CITY OF VANCOUVER
SERVICES AGREEMENT
No. C-102245
WATER STATION 1 PFAS TREATMENT SYSTEM DESIGN

This Services Agreement (the "Agreement"), effective on the date last signed below (the "Effective Date") is entered by the City of Vancouver, Washington, a municipal corporation organized under the laws of the State of Washington (the "City") and Brown and Caldwell a corporation organized under the laws of the State of California (the "Contractor"). The City and Contractor are collectively referred to as the "Parties" or individually as a "Party".

RECITALS

A. The City desires to engage the Contractor to perform Services as described in this Agreement; and
B. The City advertised and issued a request for proposals, numbered RFQ 58-25(the "Solicitation") and after evaluation of the Contractor's responsive proposal, found the Contractor capable of performing the required Services.

AGREEMENT

In consideration of the terms and conditions in this Agreement, the Parties agree as follows:

1. **SCOPE OF SERVICES:** The Contractor agrees to provide the City with all services and materials provided in the Scope of Services, attached as Exhibit "A", and in the City's Solicitation, if any, and the Contractor's responsive proposal to the City's Solicitation, if any (the "Services"). Contractor shall obtain City Project Manager's written approval prior to starting the Services.

2. **COMPENSATION:** Payment to the Contractor for the Services described in this Agreement shall not exceed $2,229,483.00 USD.

   This payment shall be the maximum compensation for all Services including labor, materials, supplies, equipment, and incidentals necessary to complete the Services. And it shall not be exceeded without the City's prior written authorization in the form of a negotiated and executed amendment. Contractor agrees this compensation is adequate and sufficient for the timely provision of all Services under this Agreement.

City will limit compensation to the amount specified for each phase, unless amended in writing. Contractor shall complete the Services stated within the number of hours identified for each phase. If compensation is made on an hourly basis and the Services requires fewer hours than those estimated, the Contractor will be paid for the actual worked hours necessary to complete that phase. If Contractor underestimated the number of hours required to perform the Services, Contractor shall be paid up to the maximum number of hours stated for the phase. Compensation may be amended, at the City's sole discretion, for documentable circumstances not reasonably foreseeable to either party at the time the phase is initiated, or for changes to the scope of services requested by City. All Deliverables (as defined in Section 8) must be acceptable to City in its sole discretion.

City will reimburse Contractor for the following travel expenses identified in its proposal upon submission of receipts to City: airfare, mileage at the approved IRS rate and lodging at the U.S. General Services Administration rates. For the avoidance of doubt, City will not reimburse Contractor wages incurred during travel time.

3. **PAYMENT FOR CONTRACTOR SERVICES**: The Contractor shall submit monthly invoices to City covering both professional fees and project expenses, if any, from the previous month. Invoices must be submitted to the Project Manager, Mehrin Selimgir, by email to mehrin.selimgir@cityofvancouver.us and accpay@cityofvancouver.us or by mail to City of Vancouver, Mehrin Selimgir, PO Box 1995, Vancouver, WA 98668.

   City shall pay Contractor within 30 days of receipt of Contractor's invoice. The City will pay Contractor pursuant to Exhibit "B." The City may correct any invoice overpaid in error.

   During the life of this Agreement, and in consideration of the City's business needs, the Contractor may make requests for compensation adjustments. In consideration of market conditions, the City may allow an annual adjustment to compensation paid supported by the Consumer Price Index for the Seattle-Tacoma-Bellevue area for the previous four quarters. Contractor shall submit the request for consideration, together with supporting documentation, before the anniversary date of this Agreement. The City will review the request and, at its sole discretion, make a decision. If accepted, the adjustment shall become effective on the anniversary date of the Agreement and will be firm for the remainder of the contracted period. All adjustments will be authorized by written contract amendment.

   The Parties agree that any amount paid in error by City does not alter the fee schedule. City's contract/purchase order (PO) number on the notice to proceed must be referenced on any invoice submitted for payment.

4. **TERM OF AGREEMENT**: The term of this Agreement begins on the Effective Date and continues until December 31, 2028. The Parties may agree in writing to extend the Agreement. The term and any extensions are collectively the "Term."

5. CITY DATA; DATA SECURITY

5.1 City Data. Contractor may obtain and process City Data in connection with the Services. "City Data" means the data City provides to Contractor in connection with the receipt of the Services and any data generated by Contractor in connection with providing the Services to City. City owns all City Data. City licenses City Data to Contractor solely for the purposes of providing the Services to City or improving the Services for City. Contractor shall not use City Data for any other purpose, including as artificial intelligence training data. Contractor acknowledges that compliance with Applicable Laws under Section 17 of the Agreement includes compliance with all applicable federal, state, and local data protection laws in its provision of the Services.

5.2 Data Security. If Contractor maintains City Data on Contractor systems it will comply with the following data security requirements.

5.2.1 Security Practices. Contractor shall develop, implement, and maintain appropriate administrative, physical, and technical safeguards that are designed to ensure the confidentiality, integrity and availability of City Data. Contractor will enact safeguards that are compliant with industry best practices for the specific City Data obtained by Contractor in connection with the Services.

5.2.2 Location of City Data. Contractor shall maintain City Data solely in data centers located in the United States.

5.2.3 Security Breaches. A "Security Breach" is any suspected or actual unauthorized access to or use of City Data in Contractor's possession.

a. Notice. Contractor will notify City within 72 hours of any Security Breach. Notice will include details regarding the Security Breach including impacted parties, specific data, and mitigation. Contractor will call 360.487.8888 (if after hours, follow prompt to connect to on-call personnel); email City with a read receipt to help.desk@cityofvancouver.us; and email to the City personnel contact for the Agreement.
b. Coordination. Immediately after Contractor provides notification of a Security Breach the Parties will begin working together to contain, mitigate, investigate, respond to and remediate the Security Breach. Contractor will cooperate with all City requests in relation to the Security Breach in compliance with Applicable Law.
c. Root Cause Analysis. As soon as possible following the Security Breach, Contractor will complete a root cause analysis and will provide a plan to City for remediation and prevention.
d. Third-Party Notice. Contractor will work together with City to ensure compliance with RCW 19.255.010 if necessary and will make no statement or send notice to any third party regarding the Security Breach without City's prior written consent.
e. Costs. In addition to its indemnification obligations, Contractor will reimburse City for all costs City incurs associated with any Security Breach, including forensic investigation, costs of providing notice to impacted parties, call centers and credit

monitoring as applicable. Contractor will pay or reimburse City for all regulatory fines and other legal costs the City incurs associated with the Security Breach.

6. **DELIVERABLES - INTELLECTUAL PROPERTY** Contractor may create documents or other work product in connection with providing the Services ("Deliverables"). Contractor assigns and will assign to City all right, title, and interest in and to any Deliverables it creates in connection with providing the Services. Contractor may retain a copy of any Deliverable for its internal business purposes. Contractor's know-how, methodologies and processes are Contractor intellectual property. Contractor grants City a perpetual, irrevocable, royalty-free, worldwide license to use all Contractor intellectual property in connection with the Deliverables for any City purpose.

7. **AUDIT RIGHTS:** Contractor shall maintain records of all matters related to this Agreement in accordance with generally accepted accounting principles. Contractor shall provide the records to City or any other governmental agency with jurisdiction for audit, at such reasonable times and places as City designates.

8. **PUBLIC DISCLOSURE COMPLIANCE:** Records relating to Agreement are subject to the following:

8.1 Confidential Information. Any record of City business, including this Agreement, related records, and City Data, is a public record under the Washington Public Records Act, codified at chapter 42.56 RCW ("PRA"). City may be required to disclose this Agreement or related records, including records in Contractor's possession, pursuant to a public disclosure request. City will provide third-party notice to Contractor before disclosing records. Public records may be subject to exemptions from disclosure under the PRA. City agrees to withhold its release of the requested records in dispute for a reasonable amount of time (approximately 10 days) to allow Contractor an opportunity to seek judicial protection pursuant to RCW 42.56.540 as adopted or amended.

8.2 Public Disclosure Compliance. City will comply with the PRA in its receipt of and response to any public disclosure request for responsive records related to this Agreement, subject to applicable exemptions. Under RCW 42.56.060, City will have no liability to Contractor for disclosure of Contractor information acting in good faith pursuant to its obligations under the PRA.

8.3 Subpoenas. If either Party receives a subpoena requiring the disclosure of the other Party's information, that Party will notify the other party and provide a reasonable time for the affected party to obtain a protective order prior to disclosing information. If a Party is prohibited by a court with jurisdiction over the matter from disclosing the subpoena, that Party will provide only the specific information required to be released under the subpoena on the advice of counsel.

8.4 City Data Confidentiality. Notwithstanding Section 8.1-3, Contractor will maintain the confidentiality of all City Data in its possession in conformance with Section 8.

9. **STANDARD OF CARE**: Contractor shall exercise the degree of skill and diligence normally employed by consultants in the same industry, performing the same or similar services. Contractor will re-perform any Services that breach this provision at no cost to City.

10. **DISPUTE RESOLUTION**: City and Contractor agree to negotiate in good faith for a period of 30 days from the date of notice of all disputes between them prior to exercising their rights under this Agreement or under law. All disputes between City and Contractor not resolved by negotiation between the Parties may be mediated only by mutual agreement of both Parties. If not mutually agreed to resolve the claim by mediation, the claim will be resolved by legal action. The Parties agree that if litigation is necessary to enforce any of the provisions of this Agreement, each party shall pay all of their own attorney fees and costs related to the litigation.

11. **TERMINATION FOR CONVENIENCE**: City may terminate this Agreement at any time for convenience. City will pay Contractor for all Services completed up to the date of termination for convenience. A decision by City to terminate for convenience does not waive any legal rights City has to enforce the Agreement.

12. **TERMINATION FOR MATERIAL BREACH:** If Contractor materially breaches by failing to perform any of the obligations of the Agreement, including violating any law, regulation, rule, or ordinance applicable to this Agreement, or becomes insolvent or declares bankruptcy, or makes an assignment for the benefit of creditors, Contractor shall not be entitled to receive any further payments under the Agreement until the Services are completed to City's satisfaction. City may provide Contractor a cure period in its sole discretion or may terminate the Agreement and, at City's option, obtain performance of the Services elsewhere.

13. **INDEMNIFICATION:** Contractor shall indemnify, defend, and hold harmless City and its officers, councilmembers, commissioners, employees, volunteers, and agents, from any claim, liability, loss, cost, expense, suit, and damages, including reasonable attorney's fees and consulting fees ~~relating to~~ arising from (a) a third party claim for intellectual property infringement relating to the Contractor's Services or the Deliverables; (b) Contractor's negligence or willful misconduct; (c) Contractor's material breach of the Agreement; (d) Contractor's non-compliance with applicable law; (e) a third-party Washington Public Records Act claim involving Contractor information; and (f) Contractor's court action to enjoin release of Contractor information under the Washington Public Records Act.

    City will promptly notify Contractor of a claim under this Section 13 and will provide reasonable cooperation to Contractor in the defense of the claim. Contractor will have control over defense and settlement of the claim, except that Contractor will not enter any settlement or related agreement without City's prior written consent. Notwithstanding the

preceding sentence, City may participate in the defense or settlement of any claim with counsel of its own choosing.

Solely for negligence indemnification claims under (b) above, if Contractor is providing architectural, landscape architectural, engineering, or land surveying services as the Services under this Agreement, and Contractor and City are concurrently negligent, then Contractor will be required to indemnify City only to the extent of Contractor's negligence and will have no obligation to indemnify City for City's sole negligence, pursuant to RCW 4.24.115.

If Contractor or Contractor's employee is a licensed architect, professional engineer, land surveyor, or landscape architect and the Services are related to a construction project, Contractor expressly waives its industrial insurance immunity under the Washington Industrial Insurance Act Title 51 RCW. Contractor acknowledges this waiver has been mutually negotiated and the Parties desire to incorporate this waiver pursuant to RCW 4.24.115(1)(b).

14. INSURANCE: Contractor shall maintain liability insurance for all claims for damages to the City, persons or property that arise from Contractor's performance during the Term of this Agreement.

Contractor shall maintain the following insurance coverage.

COVERAGE	LIMITS OF LIABILITY
I. Commercial General Liability:	
Policy shall include Bodily Injury, Property Damage, Personal Injury and Broad Form Contractual Liability	
Each Occurrence	$1,000,000
General Aggregate Per Occurrence	$2,000,000
Products & Completed Operations Aggregate	$2,000,000
Personal and Advertising Injury	$1,000,000
Blanket Contractual Liability	$1,000,000
II. Commercial Automobile Liability	
Policy shall include Bodily Injury and Property Damage for any owned, hired, and/or non-owned vehicles arising from the performance of this Agreement.	
Combined Single Limit	$1,000,000
III. Workers' Compensation (applicable to the State of Washington)	
Per Occurrence	
Employer's Liability	$1,000,000
Disease Each Employee	$1,000,000
Disease Policy Limit	$1,000,000
Each Claim	$1,000,000
Annual Aggregate	$1,000,000

IV. Umbrella Liability	
	$2,000,000
V. Professional Liability	
Policy shall include coverage for all claims for damages to person or property arising from the performance of this Agreement.	$1,000,000

In addition to the coverage and limits listed above, the Contractor's insurance must contain the following:

a. Compliance with other Insurance Policies - Contractor will remain compliant with all other insurance obligations it may have pursuant to its personnel or applicable law.

b. Coverage Trigger - Contractor's General Liability insurance must be on an "occurrence" basis rather than claims made. This type of coverage must be indicated on the Certificate of Insurance.

c. Additional Insured Requirement – For policies in I, II and IV above, the City of Vancouver, its Agents, Representatives, Officers, Directors, Elected and Appointed Officials, and Employees must be named as additional insureds where permissible under applicable law. The required Additional Insured endorsements shall be at least as broad as ISO CG 20 10 11 85, or its equivalent CG 20 10 07 04 and CG 20 37 07 04 must be included with the Certificate of Insurance.

d. Certificates - The City of Vancouver shall be listed on the Certificate of Insurance as the Certificate Holder. Contractor will provide the Certificate of Insurance to City upon request on an ACORD or comparable form.

All policies shall be issued by an insurance company authorized to do business as an insurance company in the State of Washington.

15. RELATIONSHIP OF THE PARTIES. The relationship of the Parties under this Agreement is that of independent contractors. Contractor is solely responsible for the manner, method, and means of providing the Services. Contractor and its employees are not City employees and will not be entitled to or receive any benefits under this Agreement. Contractor will pay all Contractor personnel and pay all taxes, contributions, and benefits that may be required related to its personnel. Neither Party may bind the other except as expressly stated in this Agreement.

16. SUBCONTRACTING*:* Contractor may subcontract for Services with City's prior written approval in its sole discretion. Contractor is solely responsible for its subcontractors' compliance with this Agreement and will pass through the terms of this Agreement to all subcontractors.

17. **COMPLIANCE WITH APPLICABLE LAW:** Contractor shall comply with all applicable federal, state, and local laws, rules, and regulations ("Applicable Laws"). Contractor shall modify the Services as necessary to comply with Applicable Laws.

18. **E-VERIFY:** Contractor shall enter into and register a Memorandum of Understanding with the Department of Homeland Security E-Verify program within 60 days of executing this Agreement. Contractor shall ensure all Contractor employees and any subcontractors assigned to perform Services under this Agreement are eligible to work in the United States. Contractor shall provide compliance verification upon City's request.

19. **TITLE VI COMPLIANCE**: Depending on the Services Contractor provides, the City may use federal funds to compensate Contractor. If federal funds are used. the City, Contractor, and any approved subcontractor must comply with the provisions of Title VI of the Civil Rights Act of 1964, (78 Stat. 252, 42 U.S.C. 2000d to 2000d-4) (CRA) and the Civil Rights Restoration Act of 1987, Pub. L. No. 100-259, 102 Stat. 28 (1988) (CRRA). Contractor must confirm with City whether Title VI is applicable under this Agreement.

20. **EQUAL EMPLOYMENT OPPORTUNITY**: The City is an equal opportunity employer. Contractor shall not discriminate against any of its employees or applicants for employment on the basis of race, color, creed, religion, sex (including gender identity, sexual orientation, and pregnancy), national origin, citizenship or immigration status, age (40 or older), the presence of any sensory, mental, or physical disability or the use of a trained dog guide or service animal by a person with a disability, genetic information, honorably discharged veteran or military status, or any other class protected by federal, state, or local employment discrimination laws.

21. **ANTI-KICKBACK**. City officers and employees shall not have or acquire an interest in the Agreement or solicit, accept, or give any item of value from a person or entity with an interest in this Agreement.

22. **PERMITS, LICENSES, AND CERTIFICATIONS**. Contractor is solely responsible for any license, permit or certificate that may be required by any federal, state or local law in connection with the performance of Contractor's obligations under this Agreement, including any business license. Contractor may contact the State of Washington Business License Service (BLS) at: 800-451-7985, www.bls.dor.wa.gov/cities/vancouver.aspx or visit the City's website found at www.cityofvancouver.us/businesslicense for assistance with the determination.

23. **COOPERATIVE PURCHASING:** The Washington State Interlocal Cooperation Act, chapter 39.34 RCW, authorizes public agencies to cooperatively purchase goods and services if all parties agree. By executing this Agreement, Contractor agrees that other public agencies may

purchase goods and services under this Agreement at their own cost. City will have no liability or obligation related to Contractor related to that separate agency agreement. Therefore, City agrees to allow other public agencies to purchase services under this Agreement so long as City is not held financially or legally liable for any separate agency services received pursuant to the Agreement, and that any public agency purchasing under this Agreement file a copy of it in accordance with RCW 39.34.040.

24. **DEBARMENT**: Contractor certifies that it is not presently debarred, suspended, proposed for debarment, and declared ineligible or voluntarily excluded from covered transactions by any federal, state or local department or agency.

25. **CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT:** Supplier must agree to comply with all applicable standards, orders or regulations issued pursuant to the Clean Air Act (42 U.S.C. 7401–7671q) and the Federal Water Pollution Control Act as amended (33 U.S.C. 1251–1387). Violations must be reported to the Federal awarding agency and the Regional Office of the Environmental Protection Agency (EPA).

26. **BYRD ANTI-LOBBYING AMENDMENT:** Byrd Anti-Lobbying Amendment (31 U.S.C. 1352)—Suppliers that apply or bid for an award of $100,000 or more must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the non-Federal award.

27. **PROCUREMENT OF RECOVERED MATERIALS**: Supplier must comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 CFR part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds $10,000 or the value of the quantity acquired during the preceding fiscal year exceeded $10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.

28. **NOTICES:** All notices will be hand delivered, certified mail, or sent by electronic mail if agreed by the Parties. Notice will be effective when received if hand delivered, on the delivery date if certified mail, or when an email is sent. Notice must be addressed to the Parties at:

For the City:
Anna Vogel
City of Vancouver
415 W 6th Street
P O Box 1995
Vancouver WA 98668-1995
Email: anna.vogel@cityofvancouver.us

For the Contractor:
Lynn Stephens
Brown and Caldwell
4380 S Macadam Ave, Suite 250
Portland, OR 97239
Email: lstephens@brwncald.com

Either Party may update its address for notice by giving written notice to the other Party.

29. **ASSIGNMENT.** Contractor shall not assign this Agreement without the express written consent of City. Any assignment in violation of this subsection is void. All terms of this Agreement are binding on any assignee.

30. **ORDER OF PRECEDENCE:** If there is a conflict between the terms of any document, the order of precedence is as follows: Amendments to this Agreement; this Agreement; City Purchase Orders; Contractor's responsive proposal to City's solicitation; and City's solicitation. The Parties agree that terms included on any Purchase Order or other document provided by Contractor are not part of this Agreement.

31. **SURVIVAL**. Sections 15 - 35 will survive any termination of this Agreement.

32. **WAIVER**. A Party's waiver of any term of this Agreement must be in writing and signed by the Party waiving compliance.

33. **THIRD PARTY BENEFICIARIES**. There are no third-party beneficiaries under this Agreement.

34. **GOVERNING LAW**: This Agreement is governed by the laws of the State of Washington without regard to its conflicts of laws provisions. Venue for any action arising under this Agreement will be the state or federal courts for Clark County, Washington. The Parties waive any claim of inconvenient forum.

35. **SEVERABILITY**. If a court with jurisdiction over the matter determines any clause of this Agreement is unenforceable, it shall revise the clause to reflect the intent of the Parties as closely as possible. If revision is not possible, the Court shall strike the clause and the remainder of the Agreement will remain in full force and effect.

36. **AMENDMENTS:** Any amendments to this Agreement must be in writing and signed by all Parties to this Agreement.

37. ENTIRE AGREEMENT: This Agreement, together with any amendments, is the entire agreement between the Parties, and supersedes any other agreement or discussion between them, whether written or oral in nature.

38. COUNTERPARTS. This Agreement may be signed in counterparts. Each counterpart will be deemed an original and together the separate parts will form one Agreement.

City and Contractor enter the Agreement as of the Effective Date.

CITY OF VANCOUVER
A municipal corporation

Lon Pluckhahn, City Manager

Date

Attest:

Lisa Brandl, City Clerk

Approved as to form:

City Attorney's Office

CONTRACTOR:
Brown and Caldwell

Signature

Printed Name /Title

Date

4380 S Macadam Avenue, Suite 250
Portland, OR 97239
T: 503.244.7005

Water Station 1 PFAS Treatment System Design Project

City of Vancouver

Phase 1 Scope of Work

April 9, 2026

Project Overview

Per- and polyfluoroalkyl substances (PFAS) are present in the groundwater at Water Station 1 (WS1) and the City of Vancouver (City) needs to comply with the Environmental Protection Agency's (EPA) PFAS maximum contaminant level (MCL) for drinking water. The City has tasked Brown and Caldwell (BC) to provide professional engineering services to design a PFAS water treatment system at WS1 located at the Vancouver Central Park along East Fourth Plain Boulevard in Vancouver, Washington. This scope of work describes BC ("Consultant") and the City activities that will occur during the WS1 PFAS Treatment System Design Project ("Project") for treatment of PFAS in the City's groundwater wells at WS1. BC will subcontract services with Shannon & Wilson for geotechnical, Greenworks for landscape architecture, MWA Architects for architecture (as needed), and ESA for permitting support. This scope assumes the City will complete the surveying and potholing required to develop the basemap of the site.

AKS is retained as a part of a team for potential use in further phases including traffic analysis for a new entry way to the WS1 site. No scope of work is assumed for AKS for Phase 1.

Background

The City owns and operates the third largest state-regulated municipal water system in the State of Washington. Vancouver's source of drinking water is 100% groundwater. There are nine wellfields with a total of 40 wells in the City's system. These wells produce an average daily demand of 27 million gallons (MG) serving approximately 280,000 people. The City's service area covers approximately 72 square miles incorporating areas within the City limits and extending into unincorporated Clark County.

WS1 is the highest producing source for the City and contains roughly half of the City's total source capacity. The existing site sits on approximately 25 acres and contains twelve groundwater wells with a combined capacity of 22,880 gpm. The existing water right at WS1 is 23,400 gpm.

WS1 consists of the following major components:

- 12 groundwater wells that pump from the Lower Orchards aquifer
- 3 booster pump stations (BPS)
- On-site sodium hypochlorite generation (OSHG) system for disinfectant residual
- Fluoride dosing equipment
- Air stripping treatment facility for VOC treatment
- Two partially buried, 4.0 MG finished storage reservoirs (WS1 East and West Reservoirs)
- One (1.0 MG) standpipe (Tower 1) serving the Vancouver High zone.

- The site is served by two independent electrical power supplies and is equipped with an onsite generator.

Raw water from the twelve wells flows through a common meter before entering the air strippers. After VOC treatment, water is dosed with sodium hypochlorite and sodium fluoride before flowing by gravity to the 4.0 MG reservoirs. The wells are controlled by level in the 4.0 MG reservoirs. Finished water can flow by gravity to the Vancouver Low zone and can be pumped to the Heights Low, Heights High, and the Vancouver High zones. Tables 1 and 2 summarize WS1's total source and booster pumping capacities.

Table 1: Summary of WS1 Well Capacities

Well	Capacity (gpm)
1	2,000
2	2,000
3 (Decommissioned)	N/A
3B	2,250
4	1,200
5 (Decommissioned)	N/A
5B	2,250
7	3,400
8	2,500
9	1,500
10	1,900
11	3,500
12	2,500
13	2,000
Total Well Capacity	**27,000**
Instantaneous Water Right	**23,400**

Table 2: Summary of WS1 Booster Pump Station Capacities

Booster Pump Station	Description	Total Capacity (gpm)
Tower BPS	Supply: WS-1 4.0 MG Reservoirs Discharge: Vancouver High zone	7,900
"1 to 5" BPS	Supply: WS-1 Reservoirs Discharge: Heights Low zone	14,460
St. Johns BPS	Supply: WS1 Reservoir Discharge: Heights High zone	4,800

WS1 Approach

BC will complete the project in three phases:

- Phase 1: Preliminary Design
- Phase 2: Final Design
- Phase 3: Services During Construction

City decisions on treatment approach and necessary design upgrades in Phase 1 will inform the scope of work for Phases 2 and 3. The first phase of the project will include survey of the site, site evaluation, collaborative decision-making evaluations and workshops for the conceptual design, preliminary design, initial permitting tasks including the assessment of the cultural review, land use pre-application, construction in the LWCF 6(f) boundary, and public outreach.

The design team will meet with the City early to assess the City's preferences with blending options and to determine fatal flaws for the technology options considered for WS1. Based on the outcomes of the blending assessment and fatal flaw analysis, BC will conduct a series of workshops to assess treatment capacity and technology selection using a multi-criteria decision analysis (MCDA), to evaluate the alternatives and determine the City's preferred path forward for treatment selection and capacity. The MCDA will evaluate relative benefits and trade-offs for the selected treatment technology and capacity options. This will include weighted criteria scoring and assessment of criteria sensitivity on overall decisions. The assessment will also involve confirming treatment goals, and considering options for future flexibility and expansion, and incorporate an understanding of estimated hydraulic upgrades. Additionally, the team will evaluate the option for pre-procurement in the context of WS1 and the selected treatment technology.

Once foundational decisions are made and the conceptual layout is established, the basis of design will be documented in a Project Engineering Report (PER), including expectations for code requirements. BC will then advance the preliminary design deliverables (30 percent design level) including the Preliminary Drawings and a Class 4 cost estimate under Phase 1.

In parallel with this project, BC is supporting the City under a separate contract to inform federal funding options including applying for funding through a WIFIA application, which includes funding for WS1. BC's funding expert, Seema Chavan and team will meet with the City using this separate contact or the water on-call contract to support any funding needs for Phase 1 of WS1.

Phase 2 of the project will include the detailed design and final design efforts to develop construction documents. Phase 2 will involve development of the 60 percent design submittal, land use approval package, 90 percent design submittal, followed by preparation of the 100 percent and final bid documents. BC will also provide bid support.

Phase 3 will include construction and commissioning services including services during construction (SDC) support and on-site construction management and commissioning and start-up support.

Scope of Work Summary and Work Breakdown Structure

The BC team's scope of services for the WS1 PFAS Treatment System Design Project is divided into the following phases and tasks:

Table 2: WS1 PFAS Project Design Tasks		
Phase 1 – Preliminary Design		
Phase 110	Phase 1 Project Management	
	Task 111	Phase 1 Client Meetings
	Task 112	Phase 1 On-going Project Management
Phase 210	Phase 1 Site Assessment	
	Task 211	Survey and Basemap Preparation
	Task 212	Geotechnical Investigation
	Task 213	Review Site Background Information
Phase 310	Conceptual Design	
	Task 311	Blending Assessment and Fatal Flaws Analysis
	Task 312	Site Tours
	Task 313	Alternatives Analysis (MCDA)
	Task 314	Wells Tie-in and Pumping Analysis
	Task 315	Conceptual Layout
	Task 316	Early Procurement
	Task 317	Internal Workshops
Phase 410	Project Engineering Report (PER)	
	Task 411	Develop Draft PER
	Task 412	QA/QC
Phase 420	Preliminary Design Drawings and Specifications	
	Task 421	Internal Team Meetings and Design Management
	Task 422	Civil
	Task 423	Landscape
	Task 424	Architectural
	Task 425	Structural
	Task 426	Process/Process-Mechanical
	Task 427	Building Mechanical
	Task 428	Electrical
	Task 429	Instrumentation and Controls
Phase 430	Preliminary Design Submittal, QA/QC, and Cost Estimating	
	Task 431	Preliminary Design Submittal
	Task 432	Cost Estimating
	Task 433	Preliminary Design QA/QC
	Task 434	External Meetings

Table 2: WS1 PFAS Project Design Tasks		
Phase 510	Permitting & Public Outreach	
	Task 511	Permitting Matrix, SEPA, and Public Park Coordination
	Task 512	Land Use
	Task 513	Community Outreach
	Task 514	DOH Engagement and Coordination
Phase 810	Phase 1 Unanticipated Services	
	Task 811	Phase 1 Unanticipated Services

This scope of services and level of effort includes the Phase 1 tasks only. Phase 2 will be scoped during Phase 1. This scope, schedule, and budget are expressly developed for the completion of the deliverables summarized herein for Phase 1. We have assumed input and support from City staff and that relevant information and data will be provided by the City. Professional services that may be required beyond this scope may require an amendment. Phase 810 is included to cover unanticipated services for Phase 1.

Phase 1: Preliminary Design

Phase 1 of the project includes the site assessment, conceptual design, PER, preliminary design, initial permitting, and public outreach as detailed in the following phases and tasks:

Phase 110: Project Management

This phase covers project management for Phase 1 efforts.

Tasks 111: Phase 1 Client Meetings

Activities: Conduct project kick-off and external PM meetings

Assumptions:

- A project kick-off meeting will be held, in hybrid format with in-person and virtual attendees, for 1.5 hours. The kick-off meeting will also be used to present the overall project approach and schedule. During the kick-off, the fundamental design approach and framework for upcoming workshops and design activities will be discussed.
- Project kick-off is anticipated to be attended by Project Manager (PM), Deputy PM, Design Manager, Process-Mechanical Engineer, Hydraulics Engineer, two Civil Engineers, Electrical Engineer, I&C Engineer, and Structural Engineer. At the project kick-off, the following foundational elements will be discussed as time allows:
  - Wells tie-in locations
  - Siting alternatives and constraints
  - Water quality and blending
  - Treatment technology and placement in process train
  - Hydraulics and pumping improvements
  - Ancillary improvements

  - Operation and maintenance considerations for design implementation
  - Multi-criteria decision analysis evaluation criteria initial brainstorm (to be developed with City through Task 313 Workshop 1)
- Key staff from the team will visit the site for the project kick-off.
- External PM meetings will be virtual and will occur biweekly (every other week) with a duration of 60 minutes, attended by 2 consultant staff. Additional time for meeting prep and circulation of post-meeting materials, as necessary, is included in this task budget.

Meetings:

- External project kick-off meeting and site visit.
- Weekly virtual PM calls for duration of this phase (not to exceed 8 months). Preliminary design is anticipated to be delivered in 7.5 months.

City Responsibilities:

- Participate in project kick-off meeting and site visit.
- Provide one round of consolidated comments within 2 weeks of receipt of meeting minutes.
- Communicate issues that impact project at weekly PM meetings.

Deliverables:

- Project kick-off meeting agenda and meeting minutes.
- Weekly PM brief meeting agendas.

Tasks 112: Phase 1 Project Management

Activities/Approach: Provide management, direction, coordination, and control ofwork associated with the project schedule, budget, technical quality, and monthly invoices for the project, along with project meetings under this phase. This task includes the following activities:

- Task-level project and staff management.
- Project file management.
- Creation and maintenance of the project schedule.
- Tracking project expenditures versus percent complete.
- Communication and coordination with City staff.
- Preparing monthly progress report and invoice.
- Development of a project management plan (PMP) and quality management plan (QMP).
- Development and maintenance of the change management log.

City Responsibilities:

- Review monthly status reports and supporting project documentation for invoice and payment approval

Deliverables:

- Monthly progress reports and invoices.
- Project schedule.

Phase 210: Site Assessment

Task 211: Survey and Basemap Preparation

City Responsibilities/Activities: The following activities will be performed by the City.

- City to complete survey to prepare a basemap for the treatment improvements with horizontal and vertical datum.
- BC to provide prioritized needs for survey effort.
- Survey to include:
- Existing buildings exterior and roof overhangs.
- Property boundaries and easement boundaries, with information on the owner of each property and easement.
- Location and limits of at-grade features, including but not limited to paved areas, curbs and gutters, fences, walls, outside structures, and vegetation.
    - Spot elevations and contours of existing grade and existing features
    - Location of existing site underground utilities
    - Electrical and communications lines
    - Location of existing utilities in the right-of-way
    - To support additional sewer connection, Ft Vancouver Way and E Fourth Plain Blvd frontage including ground elevations, sidewalk, existing utilities and manholes, light poles, hydrants, fencing, and meters
    - To support entrance, ground elevations and existing utilities and manholes
    - DTM/TIN surface with elevations
    - Existing trees 6” diameter breast height (DBH) and greater on City property and trees on adjacent properties where canopy overhangs City property and root zone could be impacted by improvements
- City to survey location and elevation of geotechnical borings and cultural exploration locations in a separate trip.
- The City shall plan to complete up to fifteen (15) potholes of critical water utilities on the site.
- Coordinate with other utilities for locates if there are other non-City owned utilities in an easement through the site.
- The City will support utility locates in terms of site access and utility communications for the geotechnical investigation. Any utility plan drawings shall be provided by the City.

Assumptions:

- City will use city-hired staff to conduct the site survey.
- City will locate and mark water utilities on the site and coordinate with other utilities for locates if there are other non-City owned utilities in an easement through the site.
- City will pothole critical water utilities on the site if required.

Deliverables:

- City to provide site survey basemap in Civil 3D format for incorporation into the design.

Task 212: Geotechnical Investigation

Activities: The following activities will be performed by subconsultant Shannon & Wilson with support and reviews from BC:

- Review existing soils data and develop an exploration layout for up to three borings, five test pits for infiltration testing, and five shallow Dynamic Cone Penetrometers for pavement design.
- Perform a subsurface exploration program consisting of the following:
  - 2 borings up to 75 feet bgs in the footprints of rinse water tanks and PFAS treatment building.
  - 1 boring up to 25 feet bgs in footprint of rinse water booster pump station.
  - 5 test pits up to 12 feet bgs; the test pits will be located in proposed stormwater facilities
- Develop final design Site Exploration Plan that includes Inadvertent Discovery Plan for DOH SRF funding.
- Perform an infiltration test in each of the five test pits. The infiltration testing will be conducted in general accordance with the ASCE Approach (Single-Ring Falling Head Infiltration Test) procedure described in Appendix I-C of the 2021 Clark County Stormwater Manual.
- Additional borings may be recommended in Phase 2 if fill or soft/loose surficial soils are encountered to better characterize variability and reduce risk across the structure footprints.
- Develop a laboratory testing program based on the results of the geotechnical borings and test pits. For planning purposes we assume up to 10 fines content determinations, 8 moisture content determinations, and corrosion testing on one sample (DIPRA plus chlorides).
- Install a vibrating wire piezometer and one data logger to monitor groundwater levels for up to 6 months. Data will be collected from the data logger on two occasions. Additional monitoring can be provided in Phase 2 following review of Phase 1 results.
- Perform geotechnical analysis and provide recommendations to support:
  - Foundations including both shallow and deep foundations (if required)
  - Meter vault subgrade/backfill/shoring/lateral earth pressures (including traffic surcharge pressures)/conceptual dewatering alternatives
  - Pipe bedding/backfill/conceptual shoring and dewatering alternatives
  - One Design Pavement Section
  - Unfactored infiltration rates of soil
  - Lateral earth pressures for buried structures less than 10 feet deep
- Prepare a Geotechnical Data Report (GDR) containing the boring logs and results of the laboratory testing.
- Evaluate the seismic hazards including the seismic site class determined in accordance with Chapter 20 of ASCE 7-16, liquefaction potential to the depth explored, and lateral spread, and potential for surface fault rupture.
- Prepare a Geotechnical Engineering Report (GER) containing the results of the geotechnical analyses to support design development and the City's permitting process.

Assumptions:

- Utility locates will be completed prior to subsurface investigations.
- No environmental assessments or evaluations for hazardous or toxic materials are included in this scope.
- No contamination will be encountered in the site soils and groundwater, and investigation derived waste (IDW) generated from the borings can be disposed of at a site that accepts clean fill.
- Test pits will be backfilled with soils from the excavation using minimal compaction.

- A 275-gallon water tank will be used to complete the infiltration testing. An on-site water source will be available to use to support the infiltration testing and drilling at no expense to subconsultant.
- Three borings will be advanced to maximum depths of 25 to 75 below ground surface or practical refusal using mud-rotary drilling techniques.
- Decommissioning of the installed vibrating wire piezometer in accordance with the applicable regulations will be the responsibility of the construction Contractor.
- The boring and test pit subcontractors will exercise due care to minimize impacts to the surrounding area, some minor surface disturbance, such as light rutting or track impressions, may still occur. It is assumed that any required full site restoration or landscaping will be performed by others outside of this scope.
- Traffic loads will be provided by BC civil team for design of one pavement section.
- Structures will have a period of less than 0.5 seconds, and Shannon & Wilson will provide design spectrum based on code prescribed values. A site-specific design spectrum will not be required.
- If liquefaction is identified as a potential hazard, conceptual mitigation strategies will be provided and recommendations for shallow and deep foundations (if required). A discussion of conceptual ground improvement options can be provided, but our scope does not include final design of ground improvement systems.
- Dewatering and shoring evaluations will be conceptual in nature and the final design will be performed by the construction contractor and design professionals retained by the contractor.
- The new improvements are sufficiently set back from the existing slope; therefore, a slope stability analysis is not required.
- A general lateral earth pressure diagram will be provided for design of embedded structures less than 10 feet deep; no major retaining walls requiring global stability analysis are anticipated to be part of the project.
- Record drawings, reports, and historical data provided by the City will not be verified for accuracy.

City Responsibilities:

- The City will perform utility locates for the site utilizing City crews and contacting external utility companies as necessary. Any utility plan drawings shall be provided by the City prior to commencement of our exploration program.
- The City of Vancouver will provide access to the site and any permit fees required by drilling will be paid by others.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- GDR, Draft
- GER, Draft

Task 213: Review Site Background Information

Activities:

- Collect and review background information:
- Existing surveys.
  - City will provide best available existing site plans which include the electrical service location and other utilities, and data communication.
- Record drawings for existing WS1 facilities for design disciplines.

- Buried utility maps
- Existing supervisory control and data acquisition (SCADA) communication infrastructure
- Pump curves for installed pumps
- Existing Geotechnical Report(s)
- Water quality data for WS1
- Available sewer capacity. The rate at which rinse water can discharge to sewer will affect treatment technology selection and the rinse water storage design.

City Responsibilities:

- The City will collect additional samples ahead of this task to confirm design criteria for new PFAS treatment system.
- The City will complete sewer capacity modeling for up to two sewer connection options. The basis of design allowable sewer flow rate shall be provided to BC for up to two locations. The sewer capacity will directly impact the rate at which the rinse water can discharge to sewer will affect treatment technology selection and the rinse water storage design.

Assumptions:

- The City will provide the requested information that is available within 10 days of request in electronic format.
- Record drawings, reports, and historical data provided by the City will not be verified for accuracy.

Phase 310: Conceptual Design

A multi-criteria decision analysis (MCDA) with scenario planning will guide the decision-making process to confirm the City's preference for treatment capacity and treatment process selection. This effort will provide a process for the City to evaluate options and determine the preferred approach for WS1, which achieves treatment goals and balances site constraints and costs. Targeted evaluations for treatment selection and siting, capacity analysis, and pre-purchase options will be included. Outcomes will be further documented in the PER and set the basis for the preliminary design.

Task 311: Blending Assessment and Fatal Flaw Analysis

The City is faced with a pivotal decision early on to define the extent blending is an acceptable strategy, which directly impacts the treatment system sizing and technology selection. Additionally, early screening of technology options for WS1 will be important to focus the alternatives analysis (Task 313). As part of the City Kickoff Meeting, a summary of the treatment and capacity alternatives considered for WS1 will be reviewed for the City's early feedback on what to carry forward for further assessment. Following the Kickoff Meeting, this task involves developing a summary of alternative options to document the understanding of treatment capacity and technology options for WS1 and will identify any potential fatal flaws. This summary will be provided to the City with the intent to screen out any options with fatal flaws based on the City's preferences.

This task also includes a blending assessment for WS1 to outline the feasibility for blending around treatment while meeting the City's established treatment goal and considerations for treatment technology selection. Risks associated with blending will be outlined, along with the additional controls needed for blending around treatment (e.g., blending station).

An initial discussion with DOH will be held to discuss blending options for WS1 to understand DOH's latest direction and document its feasibility. Additionally, there may be implications for switching to gravity treatment that could inform the decision process. Therefore, the DOH conversation will not just focus on blending, but a broader list of alternatives being considered, such as GAC and IX pressure vessels. The effort for DOH coordination is included under Task 515.

Activities:

- Summarize initial technology screening and blending options to inform early screening of options that will be carried forward for Task 313
- Review and summarize WS1 historical PFAS sampling results.
- Review SCADA data from past two years to establish flow statistics, reservoir operating levels, and chemical usage.
- Prepare assessment for meeting water quality goals under three blending scenarios (assumption for the treatment capacity available on site with the percent routed around treatment varied throughout the year).

Assumptions:

- Blending assessment will include three treatment capacity scenarios to be confirmed with the City (e.g., 51% capacity, 75% capacity and 100% capacity) and summarize initial conversations with DOH.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Draft Blending Assessment and Fatal Flaw Analysis TM
- Final Blending Assessment and Fatal Flaw Analysis TM

Task 312: Site Tours

Activities: This task will involve visiting a nearby gravity GAC plant to understand this newer technology for the City, which has not previously been considered for the City's other PFAS treatment upgrades. City staff will have the opportunity to see an installed and operating gravity GAC treatment system and discuss lessons learned from engineering and operations staff, focusing on media replacement. Additionally, given the consideration for anion exchange resin (IX), this task will involve a virtual tour of an IX facility. BC can collaborate with City staff to identify and select facilities for site tours. Examples of facilities proposed for tours include the following:

- In person tour with the Willamette Water Supply Program at the Willamette WTP, Sherwood, OR (Gravity GAC Treatment)
- Virtual tour with South Adams County, Commerce City, CO (IX Treatment approaching startup in April 2026)

Following the tours, BC will conduct an Operations Workshop to debrief with engineering and operations staff on lessons learned from the site tours.

Assumptions:

- One tour will be in person, attended by 4 consultant staff and occur in a single day.
- Two additional tours will be virtual, attended by 4 consultant staff. Each virtual tour will last 2 hours.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Site Visit Tours Summary Notes and Takeaways.

Task 313: Alternatives Analysis (MCDA)

This task includes an alternatives assessment leveraging the MCDA. For the screened alternatives, BC will develop the preliminary design basis for unit processes, process flow diagrams, and conceptual site layouts. This evaluation may include establishing preliminary design criteria for PFAS treatment

unit processes including pressure vessels with ion exchange (IX) and granular activated carbon (GAC), as well as gravity GAC contactor basins, and conceptual pumping needs. Options will be characterized for factors including equipment footprint and site layout requirements, range of magnitude costs, operational flexibility and constraints, and risks for reliability and resiliency to regulatory requirements.

Activities:

- Treatment technology selection – Present conceptual design basis and considerations for pressure vessel IX and GAC, as well as gravity GAC contactors for up to three capacity scenarios.
- Treatment location within existing process – Present recommended options to place PFAS treatment, including preliminary process flow diagrams (PFDs). This will include rinse water management.
- Treatment location on the site – Complete early siting evaluation to present options for each alternative. This will include rinse water management.
- Estimate planning level (Class 5) capital and life-cycle costs for treatment alternatives.
- Conduct MCDA assessment to characterize, rank, and establish weighted scores for conceptual design alternatives and summarize outcomes in Alternative Selection Summary TM.

Assumptions:

- Up to five alternatives will be evaluated.
- Three workshops will be held to support this task:
  - Workshop 1 – Collaborative development of process flow diagrams and layout options based on initial technology screening input from the Kickoff Meeting and City input. The MCDA criteria initially established through the Kickoff Meeting will be confirmed. The workshop will be held in person for 2 hours. Attendees are anticipated to include: PM, Deputy PM, DM, Process-Mechanical Engineer, Hydraulics Engineer, PFAS Specialist, and Operations Specialist.
  - Workshop 2 – Use the MCDA and City-developed criteria to score alternatives and determine the best value for the City, defining a path forward for Task 315. The workshop will be held in person for 2 hours. Attendees are anticipated to include: PM, Deputy PM, DM, Process-Mechanical Engineer, Hydraulics Engineer, and Civil Engineer.
  - Workshop 3 - Refine the proposed treatment and capacity approach and discuss hydraulics and layouts based on the Wells-Tie and Pumping Analysis under Task 314. Discuss additional feedback from external stakeholders on preferred approach from Workshop 2. The workshop will be held in person for 2 hours. Attendees are anticipated to include: PM, Deputy PM, DM, Process-Mechanical Engineer, Hydraulics Engineer, and Civil Engineer.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Draft Alternative Selection Summary TM.
- Final Alternative Selection Summary TM.

Task 314: Well Tie-ins and Pumping Analysis

Activities: Building off the City's decisions around blending and treatment capacity, the preferred tie-in location for PFAS treatment will be selected by evaluating the trade-offs of well integration, pumping improvements, and overall operational flexibility of the plant. Activities under this task include:

- Complete preliminary hydraulic analyses for up to three different PFAS tie-in locations. Characterize pump upgrade needs for each option (i.e., well upgrades or booster pumps).

- Create process flow diagrams for PFAS treatment alternatives (e.g., blending stations, prefilters, booster stations).
- Preliminarily identify ancillary upgrades required for each tie-in option, including electrical improvements, yard piping modifications, and earthwork requirements.
- Estimate capital and operational costs for the different tie-in options.
- Investigate the operational impacts associated with each tie-in option.
- BC will lead an initial virtual Wells Tie-in and Pumping Analysis Workshop to discuss options, screened alternatives, and trade-offs for each.
- Pump Upgrades Workshop will assess pump upgrades and ancillary requirements for the preferred alternative.
- BC will hold a follow-up virtual call if there are any decisions that still need to be informed/decided.

Assumptions:

- Wells Tie in and Pumping Analysis Workshop will be a virtual, 1.5-hour meeting, attended by 4 consultant staff.
- The Pumps Upgrades Workshop will be in-person, last 2 hours, and be attended by 4 consultant staff.
- A Pumps Upgrades Workshop follow-up call will be a virtual, 1-hour meeting, attended by 4 consultant staff.
- Hydraulic analyses will utilize AFT Fathom modeling software.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Draft Wells Tie in and Pumping Analysis TM.
- Final Wells Tie in and Pumping Analysis TM.
- Preparatory materials and meeting minutes for the Wells Tie-in and Pumping Analysis Workshop, Pump Upgrades Workshop, and follow-up call with the City.

Task 315: Conceptual Layout

Activities: The City's decisions from previous tasks will inform the development of conceptual site layouts. This task will provide refined site layout iterations based on feedback received to date on treatment capacity, blending, tie-ins, and pumping upgrades. This task will include:

- Provide up to three conceptual layout options for the primary infrastructure within the allowable areas onsite: PFAS treatment, rinse water tanks and pumps, booster pumps, blending station, and tie-in vaults.
- For each layout option, BC will:
  - Develop conceptual yard piping alignments, identify high risk utility crossings, and identify shutdown needs.
  - Define conceptual stormwater design criteria and develop management strategies.
  - Develop conceptual roadway design for delivery vehicles and operational equipment.
  - Identify conceptual earthwork and tree removal requirements.
  - Provide conceptual electrical and control considerations.
  - Characterize impacts to the designated park area, public spaces, and nearby homeowners.
  - Highlight high-level capital cost differences between the options.

- BC will lead three workshops to facilitate City decision making.
  - Site Layout Workshop 1 will present the initial layouts, high level cost differences, and operational impacts to gather feedback from the City.
  - Site Layout Workshop 2 will present up to two refined layouts based on the City's feedback, with a goal of advancing a single preferred layout into the preliminary design task.
  - A Rinse Tank and Pumping Workshop will present the trade-offs of different tank geometries and control discharge options given the available footprint and elevations determined in the two previous workshops.

Assumptions:

- Site Layout Workshop 1 will be an in-person 2-hour meeting, attended by 4 consultant staff.
- Site Layout Workshop 2 will be a virtual, 2-hour meeting, attended by 4 consultant staff.
- Rinse Tank and Pumping Workshop will be a virtual, 2-hour meeting, attended by 4 consultant staff.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Preparatory materials and meeting minutes for the three workshops.

Task 316: Early Procurement

Activities: This task will focus on supporting the City in evaluating pre-purchasing equipment based on lead times from equipment vendors and funding restrictions. This will involve the following activities:

- Develop equipment list with long lead times based on the findings from Tasks 313, 314, and 315.
- Assess if electrical service upgrades are required and develop upgrade plan with Clark Public Utilities (CPU) to minimize schedule impact.
- Evaluate pre-purchasing approaches, such as a separate bid package(s) or developing a master services agreement with a manufacturer that complies with funding requirements.
- Coordinate with funding staff on compliance of pre-purchase options.
- Assess benefits and risks of different approaches based on estimated equipment lead times, long-term standardization, and estimated contractor mark-up.
- Team will assess specifically vessels, media, rinse water tank, electrical equipment, pumps and motors.
- Hold a pre-purchasing meeting.

Assumptions:

- Pre-purchasing meeting will be a virtual, 2-hour meeting, attended by 4 consultant staff.
- Meeting with CPU will be a virtual, 1-hour meeting, attended by 4 consultant staff.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Draft Pre-purchasing Evaluation TM.
- Final Pre-purchasing Evaluation TM.
- Preparatory materials and meeting minutes for the pre-purchasing meeting with the City and electrical service meeting with CPU.

Task 317: Internal Workshops

Activities:

- Meet with BC internal drinking water treatment process subject matter specialists (SMSs) to discuss the screened alternatives.
- Meet project leadership and design disciplines to develop conceptual layout options.

Assumptions:

- Each internal workshop will be all-day with up to 10 consultant staff.
- Effort includes travel for 3 employees out of state.

Phase 410: Project Engineering Report (PER)

During this phase, BC will develop a PER for DOH approval. The PER document will serve as a basis of design, documenting the decisions in Phase 310.

Task 411: Develop Preliminary PER

Activities: The primary focus of this PER will be design documentation including the rationale for design decisions, including the following:

- An overall conceptual equipment layout on the site.
- Preliminary construction sequencing plan for equipment installation.
- Mechanical design criteria, including PFAS treatment system, rinse water handling, and piping and discussion of pumps and motors, piping and valves.
- Structural design criteria, including codes and standards, design loads, seismic design requirements, safety factors, and materials.
- Electrical design criteria, including utility power supply, back-up power supply, site lighting, equipment, telemetry, and controls.
- Instrumentation and control (I&C) design criteria including level of automation, instruments and hardware, local and remote networking with existing SCADA.
- Building mechanical: design criteria, including codes and standards,
- Site security improvements and subsequent design criteria.

Assumptions:

  - The document and format will largely follow the PER submitted to the City and DOH for WS9.
  - PER meeting with City will be a virtual, 1-hour meeting.
  - The PER will continue to be developed in Phase 2 of the design and a preliminary draft will be delivered to the City in Phase 1.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Preliminary PER for City Review.
- PER discussion meeting agenda and minutes.

Task 412: QA/QC

Activities: Review PER and revisions by qualified, senior SMSs within Brown and Caldwell.

Phase 420: Preliminary Design Drawings and Specifications

Activities/Approach: Once the conceptual design work and in parallel with the Draft PER development, BC will proceed with developing preliminary design documents. The preliminary design will involve the following design activities:

- Drawings will be prepared using BC CAD standards with the exception of the cover sheet. A combination of Revit and AutoCAD version 2023 will be used.
- Refer to Attachment A for a list of the anticipated Drawings to be provided with the Preliminary Design package.
- The City will provide a list of standard or preferred manufacturers for major equipment identified in Task 412.
- Each discipline lead will attend an internal kick-off meeting and select staff will complete a site visit (civil, process-mechanical, I&C/electrical, structural, and landscape architect) to capture information not previously covered in the kick-off meeting site-visit and to confirm design approach.
- List of anticipated specifications to be developed during Phase 2. Develop draft specifications for treatment media and major pump upgrades.

Preliminary Design Assumptions:

- Design Basis: gravity contactors for 23,400 gpm treatment capacity in a building, booster pump station, and rinse water tanks.
- This design basis is for cost estimating purposes only and does not necessarily reflect the decision the City will make in Phase 310.
- The City will provide a consolidated review of deliverables electronically in Bluebeam.

Preliminary Design Deliverables:

- Preliminary design drawings.
- Technical specifications table of contents.
- Technical specification for media and major pump upgrades.
- Preliminary Design Review Workshop.

Task 421: Internal Team Meetings and Design Management Coordination

Activities:

- Weekly internal Team Meetings.
- Design Management and Coordination.
- Building Information Modeling (BIM)/CAD Management and Coordination.
- Produce BIM Execution Plan (BxP) describing CAD and modeling goals.
  - Set-up of drawing package general sheets, and coordination between designer leads.
- Bi-weekly designer coordination meetings over 1.5 months.
  - Modeling for placement of equipment layout for PFAS Facility.
  - 3D model development to facilitate internal design reviews, and presentation to the City.
- **Assumptions:**
- Internal kick-off meeting: 1 hour.
- Up to 20, 1-hour internal weekly design team meetings.
- Speclink (internal BC tool) will not be used for Phase 1.

Task 422: Civil

Activities:

- Support pre-application meeting materials.
- Develop the site layout, including conceptual yard piping, site drainage, and slopes, based on the project requirements identified in the PER.
- Prepare preliminary civil design of new access road to the new PFAS treatment system that is capable of handling a media slurry truck.
- Prepare preliminary civil drawings for the 30 percent design submittal
- Prepare preliminary drainage plan
- Identify construction constraints, sequencing and lay-down areas.

Assumptions:

- Preparation of technical specifications will not be provided.
- Preliminary plan for site landscaping to be coordinated between civil discipline and landscape architect.
- Street improvements in the ROW, curb and gutter, a driveway, or pavement are not required during Phase 1.
- Frontage improvements will be defined at the end of Phase 1 and designed under Phase 2 (as required).
- The new pollution generating surface will be over 5,000 square-feet and will therefore require a SWPPP, a drainage Technical Information Report, and stormwater treatment BMPs for site runoff, which will be completed under Phase 2.
- No changes to pedestrian and vehicular access to the existing buildings will be provided.

Task 423: Landscape

Activities:

- Support pre-application meeting materials.
- Prepare narrative for approach to landscaping and main features on site for PER.
- Prepare preliminary landscape planting plan for the preliminary design submittal.
- Coordinate with City Water Department staff and provide design assistance for mitigating aesthetic site development impacts to the park.
- Identify preliminary irrigation point of connection.
- Develop a tree plan to identify species, native, healthy, remove, keep, etc.

Assumptions:

- Tree survey to include location and species of existing trees with 6” diameter breast high (DBH) and greater.
- Offsite tree planting will be assessed in Phase 2.
- Preparation of technical specifications will not be provided until Phase 2.
- Preliminary plan for site landscaping to be coordinated between civil discipline and landscape architect.

Task 424: Architectural

Activities:

- Assuming a building is selected, work with City and Structural to decide what type of building is most appropriate for the project, balancing construction cost, durability, and constructability.
- Coordinate with process mechanical and building mechanical teams for equipment and systems.
- Coordinate with electrical and lighting teams for systems.
- Provide preliminary building code review and documentation.
- Provide input on land use pre-app, including descriptions, renderings, etc.
- Provide preliminary design work, including drawings, and a list of specifications for the architectural discipline.
- Document code review in PER for design basis.
- Provide input and participation in land use pre application, including building descriptions and visualizations as needed.
- Provide input and participation in public outreach activities, including architectural overview and visualizations as needed.

Task 425: Structural

Activities:

- Review geotechnical findings under Task 212 as available.
- Preliminary design of new concrete foundation slab and walls for concrete gravity contactors in a building.
- Preliminary design of new concrete foundation slab for two rinse water storage tanks.
- Preliminary design of concrete foundation and wet well for booster pump building.

Assumptions:

- The building will conform to design criteria per 2021 International Building Code and ACSE 7-16.
- Design for risk category IV for buildings and other structures.

Task 426: Process/Process-Mechanical

Activities:

- Develop treatment system design concept. The preliminary design drawings will be based on the decisions from Phase 310.
- Develop 3D model for the GAC or IX treatment system.
- Chemical Dosing: Evaluate the existing OSHG chemical feed system and storage capacity to assess the feasibility of implementing prechlorination upstream of the PFAS treatment process. Identify any system modifications or upgrades required to support this capability.
- Prepare bottom half of P&IDs.
- Advance equipment selection, sizing calculations, hydraulic modeling from conceptual design.
- Prepare preliminary process/mechanical drawings for the preliminary design submittal
- Prepare draft specifications for primary design elements including pump upgrades and media.

Assumptions:

- Backwash pumps are required.
- City's asset numbering system used for WS14 and WS9 will be used on this project.

- The design of a booster pump station is assumed. Preliminary calculations indicate that four 350 HP pumps will be required.
- The existing OSHG will not require pretreatment with reverse osmosis (RO) membranes.
- Well upgrades will be limited to Well 2 and 13 to facilitate raw water main extensions to the PFAS treatment tie-in connection.

Task 427: Building Mechanical

Activities:

- Determine HVAC and plumbing requirements for new PFAS Treatment building and new booster pump station.
- Develop preliminary design criteria for electrical as part of the PER.

Assumptions:

- Building will need to be heated to 50-degrees and ventilation will be required.
- Alternative analysis for energy code compliance is not required. Building will meet energy code utilizing the Prescriptive Method.
- There is no water heater anticipated for the building. No bathroom or emergency eyewash/shower are anticipated.
- No fire alarm or fire protection systems needed at the unoccupied buildings.
- No LEED certification is required.
- No plumbing isometrics are required in Phase 1.
- Evaluating electric vs natural gas for heaters is not required. Heaters shall be electric type.
- HVAC equipment does not require pre-purchasing to accomplish the project's construction schedule.
- Development of preliminary HVAC and plumbing equipment selections and schedules will occur in Phase 2.
- No drawings will be produced in Phase 1.

Task 428: Electrical

Activities:

- Review existing facility record drawings, electrical diagrams, and power systems studies, as provided by Owner.
- Review electric utility service records.
- Conduct site visit to confirm power distribution systems for the existing WTP facilities and loads, and confirm existing one-lines, electrical equipment ratings and capacities, and demolition impacts. Site visit assessments will be focused and limited to the visual review of the existing electrical systems and areas impacted by the new installation.
- Determine electrical loading and electrical requirements for new PFAS Treatment system, potential OSHG improvements (if determined to be needed for prechlorinating), and new booster pump station.
- Determine electrical interface requirements and modifications with the existing medium and low voltage electrical systems to support the new systems and buildings, and advise on any recommended improvements
- Assess adequacy of the existing backup generator to support the additional loads.
- Assess adequacy of the existing electrical site services to support the additional loads.

- Develop preliminary design criteria and client preferences for electrical as part of PER.
- Develop preliminary electrical one-line drawings, site electrical power plan and electrical room layouts to support new buildings and loads.

Assumptions:

- Existing spare 12.47kV feeder breaker (52-F6) in B03SWGR100 is available for providing new MV feeder to new pad mount switch (PMS) for new PFAS Treatment and Booster Station area power connections.
- Electrical power system modeling and coordination/arc flash studies will be provided under Phase 3. Existing power system studies (2009 & 2019) will be provided by the City for Consultant review as part of 30% design phase.
- Existing utility maximum demand meter readings obtained from the City power utility for the prior 24 months will be provided to the consultant by the City. In addition, 30-day, demand meters may be requested to be installed on existing electrical distribution equipment, as determined by the consultant during preliminary design, and installed by the City's electrician.
- No modifications or downtime to existing electrical distribution system will be required as part of this project. Electrical demolition, equipment modification and construction sequencing, if required, will be provided as part of future phases.
- The two existing electrical services to the site are adequate for the increased load.
- Existing generator at the site is adequate for the increased load and will be evaluated during Phase 1 design. Any adjustments needed will be part of Phase 2.
- Pre-purchase electrical equipment design packages, if required, will be provided as part of future phases.
- Record drawings, reports, and historical data provided by the City will not be verified for accuracy.
- No sound modeling will be required.

Task 429: Instrumentation & Controls

Activities:

- Determine any City preference for instrumentation and controls (I&C) as part of the PER and prepare specification sections required for Phase 2.
- Determine communication requirements for PFAS system to interface with City's existing SCADA system as part of developing preliminary SCADA communication network drawing.
- Develop preliminary design criteria for I&C and confirm what will be automated versus manual as part of the PER.
- Determine location of PFAS treatment control system as part of developing preliminary SCADA communication network drawing.
- Determine City's preferences for site security and remote monitoring as part of the PER and prepare specification sections and network drawing if required for Phase 2.
- Develop preliminary SCADA communication network drawing.
- Develop preliminary process control descriptions as part of the PER and further detail as a specification section in Phase 2.
- Develop preliminary P&IDs for PFAS treatment, rinse water tanks, and booster pump station, based on the decisions from Phase 310 and in coordination with Process/Process Mechanical.

Assumptions:

- No SCADA integration programming work is envisioned for this project. The City will leverage their local system integrator for programming and graphic development.
- Not all P&IDs will be in Phase 1. Phase 1 will target preliminary P&IDs that are required by Process/Process-Mechanical. The electrical interconnection from field device to SCADA will not be shown until Phase 2.
- PFAS Treatment control system will be PLC based on Siemens and may be a standalone PLC similar to previous projects (WS14 and WS9) with networking into the site existing control system.
- Development of a site security network diagram if required will be provided for Phase 2.

Phase 430: Preliminary Design Submittal and Cost Estimating

Task 431: Preliminary Submittal Development

Activities:

- Prepare submittal package for City review.

Assumptions:

- Refer to Attachment A for the Preliminary Design Drawing List and Specifications
- At the conclusion of the Preliminary design review, no changes are expected to the major equipment sizing and locations.
- One set of consolidated City comments will be received within 15-working days of receipt. .
- Comments will be resolved and incorporated into the intermediate design submittal.
- Submittals will be electronically delivered pdf files.

Deliverables:

- Preliminary Design Documents as defined in Attachment A.
- Comment response log to preliminary design comments from the City.
- Phase 2 scope of work, schedule, and budget.

Task 432: Preliminary Cost Estimate

Activities:

- Develop a Class 4 opinion of probable construction cost (OPCC), as defined by the Association for the Advancement of Cost Engineering International (AACEI). The expected accuracy of this Class is from -30 to +50 percent.

Assumptions:

- BC will use preliminary equipment quotes where available for major equipment.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Class 4 Opinion of Probable Construction Cost and Basis of Estimate Memo

Task 433: QA/QC

Develop and implement a quality assurance/quality control (QA/QC) program to review calculations and work products from the project. Based on the Quality Management Plan, provide appropriate

calculation and deliverable QA/QC reviews by in-house, senior staff members. Incorporate internal and City review comments to prepare and complete final work products.

Activities:

- Senior review of preliminary design package

Task 434: External Meetings

Activities:

- BC will facilitate a 2.5-hour preliminary design workshop to discuss design progression with the City. The meeting will be held in-person with some team members attending virtually.
- BC will hold a I&C meeting that will be a virtual, 1-hour meeting, attended by 4 consultant staff.

Assumptions:

- The Preliminary Design Workshop attendees from BC will include 7 staff.
- An Asset Naming/P&ID virtual meeting will include 4 BC staff.
- A total of twenty-four (24) additional hours has been assumed for various discipline leads for meeting participation on an as-needed basis.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Preliminary Design Workshop agenda and minutes
- Asset Naming/P&ID Meeting agenda and minutes

Phase 510: Permitting and Outreach

This phase will support the land use permitting and community engagement.

Task 511: Permitting Matrix, SEPA, and Public Park Coordination

Washington's State Environmental Policy Act (SEPA) (RCW 43.21) requires local and state agencies to consider possible environmental impacts in their decision-making processes. A SEPA determination on whether environmental impacts are significant must be made by the City of Vancouver Community Development Department prior to issuing permits for the project, and that determination is also needed in order for WADOH to complete its environmental review for State Revolving Fund funding.

The following outlines a scope for ESA to complete a Draft SEPA Environmental Checklist during Phase 1, based on the preliminary design. This will help verify that the required environmental considerations are addressed in the preliminary design phase. A Final SEPA Checklist and SEPA Determination would be completed in Phase 2, as design detail advances and in support of the permitting process in Phase 2.

Activities:

- Complete a local zoning, land use, and environmental code analysis to identify required permits and approvals, and submittal requirements
- Develop a draft permitting matrix that summarizes the project project's applicable state and local environmental and land use permit requirements, permit triggers, key scheduling milestones, submittal requirements, permitting contacts, and recommended timing of submittals.
- Complete an internal Draft SEPA Environmental Checklist using the City of Vancouver's template based on desktop research and available preliminary design information, which is formatted to include the required information stated in WAC 197-11-960 and address subject areas including

Earth, Air, Water, Plants, Animals, Energy and Natural Resources, Environmental Health, Noise, Land and Shoreline Use, Housing, Aesthetics, Light and Glare, Recreation, Historic and Cultural Preservation, Transportation, Public Services, and Utilities.

- Meet with the City of Vancouver Parks Department to discuss the Land and Water Conservation Fund (LWCF) Act Section 6(f) designation, the project's potential impact to the park, and necessary mitigation.

Assumptions:

- No wetlands or streams will be impacted by the project.
- No additional traffic studies or counts will be conducted as part of preparing the SEPA Checklist documentation.
- The SEPA Environmental Checklist will be finalized in Phase 2 of the project, when design is advanced to a level suitable for permit application submittals. Comments received from the City of Vancouver will be addressed in the Final SEPA Environmental Checklist in Phase 2.
- The City of Vancouver is the lead SEPA Agency. The City will prepare and publish a Determination of Non-Significance (DNS) or a Mitigated DNS, based on the Final SEPA Checklist (prepared in Phase 2).
- It is assumed an Environmental Impact Statement (EIS) will not be required to satisfy SEPA review/documentation requirements for this project, and EIS preparation is not included in this scope.
- Cultural resources investigation will be summarized in the Draft SEPA Checklist based on work completed under separate tasks/contracts from other entities.
- SEPA review/filing fees will be paid by City of Vancouver in Phase 2.
- It is assumed the following City of Vancouver land use reviews/permits will be needed: Type II Conditional Use Permit with a concurrent Type II Site Plan Review.
- The internal Draft SEPA checklist will be prepared based on desktop research. available design information, and technical reports/memorandums prepared by others. ESA will not conduct a site visit.
- A 1-hour virtual preapplication meeting with the City will be scheduled by BC to verify the permit submittal requirements. The ESA project team will not attend.
- The ESA Project Manager will attend a one 1-hour meeting with the City of Vancouver Parks Department to discuss Section 6(f) LWCF Act implications and mitigation.
- The level of completion of the internal Draft SEPA Checklist will depend on available design and technical information. If design substantially changes, additional budget may be required for revisions to the SEPA checklist and permit matrix in Phase 2.
- The duration of ESA's work for Phase 1 will be 6 months.

Deliverables:

- Draft permitting matrix.
- Draft SEPA Checklist.
- Draft summary of LWCF 6(f) mitigation requirements.

Task 512: Land Use

Activities:

- Develop preliminary site plan for pre-application meeting.
- Develop two-page project narrative.

- Participate in pre-application meeting
- Review of post pre-application conference document and respond to City comments

Assumptions:

- The City will submit the Land Use Permit (LUP) documentation to the Land Use Planning Department and the Engineering Review (ENG) documentation to the Engineering Department at the same time.
- Pre-Application Meeting will be a virtual, 1-hour meeting, attended by 4 consultant staff.

Deliverables:

- Develop preliminary site plan for pre-application meeting.
- Develop two-page project narrative.
- Pre-application meeting minutes.

Task 513: Community Engagement

Given the public interest in PFAS, there may be significant interest in the WS1 design. The BC team will use our in-house PFAS rendering and communications teams to support neighborhood meetings or additional outreach to the community.

Activities:

- General support to City to develop presentation materials for public outreach and engagement, as requested.

Assumptions:

- Graphics and presentations support estimated to be not greater than 40 hours.
- City Council meeting attendance is not required.
- Consultant staff will not attend Neighborhood Meeting and provide support for meeting materials only.
- No renderings are included in Phase 1 scope of work.

  City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Presentation materials to include at least one existing site graphic and one site graphic.

Task 514: DOH Engagement and Coordination

BC's approach is to bring DOH along from the beginning is to introduce them to the project and discuss the capacity and treatment alternatives being considered. BC will also meet with them around submittal of the PER.

Activities:

- Meet with DOH to discuss PFAS treatment options to inform alternative screening .
- Meet with DOH to discuss PFAS treatment design approach.

Assumptions:

- Initial meeting to discuss any concerns with blending, IX treatment, or GAC gravity contactors and introduce design schedule.
- DOH coordination for the 106 determination is accounted for in Task 511.
- PER to be delivered to DOH in Phase 2.
- City will provide one round of consolidated comments within two weeks of receipt of the proposed deliverables.

Deliverables:

- Meeting presentation and minutes.

Phase 810: Unanticipated Services

Objective: Provide budget allowance for potential additional work requested by the City.

Task 811: Phase 1 Unanticipated Services

Activities/Approach: To be determined, based on City requests. No work will be completed under this task without written direction from the City. The budgeted amount for unanticipated services is provided in Exhibit B.

Task Assumptions:

- Brown and Caldwell will prepare a Project Change Request (PCR) describing each additional and identifiable task under this allowance. The PCR will include a short description of the added scope with budget to be authorized prior to proceeding, unless otherwise directed in writing by the City.
- Effort for this task could include 3D scanning of existing facilities or upgrades to the existing electrical services or standby generators. An assessment is included above, but not a cost for the preliminary design of improvements.

City Responsibilities:

- Provide direction and authorization for requested additional work.

Work Products:

- To be determined.

Schedule

Phase 1 of the project is estimated at 10 months with the key deliverables and meeting milestones dependent on the notice to proceed (NTP) timing. Phase 2 (final design) duration is estimated at 14 months to take the preliminary design through bid support.

A detailed schedule is provided in Attachment B.

The first PFAS sample to meet the PFAS maximum contaminant level (MCL) running annual average (RAA) occurs in the second quarter of 2028 (April thru June of 2028). This timing aligns with when Phase 3 – Engineering Services During Construction is anticipated to begin. The City could possibly take two samples before the MCL would be exceeded based on historical PFAS levels. The exceedance would occur during the October thru December of 2028 sampling period (fourth quarter). Based on the proposed schedule, the PFAS treatment system will not be fully commissioned.

Budget

The budget is summarized in Exhibit B.

Attachment A
Proposed Preliminary Drawing List

Drawing Number	Drawing Title
G-000-001	COVER SHEET
G-000-002	SHEET INDEX
G-000-003	GENERAL LEGENDS AND SYMBOLS
G-000-004	ABBREVIATIONS 1
G-000-005	ABBREVIATIONS 2
G-000-601	PROCESS FLOW DIAGRAM
G-000-602	DESIGN CRITERIA
G-000-603	PFAS TREATMENT HYDRAULIC PROFILE
G-000-604	RINSE WATER DISCHARGE HYDRAULIC PROFILE
C-000-001	CIVIL NOTES 1
C-000-002	CIVIL NOTES 2
C-000-003	LEGENDS AND SYMBOLS
C-000-101	EXISTING SITE AND SURVEY CONTROL 1
C-000-102	EXISTING SITE AND SURVEY CONTROL 2
C-000-103	CIVIL DEMOLITION 1
C-000-104	CIVIL DEMOLITION 2
C-000-103	OVERALL SITE PLAN 1
C-000-201	ENGLARGED SITE PLAN 1
C-000-202	ENGLARGED SITE PLAN 2
C-000-203	ENGLARGED SITE PLAN 3
C-000-204	ENGLARGED SITE PLAN 4
C-000-303	OVERALL GRADING AND DRAINAGE PLAN
C-000-308	STORMWATER DRAINAGE PLAN 1
C-000-401	YARD PIPING AND UTILITY PLAN 1
C-000-402	YARD PIPING AND UTILITY PLAN 2
C-000-403	YARD PIPING AND UTILITY PLAN 3
C-000-404	YARD PIPING AND UTILITY PLAN 4
S-000-001	STRUCTURAL LEGENDS AND SYMBOLS
S-000-001	STRUCTURAL GENERAL NOTES 1
S-000-002	STRUCTURAL GENERAL NOTES 2
S-000-003	SPECIAL INSPECTION 1
S-000-004	SPECIAL INSPECTION 2
S-B09-101	BOOSTER PUMP STATION LOWER LEVEL PLAN
S-B09-103	BOOSTER PUMP STATION PUMP LEVEL PLAN
S-B09-107	BOOSTER PUMP STATION ROOF LEVEL PLAN
S-B09-301	BOOSTER PUMP STATION SECTIONS 1
S-B09-302	BOOSTER PUMP STATION SECTIONS 2
S-P01-101	PFAS TREATMENT BUILDING OVERALL LOWER LEVEL PLAN
S-P01-102	PFAS TREATMENT BUILDING OVERALL UPPER LEVEL PLAN
S-P01-103	PFAS TREATMENT BUILDING OVERALL ROOF PLAN

Drawing Number	Drawing Title
S-P01-301	PFAS TREATMENT BUILDING SECTIONS 1
S-P01-302	PFAS TREATMENT BUILDING SECTIONS 2
S-P01-303	PFAS TREATMENT BUILDING SECTIONS 3
S-P02-101	RINSE TANK FOUNDATION PLAN
S-P02-102	RINSE TANK ROOF PLAN
S-P02-301	RINSE TANK SECTION 1
S-P02-302	RINSE TANK SECTION 2
A-000-101	ARCHITECTURAL LEGENDS AND SYMBOLS
A-000-107	BOOSTER PUMP STATION CODE ANALYSIS
A-B09-101	BOOSTER PUMP STATION OVERALL LOWER FLOOR PLAN
A-B09-102	BOOSTER PUMP STATION OVERALL UPPER FLOOR PLAN
A-B09-103	BOOSTER PUMP STATION OVERALL ROOF PLAN
A-B09-401	BOOSTER PUMP STATION BUILDING ELEVATIONS
A-P01-001	PFAS TREATMENT BUILDING CODE ANALYSIS
A-P01-101	PFAS TREATMENT BUILDING OVERALL LOWER LEVEL PLAN
A-P01-102	PFAS TREATMENT BUILDING OVERALL UPPER LEVEL PLAN
A-P01-103	PFAS TREATMENT BUILDING OVERALL ROOF PLAN
A-P01-401	PFAS TREATMENT BUILDING ELEVATIONS 1
D-000-001	PROCESS MECHANICAL LEGEND, SYMBOLS, AND GENERAL NOTES
D-B09-101	BOOSTER PUMP STATION OVERALL LOWER LEVEL PLAN
D-B09-102	BOOSTER PUMP STATION OVERALL INTERMEDIATE LEVEL PLAN
D-B09-103	BOOSTER PUMP STATION OVERALL GRADE LEVEL PLAN
D-B09-301	BOOSTER PUMP STATION SECTIONS 1
D-B09-302	BOOSTER PUMP STATION SECTIONS 2
D-B09-303	BOOSTER PUMP STATION SECTIONS 3
D-P01-101	PFAS TREATMENT BUILDING OVERALL PLAN 1
D-P01-102	PFAS TREATMENT BUILDING OVERALL PLAN 2
D-P01-103	PFAS TREATMENT BUILDING OVERALL PLAN 3
D-P01-301	PFAS TREATMENT BUILDING SECTIONS 1
D-P01-302	PFAS TREATMENT BUILDING SECTIONS 2
D-P01-303	PFAS TREATMENT BUILDING SECTIONS 3
D-P01-901	PFAS TREATMENT BUILDING ISOMETRIC VIEW
D-P02-101	RINSE WATER TANK UPPER PLAN
D-P02-102	RINSE WATER TANK LOWER PLAN
D-P02-301	RINSE WATER TANK SECTIONS 1
D-P02-302	RINSE WATER TANK SECTIONS 2
D-P02-103	RINSE WATER PUMPS PLAN
D-P02-301	RINSE WATER PUMPS SECTIONS
D-P02-901	RINSE WATER TANK ISOMETRIC VIEW 1
D-U17-301	PFAS TIE IN VAULT PLANS AND SECTIONS
D-U17-302	PFAS TIN IN VAULT DETAILS
D-W02-101	WELL 2 PUMP IMPROVEMENTS PLAN
D-W13-101	WELL 13 PUMP IMPROVEMENTS PLAN

Drawing Number	Drawing Title
E-000-001	ELECTRICAL LEGEND AND SYMBOLS 1
E-000-002	ELECTRICAL LEGEND AND SYMBOLS 2
E-000-003	ELECTRICAL GENERAL NOTES
E-000-101	OVERALL ELECTRICAL SITE PLAN 1
E-000-102	OVERALL ELECTRICAL SITE PLAN 2
E-000-601	SWITCHGEAR ONE-LINE DIAGRAM
E-P01-601	PFAS TREATEMENT BUILDING SWBD. ONE-LINE DIAGRAM
I-000-001	INSTRUMENTATION LEGEND SYMBOLS NOTES 1
I-000-002	INSTRUMENTATION LEGEND SYMBOLS NOTES 2
I-000-003	INSTRUMENTATION LEGEND SYMBOLS NOTES 3
I-P01-101	PFAS CONTROL 1 P&ID
I-P01-102	PFAS CONTROL 2 P&ID
I-P01-103	PFAS CONTROL 3 P&ID
I-P01-104	CONTACTOR 1 P&ID
I-P01-105	CONTACTOR 2 P&ID
I-P01-106	CONTACTOR 3 P&ID
I-P01-107	CONTACTOR 4 P&ID
I-P01-108	CONTACTOR 5 P&ID
I-P01-109	CONTACTOR 6 P&ID
I-P01-110	CONTACTOR 7 P&ID
I-P01-111	CONTACTOR EFFLUENT P&ID
I-P02-101	RINSE WATER TANKS P&ID
I-P02-102	RINSE WATER PUMPS P&ID
I-P02-103	SPARE P&ID 1
I-P02-103	SPARE P&ID 1
I-P02-104	SPARE P&ID 2
I-W02-101	WELL 2 P&ID
I-W13-102	WELL 13 P&ID

Proposed Preliminary Specification List

Division 43 – Process Gas and Liquid Equipment

43 23 62 Variable Speed Vertical Turbine Pumps

Division 46 – Water and Wastewater Equipment

46 61 16 PFAS Treatment Media

Attachment B
WS1 PFAS Treatment Design Schedule

ID	Task Name	Start	Finish	Rem. Dur.	Predecessors	Successors
1	**Vancouver WS1**	**Mon 5/4/26**	**Fri 5/19/28**	**517 days**		
2	**Phase 1 NTP**	Mon 5/4/26	Mon 5/4/26	1 day		4,6,10,7,15FS-48 day
3	**Phase 110: Project Management**	**Tue 5/5/26**	**Tue 3/16/27**	**217 days**		
4	Project Initiation and Sub Agreements	Tue 5/5/26	Mon 5/18/26	10 days	2	
5	City Kickoff (In person)	Tue 5/19/26	Tue 5/19/26	1 day	2FS+10 days	30,52
6	Prepare BC PMP	Tue 5/5/26	Mon 5/11/26	5 days	2	
7	Ongoing PM	Tue 5/5/26	Tue 3/16/27	217 days	2	
8	**Phase 210: Site Investigation**	**Tue 5/5/26**	**Thu 9/17/26**	**95 days**		
9	Task 211: Survey and Basemap Preparation	**Tue 5/5/26**	**Wed 6/24/26**	**36 days**		
14	Cultural Review and 106 Determination (Completed by Archeological Services, City, and SRF)	**Tue 5/5/26**	**Thu 9/17/26**	**95 days**	**2**	
19	Task 212: Geotechnical Investigation	**Tue 5/5/26**	**Fri 9/11/26**	**91 days**		
30	Task 213: Review Site Background Info	**Wed 5/20/26**	**Wed 6/17/26**	**20 days**	**5**	
31	**Phase 310: Conceptual Design**	**Tue 5/5/26**	**Thu 11/5/26**	**130 days**		
32	Task 311: Blending Assessment and Fatal Flaw Analysis	**Tue 5/5/26**	**Tue 6/16/26**	**30 days**		
36	Task 312: Site Tours	**Mon 5/18/26**	**Tue 6/9/26**	**16 days**		
40	Task 313: Alternative Analysis (MCDA)	**Mon 5/11/26**	**Wed 8/26/26**	**76 days**		
50	Task 314: Wells Tie-in and Pumping Analysis	**Wed 6/17/26**	**Fri 9/11/26**	**61 days**		
57	Task 315: Conceptual Layout	**Mon 5/11/26**	**Tue 10/6/26**	**104 days**		
63	Task 316: Early Procurement Evaluation	**Thu 8/20/26**	**Thu 11/5/26**	**55 days**		
71	Task 317: Internal Workshops	**Fri 5/15/26**	**Mon 8/3/26**	**55 days**		
74	**Phase 410: Preliminary Engineering Report**	**Tue 9/29/26**	**Fri 1/22/27**	**78 days**		
75	Task 411: Develop Draft PER	**Tue 9/29/26**	**Fri 1/22/27**	**78 days**		
86	**Phase 420: Preliminary Design Drawings and Specifications**	**Wed 10/7/26**	**Thu 2/18/27**	**91 days**		
97	**Phase 430 Preliminary Design Submittal, QA/QC, and Cost Esti**	**Wed 11/11/26**	**Mon 3/15/27**	**83 days**		
120	**Phase 510: Permitting and Outreach**	**Mon 5/11/26**	**Tue 3/16/27**	**213 days**		
121	Task 511: Funding Compliance	**Thu 12/3/26**	**Tue 3/2/27**	**60 days**		
123	Task 512: Permitting Matrix, SEPA, and Public Park Coordinat	Wed 10/14/26	Fri 12/18/26	46 days		
126	Task 513: Land Use	**Wed 10/28/26**	**Tue 3/16/27**	**94 days**		
131	Task 514: Community Engagement	**Wed 10/7/26**	**Tue 3/16/27**	**109 days**		
133	Task 515: DOH Engagement and Coordination	**Mon 5/11/26**	**Tue 6/23/26**	**31 days**		**146**
136	**Phase 2 Design**	**Tue 3/16/27**	**Fri 5/19/28**	**300 days**	**114**	**214**
137	Phase 520: Permitting and Outreach	**Tue 3/16/27**	**Mon 12/13/27**	**190 days**		
161	Phase 610: Intermediate (60%) Design	**Tue 3/16/27**	**Thu 7/8/27**	**81 days**		**156FS+10 days**
176	Phase 620: Draft Construction Cost Estimate	**Wed 5/26/27**	**Fri 6/18/27**	**17 days**		
180	Phase 630: Final (90%) Design	**Fri 7/9/27**	**Wed 12/1/27**	**101 days**	**155**	
196	Phase 640: 90% Cost Estimate	**Mon 10/11/27**	**Mon 11/1/27**	**16 days**		
201	Phase 650: Bid and Construction Documents (100%)	**Thu 12/2/27**	**Fri 5/19/28**	**118 days**		
214	**Phase 3 - Engineering Services During Construction**	Mon 5/22/28	Thu 7/4/30	535 days	136	

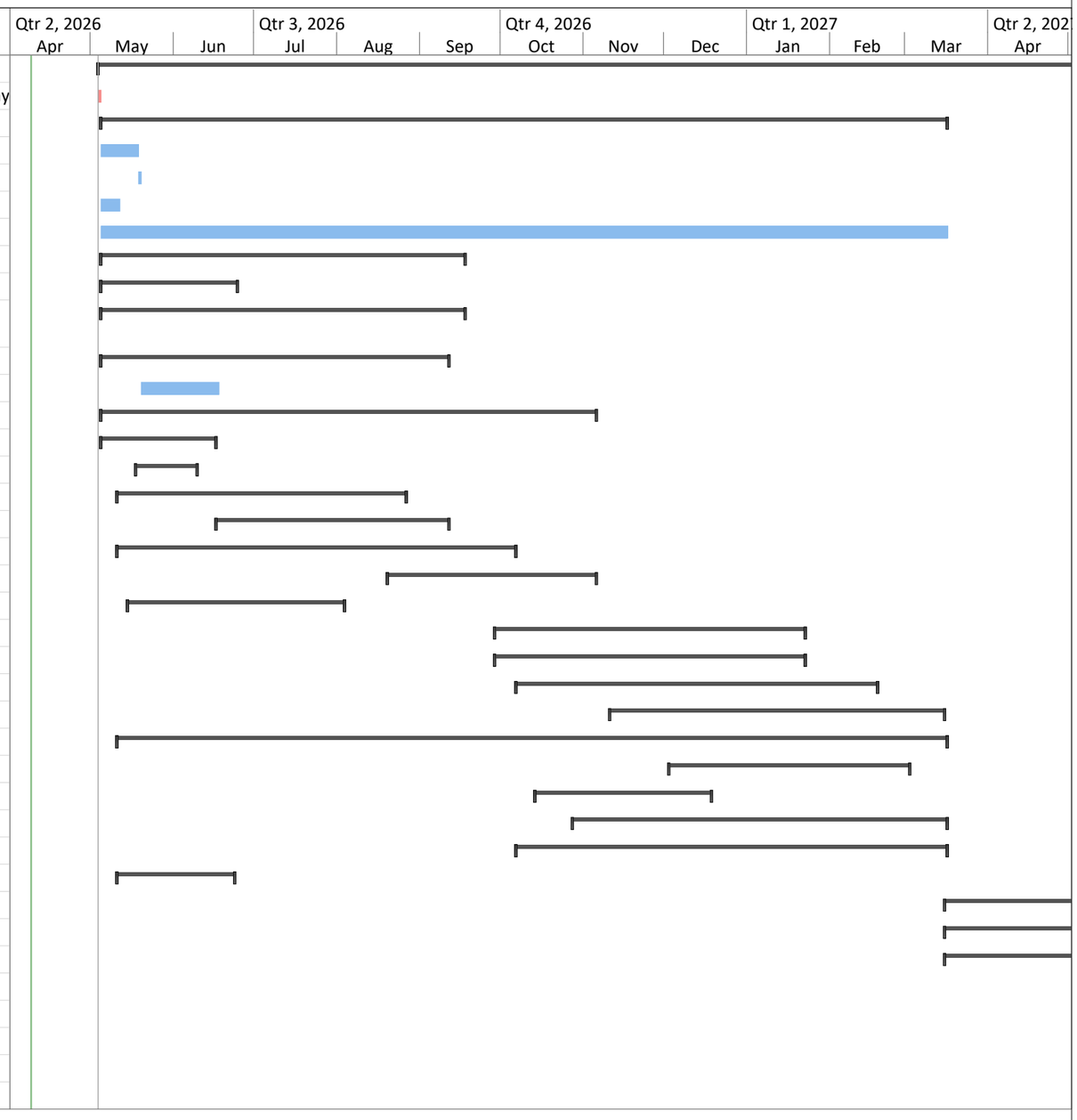

EXHIBIT B: Vancouver WS1 PFAS Treatment Project

Brown and Caldwell
Budget

Phase	Task	Phase Description	Lynn Stephens	Melanie Johnson	Kelly Kimball	Chadwick Johnson	Tony Actis	Joanie Stultz	Brittany Bax	Kyle Hay	Bill Persich	Marcus Cope	Zack Schorr	Morteza Ahmadifar	Jacob Faust	Eric Stiles	Craig Bjorklund	Jim Cook	Bryan Gaona	Nick Ung	Jonathan Dunne	Linnea Lubke	Thomas Neufeldt	Phillip Maisonville	Dan Jackson	Karen Brinker
			PM	Project Analyst	PIC	Deputy PM/ Design Manager	DM Advisor	Project Engineer	Design Coordinator	PFAS SMS	QA/QC Lead	Senior Civil Eng	Civil Lead	Civil/Storm	Civil QC	Designer	Electrical Lead	Electrical QA/QC	Electrical Support	Electrical Support	Designer	I&C Lead	I&C Support	I&C QC	Designer	Senior Proc Mech
		Raw rates	$343	$118	$343	$211	$243	$243	$140	$284	$358	$284	$284	$188	$284	$211	$243	$284	$140	$162	$162	$343	$140	$343	$162	$243
		grade-this row to be hidden	K	D	K	H	I	I	F	J	L	J	K	H	J	H	I	J	E	F	F	K	E	K	F	I
Phase 1																										
110		**Project Management**	**324**	**38**	**6**	**220**	**102**	**20**	**22**	**0**	**0**	**0**	**8**	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**
	111	Phase 1 Client Meetings	44		4	54	12						8		5		2					2				
		Client Kick-off Meeting and Site visit (in person)	12			12	12						8		5		2					2				
		PM Weekly Check-ins	32			42																				
	112	Phase 1 Project Management	280	38	2	166	90	20	22																	
210		**Phase 1 Site Assessment**	**10**	**0**	**0**	**18**	**8**	**8**	**0**	**0**	**0**	**16**	**20**	**28**	**4**	**12**	**12**	**4**	**0**	**6**	**0**	**4**	**6**	**0**	**0**	**16**
	211	Survey and Basemap Preparation (City)				8	4					8	4	4		8										
	212	Geotechnical Investigation	2			2							8	8	4											
	213	Review Site Background Information	8			8	4	8				8	8	16		4	12	4		6		4	6			16
310		**Conceptual Design**	**180**	**0**	**2**	**328**	**120**	**76**	**0**	**42**	**54**	**36**	**48**	**28**	**0**	**10**	**63**	**12**	**4**	**49**	**0**	**10**	**4**	**0**	**0**	**58**
	311	Blending Assessment and Fatal Flaws Analysis	16			32	8	16			10															
	312	Site Tours	24			20	6	12																		
	313	Alternatives Analysis (MCDA)	46		2	114	42	16		22	14	16	28	16		2	17	2	4	13						26
	314	Wells Tie-in and Pumping Analysis	32			64	8				6						10	2		12		2				
	315	Conceptual Layout	28			44	40	16		4	8	12	12	12		8	8			8		2				28
	316	Early Procurement	14			30	4										20	8		16		2				
	317	Internal Workshops	20			24	12	16		16	16	8	8				8					4	4			4
410		**Project Engineering Report (PER)**	**40**	**0**	**0**	**36**	**8**	**40**	**8**	**8**	**8**	**0**	**8**	**16**	**6**	**0**	**8**	**8**	**0**	**16**	**0**	**8**	**16**	**0**	**0**	**16**
	411	Develop Draft PER	16			36	8	40					8	16			8	4		16		8	16			16
	412	QA/QC	24						8	8	8				6			4								
420		**Preliminary Design Drawings and Specifications**	**42**	**0**	**0**	**126**	**54**	**7**	**38**	**0**	**16**	**145**	**36**	**169**	**49**	**281**	**96**	**0**	**92**	**137**	**50**	**95**	**99**	**0**	**98**	**94**
	421	Internal Team Meetings and Design Management	42		0	106	54	7	38			20	4	20			20					21				16
	422	Civil										125	32	141	49	281										
	423	Landscape												8												
	424	Architectural																								
	425	Structural																								
	426	Process/Process-Mechanical				16					16															78
	427	Building Mechanical				4																				
	428	Electrical				0											76		92	137	50					
	429	Instrumentation and Controls																				74	99		98	
430		**Preliminary Design Submittal, QA/QC, and Cost Estimating**	**62**	**0**	**0**	**94**	**42**	**16**	**28**	**0**	**16**	**8**	**28**	**16**	**18**	**0**	**48**	**28**	**0**	**8**	**0**	**18**	**12**	**16**	**0**	**16**
	431	Preliminary Design Submittal	28			56	28		28			8	20	16			36	12		8		14	8			16
	432	Cost Estimating	4			8	6	16									4									
	433	Preliminary Design QA/QC	8			8	8				16				18			16						16		
	434	External Meetings	22			22	0						8				8					4	4			
510		**Permitting & Public Outreach**	**60**	**0**	**0**	**56**	**4**	**4**	**0**	**4**	**4**	**20**	**16**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	511	Permitting Matrix, SEPA, and Public Park Coordination	4			8		4																		
	512	Land Use	24			24	4					20	16	16												
	513	Community Engagement	8			8																				
	514	DOH Engagement and Coordination	24			16				4	4															
810		**Unanticipated Services**																								
	811	Phase 1 Unanticipated Services																								
		PHASE 1 TOTAL	**717**	**38**	**8**	**878**	**338**	**171**	**96**	**54**	**98**	**225**	**164**	**273**	**82**	**303**	**229**	**52**	**96**	**216**	**50**	**137**	**137**	**16**	**98**	**200**

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4. Hours and Dollars are rounded to the nearest whole number.

EXHIBIT B: Vancouver WS1 PFAS Treatment Project

Brown and Caldwell
Budget

Phase	Task	Phase Description	Joe Reardon	Lauren Lara	PJ Wilkerson	Will Levegood	Savannah Wujastyk	Jay Hesby	Tom Lemon	Chris Michalos	Jennifer Kersh	Topher Jones	Ashraf Qadan	Stevanie Suhori	Jon Harper	Evan Schoel	Terry Gatlin	Christian Garcia	Amarante Ramirez	Jim Conaway	William Agster	David Shroyer	Dan Goodburn	Adam Lambert	Dade Irwin
			Proc Mech Lead	Asssoc Eng	Sr. Staff Eng	Sr. Staff Eng	Staff Proc Mech	Proc Mech QC	Designer	Hydraulics QC	Hydraulics	MCDA SMS	Structural Lead	Structural Support	Structural QC	Designer	Building Mech EOR/QA	Building Mech Lead	HVAC Designer	Plumbing Designer	Cost Estimating QC	Electrical Cost Estimator	Cost Estimating	BIM Manager	BIM Lead
		Raw rates	$243	$140	$188	$162	$162	$358	$211	$343	$188	$211	$243	$162	$343	$211	$343	$211	$162	$243	$343	$243	$284	$211	$211
		grade-this row to be hidden	I	E	F	F	F	L	H	K	G	H	I	F	K	H	k	H	F	I	J	I	J	I	H
Phase 1																									
110		**Project Management**	**8**	**0**	**8**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	111	Phase 1 Client Meetings	8		8	5							2												
		Client Kick-off Meeting and Site visit (in person)	8		8	5							2												
		PM Weekly Check-ins																							
	112	Phase 1 Project Management													2										
210		**Phase 1 Site Assessment**	**24**	**16**	**0**	**0**	**0**	**0**	**4**	**0**	**16**	**0**	**24**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**
	211	Survey and Basemap Preparation (City)																							4
	212	Geotechnical Investigation											16	4											4
	213	Review Site Background Information	24	16					4		16		8	4											
310		**Conceptual Design**	**233**	**172**	**152**	**38**	**188**	**39**	**8**	**14**	**221**	**64**	**14**	**0**	**0**	**0**	**6**	**2**	**0**	**0**	**0**	**0**	**16**	**0**	**0**
	311	Blending Assessment and Fatal Flaws Analysis	12	24	40		40	2			26														
	312	Site Tours	14		16																				
	313	Alternatives Analysis (MCDA)	87	48	84	24	104	15		4	26	64	10				2	2					16		
	314	Wells Tie-in and Pumping Analysis	54	22		2	12	12		10	135														
	315	Conceptual Layout	28	30	4	8	8	2	8		14														
	316	Early Procurement	19	28	4		20																		
	317	Internal Workshops	20	20	4	4	4	8			20		4				4								
410		**Project Engineering Report (PER)**	**40**	**20**	**20**	**0**	**40**	**8**	**0**	**4**	**0**	**0**	**8**	**16**	**4**	**0**	**4**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	411	Develop Draft PER	40	20	20		40						8	16			4	8							
	412	QA/QC						8		4					4										
420		**Preliminary Design Drawings and Specifications**	**200**	**200**	**90**	**132**	**192**	**38**	**156**	**8**	**132**	**0**	**244**	**101**	**132**	**290**	**5**	**41**	**0**	**0**	**0**	**0**	**0**	**20**	**161**
	421	Internal Team Meetings and Design Management	44	36	16	16	16	4	8	4	24		20					8						20	161
	422	Civil																							
	423	Landscape																							
	424	Architectural																							
	425	Structural											224	101	132	290									
	426	Process/Process-Mechanical	152	164	74	116	168	34	148	4	108														
	427	Building Mechanical															5	33							
	428	Electrical	4				8																		
	429	Instrumentation and Controls																							
430		**Preliminary Design Submittal, QA/QC, and Cost Estimating**	**54**	**32**	**0**	**8**	**8**	**20**	**0**	**18**	**16**	**0**	**16**	**0**	**28**	**0**	**8**	**8**	**0**	**0**	**8**	**20**	**100**	**20**	**16**
	431	Preliminary Design Submittal	28	16		8	8	4		2	8		16	0	8			8						8	16
	432	Cost Estimating	10																		8	20	100		
	433	Preliminary Design QA/QC						16		16					20		8							12	
	434	External Meetings	16	16							8														
510		**Permitting & Public Outreach**	**22**	**0**	**16**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	511	Permitting Matrix, SEPA, and Public Park Coordination	2																						
	512	Land Use	8																						
	513	Community Engagement	4																						
	514	DOH Engagement and Coordination	8		16																				
810		**Unanticipated Services**																							
	811	Phase 1 Unanticipated Services																							
		PHASE 1 TOTAL	**581**	**440**	**286**	**183**	**428**	**105**	**168**	**44**	**385**	**64**	**308**	**125**	**166**	**290**	**23**	**59**	**0**	**0**	**8**	**20**	**116**	**40**	**185**

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4. Hours and Dollars are rounded to the nearest whole number.

EXHIBIT B: Vancouver WS1 PFAS Treatment Project

Brown and Caldwell
Budget

Phase	Task	Phase Description	Pepe Viteri	Jerome Duletzke	Kyle Nelson	Seema Chavan	Aubrie Koenig	John Duran	Wendy Pare	Carolyn Smith		
			BIM IT Support	Const Mgmt	Operations	Funding SME	Comms	Graphic Artist	Word Proc/Tech Edit	Billing	Total Labor Hours	Total Labor Effort
		Raw rates	$188	$343	$243	$358	$243	$243	$162	$118		
		grade-this row to be hidden	G	K	I	M	I	G	F	D		
Phase 1												
110		**Project Management**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**798**	**$ 214,948**
	111	Phase 1 Client Meetings									154	40,211
		Client Kick-off Meeting and Site visit (in person)									76	19,172
		PM Weekly Check-ins									74	19,667
	112	Phase 1 Project Management								24	644	174,738
210		**Phase 1 Site Assessment**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**272**	**$ 62,136**
	211	Survey and Basemap Preparation (City)									40	$ 9,352
	212	Geotechnical Investigation									48	$ 11,400
	213	Review Site Background Information									184	$ 41,384
310		**Conceptual Design**	**0**	**12**	**4**	**12**	**0**	**0**	**6**	**0**	**2,324**	**$ 528,853**
	311	Blending Assessment and Fatal Flaws Analysis									226	$ 47,532
	312	Site Tours									92	$ 23,236
	313	Alternatives Analysis (MCDA)							4		870	$ 193,613
	314	Wells Tie-in and Pumping Analysis									382	$ 85,405
	315	Conceptual Layout		4	4						340	$ 79,593
	316	Early Procurement		8		12			2		187	$ 42,407
	317	Internal Workshops									228	$ 57,068
410		**Project Engineering Report (PER)**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**438**	**$ 101,700**
	411	Develop Draft PER							16		364	$ 78,677
	412	QA/QC									74	$ 23,023
420		**Preliminary Design Drawings and Specifications**	**11**	**8**	**8**	**0**	**0**	**0**	**0**	**0**	**3,893**	**$ 776,514**
	421	Internal Team Meetings and Design Management	11								736	$ 163,072
	422	Civil									628	$ 145,668
	423	Landscape									8	$ 1,518
	424	Architectural									0	$ -
	425	Structural									747	$ 117,460
	426	Process/Process-Mechanical		8	8						1,094	$ 219,696
	427	Building Mechanical									42	$ 9,530
	428	Electrical									367	$ 63,931
	429	Instrumentation and Controls									271	$ 55,639
430		**Preliminary Design Submittal, QA/QC, and Cost Estimating**	**0**	**8**	**8**	**0**	**0**	**0**	**0**	**0**	**870**	**$ 228,305**
	431	Preliminary Design Submittal									408	$ 96,553
	432	Cost Estimating									176	$ 49,246
	433	Preliminary Design QA/QC		8	8						178	$ 56,146
	434	External Meetings									108	$ 26,359
510		**Permitting & Public Outreach**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**242**	**$ 64,236**
	511	Permitting Matrix, SEPA, and Public Park Coordination									18	$ 4,518
	512	Land Use									112	$ 29,444
	513	Community Engagement						20			40	$ 10,572
	514	DOH Engagement and Coordination									72	$ 19,702
810		**Unanticipated Services**									**0**	$ -
	811	Phase 1 Unanticipated Services									0	$ -
		PHASE 1 TOTAL	**11**	**28**	**20**	**12**	**0**	**20**	**22**	**24**	**8,836**	**$ 1,976,692**

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4. Hours and Dollars are rounded to the nearest whole number.

EXHIBIT B: Vancouver WS1 PFAS Treatment Project

Brown and Caldwell
Budget

				MWA	Greenworks	AKS	Shannon & Wilson	ESA					
Phase	Task	Phase Description	Expenses	Architecture	Landscape Archtecture	3D Scan or Traffice Support	Geotech	SEPA / Permitting Support	Total Sub Cost	Total Sub Effort	Total Expense Effort	Total Effort
			Raw rates grade-this row to be hidden									
Phase 1												
110		**Project Management**	**$ 5,000**	**$ -**	**$ -**		**$ -**	**$ -**	**$ -**	**$ -**	**$ 5,000**	**$ 219,948**
	111	Phase 1 Client Meetings							$ -	$ -	$ 5,000	$ 45,211
		Client Kick-off Meeting and Site visit (in person)	$ 5,000						$ -	$ -	$ 5,000	$ 24,172
		PM Weekly Check-ins							$ -	$ -	$ -	$ 19,667
	112	Phase 1 Project Management							$ -	$ -	$ -	$ 174,738
210		**Phase 1 Site Assessment**	**$ 1,000**	**$ -**	**$ -**	**$ -**	**$ 62,455**	**$ -**	**$ 62,455**	**$ 65,578**	**$ 66,578**	**$ 128,714**
	211	Survey and Basemap Preparation (City)							$ -	$ -	$ -	$ 9,352
	212	Geotechnical Investigation					$ 62,455		$ 62,455	$ 65,578	$ 65,578	$ 76,978
	213	Review Site Background Information	$ 1,000								$ 1,000	$ 42,384
310		**Conceptual Design**	**$ 9,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 9,000**	**$ 537,853**
	311	Blending Assessment and Fatal Flaws Analysis							$ -	$ -	$ -	$ 47,532
	312	Site Tours	$ 2,000						$ -	$ -	$ 2,000	$ 25,236
	313	Alternatives Analysis (MCDA)	$ 6,000						$ -	$ -	$ 6,000	$ 199,613
	314	Wells Tie-in and Pumping Analysis	$ 500						$ -	$ -	$ 500	$ 85,905
	315	Conceptual Layout	$ 500						$ -	$ -	$ 500	$ 80,093
	316	Early Procurement							$ -	$ -	$ -	$ 42,407
	317	Internal Workshops							$ -	$ -	$ -	$ 57,068
410		**Project Engineering Report (PER)**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 101,700**
	411	Develop Draft PER							$ -	$ -	$ -	$ 78,677
	412	QA/QC							$ -	$ -	$ -	$ 23,023
420		**Preliminary Design Drawings and Specifications**	**$ -**	**$ 52,473**	**$ 19,014**	**$ -**	**$ -**	**$ -**	**$ 71,487**	**$ 75,061**	**$ 75,061**	**$ 851,576**
	421	Internal Team Meetings and Design Management							$ -	$ -	$ -	$ 163,072
	422	Civil							$ -	$ -	$ -	$ 145,668
	423	Landscape			$ 19,014				$ 19,014	$ 19,965	$ 19,965	$ 21,483
	424	Architectural		$ 52,473					$ 52,473	$ 55,097	$ 55,097	$ 55,097
	425	Structural							$ -	$ -	$ -	$ 117,460
	426	Process/Process-Mechanical							$ -	$ -	$ -	$ 219,696
	427	Building Mechanical							$ -	$ -	$ -	$ 9,530
	428	Electrical							$ -	$ -	$ -	$ 63,931
	429	Instrumentation and Controls							$ -	$ -	$ -	$ 55,639
430		**Preliminary Design Submittal, QA/QC, and Cost Estimating**	**$ 5,000**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 5,000**	**$ 233,305**
	431	Preliminary Design Submittal							$ -	$ -	$ -	$ 96,553
	432	Cost Estimating							$ -	$ -	$ -	$ 49,246
	433	Preliminary Design QA/QC							$ -	$ -	$ -	$ 56,146
	434	External Meetings	$ 5,000						$ -	$ -	$ 5,000	$ 31,359
510		**Permitting & Public Outreach**	**$ -**	**$ -**	**$ 2,000**	**$ -**	**$ -**	**$ 38,144**	**$ 40,144**	**$ 42,151**	**$ 42,151**	**$ 106,387**
	511	Permitting Matrix, SEPA, and Public Park Coordination						$ 38,144	$ 38,144	$ 40,051	$ 40,051	$ 44,569
	512	Land Use			$ 2,000				$ 2,000	$ 2,100	$ 2,100	$ 31,544
	513	Community Engagement							$ -	$ -	$ -	$ 10,572
	514	DOH Engagement and Coordination							$ -	$ -	$ -	$ 19,702
810		**Unanticipated Services**	**$ 50,000**						**$ -**	**$ -**	**$ 50,000**	**$ 50,000**
	811	Phase 1 Unanticipated Services										
		PHASE 1 TOTAL	**70,000**	**52,473**	**21,014**	**0**	**62,455**	**38,144**	**$ 174,086**	**$ 182,790**	**$ 252,790**	**$ 2,229,483**

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