in the name of the Contractor in an amount not less than \$5,000,000 per occurrence for bodily injury, death and damage to property (or such higher amount as is customary for a provider of

landscaping services) as well as appropriate contractor's equipment insurance in all-risks form covering equipment used for the performance of the Services.

20. The Contractor must obtain and maintain throughout the Term commercial general liability insurance providing coverage for death, bodily injury, property loss and damage and all other losses arising out of or in connection with the provision of the Services in an amount not less than \$5,000,000 per occurrence and shall meet the following requirements:
- a. **name the Regional District as additional insured;**
  - b. **include blanket contractual liability coverage, cross liability, and severability of interest;**
  - c. **be issued by an insurance company entitled to carry on the business of insurance under the laws of British Columbia;**
  - d. **be primary without right of contribution from any insurance carried by the Regional District;**
  - e. **stipulate that it shall not be cancelled or materially changed without first providing 30 days written notice to the Regional District;**
  - f. **include a deductible not greater than \$5,000 per occurrence; and**
  - g. **be on other reasonable terms acceptable to the Regional District.**

The Contractor must provide the Regional District with certificates of insurance confirming the placement and maintenance of such insurance at the signing of the Agreement and thereafter as requested to do so from time to time by the Regional District. If the Contractor's insurance shall expire or terminate before the end of the Term, the Contractor shall deliver a new certificate of insurance evidencing the new policies of insurance not less than ten (10) days before the new policies go into effect.

The above insurance requirements do not in any way reduce the Contractor's obligations to release and indemnify the Regional District as set out in section 16 of this Agreement.

## **WorkSafeBC**

21. The Contractor must:

- a. provide proof of WorkSafeBC coverage (or if applicable, proof that WorkSafeBC coverage is not required) within 5 days of signing this Agreement and as may be required by the Regional District from time to time throughout the Term;
- b. remain current with all assessment reporting and payments due thereunder and shall comply in every respect with the requirements of the Workers Compensation Act and Regulations; and
- c. be responsible for all fines, levies, penalties and assessments made or imposed under the Workers Compensation Act and regulations relating in any way to the Services.

22. The Contractor must take all precautions reasonably necessary to ensure the safety of the Contractor's personnel and all persons employed, contracted or subcontracted by the Contractor to perform the Services.

23. The Contractor is designated as the prime contractor on site.

## **Compliance**

24. The Contractor must comply with all laws, rules and regulations applicable to the performance of the Services under this Agreement.

## **Severability**

25. If any term or provision of this Agreement is illegal or invalid for any reason whatsoever as determined by a competent court of law, such term or provision shall be severable and the same shall not affect the validity of the remainder of this Agreement.

## **Notice**

26. Any notice, direction, demand, approval, certificate or waiver which may be or is required to be given under this Agreement must be in writing and delivered personally or by courier or sent by e-mail, addressed as follows:

**a. To the Regional District:**

Squamish-Lillooet Regional District  
1350 Aster Street, Box 219  
Pemberton, B.C. V0N 2L0  
E-mail Address: [achapple@slrd.bc.ca](mailto:achapple@slrd.bc.ca)

Attention: Ali Chapple, Project Manager

**b. To the Contractor:**

NAME  
ADDRESS  
Phone Number:  
E-mail Address:  
Attention:

or to such other address, or e-mail address of which notice has been given as provided in this section.

Any notice, direction, demand, approval or waiver delivered is to be considered given on the next business day after it is dispatched for delivery. Any notice, direction, demand, approval or waiver sent by e-mail is to be considered given on the day it is sent, if that day is a business day and if that day is not a business day, it is to be considered given on the next business day after the date it is sent.

**Interpretation and Governing Law**

27. In this Agreement:

- a. reference to the singular includes a reference to the plural, and vice versa, unless the context requires otherwise;
- b. reference to a particular numbered section or Schedule is a reference to the correspondingly numbered section or Schedule of this Agreement;
- c. **the word "enactment" has the meaning given to it in the *Interpretation Act* (British Columbia) on the reference date of this Agreement;**
- d. **reference to any enactment is a reference to that enactment as amended, unless otherwise expressly provided;**
- e. **reference to a month is a reference to a calendar month; and**
- f. **section headings have been inserted for ease of reference only and are not to be used in interpreting this Agreement.**

28. This Agreement is governed by, and is to be interpreted according to, the laws of British Columbia.

### **Binding on Successors**

29. This Agreement enures to the benefit of and is binding upon the parties and their respective executors, successors, trustees, administrators and receivers, despite any rule of law or equity to the contrary.

### **Entire Agreement**

30. This Agreement is the entire agreement between the parties and it terminates and supersedes all previous communications, representations, warranties, covenants and agreements, whether verbal or written, between the parties with respect to the subject matter of this Agreement.

### **Waiver**

31. Waiver of any breach by a party must be express and in writing to be binding on that party, and a waiver of a particular breach does not operate as a waiver any future breach, whether of a like or different character.

### **Freedom of Information and Protection of Privacy Act**

32. The Contractor understands that the Regional District is subject to the Freedom of Information and Protection of Privacy Act, RSBC 1996, c. 165 and agrees that this Agreement and the information it contains, and any information supplied by the Contractor to the Regional District in connection with this Agreement, is not implicitly confidential for the purposes of that enactment.
33. The Contractor understands that this Agreement, and the information it contains, may be the subject of an access to information request made to the Regional District under the Freedom of Information and Protection of Privacy Act and the Regional District may be obliged by that enactment to disclose all or part of this Agreement and the information it contains and all or part of any information the Contractor supplied to the Regional District in connection with this Agreement, whether or not the Contractor has expressly stipulated that the information in question is confidential for the purposes of that enactment.

### **Counterparts**

34. This Agreement may be signed in as many counterparts as may be necessary, each of which so signed will be deemed to be an original and each copy sent by email or electronic facsimile transmissions will be deemed to be an original, and such counterparts together will constitute one and the same instrument and notwithstanding the date or dates of execution will be deemed to bear the date as set forth below.

As evidence of their agreement to be bound by the above terms and conditions of this Agreement, the parties have executed this Agreement below, on the respective dates written below.



**SQUAMISH-LILLOOET REGIONAL DISTRICT** by its authorized signatory:

\_\_\_\_\_  
Heather Paul  
Chief Administrative Officer

\_\_\_\_\_  
Date

**NAME:**  
by its authorized signatory:

\_\_\_\_\_  
Name:

\_\_\_\_\_  
Date



SCHEDULE "B": Gates Lake WTP Design Basis Technical Memorandum (Mangat Environmental Solutions Inc., February 25, 2026)



MANGAT ENVIRONMENTAL SOLUTIONS INC.  
2995-140 STREET SURREY BC V4P 2C3 PERMIT #1003885

**GATES LAKE WATER TREATMENT PLANT  
DESIGN BASIS-TECHNICAL MEMORANDUM**

## Statement of Qualifications and Limitations

ALL RIGHTS RESERVED. THIS DOCUMENT IS PROTECTED BY COPYRIGHT AND TRADE SECRET LAW AND MAY NOT BE REPRODUCED IN ANY MANNER, EXCEPT BY CLIENT FOR ITS OWN USE, OR WITH THE WRITTEN PERMISSION OF MANGAT ENVIRONMENTAL SOLUTIONS INC. OR CLIENT (IF COPYRIGHT ASSIGNED TO CLIENT).

The attached Report (the “Report”) has been prepared by Mangat Environmental Solutions Inc. (“Consultant”) for the benefit of the client (“Client”) in accordance with the agreement between Consultant and Client, including the scope of work detailed therein (the “Agreement”).

The information, data, recommendations and conclusions contained in the Report (collectively, the “Information”):

- must be read as a whole and sections thereof should not be read out of such context;
- is subject to the scope, schedule, and other constraints and limitations in the Agreement and the qualifications contained in the Report (the “Limitations”);
- represents Consultant’s professional judgment in light of the Limitations and industry standards for the preparation of similar reports;
- is based upon the accuracy and completeness of information that was provided to MESI and has no obligation to update and independently verify such information unless explicitly stated in the report. The accuracy of historical and current information is the responsibility of the issuer of the information. Consultant makes no other representations, or any guarantees or warranties whatsoever, whether express or implied, with respect to the Report, the Information or any part thereof;
- did not include collection and analysis of soil, wastewater, water or other site material samples. The reported information is believed to provide a reasonable representation of general conditions at this site at the time of the assessment/investigation and assesses the available information, by visual inspection of the subject Site, interviewing persons familiar with the Site, and logically inferring. Any data collected at specific locations and within a restrictive time frame and conditions may vary at other locations on the site.

Unless expressly stated to the contrary in the Report or the Agreement, Consultant:

- shall not be responsible for any events or circumstances that may have occurred since the date on which the Report was prepared or for any inaccuracies contained in information that was provided to Consultant;
- makes no representations whatsoever with respect to the Report or any part thereof, other than that the Report represents Consultant’s professional judgment as described above, and is intended only for the specific purpose described in the Report and the Agreement;
- in the case of subsurface, environmental or geotechnical conditions, is not responsible for variability in such conditions geographically or over time. This Statement of Qualifications and Limitations is attached to and forms part of the Report and any use of the Report is subject to the terms hereof.

Except as required by law or otherwise agreed by Consultant and Client, the Report:

- is to be treated as confidential unless required by the governing authority that it is to be available as public information;
- may not be used or relied upon by third parties;

Any use of this Report is subject to this Statement of Qualifications and Limitations. Any damages arising from improper use of the Report or parts thereof shall be borne by the party making such use.

This Statement of Qualifications and Limitations is attached to and forms part of the Report.

REV.	DATE	DETAILS OR PURPOSE OF REVISION	PREPARED BY	CHECKED BY	DISC. LEAD APPROVAL	ENG. MGR. APPROVAL	CLIENT APPROVAL
D	25/02/2026	Revised Issued for Permit	SM	ML			EW
C	12/03/2025	Issued for Permit	SM	ML			EW
B	15/02/2025	Issued As draft	SM	SM	-	-	-
A	15/02/2025	Internal Review	SM	SM			-

February 25, 2026

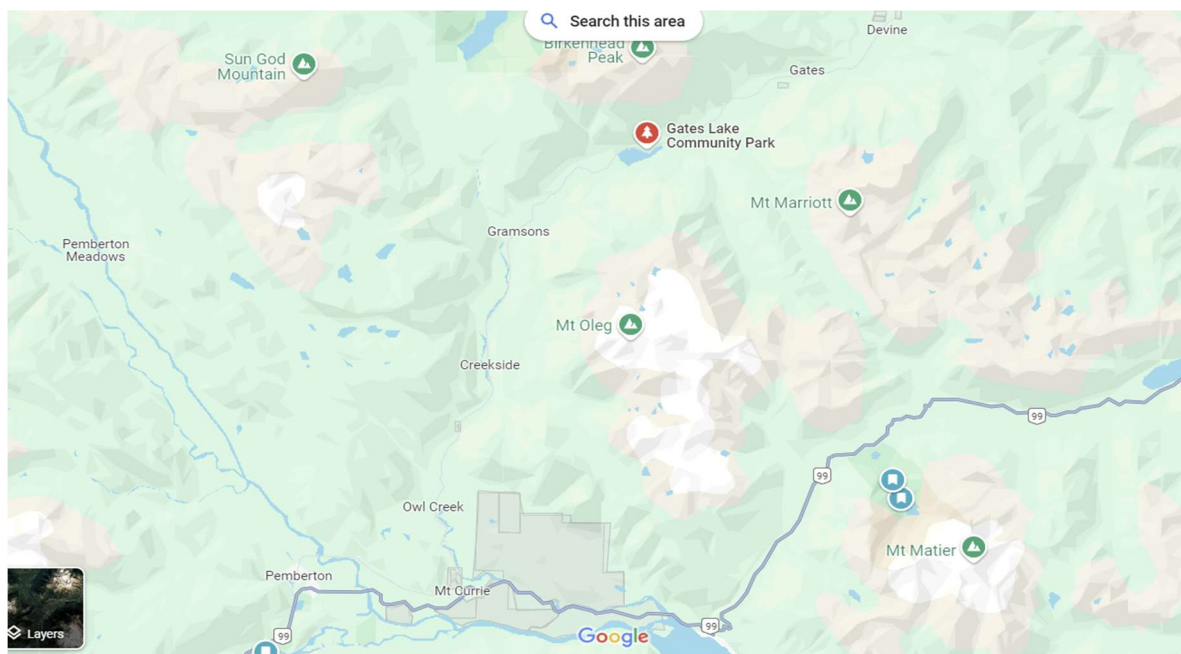
Senior Utilities Supervisor  
Squamish-Lillooet Regional District,  
Box 219 - 1350 Aster Street Pemberton  
BC V0N 2L0

Dear Mr. Edward Witwicki:

**Regarding: Draft-Gates Lake Water Treatment Plant Design Basis-Technical Memorandum**

### INTRODUCTION

Gates Lake Community Park is a 1.27 hectare (approximately 3 acre) site located on the north shore of Gates Lake, near the small community of Birken in Electoral Area C, accessed from Portage Road. The location plan of the subject area is shown in Figure 1.



**Figure 1 Location Plan Gates Lake Community Park**

In relation to potable water system, Squamish-Lillooet Regional District wishes to provide potable water for the Gates Lake Park that service the primarily local area residents. The Park is being used from spring thru to fall.

## SCOPE OF WORK

The scope of work for assignment include:

- a review of required flows
- a review of raw water quality and comparison to the Canadian Drinking Water Quality Guidelines;
- recommendation on the process selection
- budgetary cost estimate.

## DESIGN BASIS

### WATER DEMAND ANALYSIS

An existing water well is intended to be the source of raw water for the subject location. The water well depth is 70 ft based on the Government log / Well Tag #103197 / ID Plate # 33432. This is a 150 mm (6”) diameter well which is screened within water bearing sand and gravel sediments between 19.9 m and 21.3 m below ground surface.

From SLRD’S information, the static water level in the existing well is approximately 3.5 m (11.75 ft) from top of casing. The calculated specific capacity for the well is 17.1 lgpm/ft of available drawdown. It is estimated by others that the safe yield would be in the 40-50 lgpm (182-227 L/minute) range. The hydraulic throughput capacity of the plant is limited to 100 lpm. There is no specific data available for the Park visitors. However, SLRD indicated that the WTP will only provide flow for one water dispensing station and no fire flow or other demand exists. Based on peak summer demand design flow of 2.5 gpm is required. Considering a small water system, the design basis for the WTP is considered with a peaking factor 4. The process equipment selection would be based on 10 gpm.

### WATER QUALITY ANALYSIS

SLRD provided one dataset for the water quality analysis that was conducted for the subject well. Dated July 17 2019. The available water quality data was analyzed and compared with Canadian drinking water quality guidelines.

Table 1 Water Quality Parameters

Analyte	Units	Result	Guideline Limit	Guideline Comments
Aluminum	mg/L	0.007	0.1	Below OG
Antimony	mg/L	0.00003	0.006	Below MAC
Arsenic	mg/L	0.0002	0.010	Below MAC
Barium	mg/L	0.0032	1	Below MAC
Boron	mg/L	<0.002	5	Below MAC
Cadmium	mg/L	0.00001	0.005	Below MAC
Chromium	mg/L	<0.00005	0.05	Below MAC
Copper	mg/L	0.0006	1 AO; 2 MAC	Below AO
Lead	mg/L	0.00008	0.005	Below MAC
Selenium	mg/L	0.0004	0.05	Below MAC
Uranium	mg/L	<0.00001	0.02	Below MAC
Vanadium	mg/L	<0.00005		
Zinc	mg/L	0.00	5.0	Below AO
<b>Microbiological Analysis</b>				
Total Coliforms	MPN/100 mL	<1.0		
Escherichia coli	MPN/100 mL	<1.0		
Enzyme Substrate	MPN/100 mL	1.00		
Color	TCU	<5	<15	Below Range
Turbidity	NTU	2.95		0.1 (membrane) to 0.3 (direct filtration)
pH		6.93	7-10	Acidic Range
Electrical Conductivity	uS/cm	164		
Calcium	mg/L	26		
Iron	mg/L	0.12	0.3	Below AO
Magnesium	mg/L	1.1		
Manganese	mg/L	0.004	0.02-0.12	Below AO
Potassium Extractable	mg/L	0.36		
Silicon	mg/L	5.9		
Sodium	mg/L	2.4	200	Below AO
T-Alkalinity as CaCO <sub>3</sub>	mg/L	51		
Chloride Dissolved	mg/L	0.18	250	Below AO
Fluoride Dissolved	mg/L	0.03	1.5	Below MAC
Nitrate - N Dissolved	mg/L	0.04	10	Below MAC
Nitrite - N Dissolved	mg/L	<0.01	1	Below MAC
Sulfate (SO <sub>4</sub> )	mg/L	26	500	Below AO
Hardness as CaCO <sub>3</sub>	mg/L	69		
TDS	mg/L	102		

From anecdotal information, the available raw water source is a Groundwater under the influence of surface water (GWUDI). Non-GARP assessment has been done. GWUDI refers to groundwater sources that are impacted by nearby surface water bodies (e.g., rivers, lakes, or streams). These sources may be vulnerable to contamination from surface water pathogens, particularly during high-flow events or when surface water infiltrates the aquifer. Disinfection is a crucial water treatment step for ensuring the microbiological safety of GWUDI.

In BC, the management of GWUDI is primarily governed by the **Drinking Water Protection Act (DWPA)** and related **Regulations** that set out requirements for water safety. The province adheres to federal and provincial drinking water quality standards, which are informed by guidelines from organizations like the **Canadian Council of Ministers of the Environment (CCME)** and **Health Canada**.

The microbial quality of surface water can fluctuate seasonally, with higher pathogen concentrations during spring runoff, heavy rainfall, or floods. These variations in surface water quality can directly affect the groundwater, particularly in shallow aquifers or wells near surface water sources.

## TREATMENT OBJECTIVES

There are three main types of microorganisms (pathogens) that pose risks to human health in drinking water: viruses, bacteria, and protozoa. The objectives are as follows:

- ✚ 4-log reduction or inactivation of viruses, normally achieved through chlorine disinfection with contact time ;
- ✚ 3-log reduction of Giardia and Cryptosporidium, typically achieved through filtration, UV disinfection, or both;
- ✚ 2 treatment processes for surface water (assuming groundwater under the influence); combining more than one process for treatment allows for a multi-barrier approach against a range of microorganisms
- ✚ ≤1 NTU of turbidity well-established filtration technologies can consistently reduce turbidity in the water to <0.1 to 1 NTU; and
- ✚ No detectable E. Coli and fecal coliform typically achieved through disinfection (such as chlorination and/or UV disinfection) or a combination of disinfection and filtration.

Considering the 4-3-2-1-0 objective, the treatment system is proposed to be as follows:

- ✚ Turbidity reduction.
- ✚ pH control.
- ✚ Pathogen reduction: 4-log (99.99%) removal/inactivation of viruses; 3-log (99.9%) removal/inactivation of protozoa (Giardia cysts and Cryptosporidium oocysts); 0 cfu/100 mL of total coliforms, and 0 cfu/100 mL of E.coli.
- ✚ Secondary disinfection.

From SLRD'S requirements, the hydraulic throughput capacity of the plant is limited to 38 lpm (10gpm) peak

flow. This is based on the provided information that only one drinking water fountain will be serviced by the treatment plant, and no other potable water requirements exist.

## PROPOSED TREATMENT TRAIN

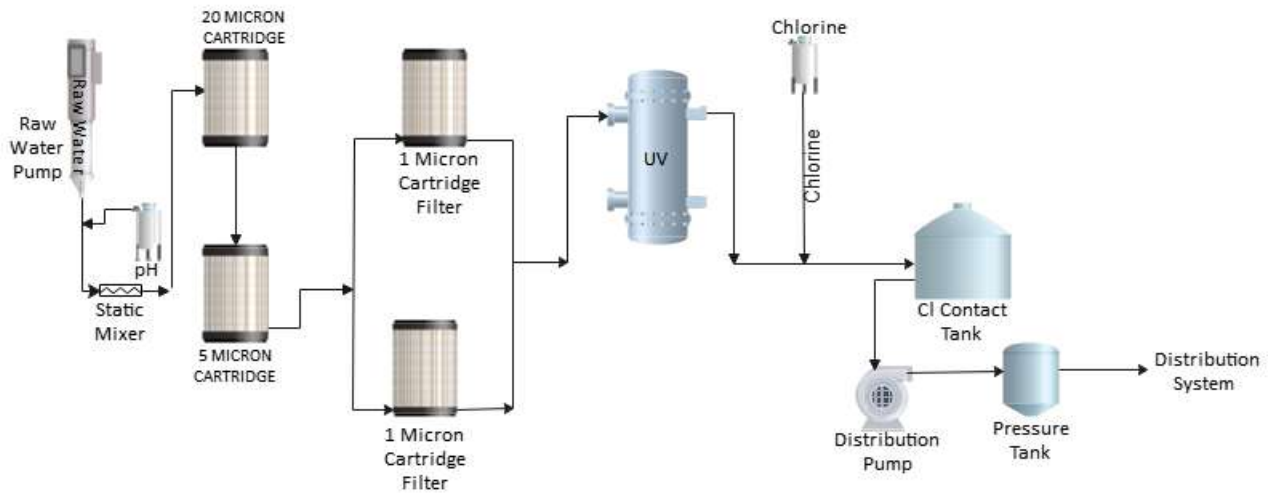
Although filtration processes (such as cartridge filters and sand filtration) can remove some particulate matter and microbes, they are not sufficient to remove all pathogens, especially viruses and smaller microorganisms. Disinfection is an essential final step to ensure comprehensive pathogen inactivation, particularly for viruses, protozoa (e.g., *Cryptosporidium*, *Giardia*), and other persistent microorganisms.

Disinfection is selected as a treatment method for groundwater under the influence of surface water due to its proven effectiveness in pathogen inactivation, its ability to meet regulatory requirements for drinking water safety, and its complementarity with other treatment processes like filtration. Given the potential for microbial contamination from surface water sources, disinfection provides a critical safeguard to protect public health and ensure the microbiological quality of drinking water from GWUDI.

A potential treatment train for the Gates Lake WTP can be as presented in Figure 2. The proposed train will be equipped with pressure-regulating valve upstream of 20 micron, 5 micron, and 1 micron cartridge filters, a flow restriction valve upstream of UV reactors with a chlorine contact chamber complete with flow, turbidity, chlorine/pH monitoring.

- Filtration - To reduce turbidity and to remove microorganisms and suspended particles from the raw water. This also increases the efficacy of UV disinfection and chlorination. 20, 5 micron cartridge filters and dual 1 micron absolute filter has been proposed.
- UV disinfection - For inactivation of protozoa (*Giardia* and *Cryptosporidium*). This is a second barrier to filtration, and is needed depending on source water quality (i.e., log reduction targets) and the filtration technology used.
- Chlorination – For both primary disinfection of viruses and secondary (residual) disinfection to protect the distribution system from microorganisms present or introduced into it.

Figure 2 Proposed Water Treatment Train



## EQUIPMENT SIZING DETAIL

### Cartridge Filters

Cartridge filters are used for reducing the particulate matter, including turbidity, in drinking water. They are used as primary filtration in some small drinking water systems and are sometimes seen in larger systems as secondary filters.

In cartridge filter systems, filtration is driven by pressure and the units are typically constructed of semi-rigid or rigid wound filaments that are housed in a pressure vessel. Water flows from the outside of the cartridge to the inside, and particles are removed by physical screening; particles that are greater in size than the filter medium pore size cannot pass through.

Cartridge filter pore sizes range from 0.3  $\mu\text{m}$  to 80  $\mu\text{m}$ , and cartridges are chosen to accommodate the level of turbidity and size of particles in the source water.

Three cartridge filters installed in series are proposed, i.e., 20, 5, and 1  $\mu\text{m}$  pore sizes.

Bacteria and protozoa range in size from 0.2  $\mu\text{m}$  to 2  $\mu\text{m}$  in width or diameter and from 1  $\mu\text{m}$  to 10  $\mu\text{m}$  in length for the non-spherical species; a 1-micron filter will remove most bacteria and cysts, and UV disinfection and chlorination will inactivate any remaining microorganisms.

The filters would form the first treatment process required in the 4-3-2-1-0 objectives and can remove turbidity to achieve the 1 NTU required in the 4-3-2-1-0 objectives.

The Guidelines for Canadian Drinking Water Treatment (CDWT) indicate that removal credits for cartridge filters must be 'established by the responsible authority based on demonstration using challenge testing'.

In British Columbia, cartridge filtration processes are awarded removal credits for Giardia and Cryptosporidium removal. Giardia and Cryptosporidium removal credits may be established by the responsible authority based on demonstration using challenge testing. Challenge testing should demonstrate at least a 3-log reduction of Cryptosporidium oocysts and Giardia cysts for each unit (1 micron filter pore size). However, the recommended maximum pathogen log reduction credit assignment for each protozoa is 2-log for a single unit and 2.5-log (total) for two units in series, providing a safety factor to account for the lack of daily direct integrity testing.

The following is the criteria applied for log reduction credit:

- ✚ Materials coming into contact with water conform to ANSI/NSF Standard 61.
- ✚ The cartridge filtration process is specifically tested and confirmed by an independent testing agency for at least 3-log removal of Cryptosporidium oocysts or surrogate particles (e.g., conforming to ANSI/NSF Standard 53 would satisfy this criterion for low flow systems.
- ✚ Differential pressure across the filter medium is continuously measured and does not exceed the manufacturer's rating.
- ✚ Filter effluent turbidity is continuously monitored and recorded from each filter and from the combined filter effluent where there are multiple filters.
- ✚ For each filter, filter effluent turbidity is less than or equal to 0.3 nephelometric turbidity units (NTU) in at least 95% of the measurements per month.
- ✚ For each filter, the maximum level of filter effluent turbidity is less than or equal to 1.0 NTU.

Absolute 1 micron filters are proposed along with continuous monitoring of filter effluent turbidity from each individual filter. This is necessary to (1) ensure that each filter is functioning properly and (2) detect any short-term or rapid increases in turbidity that represent a process failure and a potential health risk. Filter effluent turbidity levels from individual filters should be continuously measured (with an online turbidimeter) and recorded at intervals no longer than five minutes apart at a point in each individual filter effluent line (see the Health Canada Guideline Technical Document for Turbidity). For facilities needing monitoring equipment upgrades, daily grab samples for turbidity monitoring may be considered an acceptable approach at the discretion of the Drinking Water Officer.

### UV Disinfection

Disinfection is considered to be a critical process for the inactivation or removal of pathogenic organisms to prevent the spread of waterborne diseases. These pathogenic organisms include bacteria like E. coli, protozoa like Giardia (causes beaver fever) and Cryptosporidium (causes cryptosporidiosis) and enteric viruses. UV disinfection inactivates bacteria, Giardia and

Cryptosporidium by disrupting their DNA, thereby preventing them from reproducing. UV disinfection may also be used for virus inactivation, but this requires a significantly higher dose.

The UV dose affects the degree to which microorganisms are destroyed or inactivated. The dose is calculated much like contact-time (CT) values for chlorine disinfection (described in the following subsection).

CT values are calculated as the product of the concentration of free chlorine and contact time; these values determine the disinfection potential in the system. UV dose is calculated as the product of the intensity of the light at 254 nm and the exposure time ( $D=I \cdot t$ ) and is measured in  $\text{mJ}/\text{cm}^2$ .

A UV disinfection unit is proposed at minimum  $40\text{mJ}/\text{cm}^2$  (NSF 55 Class A) at 10 GPM flow throughput. UV systems that are certified to NSF 55 Class A Standard are designed to deliver a minimum dose of  $40\text{ mJ}/\text{cm}^2$  for achieving a 3-log (99.9%) inactivation of protozoa (i.e., Cryptosporidium and/or Giardia). Due to the resistance of Adenovirus to UV, the BC Guidelines for Pathogen Log Reduction Credit Assignment only gives a 0.5-log virus reduction credit unless the Drinking Water Officer (DWO) does not consider the water to be at risk of human fecal contamination; in the latter case, a 2-log virus reduction credit is assigned for NSF 55 Class A UV systems. Since there is no data available on the potential for the proposed system's exposure to human fecal contamination, 4-log virus reduction is selected as the target.

Table 2 summarizes the dose requirements to inactivate target pathogens.

**Table 2 Dose Requirements in  $\text{mJ}/\text{cm}^2$**

Target Pathogen	Log Inactivation							
	0.5	1.0	1.5	2.0	2.5	3	3.5	4.0
<i>Cryptosporidium</i>	1.6	2.5	3.9	5.8	8.5	12	15	52
<i>Giardia</i>	1.5	2.1	3.0	5.2	7.7	11	15	22
Virus	39	58	79	100	121	143	163	186
Source: EPA Disinfection Guidance Manual								

### Chlorination




Chlorination is the most commonly used form of disinfection. It is effective against many pathogenic organisms, but at normal dosage rates, it does not inactivate them all; as noted above, chlorination alone cannot inactivate Cryptosporidium oocysts.

When combined with filtration and UV, chlorination is an excellent way to disinfect drinking water. Chlorine is also commonly added as a secondary disinfectant, which prevents microbial growth and biofilm build-up in the distribution system.

The chlorine requires a certain contact time (CT) to complete disinfection; this contact time is provided by the residence time in the chlorine contact tanks.

To determine if chlorination can achieve the 4-log virus inactivation and 1-log cryptosporidium inactivation (with UV and validated 1 micron absolute cartridge filter), a CT analysis was performed.

If we assume:

-  The target free chlorine residual at the plant discharge is 1.0 mg/L; any concentration below the target should initiate a 'low' alarm. Note that the target may change during the year based on influent water quality characteristics and water temperature.
-  Minimum water temperature of 1 °C.
-  A pH of 7 (assumed).

From USEPA CT Tables, the required CT to achieve the required inactivation is outlined in [Table](#) .

**Table 4 Log Virus Inactivation as a Function of Temperature**

Temperature (°C)	Required CT <sup>(1)</sup> for 4 Log Viruses
1	11.6
5	8

Assuming a maximum flow rate from the plant of 37.9 L/min and that the tank normally fluctuates between about 90% full (5,110 L) and 80% full (4542 L), the contact time in the tank at the low level is calculated as follows:

$$CT=4542/37.9=119.9 \text{ minutes}$$

The contact tank will be unbaffled when calculating CT, a baffling factor (T10/T) of 0.1 is used. The CT is calculated as follows:

$$CT = \text{Concentration of free chlorine (Cmg/L)}$$

$$\times \text{contact time (Tminutes)}$$

$$CT=0.1*1.0 \text{ mg/L} *119.9=11.99$$

Based on the above analysis, the current system is capable of achieving adequate disinfection with a 1.0 mg/L chlorine setpoint.

Chlorination acts as a third treatment towards the two-process required in the 4-3-2-1-0 objectives. With a 1 µm verified cartridge filter and a verified UV disinfection system and chlorination, the system can likely achieve the 4-log virus reduction and three-log reduction of Giardia required in the 4-3-2-1-0 objectives.

The equipment sizing details for the proposed WTP system has been presented in Table 2.

**Table 3 Equipment Sizing Details**

#	Details	Quantity
1.	Well Pump Supply and Install Franklin Electric 1.5 hP, 25 gpm FS Series, Subdrive VFD Utility, Constant Pressure Manifold, 18L SS pressure Tank, 1.25" Pitless Adapter and 6" Locking Well, NSF61 Rated PVC80 Drop Pipe c/w SS Coupling, Misc. Material to Complete Installation. Pipe/Electrical Teck Cable Trenching	1
2.	Chemical Injection Skid NaOH & Chlorine Stenner S Series c/w 7.5 gallon Tank	1
3.	Harmsco WB 40SC-2 SS304, 20 Micron HC/40-20-AM	1
4.	Harmsco WB 40SC-2 SS304, 5 Micron HC/40-5-CB	1
5.	Harmsco WB 40SC-2 SS304, 1 Micron Absolute-PP-HC-40-1	2
6.	Ultraviolet System C/W NSF 55 Class A validated with true flow-based dose monitoring, UV intensity monitor, Viqua Pro10	1
7.	Treated Water Pressure Pump VFD DAB ESYBox automatic booster pumps	1
8.	Treated Water Storage Tank 1500 gallon (5678 liter)	1
9	Instrumentation Chlorine Monitoring (ATI or Hach), Turbidity Monitoring (Hach), pH Monitoring, Four Pressure Gauges c/w ¼" Monitoring Points	1
10.	All Plumbing will be PVC80 C/W Ball Valves, and Fittings	

Appendix A include site plan, detail drawings, and PID for the proposed water treatment plant. The location of the existing well and well head photo has been shown in the site plan, and specific details on the existing well are provided in Appendix B.

The proposed plant equipment will be weather-protected and will be housed in a 12 ft x 8 ft structure. The reservoir will be inground tankage as depicted in the drawings. All equipment is proposed to be NSF-rated.

We appreciate the opportunity to work with your team and would be pleased to discuss, in greater detail, any aspect of this report and predesign works at your convenience.

Sincerely,

**Mangat Environmental Solutions Inc.**

Sunny Mangat, P. Eng., CPESC, M.Sc., M.Tech., P.G. Diploma

Principal Engineer

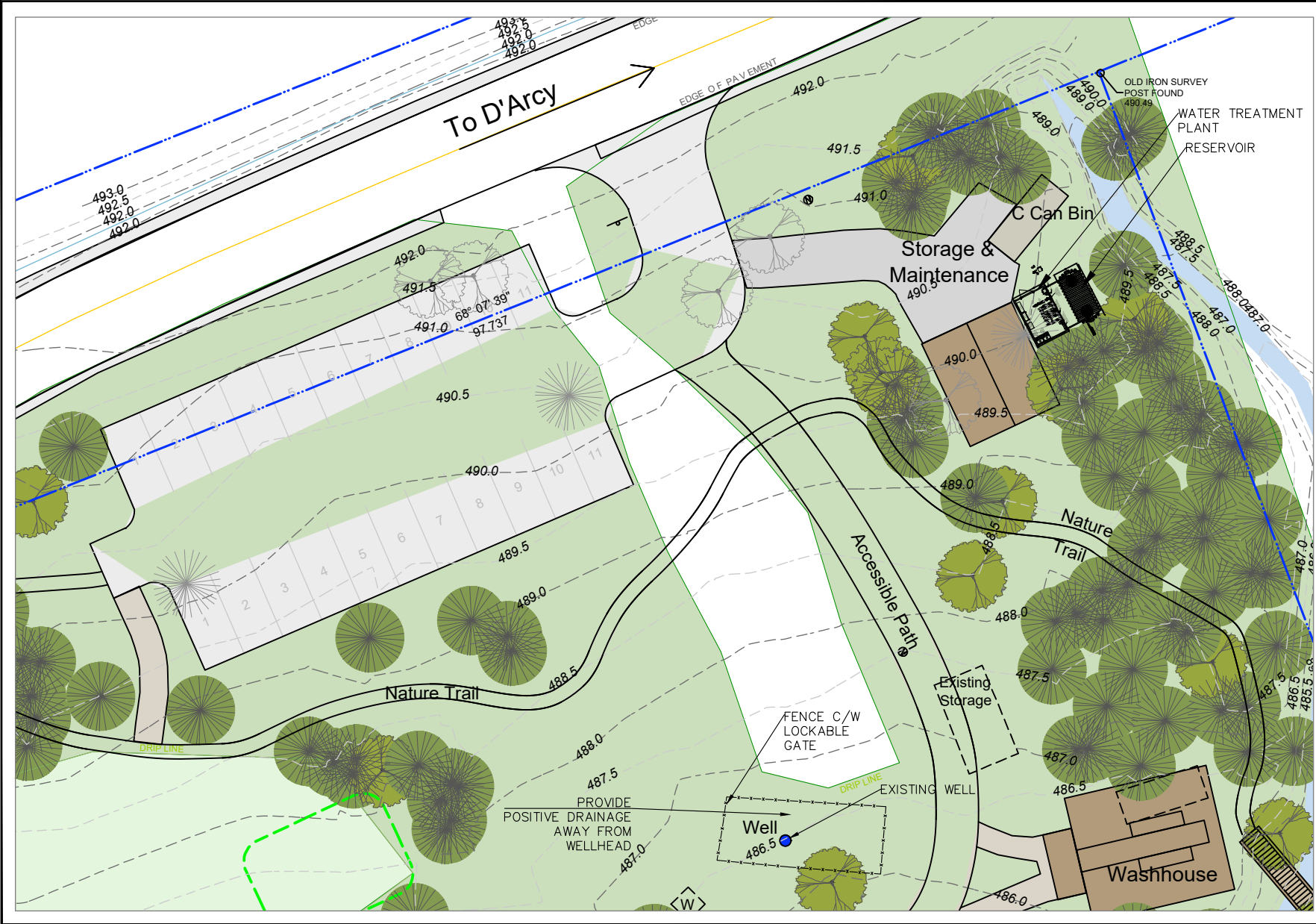
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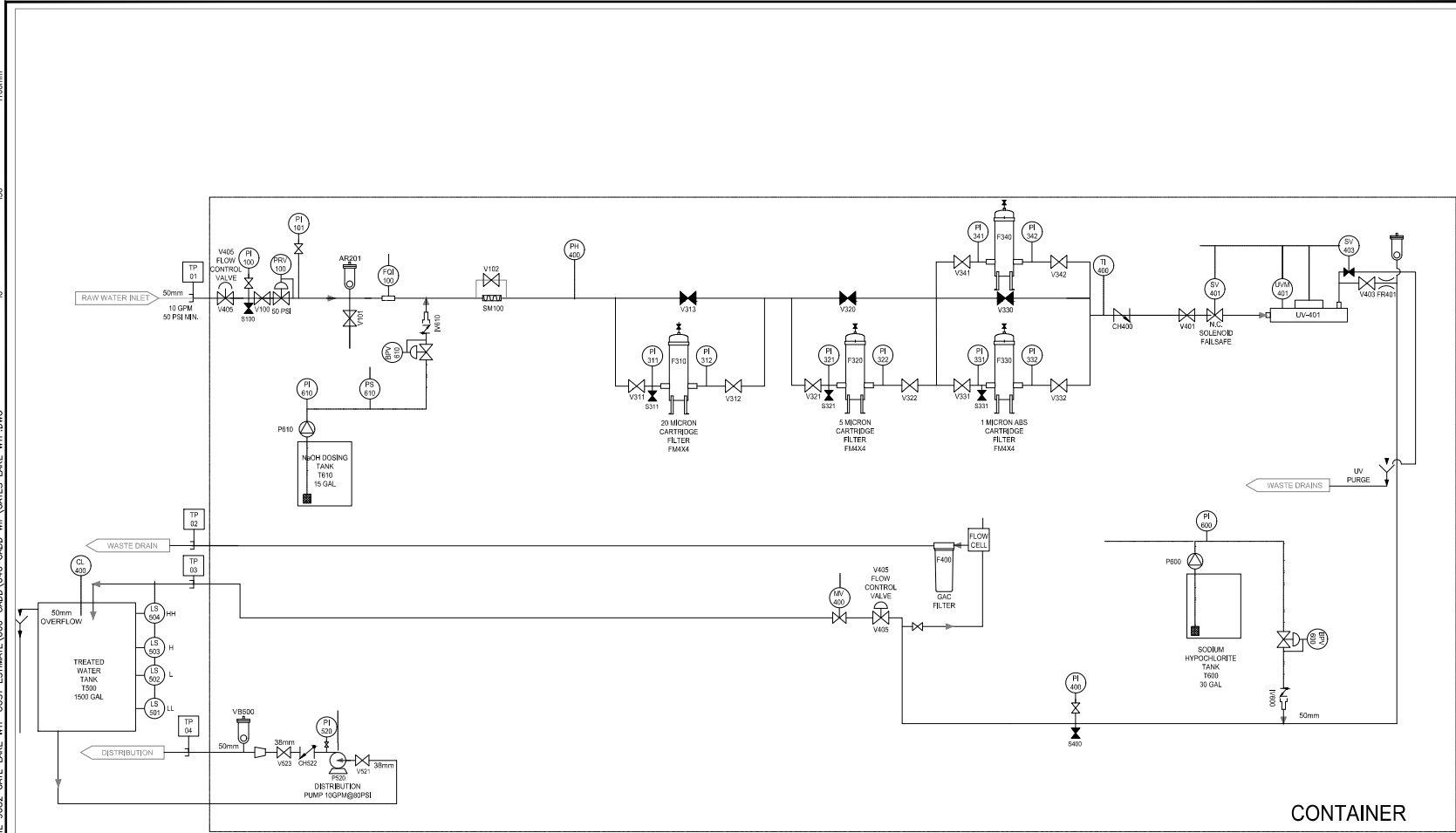
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