

IN WITNESS WHEREOF, the parties hereto have executed this Supplement No. 8 on this 24th day of April, 2019.

SNOHOMISH COUNTY


Signature **KEN KLEIN**
Executive Director

Title

OTAK, INC.


Signature
Principal

Title

**CONTRACT TEMPLATE ONLY
REVIEWED AND APPROVED:**
Rebecca J. Guadamud
Deputy Prosecuting Attorney
Date: 11/26/14

**CONTRACT TEMPLATE ONLY
REVIEWED AND APPROVED:**
Keith Mitchell
County Risk Manager
Date: 12/5/14

COUNCIL USE ONLY	
Approved:	<u>4.24.19</u>
Docfile:	<u>D-4</u>

EXHIBIT A-1c

Supplemental Scope of Work

Background

The purpose of the North Creek Trail Project is to design and build a 2.5 mile regional trail facility between SR 524 and North Creek Park at 183rd Street SE. The trail will be part of a coordinated regional system that will eventually connect the Sammamish River/Burke-Gilman Trail in King County with the Snohomish County Regional Interurban Trail in Everett.

The following Scope of Work includes the design of a new fish passage culvert crossing along Waxen Road along with the breakdown of the North Creek Trail Project into three Phases and three separate Packages:

- Phase 1 – SR 524 to Winesap Road
- Phase 2 – North Creek Bridge – Winesap Road to Waxen Road
- Phase 3 – Waxen Road to 183rd Street SE

The Phase 1 Package will be completed to 100% PSE, ready for bid advertisement. The Phase 2 and Phase 3 Packages will be separated and prepared for shelving and future funding. Design work includes revisions due to changes in existing conditions because of new development. Design work also includes response to additional review comments and additional environmental/permitting support.

1.0 PROJECT MANAGEMENT AND COORDINATION

1.1 Coordination with Snohomish County

Additional project management and coordination will be provided to support the additional tasks in this scope. The CONSULTANT will coordinate with the COUNTY on a regular basis to keep the COUNTY's project manager informed about project progress, project issues and schedule. The CONSULTANT will assist in scheduling project related meetings, reviews, and other coordination activities needed to keep the project moving forward. Regular communication with the COUNTY will occur on a weekly basis.

1.2 Coordination Meetings (Assume 4 Meetings)

Project coordination meetings with COUNTY will occur approximately monthly to review progress, to discuss project related issues, to review schedule, and to discuss current topics. The project coordination meetings will generally be held at the County. It is anticipated that a total of four (4) additional coordination meetings will be held during the design period. Attendance will generally include the CONSULTANT's project manager and project engineer along with designated COUNTY Staff.

1.3 Project Monitoring and Reporting

Project management will include the coordination of design team members, internal project scheduling, and the preparation of a monthly progress report and a monthly billing statement.

Deliverables

- Monthly progress report and monthly invoice, per COUNTY requirements

2.0 SUPPLEMENTAL TOPOGRAPHIC SURVEYING AND MAPPING (PHASE 1)

2.1 Data Collection and Review of Existing Field Conditions - Updated

The CONSULTANT design team will conduct a field visit at the 90% design level that includes a comprehensive review of existing field conditions for the Phase 1 portion of the project. Existing conditions will be reviewed as new development activity has taken place since design was started that has changed the existing conditions. The CONSULTANT will inventory significant features to be considered in design updates. This task will also include collection of existing records, as-builts, and other relevant information from the COUNTY.

2.2 Topographic Surveying and Mapping – Update Existing Mapping

Additional field and office time are expected for miscellaneous field "pickup" resulting from changes in existing conditions, review comments from the COUNTY, and additional coverage requirements to accommodate the

current design. This Task applies to the Phase 1 portion of the project. A total of 24 (twenty-four) additional field crew hours and associated office support time have been budgeted for this task.

Deliverables

- Updated Topographic Base Map showing supplemental data

3.0 ENVIRONMENTAL/PERMITTING

3.1 General Coordination and Permitting Agencies/Snohomish County

The environmental/permitting work required for the project will be led and prepared by the COUNTY. The CONSULTANT will provide coordination and design input to support the environmental/permitting effort. Coordination meetings will be held with the permitting agencies and with the COUNTY to review/discuss project issues during the design process. It is assumed that preparation and attendance of up to two (2) meetings will be included as part of this task. Technical design support will be provided per Task 5.0.

4.0 FRANCHISE UTILITY COORDINATION (PHASE 1)

4.1 Prepare Updated Utility Coordination Plan

The CONSULTANT will prepare an updated spreadsheet/matrix summarizing utility conflict locations and actions to be taken. Permit requirements for each location will be included in the matrix. The CONSULTANT will also prepare an updated Comprehensive Utility Coordination Plan to show all existing and proposed utilities within the Phase 1 trail corridor.

Deliverables

- Updated Spreadsheet/matrix summarizing utility conflict locations
- Updated Utility Coordination Plan

4.2 Coordination/Meetings with Franchise Utilities

The CONSULTANT will continue communications with franchise utility companies (power, gas, telecommunications, etc.) to verify locations of existing facilities and to discuss any potential relocation requirements, cost, schedule and recommendations on location of new facilities. The CONSULTANT will also coordinate with other COUNTY departments as needed to coordinate COUNTY utility locations within the project limits. It is anticipated that up to two (2) additional utility coordination meetings will occur with franchise or COUNTY utilities that are determined to have conflicts or require relocation. The focus of Task 4.2 will be on the Phase 1 portion of the project.

5.0 FINAL ENGINEERING – SUPPLEMENTAL/UPDATES

5.1 Respond to Additional (90% and 95%) COUNTY comments

The CONSULTANT will respond to additional design review comments received by the COUNTY based on an additional review cycle and new reviewers. The CONSULTANT will provide a response to updated comments received and will incorporate design revisions where appropriate. The response to COUNTY comments will be focused on the Phase 1 portion of the project. General comments that apply to the full trail corridor will also be updated for the Phase 2 and Phase 3 portions of the project.

5.2 Design Revisions for Phase I – Changed Existing Conditions

Existing conditions within the Phase 1 project limits have changed since design was started and since design was completed to a 90% level. Several new developments along Filbert Road have added frontage improvements that will require modification of the current design and/or additional demolition and revision of the changed existing conditions. Task 5.2 provides design hours to modify the design to respond to changed existing conditions.

5.3 Prepare Raingarden Planting/Landscape Plan for Phase I

The COUNTY is providing the overall planting/landscape design for the project. The CONSULTANT will prepare the planting/landscape plan for Raingardens 1, 2, and 3, so that they are fully integrated with the overall grading and stormwater plans. The raingarden design will be limited to the Phase 1 project limits.

Deliverables

- Planting/Landscape Plans for Phase I Raingardens (1,2, and 3)

5.4 Complete 100% PSE for Phase I Package

The CONSULTANT will prepare 100% PSE for the proposed Phase 1 project as part of a separate package. Plans will be prepared to current COUNTY standards. The 100% PSE will incorporate revisions resulting from additional COUNTY review comments and other revisions described per this Supplement. Plans will be prepared at a horizontal scale of 1" =20 feet and a vertical scale of 1" =5 feet. Details will be prepared at an appropriate scale to illustrate the level of detail needed for clarity.

Deliverables

- 100% PSE for Phase I

5.5 Structural Engineering Updates – Walls and Boardwalks

The CONSULTANT will prepare 100% PSE for the proposed Phase 1 project as part of a separate package. Plans will be prepared to current COUNTY standards. The 100% PSE will incorporate revisions resulting from additional COUNTY review comments and other revisions described per this Supplement. Structural engineering updates related to walls and boardwalks will be completed per this Task.

5.6 Prepare Separate Phase 2 and Phase 3 Packages – 90% PSE

The CONSULTANT will incorporate final review comments into the current North Creek Trail design, focused on the Phase 1 Package. Once final review comments have been reviewed and incorporated, the CONSULTANT will break the project into three separate bid packages, to better facilitate phasing and construction funding. The project will be broken at logical break points to create a northern, a central, and a southern phase, separated near Sprague Drive. This proposed phasing will place the North Creek Bridge into the central package. Separating the project will include creation of three separate sets of construction documents including plans, technical specifications, and engineer's cost estimates/summary of quantities. The Phase 1 Package will be covered per Tasks 5.1 to 5.6. This Task 5.7 will cover the Phase 2 and Phase 3 Packages.

Deliverables

- 90% PSE (separated):
 - Phase 2 – North Creek Bridge – Winesap Road to Waxen Road
 - Phase 3 – Waxen Road to 183rd Street SE

5.7 Prepare Shelving Memorandums for Phase 2 and Phase 3 Packages

Shelving Memorandums will be prepared for each of the Phase 2 and Phase 3 Packages describing the work that has been completed and the work left to be completed. The Memorandums will document major design decisions made and summarize work left to be completed in bulleted form. The Memorandums will also describe permitting/environmental considerations and permitting activities left to be completed.

Deliverables

- Shelving Memorandum for Phase 2 Package
- Shelving Memorandum for Phase 3 Package

6.0 CULVERT DESIGN – WAXEN ROAD CULVERT CROSSING

6.1 Project Management and Coordination

This task will include general project management and coordination with COUNTY staff by the culvert design team. The CONSULTANT will assist in scheduling project related meetings, reviews, and other coordination activities needed to keep the project moving forward.

6.2 Environmental/Permitting Coordination

The CONSULTANT will provide technical design support to support the environmental/permitting work being led and prepared by the COUNTY. An allowance has been established to provide exhibits, to furnish design data, and to calculate impacts associated with the culvert replacement work.

6.3 Structural Design/Engineering – 60%, 90% and 100% PSE

Structural design/engineering for the culvert at the Waxen Road crossing will include the following:

Design Coordination

In order to determine culvert, head wall, and wing wall geometry; culvert options; and foundation requirements the CONSULTANT's structural design staff will coordinate with other disciplines.

- a. Stream geometry – review stream simulation technical information and discuss with hydraulics engineers. Topics may include stream alignment and profile, stream width and bank grading, culvert embedment depth and scour analysis.
- b. Geotechnical coordination – review geotechnical information and recommendations and discuss with geotechnical subconsultant. Topics may include initial site investigation findings, external structure stability, bearing capacity, potential long-term settlement issues, over excavation of unsuitable foundation materials, shoring and temporary slope options, soil parameters for walls and culverts, wall and culvert loading, culvert type options and foundation type options.
- c. Permitting coordination – provide information about construction techniques, construction equipment, material quantities, and areas of impact for use in obtaining permits.

Culvert and Foundation Alternatives Structural Design and Evaluation

The CONSULTANT's structural design staff will evaluate the culvert options proposed and provide input related to cost assumptions; constructability; shoring and/or temporary excavation; impacts to adjacent structures and utilities; and considerations for head walls, wing walls, and foundations. The CONSULTANT will develop foundation options for the selected culvert options, prepare structural portions of the Culvert Alternatives Memorandum detailed in Task 6.4 and will recommend preferred culvert and foundation alternatives.

Structural Plans, Specifications and Estimate (PS&E) – 30% Plans

The CONSULTANT's structural design staff will develop plans for the preferred culvert and foundation options included in the Culvert Alternatives Memorandum at the 30% design level. 30% design level plans will include general culvert, head wall, wing wall and foundation geometry and general notes. Details for connections, steel reinforcing bars and railings will not be included.

Structural Plans, Specifications and Estimate (PS&E) – 60%, 90%, 100% and Final PS&E

The CONSULTANT will address comments from the County's review of the 30% culvert plans and provide design, plans, special provisions, and construction cost estimates for the preferred culvert and foundation at the 60%, 90%, and 100% and final design levels. The CONSULTANT will address comments after the COUNTY's review of the 60%, 90% and 100% PS&E submittals. Final PS&E documents will include stamped and signed plans and final updates to the special provisions and construction cost estimate. Design will consist of evaluating structural loads and resistance of the preferred culvert foundation, head walls, wing walls, and railing.

Assumptions

- Up to three (3) culvert options will be considered in the alternative's analysis. Culvert options may include 3- and 4-sided concrete, aluminum and steel culverts.
- Up to two (2) foundation options will be considered in the alternative's analysis. Foundation options may include shallow foundations (spread footings) or deep foundations (driven piles or drilled shafts).
- One recommended option for the culvert and one recommended option for the culvert foundation will be developed in the 30% design.
- Culvert will be constructed in a single stage. Staged construction will not be addressed.
- Additional structural tasks not included in this scope of work may be added as supplemental work for an additional fee.

Deliverables

- Structural information for the culvert and culvert foundation alternatives analysis as part of the Culvert Alternatives Memorandum detailed in Task 6.4.
- Recommended Culvert and Foundation Alternatives at 30% Design
- 60%, 90%, 100% and Final Structural Plans, Special Provisions and Construction Cost Estimates
-

6.4 Culvert Alternatives and Stream Characterization Study

Culvert Alternatives Analysis

The CONSULTANT will develop three alternative culvert crossing concepts for fish-passable culverts, following the Washington Department of Fish and Wildlife (WDFW) Water Crossing Design Guidelines (2013). The alternatives analysis will begin by performing the stream characterization study described below and

determining bankfull widths for minimum stream simulation culvert widths. The different culvert alternatives will consider alternative culvert materials and footings, in coordination with the structural design support, and the associated cost with each alternative.

The CONSULTANT will prepare and present a Culvert Alternatives Memorandum describing the culvert alternative elements, and a recommendation for a preferred culvert alternative at the 30% design. The comparison table will include costs, level of constructability challenges, private property or utility impacts, public safety, functional risk (fish habitat, flooding, sediment depositions, channel instability, etc.) and ease of permitting.

Stream Characterization Study

The CONSULTANT will perform a field investigation and record observations, gather field measurements and take digital photographs documenting stream characteristics. The evaluation includes qualitative and quantitative assessments regarding: bankfull dimensions, substrate grain size distribution, habitat type, sediment transport processes, beaver activity and man-made channel alterations. Field data will be collected to identify the spatial distribution of the following:

- Sediment sources (overland, gullies, mass failures, and stream bank erosion and in-channel deposits) with quantitative field estimates of sediment volume where possible.
- Dominant reach-scale channel processes including sediment source, transport, and deposition.
- Channel form and process using channel evolution classification, including characterization categories such as pre-modified, constructed/disturbed, degrading-incision, degrading-widening, aggrading-widening, and restabilizing.
- Relative abundance of large and small woody debris and their effects on channel stability.
- Bed material characteristics.
- Conditions at storm sewer outfalls.
- Typical channel dimensions (bankfull width and depth, stream gradient).
- Hydraulic controls/constrictions such as culverts, bridges, log-jams, etc.

Deliverables

- Alternatives Analysis Memorandum summarizing Stream Relocation and Culvert Recommendations
- Stream Characterization Study

6.5 Hydrologic Analysis and Memorandum

The CONSULTANT will review any previous hydrologic studies and basin delineations for the culverts. The CONSULTANT will develop drainage basin boundaries, land uses, and hydrologic flow rates appropriate for the culvert hydraulic analysis. The hydrologic analysis is expected to include a continuous simulation using the Department of Ecology's Western Washington Hydrologic Model (WWHM). The continuous time series of runoff and associated peak rates will become the hydrologic input for all hydraulic analyses to be performed for the culvert analysis using HEC-RAS. A hydrologic analysis technical memorandum will be completed documenting the drainage basin, and hydrologic flow rates for the culvert crossing.

Deliverables

- Hydrologic Analysis Technical Memorandum

6.6 Hydraulic Analysis and Channel Stability Analysis Report

The CONSULTANT will analyze the hydraulic performance of the existing and proposed culverts at the Waxen Road crossing, including the downstream channel, and any upstream effects, using the U.S. Army Corps of Engineer's HEC-RAS model. Hydrologic input will be imported from the HSPF analysis. The 6-month, 2-year, 10-year, 25-year, and 100-year peak flows will be modeled, and hydraulic results and profiles evaluated. The results of the modeling effort will be used to identify any potential problem areas within the project area and immediately upstream and downstream. The results will be documented in the Hydraulic and Channel Stability Analysis Report.

Stable Channel Analysis

Using input from the hydraulic analysis, a channel stability analysis will be carried out to facilitate an understanding of both the vertical and lateral stability of the existing channel and how the stability might be affected by future design changes. Sediment transport capacity will be evaluated using incipient motion calculations to identify the range of flows over which the bed material will be mobile, and then estimating the quantity of sediment that can be transported in response to those flows (sediment continuity or sediment budget

analysis). By comparing the transport capacity of the channel to estimates of the sediment supply, the vertical stability of the creek can be assessed. An evaluation of the lateral channel stability (bank erosion) will be based on information from the geomorphic assessment and quantitative information from the hydraulic and sediment transport calculations. Maintaining banks stability in the project reach is an important consideration for the project design. Adjustments to the design will be made if problems are identified.

Deliverables

- Hydraulic and Channel Stability Analysis Report

6.7 Preparation of 60% Plans for Culvert Replacement

The CONSULTANT will prepare 60% level plans for the culvert replacement. Plans will be prepared to current COUNTY standards. An anticipated drawing list for the project is attached as Exhibit A-2 showing the drawings that are anticipated at the 60% level. Plans will be prepared at a horizontal scale of 1" =20 feet and a vertical scale of 1" =5 feet. Details will be prepared at an appropriate scale to illustrate the level of detail needed for clarity. Review comments will be addressed and incorporated into the 90% plans.

Deliverables

- 60% Plans for the Culvert Replacement

6.8 Preparation of 90% Plans for Culvert Replacement

The CONSULTANT will prepare 90% level plans for the culvert replacement. Plans will be prepared to current COUNTY standards. An anticipated drawing list for the project is attached as Exhibit A-2 showing the drawings that are anticipated at the 90% level. Plans will be prepared at a horizontal scale of 1" =20 feet and a vertical scale of 1" =5 feet. Details will be prepared at an appropriate scale to illustrate the level of detail needed for clarity. Review comments will be addressed and incorporated into the 100% plans.

Deliverables

- 90% Plans for the Culvert Replacement

6.9 Preparation of 100% Plans for Culvert Replacement

The CONSULTANT will prepare 100% level plans for the culvert replacement. Plans will be prepared to current COUNTY standards. Plans will be prepared at a horizontal scale of 1" =20 feet and a vertical scale of 1" =5 feet. Details will be prepared at an appropriate scale to illustrate the level of detail needed for clarity.

Deliverables

- 100% Plans for the Culvert Replacement

6.10 Preparation of Technical Specifications (Special Provisions – 60%, 90%, Final)

Specifications will be based on the 2018 (or current) edition of the WSDOT Standard Specifications with the APWA supplement, current amendments, and County requirements. Special Provisions will address technical work, as well as issues such as inconvenience to the traveling public, allowable work hours, construction phasing, utility coordination and other items specific to the needs of the COUNTY. It is assumed that the COUNTY will provide us with a current "front-end" boilerplate that includes general conditions, the bid proposal, and the contract documents. The specifications will be prepared to adhere to State and Federal funding requirements. The 60% level specifications will include outline specifications.

Deliverables

- Technical Specifications for the Culvert Replacement

6.11 Preparation of Engineer's Estimate (30%, 60%, 90%, Final)

Engineering estimates of anticipated construction costs will be prepared at the 30%, 60% and 90% and final levels. Estimates will be prepared using historical unit prices from similar projects, other current cost data, and recent COUNTY projects. The Engineer's Estimate will be based on the Summary of Quantities.

Deliverables

- Engineer's Estimate – 30%, 60%, 90%, and Final - based on unit price bid items

ASSUMPTIONS

- Design work for Supplement No. 8 will begin in April 2019 and be completed by December 2019.
- The target date for Bid Advertisement for Phase 1 is fall 2019.
- The Phase 2 and Phase 3 portions of the project will be shelved pending construction funding. Any updates required prior to construction will be handled per amendment or new agreement.
- The County will pay for all required permit fees.
- Right-of-way acquisition will be provided by others, except as noted.
- Environmental/permitting will be provided by others, except as noted.
- Construction management support, construction administration, and/or construction inspection services are not included in this scope of work but may be added later at the discretion of the County.

GEOTECHNICAL ENGINEERING SERVICES - SUBCONSULTANT

Landau Associates, Inc., (SUBCONSULTANT), under subconsultant agreement with the CONSULTANT previously provided geotechnical engineering services to support the design of the North Creek Trail project. These services included conducting a series of subsurface explorations along the proposed trail alignment. After these services were provided, the COUNTY decided to replace an existing 24-inch-diameter corrugated metal pipe culvert that is located at the intersection of Waxen Road and 192nd Street SE. The existing culvert will be replaced by a three- or four-sided concrete fish passage culvert that will be on the order of about 60 ft. long. At the time this proposal was prepared, the span, rise, and depth to the bottom of the replacement culvert was not known.

Proposed Scope of Services

The following tasks define the SUBCONSULTANT's supplemental geotechnical engineering scope of services to support design and construction of the proposed culvert replacement project.

- Review the summary logs of the explorations that the SUBCONSULTANT prepared for the explorations that were previously advanced in the vicinity of the intersection of Waxen Road and 192nd Street SE.
- Develop geotechnical engineering conclusions and recommendations to support design of the proposed replacement culvert. The results of engineering analyses, and our geotechnical engineering conclusions and recommendations will be summarized in a signed and sealed technical memorandum. The memorandum will include:
 - A discussion of the near-surface soil and groundwater conditions previously observed in the vicinity of the proposed culvert replacement site
 - Conclusions regarding the need for temporarily dewatering the excavation when replacing the existing culvert
 - Recommendations regarding maximum allowable inclinations for temporary excavations
 - Recommendations for subgrade preparation for the replacement culvert
 - Recommendations regarding foundation support for the proposed replacement culvert, including allowable soil bearing pressure and estimates of settlement
 - Recommendations regarding lateral earth pressures on buried walls, including estimated at-rest earth pressures on the culvert and associated headwalls
 - A discussion of general construction considerations and recommendations
 - Recommendations for monitoring and testing during construction.

ASSUMPTIONS

- The subsurface information that LAI collected in the vicinity of the proposed culvert replacement project during a previous phase of this project will be sufficient to develop geotechnical design recommendations for this project, and as a result, additional subsurface investigation will not be required to support design of the replacement culvert.
- The replacement culvert will have a span of less than 20 ft., and as a result, seismic design will not be required.
- The CONSULTANT will provide the SUBCONSULTANT with a project base map in AutoCAD format.
- Construction support services are excluded from this proposed scope of services.

North Creek Trail
Hour/Fee Estimate - Supplement No. 8
Otak, Inc.
Otak Project # 32313

[illegible]

Fee Determination Summary Sheet

Project: North Creek Trail Culvert Replacement at Waxen Road

Subconsultant: Landau Associates

Direct Salary Cost (DSC):

<u>Classification (a)</u>	<u>Hours</u>	=	<u>Max Rate (b)</u>	=	<u>Cost</u>
Principal	11	X	\$213.10		\$2,344.10
Senior Associate		X	\$174.98		\$0.00
Associate		X	\$146.01		\$0.00
Senior		X	\$122.49		\$0.00
Senior Project		X	\$117.72		\$0.00
Project	44	X	\$96.70		\$4,254.80
Senior Staff		X	\$90.44		\$0.00
Senior CAD		X	\$104.98		\$0.00
Staff/Senior Technician II		X	\$102.19		\$0.00
Project Coordinator	9	X	\$93.69		\$843.21
CAD/GIS Technician	3	X	\$82.72		\$248.16
Technician		X	\$57.19		\$0.00
Support Staff		X	\$68.97		\$0.00
Total Labor Cost				=	\$7,690.27

Reimbursables:

Reproduction Expenses \$74.73

Subconsultant Total = \$7,765.00

Prepared By: S. Wright

Date: 1/24/2019

(a) Classifications shown are general, the actual invoice will show our employee's specific discipline (e.g., Senior Engineer, Senior Geologist, Senior Planner, etc.)

(b) Each category may have multiple employees assigned to that billing category and each employee may have a different hourly rate of pay.

