

CITY OF PORTLAND
AGREEMENT FOR PROFESSIONAL, TECHNICAL, OR EXPERT SERVICES

CONTRACT NO.

SHORT TITLE OF WORK PROJECT:
Geotechnical Services for the Washington Park Reservoirs Improvements Project

This contract is between the City of Portland ("City," or "Bureau") and Cornforth Consultants, Inc., hereafter called Contractor. The City's Project Manager for this contract is Dan Hogan.

Effective Date and Duration

This contract shall become effective on January 2013. This contract shall expire, unless otherwise terminated or extended, on June 30, 2021.

Consideration

- (a) City agrees to pay Contractor a sum not to exceed \$4,208,695 for accomplishment of the work.
- (b) Interim payments shall be made to Contractor according to the schedule identified in the STATEMENT OF THE WORK AND PAYMENT SCHEDULE.

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CONTRACTOR DATA AND CERTIFICATION

Name (please print): _____

Address: _____

Employer Identification Number (EIN) _____

[INDEPENDENT CONTRACTORS: DO NOT PROVIDE SOCIAL SECURITY NUMBER (SSN) – LEAVE BLANK IF NO EIN]

City of Portland Business License # _____

Citizenship: Nonresident alien Yes No

Business Designation (check one): Individual Sole Proprietorship Partnership Corporation
 Limited Liability Co (LLC) Estate/Trust Public Service Corp. Government/Nonprofit

Payment information will be reported to the IRS under the name and taxpayer I.D. number provided above. Information must be provided prior to contract approval.

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TERMS AND CONDITIONS

1. Standard of Care: Contractor shall perform all services under this contract using that care, skill and diligence that would ordinarily be used by similar professionals in this community in similar circumstances.

2. Effect of Expiration

Passage of the contract expiration date shall not extinguish, prejudice, or limit either party's right to enforce this Contract with respect to any default or defect in performance that has not been corrected.

3. Order of Precedence

This contract consists of these Terms and Conditions, the Statement of Work and Payment Schedule, and any exhibits that are attached. Any apparent or alleged conflict between these items will be resolved by using the following order of precedence: a) these Terms and Conditions; b) Statement of Work and Payment Schedule; and c) any exhibits attached to the contract.

4. Early Termination of Contract

(a) The City may terminate this Contract for convenience at any time for any reason deemed appropriate in its sole discretion. Termination is effective immediately upon notice of termination given by the City.

(b) Either party may terminate this Contract in the event of a material breach by the other party that is not cured. Before termination is permitted, the party seeking termination shall give the other party written notice of the breach, its intent to terminate and fifteen (15) calendar days to cure the breach. If the breach is not cured within 15 days, the party seeking termination may terminate immediately by giving written notice that the Contract is terminated.

5. Remedies and Payment on Early Termination

- (a) If the City terminates pursuant to 4(a) above, the City shall pay the Contractor for work performed in accordance with the Contract prior to the termination date. No other costs or loss of anticipated profits shall be paid.
- (b) If the City terminates pursuant to 4(b) above, the City is entitled all remedies available at law or equity. In addition, Contractor shall pay the City all damages, costs and sums incurred by the City as a result of the breach.
- (c) If the Contractor justifiably terminates the contract pursuant to subsection 4(b), the Contractor's only remedy is payment for work prior to the termination. No other costs or loss of anticipated profits shall be paid.
- (d) If the City's termination under Section 4(b) was wrongful, the termination shall be automatically converted to one for convenience and the Contractor shall be paid as if the Contract was terminated under Section 4(a).
- (e) In the event of early termination the Contractor's work product before the date of termination becomes property of the City.

6. Assignment

Contractor shall not subcontract, assign or transfer any of the work scheduled under this agreement, without the prior written consent of the City. Notwithstanding City approval of a subcontractor, the Contractor shall remain obligated for full performance hereunder, and the City shall incur no obligation other than its obligations to the Contractor hereunder. The Contractor agrees that if subcontractors are employed in the performance of this Agreement, the Contractor and its subcontractors are subject to the requirements and sanctions of ORS Chapter 656, Workers' Compensation.

7. Compliance with Applicable Law

Contractor shall comply with all applicable federal, state and local laws and regulations. Contractor agrees it currently is in compliance with all tax laws.

8. Indemnification for Property Damage and Personal Injury

Contractor shall indemnify, defend, and hold harmless the City, its officers, agents, and employees, from all claims, losses, damages, and costs (including reasonable attorney fees) for personal injury and property damage arising out of the intentional or negligent acts or omissions of the Contractor, its Subcontractors, suppliers, employees or agents in the performance of its services. Nothing in this paragraph requires the Contractor or its insurer to indemnify the City for claims of personal injury or property damage caused by the negligence of the City. This duty shall survive the expiration or termination of this contract.

9. Insurance

During the term of this contract, Contractor shall maintain in force at its own expense, the insurance noted below:

- (a) Workers' Compensation insurance in compliance with ORS 656.017, which requires subject employers to provide Oregon workers' compensation coverage for all their subject workers (contractors with one or more employees, unless exempt under ORS 656.027).
- (b) Commercial General Liability insurance with a combined single limit of not less than \$1,000,000 per occurrence for Bodily Injury and Property Damage. It shall include contractual liability coverage for the indemnity provided under this contract, and shall provide that City of Portland, and its agents, officers, and employees are Additional Insureds, but only with respect to the Contractor's services to be provided under this Contract:

Required by operating Bureau _____ Waived by operating Bureau Director or designee _____

- (c) Automobile Liability insurance with a combined single limit of not less than \$1,000,000 per occurrence for Bodily Injury and Property Damage, including coverage for owned, hired, or non-owned vehicles, as applicable:

Required by operating Bureau _____ Waived by operating Bureau Director or designee _____

- (d) Professional Liability insurance with a combined single limit of not less than \$1,000,000 per claim, incident, or occurrence. If insurance is provided on a "claims made" basis the Contractor shall acquire "tail" coverage or continue the same coverage for three years after completion of the contract, provided coverage is available and economically feasible. If not feasible, contractor shall notify City immediately.

Required by operating Bureau _____ Waived by operating Bureau Director or designee _____

- (e) There shall be no cancellation, material change, reduction of limits, or intent not to renew any required insurance without 30 days written notice from the Contractor or its insurer(s) to the City.
- (f) Certificates of insurance. The Contractor shall furnish acceptable insurance certificates to the City showing the required insurance coverage. The certificate will specify all of the parties who are Additional Insureds. Certificates and insurers are subject to City approval. Complete policy copies shall be provided to the City upon request. The Contractor shall be financially responsible for all pertinent deductibles, self-insured retentions, and/or self-insurance.

10. Ownership of Work Product

All work product produced by the Contractor under this contract is the exclusive property of the City. "Work Product" includes, but is not limited to: research, reports, computer programs, manuals, drawings, recordings, photographs, artwork and any data or information in any form. The Contractor and the City intend that such Work Product shall be deemed "work made for hire" of which the City shall be deemed the author. If for any reason a Work Product is deemed not to be a "work made for hire," the

Contractor hereby irrevocably assigns and transfers to the City all right, title and interest in such work product, whether arising from copyright, patent, trademark, trade secret, or any other state or federal intellectual property law or doctrines. Contractor shall obtain such interests and execute all documents necessary to fully vest such rights in the City. Contractor waives all rights relating to work product, including any rights arising under 17 USC 106A, or any other rights of authorship, identification or approval, restriction or limitation on use or subsequent modifications. If the Contractor is an architect, the Work Product is the property of the Contractor-Architect, and by execution of this contract, the Contractor-Architect grants the City an exclusive and irrevocable license to use that Work Product.

Notwithstanding the above, all pre-existing trademarks, services marks, patents, copyrights, trade secrets and other proprietary rights of Contractor are and will remain the exclusive property of Contractor.

11. EEO Certification: In the event Contractor provides in excess of \$2,500.00 for services to the City in any fiscal year, Contractor shall obtain EEO certification from the City.

12. Equal Benefits

Contractor must comply with the City's Equal Benefits program as prescribed by Chapter 3.100 of the Code of the City of Portland. The required documentation must be filed with Procurement Services, City of Portland, prior to contract execution.

13. Successors in Interest

The provisions of this contract shall be binding upon and shall inure to the benefit of the parties hereto, and their respective successors and approved assigns.

14. Severability

The parties agree that if any term or provision of this contract is declared by a court of competent jurisdiction to be illegal or in conflict with any law, the validity of the remaining terms and provisions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the contract did not contain the particular term or provision held to be invalid.

15. Waiver

The failure of the City to enforce any provision of this contract shall not constitute a waiver by the City of that or any other provision.

16. Errors

The Contractor shall promptly perform such additional services as may be necessary to correct errors in the services required by this contract without undue delays and without additional cost.

17. Governing Law/Venue

The provisions of this contract shall be interpreted, construed and enforced in accordance with, and governed by, the laws of the State of Oregon without reference to its conflict of laws provisions that might otherwise require the application of the law of any other jurisdiction. Any action or suits involving any question arising under this contract must be brought in the appropriate court in Multnomah County Oregon.

18. Amendments

All changes to this contract, including changes to the scope of work and contract amount, must be made by written amendment and approved by the Chief Procurement Officer to be valid. Any amendment that increases the original contract amount by more than 25% must be approved by the City Council to be valid.

19. Business License

The Contractor shall obtain a City of Portland business license as required by PCC 7.02 prior to beginning work under this Contract.

20. Prohibited Conduct

The Contractor shall not hire any City employee who evaluated the proposals or authorized the award of this Contract for two years after the date the contract was authorized without the express written permission of the City and provided the hiring is permitted by state law.

21. Payment to Vendors and Subcontractors

The Contractor shall timely pay all subcontractors and suppliers providing services or goods for this Contract.

22. Access to Records

The Contractor shall maintain all records relating to this Contract for three (3) years after final payment. The City may examine, audit and copy the Contractor's books, documents, papers, and records relating to this contract at any time during this period upon reasonable notice. Copies of these records shall be made available upon request. Payment for the reasonable cost of requested copies shall be made by the City.

23. Audits

(a) The City may conduct financial and performance audits of the billings and services specified in this agreement at any time in the course of the agreement and during the three (3) year period established by paragraph 22. Audits will be conducted in

accordance with generally accepted auditing standards as promulgated in Government Auditing Standards by the Comptroller General of the United States Government Accountability Office.

(b) If an audit discloses that payments to the Contractor exceed the amount to which the Contractor was entitled, the Contractor shall repay the amount of the excess to the City.

24. Electronic Signatures

The City and Contractor may conduct this transaction, including any contract amendments, by electronic means, including the use of electronic signatures.

25. Merger Clause

This Contract encompasses the entire agreement of the parties, and supersedes all previous understandings and agreements between the parties, whether verbal or written.

26. Dispute Resolution/Work regardless of disputes

The parties shall participate in mediation to resolve disputes before conducting litigation. The mediation shall occur at a reasonable time after the conclusion of the Contract with a mediator jointly selected by the parties. Notwithstanding any dispute under this Contract, the Contractor shall continue to perform its work pending resolution of a dispute, and the City shall make payments as required by the Contract for undisputed portions of the work. In the event of litigation no attorney fees are recoverable. No different dispute resolution paragraph(s) in this contract or any attachment hereto shall supersede or take precedence over this provision.

27. Progress Reports: /___/ Applicable /___/ Not Applicable

If applicable, the Contractor shall provide monthly progress reports to the Project Manager as described in the Statement of the Work and Payment Schedule.

28. Contractor's Personnel: /___/ Applicable /___/ Not Applicable

If applicable, the Contractor shall assign the personnel listed in the Statement of the Work and Payment Schedule for the work required by the Contract and shall not change personnel without the prior written consent of the City, which shall not be unreasonably withheld.

29. Subcontractors

The Contractor shall use the subcontractors identified in its proposals. The Contractor shall not change subcontractor assignments without the prior written consent of the Chief Procurement Officer. Failure to use the identified M/W/ESB subcontractors without prior written consent is a material breach of contract.

30. Third Party Beneficiaries

There are no third party beneficiaries to this contract. Enforcement of this contract is reserved to the parties.

**STATEMENT OF THE WORK
AND PAYMENT SCHEDULE**

NOTE - For contracts pertaining to A/E services for a new construction or major retrofit project intended for LEED™ certification:

- If the A/E firm is designated as being responsible for the registration, documentation, and submittal for LEED™ certification (as opposed to having an independent LEED™ consultant), then encourage that the successful A/E firm become a member of the U.S. Green Building Council (USGBC) to facilitate this responsibility. Being a member is not a requirement for submittal.
- Tie the final payment to the successful submittal of the LEED™ application to the Green Building Certification Institute (GBCI).
- Consider including a requirement in the contract that the firm cannot substitute members of the A/E team working with the City without notification to, and written permission from, the City.
- With regards to any and LEED™ credit compliance documentation provided to the City or the Green Building Certification Institute (GBCI) for this project (but not including any plans, drawings, schema and/or designs), the Contractor and Subcontractors agree to grant the City a limited, irrevocable, perpetual, non-exclusive, transferable, royalty-free, worldwide, and sublicensable right to use, reproduce, prepare derivative works from, distribute, display and publish such compliance documentation in any and all media and formats known now or in the future. This right is granted at the time such information is submitted to the City and/or uploaded or entered within LEED™ Online and shall be retained by the City regardless of whether the Project is submitted for LEED™ certification review. Such rights and licenses shall survive the cancellation of registration for the project, as well as a denial or revocation of LEED™ Certification for the project by GBCI, or abandonment of LEED™ Certification by the City. The City will use any such documentation for the purpose of applying for LEED™ certification and for educational purposes designed to promote the green building features and benefits of the project.

DELETE ABOVE INSTRUCTIONS AND ANY INSTRUCTIONS BELOW IN BRACKETS

SCOPE OF WORK

The Contractor shall perform the work as described in the attached Exhibit A.

CONTRACTOR PERSONNEL [Use these provisions as applicable]

The Contractor shall assign the following personnel to do the work in the capacities designated:

NAME	ROLE ON PROJECT

SUBCONTRACTORS [If none, indicate "NONE"]

The Contractor shall assign the following subcontractors to perform work in the capacities designated:

NAME	ROLE ON PROJECT

The City will enforce all diversity in workforce and Minority, Women and Emerging Small Business (M/W/ESB) subcontracting commitments submitted by the Contractor in its Proposal. For contracts valued \$100,000 or more, the Contractor shall submit a Monthly Subconsultant Payment and Utilization Report (MUR), made part of this contract by reference, reporting ALL subcontractors employed in the performance of this agreement. An electronic copy of the MUR may be obtained at: <http://www.portlandonline.com/shared/cfm/image.cfm?id=119851>.

COMPENSATION [Modify these provisions to meet your specific needs]

The maximum that the Contractor can be paid on this contract is \$_____ (hereafter the "not to exceed" amount.). The "not to exceed" amount includes all payments to be made pursuant to this contract, including reimbursable expenses, if any. Nothing in this contract requires the City to pay for work that does not meet the Standard of Care or other requirements of the Contract. The actual amount to be paid Contractor may be less than that amount.

The Contractor is entitled to receive progress payments for its work pursuant to the Contract as provided in more detail below. The City will pay Contractor based on these invoices for acceptable work performed and approved until the "not to exceed" amount is reached. Thereafter, Contractor must complete work based on the Contract without additional compensation unless there is a change to the scope of work.

Any estimate of the hours necessary to perform the work is not binding on the City. The Contractor remains responsible if the estimate proves to be incorrect. Exceeding the number of estimated hours of work does not impose any liability on the City for additional payment.

If work is completed before the "not to exceed" amount is reached, the Contractor's compensation will be based on the Contractor's bills previously submitted for acceptable work performed and approved.

PAYMENT TERMS: Net 30 Days

Hourly Rates

The billing rates shall not exceed those set forth below:

[List those rates here.]

Standard Reimbursable Costs

The following costs will be reimbursed without mark-up:

- **
- **

Subconsultant Costs

Compensation for subconsultants shall be limited to the same restrictions imposed on the Consultant. The maximum markup on subconsultant services shall not exceed %.

Adjustment of Labor Rates Due to Inflation

Annual adjustment of hourly rates will be considered upon written request from the Consultant. Approval of a request for rate increases is solely within the City's discretion and under no circumstances is the City obligated to approve such a request.

Rate increases are subject to the following limitations:

- No increases will be granted before the one-year anniversary of the contract;
- No more than one increase shall be granted per contract year;
- Rate increases may not exceed the then-current average inflation rate for the Portland Metropolitan Area (as determined from the US Department of Labor statistics);
- Rate increases shall not be retroactive.

Other than the impact of inflation as described above, hourly rates may not be increased.

Progress Payments

On or before the 15th of each month, the Contractor shall submit to the City's Project Manager an invoice for work performed by the Contractor during the preceding month. The invoice shall contain the City's Contract Number and set out all items for payment including, but not limited to: the name of the individual, labor category, direct labor rate, hours worked during the period, and tasks performed. The Contractor shall also attach photocopies of claimed reimbursable expenses, if applicable. The Project Coordinator shall stamp and approve all subconsultant invoices and note on the subconsultant invoice what they are approving as "billable" under the contract. The billing from the prime should clearly roll up labor and reimbursable costs for the prime and subconsultants – matching the subconsultant invoices. Prior to initial billing, the Contractor shall develop a billing format for approval by the City.

The City shall pay all amounts to which no dispute exists within 30 days of receipt of the invoice. Payment of any bill, however, does not preclude the City from later determining that an error in payment was made and from withholding the disputed sum from the next progress payment until the dispute is resolved.

The Contractor shall make full payment to its subcontractors within 10 business days following receipt of any payment made by the City to Contractor.

INDEPENDENT CONTRACTOR CERTIFICATION STATEMENT

SECTION A

CONTRACTOR CERTIFICATION I, undersigned, am authorized to act on behalf of entity designated below, hereby certify that entity has current Workers' Compensation Insurance.

Contractor Signature _____ Date _____ Entity _____

If entity does not have Workers' Compensation Insurance, City Project Manager and Contractor complete the remainder of this form.

SECTION B

ORS 670.600 Independent contractor standards. As used in various provisions of ORS Chapters 316, 656, 657, and 701, an individual or business entity that performs labor or services for remuneration shall be considered to perform the labor or services as an "independent contractor" if the standards of this section are met. The contracted work meets the following standards:

- 1. The individual or business entity providing the labor or services is free from direction and control over the means and manner of providing the labor or services, subject only to the right of the person for whom the labor or services are provided to specify the desired results;
2. The individual or business entity providing labor or services is responsible for obtaining all assumed business registrations or professional occupation licenses required by state law or local government ordinances for the individual or business entity to conduct the business;
3. The individual or business entity providing labor or services furnishes the tools or equipment necessary for performance of the contracted labor or services;
4. The individual or business entity providing labor or services has the authority to hire and fire employees to perform the labor or services;
5. Payment for the labor or services is made upon completion of the performance of specific portions of the project or is made on the basis of an annual or periodic retainer.

City Project Manager Signature _____ Date _____

SECTION C

Independent contractor certifies he/she meets the following standards:

- 1. The individual or business entity providing labor or services is registered under ORS Chapter 701, if the individual or business entity provides labor or services for which such registration is required;
2. Federal and state income tax returns in the name of the business or a business Schedule C or form Schedule F as part of the personal income tax return were filed for the previous year if the individual or business entity performed labor or services as an independent contractor in the previous year; and
3. The individual or business entity represents to the public that the labor or services are to be provided by an independently established business. Except when an individual or business entity files a Schedule F as part of the personal income tax returns and the individual or business entity performs farm labor or services that are reportable on Schedule C, an individual or business entity is considered to be engaged in an independently established business when four or more of the following circumstances exist. Contractor check four or more of the following:

- A. The labor or services are primarily carried out at a location that is separate from the residence of an individual who performs the labor or services, or are primarily carried out in a specific portion of the residence, which portion is set aside as the location of the business;
B. Commercial advertising or business cards as is customary in operating similar businesses are purchased for the business, or the individual or business entity has a trade association membership;
C. Telephone listing and service are used for the business that is separate from the personal residence listing and service used by an individual who performs the labor or services;
D. Labor or services are performed only pursuant to written contracts;
E. Labor or services are performed for two or more different persons within a period of one year; or
F. The individual or business entity assumes financial responsibility for defective workmanship or for service not provided as evidenced by the ownership of performance bonds, warranties, errors and omission insurance or liability insurance relating to the labor or services to be provided.

Contractor Signature _____ Date _____

CONTRACTOR SIGNATURE:

This contract may be signed in two (2) or more counterparts, each of which shall be deemed an original, and which, when taken together, shall constitute one and the same Agreement.

The parties agree the City and Contractor may conduct this transaction, including any contract amendments, by electronic means, including the use of electronic signatures.

I, the undersigned, agree to perform work outlined in this contract in accordance to the STANDARD CONTRACT PROVISIONS, the terms and conditions, made part of this contract by reference, and the STATEMENT OF THE WORK made part of this contract by reference; hereby certify under penalty of perjury that I/my business am not/is not in violation of any Oregon tax laws; hereby certify that my business is certified as an Equal Employment Opportunity Affirmative Action Employer and is in compliance with the Equal Benefits Program as prescribed by Chapter 3.100 of Code of the City of Portland; and hereby certify I am an independent contractor as defined in ORS 670.600.

Contractor Name Here

BY: _____ Date: _____

Name: _____

Title: _____

185840

Contract No. _____

Contract Title: _____

CITY OF PORTLAND SIGNATURES:

By: _____
Bureau Director

Date: _____

By: _____
Chief Procurement Officer

Date: _____

By: _____
Elected Official

Date: _____

Approved:

By: _____
Office of City Auditor

Date: _____

Approved as to Form:

By: _____
Office of City Attorney

Date: _____

DRAFT Geotechnical Scope of Work
Washington Park Reservoir Improvements Project

DESIGN PHASE**Task 1 – Project Management**

The Contractor shall provide all labor necessary to coordinate the geotechnical work in-house, with PWB, and with the PWB's Design Services Consultant (DSC); manage internal resources; track schedule and budget; coordinate design with the Portland Water Bureau (PWB) and stakeholders; attend design and public outreach meetings; and perform quality control of all deliverables. The Contractor shall perform the following tasks:

- Attend project kickoff meeting with PWB and DSC;
- Develop a Geotechnical Project Management Work Plan discussing schedule, scope, and cost;
- Develop Geotechnical Design Quality Management Plan (DQMP);
- Attend up to 10 permit status meetings to assist PWB and DSC with geotechnical aspects;
- Attend 5 public meetings, prepare displays and assist PWB;
- Attend 40 weekly design status meetings;
- Attend site walk meeting with PWB and DSC;
- Attend additional 20 meetings as needed during course of project;
- Develop Geotechnical Design and Construction Cost Control Plan;
- Develop Geotechnical Risk Management Plan;
- Supervise geotechnical design team and perform QA/QC on internal documents and deliverables; and,
- Provide monthly reports on progress of geotechnical work, schedule, budget, cash flow, and status of deliverables.

Deliverables for Task 1

The Contractor shall provide the PWB Project Manager (PM) with the following:

- Meeting minutes;
- Design schedule;
- Monthly budget updates and progress summaries;
- Talking points and/or visual aids for public meetings (as requested by PWB PM);
- Geotechnical PM Work Plan;
- Geotechnical Design and Construction Cost Control Plan;
- Geotechnical Risk Management Plan; and,
- Geotechnical DQMP.

Task 2 – Subsurface Explorations

The Contractor shall conduct subsurface explorations in order to gather data to support reservoir design, ancillary structures and appurtenances, and to install instrumentation to monitor the long-term performance of the drainage tunnels and landslide movement. Explorations shall also be completed to replace slope inclinometers that have sheared off and to provide subsurface information needed by the PWB's Construction Manager / General Contractor (CM/GC). These explorations shall be performed as directed by the PWB PM and will be scoped at a later time. The Contractor shall provide labor, equipment and materials necessary to perform all aspects of the work including coordination of site access, mobilization logistics, traffic control, drilling the exploratory borings, and installing instrumentation. Explorations are planned for the floors of Reservoir No's. 3 and 4, on the pedestrian pathway and slopes around Reservoir No. 3, and on the upper portions of the landslide. In order to complete the work described above, the Contractor shall perform the following:

- Coordinate exploration plan with PWB;
- Coordinate drill rig access with PWB and Portland Parks & Recreation (PP&R);
- Retain security guard, as needed, to protect drill equipment from vandalism;
- Cut and patch the Hypalon liner in Reservoir No. 3 at boring locations and along access route down north slope of reservoir;
- Drainage Tunnel Monitoring Borings - drill 8 borings spaced across the slide mass to monitor the performance of the drainage tunnels over the long-term. All borings shall be advanced using mud-rotary and HQ3-coring techniques with a truck-mounted drill to depths between 90 and 160 feet for a total drilled footage of approximately 1,000 feet. Dual vibrating wire pressure transducers shall be installed in each boring to provide redundancy in the event of a sensor malfunction.
- Inlet Tunnel/Horizontal Bore Borings - drill 3 borings along the proposed inlet tunnel alignment that extends from the east side of Reservoir No. 3 to the proposed vault near SW Murray Street. The borings shall be advanced using mud-rotary and HQ3-coring techniques with a truck-mounted drill to depths of approximately 80 feet. Dual vibrating wire pressure transducers shall be installed in each boring to provide redundancy in the event of a sensor malfunction.
- Reservoir No. 3 Perimeter Borings - drill 5 borings on the pedestrian path north and east of Reservoir No. 3 to gather data for excavation shoring and tank foundations. The borings shall be advanced using a limited-access, skid-mounted drill with mud-rotary and NQ3-coring techniques. The average depth of the borings shall be 130 feet. The borings shall be finished with 1-inch diameter standpipe piezometers to monitor groundwater levels along the shoring wall. One of the five borings shall also receive a vibrating-wire piezometer installed near the invert elevation of the proposed outlet tunnel/horizontal bore.
- Reservoir No. 3 Floor Borings - drill 3 borings to a depth of 80 feet in the floor of Reservoir No. 3 to collect data for tank foundations and to establish the compressibility of the native alluvium. The borings shall be advanced using a track-mounted drill that shall be crane-lifted

onto the north slope of the reservoir. Borings shall be advanced using mud-rotary and HQ3-coring techniques.

- Reservoir No. 3 Overflow Boring – drill 1 boring to a depth of approximately 50 feet in the area between Dam No. 3 and the Pumphouse. Complete an advance boring using a limited-access drill that is crane-lifted onto the boring location. Crane shall set up on top of Dam No. 3. Complete advance boring using mud-rotary and NQ3 wireline coring techniques. The boring shall be finished with a 1-inch diameter standpipe piezometer and flush-mount monument cover.
- Reservoir No. 4 Floor Borings - drill 4 borings in the floor of Reservoir No. 4 to establish the compressibility of the native alluvium and to gather data for Dechlorination Facility foundations. The borings shall be advanced using mud-rotary and HQ3-coring techniques with a truck-mounted drill to depths of approximately 80 feet.
- Reservoir No. 3 Hand Augers – drill 10 hand-auger probes above Reservoir No. 3 to evaluate subsurface conditions for construction of a temporary soil nail wall. Complete ten borings to a depth of approximately 15 feet for this purpose. If subsurface conditions cause slow progress, fewer borings shall be spaced out along the alignment to fit within the budgeted time.
- Replacement Inclinerometers – Replace instruments SI-4 and SI-5 with slope inclinometers and vibrating wire piezometers. Fast-drill borings with a truck-mounted drill to depths of 110 feet and 90 feet, respectively, using mud-rotary techniques. Finish borings with flush-mount monument covers.

Deliverables for Task 2

The Contractor shall provide the PWB PM with the following:

- Plan of explorations; and,
- Summary memorandum of field work and instrumentation including summary boring logs and instrumentation as-builts. The memorandum shall be included as an appendix in the final design memorandum.
- **NOTE:** The Contractor is responsible for security of their equipment.

Work performed by City:

- PWB shall obtain rights of entry and permission from PP&R to complete explorations;
- PWB shall assist coordinating minor tree trimming with Parks to facilitate use of standard-tower drill rigs; and,
- PWB shall assist with permission to keep drill rig on holes overnight as needed during the exploration and instrumentation work.

Task 3 – Laboratory Testing

Laboratory testing shall be performed on samples of soil and rock retrieved during drilling. The objective of the testing shall be to characterize the materials for design and for use by CM/GC and subcontractors. In order to complete the task described above, the Contractor shall complete the following:

- Coordinate laboratory testing program with PWB;
- Index testing consisting of 200 in situ water contents (ASTM D2216), 40 mechanical grain-size gradations (ASTM D422), and 40 Atterberg limits (ASTM D4318);
- 20 unconsolidated-undrained triaxial shear strength tests (ASTM D2850);
- 15 consolidation tests (ASTM D2435); and,
- 3 ring-shear, residual strength tests to evaluate shear rate effects.

Deliverables for Task 3

The Contractor shall provide the PWB PM with the following:

- Proposed laboratory testing program; and,
- Test results (included in design memorandum deliverable).

Task 4 – Geotechnical Design

Provide all labor required to design geotechnical portions of the proposed reservoir improvements and compressible inclusion system as described in Task 4 of the Washington Park Reservoir Improvements Design Contract with AECOM. In addition, coordinate with PWB, CM/GC and DSC regarding geotechnical design and construction sequencing. A brief description of the work is included below:

Meetings. Review the existing Geotechnical Data and Preliminary Design Reports and the Basis of Design Report with PWB and DSC. Establish requirements and layout for site development and structure foundations. Attend 20 design meetings with PWB and DSC.

Subsurface Conditions. Develop geologic models of subsurface conditions and superimpose proposed structures, excavations, and fills. Provide information to characterize baseline geotechnical conditions likely to be encountered during construction.

Construction Staging. Evaluate impacts of proposed site development sequence on stability of landslide and performance of foundation elements and excavation shoring systems. Important items to be addressed include access for a drill to install soldier pile elements and possible construction of an Mechanically Stabilized Earth (MSE) wall west of the compressible inclusion to preload site before tank foundations are installed.

Excavation Shoring. Complete geotechnical analyses necessary to design temporary excavation shoring on the east and north sides of the new reservoir, on the east and north sides of the new

reservoir above the current sidewalk, and in the floor of the existing reservoir where a cut of up to 15 feet into the landslide toe could occur.

Site Analysis. Evaluate impacts of proposed development on site stability and performance. Identify impacts on existing structures and piping, tunnels, drainage, and stability of slopes. Evaluate potential existence of an interpreted larger ancient landslide encompassing the Washington Park Reservoir slide. Review Department of Geology and Mineral Industries (DOGAMI) map and interpretation of ancient slide limits. Perform geologic reconnaissance of interpreted ancient slide. Develop geologic cross section of ancient slide. Provide opinion on DOGAMI interpretation and discuss potential impacts to the Washington Park Reservoirs.

Seismic Case History Evaluation. Contact practitioners and researchers regarding the performance of large, translational landslides during the recent Tohoku subduction earthquake. If possible, document performance of instrumented landslides that were known to be creeping prior to the earthquake. Search for landslides with similar geometry, character, and epicentral distance from the Washington Park landslide to the Cascadia Subduction Zone.

Seismic Finite-Difference Analyses. Coordinate with expert on finite-difference analyses to develop scope and objectives for dynamic computer analyses to estimate potential seismic displacements of the Washington Park landslide. Meet with PWB to discuss costs, benefits, and limitations of the analyses.

Reuse of On Site Soil. Handling and disposal of excavation spoil will be a major component of reservoir construction. An MSE wall shall be evaluated as a means to dispose excavated material and facilitate construction. Soil admixtures such as cement could be evaluated as a means of treating soils that are too wet to compact.

MSE Wall. This subtask shall include design of the MSE wall identified in Task 4.8. Internal and external stability analyses shall be completed to vet the concept and define geometry required for a wall vendor to prepare a proprietary wall design. Meetings shall be held with PWB, DSC, and the CM/GC contractor to discuss advantages and disadvantages, feasibility of sequencing, and risks of slide movement during construction.

Compressible Inclusion. Complete analyses necessary to define the thickness and material properties of the compressible inclusion. Design tasks include establishing design life of new reservoir; establishing a range of estimated slide movement rates; calculating range of total anticipated landslide movement as the sum of creep movement during design life and the estimated displacement during the design earthquake; establishing a design deformation that includes an adequate factor of safety on the estimated displacement; estimating the magnitude and distribution of earth pressure on Expanded Polystyrene (EPS) and finished tank after backfilling; selecting strength and thickness of compressible inclusion to yield acceptable lateral stresses at design landslide deformations; confirming that stresses in EPS at design deformations shall be less than the earth pressures used for design of the structure; and designing an instrumentation system to monitor displacement in the compressible inclusion and long-term load on the reservoir.

Settlement. Estimate total and time-rate of settlement expected to occur beneath Reservoir Nos. 3 and 4 due to fill placement. Identify influence of settlement on deep foundations and shallow footings. Evaluate effects of settlement on proposed and existing structures including dechlorination structure, historic gate house structures, and Dams 3 and 4. Evaluate benefits of MSE wall preload in minimizing differential settlement beneath the proposed reflecting pond. Evaluate methods to speed time-rate of settlement.

Structure Foundations. Design deep foundations for reservoir structure and dechlorination building. The evaluation of appropriate foundation elements shall be performed in close coordination with DSC structural engineers and shall include micropiles, H-piles, pipe piles, and auger Cast-In-Place concrete (CIP) piles. Provide recommendations for allowable bearing capacity for shallow foundations, as needed. Identify areas where temporary underpinning could be necessary to support existing structures during site development.

Piping. Prepare geologic profile along outlet tunnel between East side of Reservoir No. 3 and the proposed vault near SW Murray Street and other major pipe runs. Identify dewatering and shoring likely to be necessary to complete piping installations. Work with DSC to develop connection details between structures and pipe runs.

Drainage. Work with PWB's Project Design Team (PDT) and DSC to develop geotechnical design parameters for proposed site drainage systems. Coordinate subsurface collection points with planned pipe runs to minimize excavations. Develop tie-in details to connect existing tunnel outlets to new underdrain system.

Dewatering. Identify measured piezometric levels and how they are likely to impact site development work. Develop dewatering concepts with CM/GC that are consistent with preferred construction sequence and methods.

Site Restoration. Identify grading requirements to establish proper drainage and site access. Where necessary, identify limits of construction to prevent adverse impacts to stability.

Instrumentation. Install in-place inclinometers, vibrating-wire piezometers and dataloggers in 2 to 3 locations within the slide mass to provide real-time monitoring of landslide movements and groundwater levels. Provide PWB with instrument calibrations and constants necessary to reduce future monitoring data.

Deliverables for Task 4

The Contractor shall provide the PWB PM with the following:

- Meeting minutes;
- Instrument monitoring plan for construction and post-construction assessment of landslide movements, groundwater levels, EPS compression, and lateral earth pressures of reservoir west wall;
- Technical memorandum discussing results of case history documentation of landslide movements during the Tohoku earthquake;

- Technical memorandum summarizing finite-difference analyses to estimate potential seismically-induced displacements of the landslide (if conducted);
- Design recommendations for shoring walls, foundations, structures, compressible inclusion, piping, drainage, and instrumentation installation will be incorporated into the final Geotechnical Design Report. Twenty printed copies and 1 electronic copy of the design report shall be provided; and,
- Design loads and application criteria for buried structures, including static and dynamic earth pressures.

Task 5 – Construction Documents

Provide labor necessary to produce construction documents for geotechnical aspects of the proposed reservoir. The geotechnical plans and specification shall be structured to be incorporated in the DSC's construction documents using MicroStation and CSI format. Packages will be prepared at the 30, 60, 90, 95, and 100 percent design development levels. Twenty hard copies shall be prepared for each design submittal. Technical specifications and construction drawings for geotechnical work items shall be refined at each design submittal. Design submittals shall also include calculation packages, estimated quantities, estimates of probable construction cost, and comments from Independent Technical Reviews.

Deliverables for Task 5

The Contractor shall provide the PWB PM with the following:

- Construction drawings and details to be incorporated into DSC construction document package;
- Specifications to be incorporated into DSC package;
- Design memorandum;
- Calculation package;
- Estimated quantities and costs; and,
- ITR documentation.

PERMITTING PHASE

Task 6 – General

Provide geotechnical assistance with permitting efforts as requested by PWB PM and DSC. Geotechnical support shall be necessary to describe anticipated construction equipment, processes, and areas necessary to complete geotechnical portions of the site development. When requested by PWB PM, the Contractor shall attend meetings related to permit applications. The Contractor shall provide PWB and the PDT with support on geotechnical items in advance of meetings and review minutes of meetings that the Contractor does not attend. Attend 4-hour workshops with PWB and DSC at major design milestones including LUR/Permit, 30%, 60%, 90%, and constructability stages.

CM/GC SUPPORT AND INTERACTION PHASE

Task 7 – General

Assist PWB, DSC, and CM/GC with geotechnical aspects of work. Support the PDT as needed with design clarifications, review of CM/GC construction estimates and construction sequencing. Subtasks shall include the following:

- Attend at least five 8-hour meetings with the PDT;
- Support PWB and DSC during GMP negotiations, review cost estimates, provide clarifications as needed;
- Prepare construction document work packages for CM/GC development of the GMP. Anticipate approximately 4 work packages;
- Participate in at least two 8-hour partnering workshops during design;
- Prepare materials for partnering workshops as requested by PWB PM;
- Attend two 4-hour partnering workshop follow-up meetings;
- Prepare materials for follow-up meetings as requested; and,
- During construction, attend up to 20 meetings with various members of the PDT to support geotechnical aspects of the project.

Deliverables for Task 7

The Contractor shall provide the PWB PM with the following:

- Meeting minutes;
- Written clarifications of construction documents, provide addenda as needed;
- Written comment to CM/GC's Guaranteed Maximum Price;
- Written comment on geotechnical aspects of CM/GC's working drawings and other submittals including but not limited to Dewatering Plan, Shoring Design, Excavation Plan, Piling Design, Filling Plan, Compressible Inclusion Plan, Instrumentation Plan, and Construction Sequencing Plan; and,
- Attend public education meetings as requested by PWB PM, including preparation of Powerpoint figures or other visual aids as needed.

CONSTRUCTION SUPPORT PHASE

Task 8 – General

Provide labor and equipment as needed to assist PWB during construction of the reservoir improvements. Subtasks include the following:

- Attend Pre-construction meeting;
- Provide special inspection services for geotechnical elements of construction including:
 - i) excavation shoring;
 - ii) foundation construction;

- iii) subdrain construction and drainage tunnel connections;
- iv) MSE wall construction; and,
- v) compressible inclusion installation;
- Perform periodic site visits during construction for other aspects of the work including Reservoir No. 4 backfilling, stormwater detention system construction and protection of existing historic structures;
- Respond to Requests for Information (RFI's) and provide interpretations/clarifications to construction documents;
- Support PWB during any change order negotiations;
- Support PWB during any construction claim negotiations;
- Review shop drawings prepared by the CM/GC or subcontractors;
- Evaluate CM/GC revisions to plans;
- Install instruments related to compressible inclusion; and,
- Monitor instruments during construction and summarize data for PWB.

PROJECT MITIGATION

Task 9 – Project Mitigation

Additional mitigation to be authorized in writing by PWB PM in order to respond to outside permitting agency requirements, code change requirements, other design and construction services change requirements, including but not limited to:

- Additional field explorations;
- Design mitigations;
- Permitting/Land Use;
- Public Outreach;
- Develop finite difference model of EPS compressible inclusion under static loading conditions;
- Additional special inspections and geotechnical observations;
- Construction mitigation;
- Escalation; and,
- In addition to the tasks listed under this contract there may be miscellaneous tasks associated with the work under this contract that have not been specifically identified. The Contractor and PWB PM shall coordinate those tasks and shall agree in writing to the deliverables and completions requirements.

Cost Estimate

Not-to-Exceed cost estimates for each phase of work are shown on the table below. A detailed breakdown of cost by task and hours is provided on the attached Exhibit B – Budget Detail.

Exhibit A

185840

Phase	Task	Total Labor Hours	SUBTOTAL
Design	Task 1 - Project Mgmt	1,356	\$273,624
Design	Task 2 - Explorations	1,238	\$601,542
Design	Task 3 - Lab Testing	655	\$85,287
Design	Task 4 - Geotech Design	3,500	\$627,800
Design	Task 5 - Construction Docs	4,316	\$686,783
Permitting Support	Task 6	210	\$36,889
CM/GC Support	Task 7	670	\$127,410
Construction Support	Task 8	4,979	\$818,380
Mitigation	Task 9	-	\$950,980
TOTAL		16,872	\$4,208,695