

CITY COUNCIL AGENDA ITEM
CITY OF SHORELINE, WASHINGTON

AGENDA TITLE:	Authorizing the City Manager to Execute a Professional Services Agreement with Osborn Consulting, Inc. in the Amount of \$1,532,094 for Design of the Barnacle and Heron Creek Culvert Projects
DEPARTMENT:	Public Works
PRESENTED BY:	Tricia Juhnke, City Engineer
ACTION:	<input type="checkbox"/> Ordinance <input type="checkbox"/> Resolution <input checked="" type="checkbox"/> Motion <input type="checkbox"/> Discussion <input type="checkbox"/> Public Hearing

PROBLEM/ISSUE STATEMENT:

Staff has identified two priority Surface Water Utility (SWU) Capital Improvement Plan (CIP) projects with many similar elements - the Barnacle Creek/NW 204th Street Project and the Heron Creek/Springdale Court NW Project. Each project includes similar elements revolving primarily on making culvert crossing improvements to address embankment stability issues for small streams located within the City’s Middle Puget Sound drainage basin. In addition, the Heron Creek/Springdale Court NW Project is to include new storm drain along with upsizing and replacement of existing pipe where necessary to alleviate flooding on Springdale Court NW and NW Ridgefield Road.

Due to the project’s similar locations and objectives, in May 2022, staff issued RFQ 10324 for Statements of Qualifications (SOQs) for a consultant team to provide engineering design, permitting, construction support and other support services for both projects under a single contract. Following the SOQ process, the selection team determined that Osborn Consulting, Inc. (OCI) is the best qualified firm to perform the work.

Staff is requesting City Council authorization for the City Manager to execute a contract with OCI to provide engineering design, permitting support, and other support services needed for the Barnacle and Heron Creek Culvert Projects in the amount of \$1,532,094.

FINANCIAL IMPACT:

This project is fully funded by the City’s SWU fund. Below is a breakdown of the budget for the consulting budget for the Barnacle and Heron Creek Culvert Projects:

Project Expenditures:

Barnacle Creek Design:

Staff and other Direct Expenses	\$ 90,000
Consultant Fee	\$ 541,084
Subtotal	\$ 631,084

Heron Creek Design:	
Staff and other Direct Expenses	\$ 90,000
Consultant Fee	\$ 811,010
Subtotal	\$ 901,010
Total Project Expenditures	\$ 1,532,094

<u>Project Revenue:</u>	
Surface Water Utility Fund	
SW Small Drainage Projects	\$ 1,532,094
Total Project Revenue	\$ 1,532,094

RECOMMENDATION

Staff recommends that the City Council authorize the City Manager to execute a professional services agreement with Osborn Consulting, Inc. in the amount of \$1,532,094 for design, permitting support and other support services for the Barnacle and Heron Creek Culvert Projects.

Approved By: City Manager **DT** City Attorney **MK**

BACKGROUND

Barnacle Creek/NW 204th Street Project

In April 2018, the City performed emergency repair work to temporarily address roadway embankment stabilization concerns for a rockery retaining wall along the west side of NW 204th Street on the downstream side of the Barnacle Creek culvert crossing. The repair was located just south of the three-way intersection of NW 204th Street, NW 205th Street, and 24th Avenue NW at the northern boundary of the City. The City obtained an expedited Hydraulic Permit Approval (HPA) from the Washington Department of Fish and Wildlife (WDFW) to perform work within the stream.

While the improvements were effective in addressing near-term issues, the stability of the rockery and roadway embankment and stream erosion at the culvert outfall remain long-term concerns. One of the conditions of the expedited HPA was that the City needed to make a preapplication for a Standard HPA for a longer-term solution to the erosion and stability issues no later than April 30, 2023.

As an emerging need in late 2018, this project had not been evaluated under the 2018 Surface Water Master Plan (SWMP) and accordingly appears as an “underfunded project” in the City’s 2021-2026 CIP. Since then, the Surface Water Utility (SWU) has recognized this project as a high priority and budgeted for this project to begin design in 2022 with construction scheduled for 2024. The City’s 2023-2024 biennial budget and 2023-2028 CIP will formalize the committed funding for this project.

Heron Creek/Springdale Court NW Culvert and Stormwater Improvements Project

The City’s 2016 Puget Sound Drainage Basin Plan identified the two new SWU CIPs (under Section 5.2.2) to address needs within the Heron Creek drainage basin in the vicinity of Ridgecrest Road NW and Springdale Court NW. In recognition of close proximity and overlapping interests of these two Heron Creek-related potential CIPs, the City merged these two projects into a single, combined project under the 2021-2026 CIP while also delaying the schedule by one year due to staffing resource limitations, and the need to prioritize the Barnacle Creek project. As paraphrased from the Puget Sound Drainages Basin Plan project descriptions, the two projects are defined below:

Springdale Court NW & NW Ridgefield Road Drainage Improvements (PSB-CIP-8)
Infrastructure replacement and upgrades needed to alleviate flooding on Springdale Court NW and NW Ridgefield Road include: replacement of broken pipe, upsizing of pipe, regrading of ditches and installation of new storm drain.

Heron Creek Culvert Crossing at Springdale Court NW (PSB-CIP-13)

The Heron Creek culvert crossing at Springdale Court NW and the retaining wall at the outfall of the culvert are failing. This project proposes replacing the existing 18-inch-diameter reinforced concrete culvert with a new culvert.

Per the 2021-2026 CIP, design is scheduled to start for this project in 2023, with construction expected to occur in 2025 and 2026.

DISCUSSION

Due to these project's similar locations (see Project Vicinity Map in Attachment A) and objectives, in May 2022, staff issued RFQ 10324 for Statements of Qualifications (SOQs) for a consultant team to provide engineering design, permitting, construction support and other support services for both projects under a single contract. Four qualified consultant teams submitted Statements of Qualifications (SOQs) prior to the May 24, 2022, deadline: Osborn Consulting, Inc., Gray & Osborne Inc., Otak, and WSP USA. The SOQs were evaluated based on approach, experience and expertise, and additional insight of the consultant team, and the OCI team was selected as best-qualified firm for this work.

Staff developed a scope of work and negotiated an agreement with OCI to provide engineering design and permitting services for this work in an amount of \$1,532,094. Professional services provided include civil and geotechnical engineering, environmental review, permitting support, hydrologic and hydraulic analysis, cultural resources, surveying, and constructability review. The contract scope of work (Attachment B) includes tasks for project management, site investigation, alternatives development and selection, preliminary design, final design, permitting, and construction support. A management reserve amount is also included.

COUNCIL GOAL(S) ADDRESSED

This project addresses Council Goal #2: Continue to deliver highly valued public services through management of the City's infrastructure and stewardship of the natural environment. This project will meet this goal by repairing and replacing failing and inadequate infrastructure for small streams at two SWU CIP project sites.

RESOURCE/FINANCIAL IMPACT

This project is fully funded by the City's Surface Water Utility fund. Below is a breakdown of the Consulting Budget for the Barnacle and Heron Creek Culvert Projects:

Project Expenditures:

Barnacle Creek Design:	
Staff and other Direct Expenses	\$ 90,000
Consultant Fee	\$ 541,084
Subtotal	\$ 631,084
Heron Creek Design:	
Staff and other Direct Expenses	\$ 90,000
Consultant Fee	\$ 811,010
Subtotal	\$ 901,010
Total Project Expenditures	\$ 1,532,094

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ATTACHMENTS

Attachment A: Barnacle and Heron Creek Culvert Projects Vicinity Map
Attachment B: Osborn Consulting, Inc. Contract #10324 Scope of Work

Attachment A: Vicinity Map

Barnacle and Heron Creek Culvert Projects

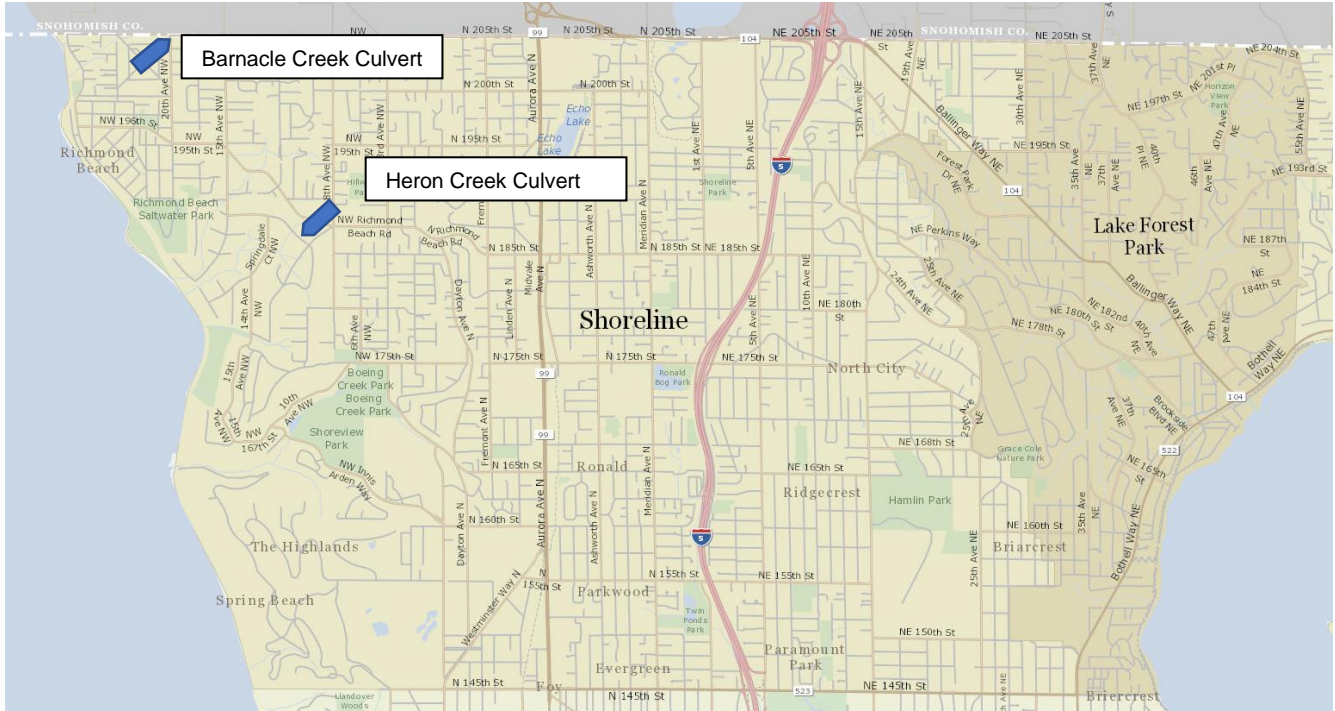


Exhibit A - Scope of Services

Project:	Barnacle Creek and Heron Creek Culvert Replacement Projects
Consultant:	Osborn Consulting, Inc. (OCI)
Contract No.:	

Background

The City of Shoreline (CITY) identified two priority Capital Improvement Projects (CIP) with many similar elements, including culvert crossing improvements to address embankment stability issues for small streams within Puget Sound drainages in the northwest area of the city.

Barnacle Creek Culvert Project: In April 2018, the CITY performed emergency repair work to temporarily address roadway embankment stabilization concerns for a rockery retaining wall along the west side of NW 204th Street on the downstream side of the Barnacle Creek culvert crossing. The CITY obtained an expedited Hydraulic Permit Approval (HPA) from the Washington Department of Fish and Wildlife (WDFW) to perform work within the stream. While these improvements were effective in addressing near-term issues, the stability of the rockery and roadway embankment and stream erosion at the culvert outfall remain long-term concerns. One of the conditions of the expedited HPA was that the City needed to make a preapplication for a Standard HPA for a longer-term solution to the erosion and stability issues no later than April 30, 2023.

Heron Creek/Springdale Court NW Culvert and Stormwater Improvements: In recognition of close proximity and overlapping interests of these two Heron Creek-related potential CIPs, the CITY merged these two separately recommended projects into a single combined project under the 2021-2026 CIP. For the Springdale Court/ Ridgefield Road Stormwater Improvements, infrastructure replacement and upgrades are needed to alleviate flooding within the project area. The Heron Creek culvert crossing at Springdale Court NW and the retaining wall at the outfall of the culvert are failing. This project proposes replacing the existing 18-inch-diameter reinforced concrete culvert with a new culvert.

The CONSULTANT scope for these projects includes data collection from existing and new field data, hydrologic and hydraulic modeling, development of an alternatives analysis and 30% through Ad-Ready design in order to replace the two culverts and install the drainage improvements for the projects. The scope also includes permitting, outreach, grant research, and construction engineering assistance.

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SCOPE OF SERVICES

Task 1 Project Management & Administration

This task covers the management, administration, and coordination of the work by the CONSULTANT defined in this CONTRACT including project management, preparation of monthly invoices, project schedule maintenance, and overall coordination with the CITY. CONSULTANT services for this task are outlined in the following sections.

Assumptions:

- The project duration for this phase of the design will be fifty-two (52) months from the date this contract is executed.
 - All submittals will be made electronically. No hard copies to be provided.
 - Deliverables under this task will be combined for the two projects.
-

1.1 Project Management Plan (PMP)

The CONSULTANT will develop a Project Management Plan to outline the key project milestones, communication protocols, other guidelines for the execution of the project. The PMP will be distributed to the CONSULTANT team at the onset of the project.

Deliverables:

- Project Management Plan (one submittal).

City Responsibilities:

- Provide City Charter document.
 - Review of Project Management Plan.
-

1.2 Develop Quality Management Plan (QMP)

The CONSULTANT will develop a Quality Management Plan to provide guidance and set the QA/QC procedures for all project deliverables to the CITY. The plan will be distributed to the CONSULTANT team at the onset of the project.

Deliverables:

- Project Quality Management Plan (one submittal).

City Responsibilities:

- Review of Quality Management Plan.
-

1.3 Management of the CONSULTANT team

The CONSULTANT will be responsible for developing the agreements for all the SUBCONSULTANTS. Direction of the SUBCONSULTANT and review of their work over the course of the project shall be provided by the CONSULTANT. Monthly monitoring of the SUBCONSULTANT's design budget will occur over the course of the project.

1.4 Project schedule

The CONSULTANT and the CITY will jointly develop an overall project schedule showing all major and supportive activities. The schedule shall be prepared to reflect a 52-month duration. The schedule shall be

arranged to meet key target dates. The CONSULTANT shall update the schedule monthly to reflect the current status of the project.

Deliverables:

- Project Schedule and Schedule Updates.

City Responsibilities:

- Coordination with CONSULTANT on project schedule.

1.5 Risk Registry

The CONSULTANT will develop and maintain a risk register to document project risks and constraints, and approaches for mitigation. The registry will be submitted to the CITY Project Manager monthly with the corresponding invoice.

Deliverables:

- Risk Registry – submitted monthly.

City Responsibilities:

- Review of Risk Registry.

1.6 Coordination with CITY

The CONSULTANT will attend bi-weekly (every two weeks) conference call meetings with the CITY Project Manager for the duration of the project (design phase) to discuss progress and upcoming milestones.

Deliverables:

- Meeting agendas, attendance, and minutes for bi-weekly conference call check-in meetings with the CITY (up to 50 total; 30 minutes each).

City Responsibilities:

- Attendance in bi-weekly meetings.

1.7 Project SharePoint site

The CONSULTANT will set up a combined SharePoint site for the two projects to allow for file sharing and collaboration between the design team and the CITY. The CONSULTANT will be responsible for the on-going maintenance and management of the site.

Deliverables:

- Project SharePoint site.

1.8 Status Reporting

Monthly invoices will be prepared by the CONSULTANT per CITY requirements for work activities for the prior month. These invoices shall also include SUBCONSULTANT work and will be accompanied by monthly progress reports and schedule updates. Invoices will include back-up material for all expenses.

The invoices will be submitted electronically with attached monthly status reports describing the following:

- Services completed during the month.
- Services planned for next month.
- Schedule update and financial status summary.

Deliverables:

- Monthly Invoices and Status Report.

Assumptions:

- Total of fifty-two (52) invoices will be prepared for the duration of the projects.
- The budget for this contract will be managed separately for each project.
- One combined invoice will be submitted per month for the two projects with the billing information presented separately for each project.

City Responsibilities:

- Review and approval of monthly invoices.

1.9 Change Management Log

Project Managers from the CITY and the CONSULTANT are responsible for managing changes to the scope and schedule. The CITY is responsible for the authorization of any changes to the scope, budget, and/or schedule. Team members must verify that work within their areas remains within the defined project scope, schedule, and budget. When issues, actions, or circumstances occur that could cause a change in scope, personnel, cost, or schedule, team members must communicate potential changes to the CITY Project Manager as early as possible. Project Managers will determine whether the potential change issue will lead to a change in scope, cost, or schedule.

The CONSULTANT shall obtain written authorization from the CITY before implementing any change to this scope of work, schedule, or budget. All changes shall be documented using the Project Change Form. The Change Management log will be submitted to the CITY Project Manager monthly with the corresponding invoice.

Deliverables:

- Change Management Log – submitted monthly.

City Responsibilities:

- Review of Change Management Log and authorization of scope changes.

Task 2 Data Gathering and Reconnaissance

The objective of this task is to collect site data that will establish a basis for the proposed culvert and stormwater design.

General Task Assumptions:

- This scope assumes that the CITY can provide the necessary Right of Entry authorizations to the CONSULTANT. The CONSULTANT will be responsible for verifying the specific private properties for which a Right of Entry authorization may be needed.
- All submittals will be made electronically. No hard copies to be provided.
- All deliverables listed are applicable for both projects and will be prepared separately for each project unless otherwise noted.
- All deliverables will undergo one round of review, unless otherwise noted, by the CITY. For each deliverable, requested changes to text will be submitted to the CONSULTANT in a file using track changes and or via a tracking form.

General City Responsibilities:

- Provide necessary right-of-entry authorizations.
- Participation in coordination meetings, as necessary.
- Review of deliverables.

Task 2A Topographic Survey

The CONSULTANT will coordinate and provide topographic survey of the project design area. CONSULTANT services for this task are outlined in the following sections.

2A.1 Horizontal and Vertical Control Network

The CONSULTANT shall establish local horizontal and vertical control points throughout the corridor for each project site for the purposes of performing surveying services, and they shall be based upon the Horizontal and Vertical Control Point Network established by the Washington State Reference Network or as otherwise specified by the CITY.

The CONSULTANT shall locate and set reference points outside of the proposed construction area for visible street survey monuments along the street corridor.

Deliverables:

- Control points will be shown on the topographic base maps deliverable noted under Task 2A.3 below, and a listing of the control points ID, northing, easting, elevation, and material make-up description.

2A.2 Establish Road and Creek Centerline Alignments and Right-of-Ways for Corridor (Base Map)

The CONSULTANT shall establish the existing centerlines and right-of-way within the corridor limits for each project site for preparation of the right-of-way base map for this project. The CONSULTANT will perform records research deemed necessary to create an accurate right-of-way. Parcel lines for adjacent properties will be shown as near as possible to their actual locations, but will be solely based upon public records, maps, and GIS data. Parcel lines will be developed sufficiently to support the easement need evaluation and acquisition process. Full boundary surveying on any parcel will not be performed, unless requested at a later date. The right-of-way centerlines and margins will be shown on the topographic base map. The base map will show located street monuments found that are used to calculate the centerlines and right-of-way margins.

Deliverables:

- Right-of-Way centerlines, margins, and survey monuments will be shown on the topographic base map deliverable noted under Task 2A.3 below.

2A.3 Topographic Survey

The CONSULTANT shall prepare a project topographic base map for each project site. The basemaps will extend approximately 250 feet upstream and downstream from the roadway culvert crossings. The creeks will be surveyed in cross-section format, on 20-foot stations (+/- 12 cross-sections upstream and 12 cross-sections downstream). The sections will be run approximately 40 ft left and right from the centerline of the creek. The survey includes the location of all trees greater than 6" DBH, and all underground utilities. The base maps will include sufficient ground data to generate a 1-foot contour interval and will incorporate right-of-way and road centerlines, property lines, driveways, parking areas, limits and type of paving, fences, structures, sidewalks, above-ground utilities and associated overhead lines, traffic signals, street

signs, channelization, landscape areas, significant trees, substantial landscaping features, wetland and stream flags.

Storm drain structures will be opened to determine pipe type, size, depth and connection invert elevations. Sanitary sewer will be plotted based on the surveyed location of manholes together with system maps to determine pipe size and connection invert elevations. The CONSULTANT will coordinate with a private utility locate vendor to arrange to have the locations of existing utilities surface marked and will request utility as-builts for the areas where improvements are planned. The CONSULTANT shall survey the locations of the painted utility locates and incorporate the lines into the base mapping.

Deliverables:

- Site mapping for each project site prepared on 22"x34" sheets at a scale of 1"=20' utilizing AutoCAD™ Civil 3D 2019 using the CONSULTANT's drafting standards.
- Civil 3D 2019 electronic drawing file for each project site.

Assumptions:

- Horizontal and Vertical Datum will be based on Horizontal = Washington State Plane Coordinate System North Zone NAD 83/11, and Vertical = NAVD-88.
- Drafting and CAD standards will comply with City Standards and based on the CONSULTANT's in-house standards.

2A.4 Permanent & Temporary Construction Easements

The CONSULTANT will prepare easement exhibits as listed:

- Up to two (2) permanent easement exhibits per project.
- Up to four (4) temporary construction easement exhibits per project.

Each easement document will include an exhibit map of the parcel together with a legal description of the easement.

Deliverables:

- Permanent and temporary construction easement exhibits

City Responsibilities:

- The CITY will lead the property acquisition process for temporary and permanent easements.

Task 2B Geotechnical Evaluation and Exploration/Testing

The CONSULTANT's geotechnical contribution to the project will include review of existing data, subsurface explorations, and geotechnical laboratory testing, and geotechnical support for preliminary and final design.

2B.1 Desktop Review and Subsurface Exploration Program

The CONSULTANT shall begin with reviewing existing subsurface data in the project vicinity to provide background understanding of the site and geologic conditions in the vicinity of each project site. Preparation for subsurface exploration efforts is included under this task. This includes internal project team coordination and preparation of a site-specific health and safety plan. It also includes an initial visit to each project site to assess existing conditions and mark potential exploration locations based on an understanding of the Project goals and access. The CONSULTANT will coordinate one-call public utility locates at least

3 business days in advance of the explorations and coordinate with a private utility locator to clear the proposed exploration areas prior to drilling.

The CONSULTANT will conduct subsurface explorations through a one-day drilling program at each of the two culvert sites. The purpose of the drilling program is to develop an understanding of geologic and groundwater conditions in the vicinity of each culvert site. The drilling program will consist of two soil borings per culvert site and two borings for the Springdale and Ridgefield stormwater improvement areas upstream of the Heron Creek culvert, using a truck-mounted drilling rig, operated by a subcontractor. The soil borings will be advanced using hollow stem auger methods under the supervision of the CONSULTANT's field representative. The borings will be completed to a depth of approximately 40 feet below ground surface, or until 10 feet into competent bearing soils, whichever comes first. If groundwater is encountered within the explorations, one of the two borings per culvert site will be completed with a screened well and a pressure transducer ("diver") to continuously monitor groundwater levels.

Soil samples will be collected at 2.5- to 5-foot intervals using Standard Penetration Test (SPT) methods. Soil cuttings will be drummed and removed from the Site. The monitoring well will be installed in accordance with Department of Ecology (Ecology) regulations. The other boring will be backfilled with bentonite chips in accordance with Ecology requirements.

If a groundwater is encountered and a well is installed, the CONSULTANT will visit each site up to four (4) times to download groundwater data from the diver.

On the same day as the drilling program, at each of the culvert sites, the CONSULTANT will conduct up to four (4) shallow subsurface explorations with hand tools ("hand auger explorations") at the base of the roadway embankments. The explorations will be completed to 5 feet bgs or to practical refusal, whichever occurs first. Relative density of the on-Site soils will be determined using a hand-held steel probe ("T-probe"). The hand auger explorations will be backfilled with excavated soils.

Assumptions:

- The subsurface exploration program for both Barnacle Creek and Heron Creek projects will be performed within the same timeframe (generally, within 1-2 weeks of each other).
- The CONSULTANT will participate in up to two (2) planning meetings per project site (up to 1 hour of project manager time per meeting) to coordinate the exploration phase.
- The explorations will be performed within the asphalt-paved roadway along the culvert alignment, and on the City right-of-way (ROW). The City will not charge or will waive the permitting fee for ROW access approval for the explorations. Traffic control will be required, and traffic control subcontractors will be managed by the CONSULTANT.
- The exploration areas will be clear of utilities. If utilities are found at the proposed exploration areas that may impede work, we will make minor reasonable adjustments to the affected proposed exploration area.
- If groundwater is encountered, a diver monitor will be installed within the well installation. The diver will be programmed to collect continuous data over the course of a year. The CONSULTANT will perform up to four (4) site visits per project site to collect diver data throughout the design period.
- The CONSULTANT will manage their work and that of their subcontractors. Subcontractor costs include the drilling labor, equipment, and materials, traffic control, and private utility locates. Other direct costs include vehicle mileage to and from the site and field equipment.

2B.2 Geotechnical Laboratory Testing

The CONSULTANT will subcontract a geotechnical testing laboratory to perform testing on selected soil samples retrieved from the explorations. Laboratory tests may include natural moisture content, particle size analysis, and Atterberg limit tests.

Assumptions:

- Subcontractor costs include the geotechnical testing laboratory. No other direct costs are assumed.

2B.3 Geotechnical Support for Preliminary Design

Using the results of the exploration program and laboratory testing, the CONSULTANT will perform geotechnical analysis to inform design of the project elements and produce a preliminary geotechnical engineering report to document findings, results, and conclusions and recommendations in support of preliminary (30 percent) project design for each site. The preliminary geotechnical report will include for each project area:

- Characterization of Site geology and subsurface conditions across the Site.
- Logs of explorations and site and exploration map showing locations of the explorations.
- Laboratory testing results.
- Discussion of geologic hazards.
- Seismic design parameters.
- Discussion of suitable culvert foundation types, and other pertinent design elements.
- Geotechnical recommendations for construction of the proposed improvements (earthwork recommendations, groundwater control, subgrade preparation, recommendations for structural fill, etc.).

Geotechnical support under this task will also include input and review to the project 30 percent plan set for each of the project sites. The Heron Creek geotechnical evaluation will include assessment of the Springdale and Ridgefield stormwater improvement areas upstream of the Heron Creek culvert.

Assumptions:

- The CONSULTANT will participate in up to two (2) design development meetings per project site (up to 1 hour of project manager time and up to 1 hour support staff time per meeting).
- The guiding design document will be the WSDOT Bridge Design Manual.

Deliverables:

- Preliminary Geotechnical Report (one report per project site).

2B.4 Geotechnical Support for Final Design

As the project progresses through final design, the CONSULTANT will update their recommendations for each project site to tailor design recommendations to the final design. The CONSULTANT will produce a geotechnical design report per project site that will supersede the preliminary design report and include more detailed design recommendations.

Geotechnical support under this task will also include input and review to the project 60 percent and 90 percent plan sets, as well as input and review to the project specification and special provisions package for

each project. The Heron Creek geotechnical evaluation will include assessment of the Springdale and Ridgefield stormwater improvement areas upstream of the Heron Creek culvert.

Assumptions:

- The CONSULTANT will participate in up to four (4) design development meetings per project (up to 1 hour of project manager time and up to 1 hour support staff time per meeting).

Deliverables:

- Geotechnical Report (one report per project site)

Task 2C Site Visit and Analysis

A site visit will be completed for each project site to document and photograph existing site conditions 250 feet upstream and downstream of the two culverts. During each site visit, the field team will collect four (4) pebble counts and up to six (6) bankfull width measurements. The field team will identify a reference reach, if present within the site visit limits, and document mobile large woody material (LWM) presence, structures in the bed or channel that could be affected by culvert design and installation, pool-riffle spacing (if present), and existing structures or natural features, which may be detrimental to fish passage, interfere with compliance with regulations, or compromise habitat considerations. The CONSULTANT will also support the coordination and analysis associated with the fish passage determinations for the culvert design criteria. The determination will include coordination with regulators, field and desktop data analysis.

The geomorphologist will also participate in each site visit and be responsible for determining of channel and floodplain morphology, measuring bed sediment gradation, evaluate bank stratigraphy and stability, and characterize the project reach 250 feet upstream and downstream of each culvert. Prior site investigation, the geomorphologist will review Google Earth imagery, topographic maps (historic and current), available LiDAR data, GIS data and the Bankfull Width Memorandum to determine the location of steeper gradient reaches. In addition, the CONSULTANT will review the Washington Department of Fish and Wildlife Fish passage inventory, assessment, and prioritization data base to determine if any documented barriers to fish passage exist on either Barnacle or Heron Creeks. The desktop analysis will be utilized to identify specific locations to focus on during each field investigation. A Geomorphology Memorandum (draft and final) will be completed for each project documenting the existing geomorphic processes along the study areas, bank instability and characteristics, degree of channel incision, overall channel pattern, and stage of channel evolution. The Memorandum will also include recommendations for design of the fish passage structure and proposed stream channel for each site. The geomorphologist will be available to assist in development of the Conceptual Alternatives and will perform review of 30%, 60%, 90%, and final stream design plans to help verify and support that each culvert replacement design is compatible with the existing geomorphic processes.

For the Springdale Court and Ridgefield Road Drainage Improvements, the site visit will also include the confirmation of site conditions, roadway slopes, existing infrastructure, erosion issues, and other potentially relevant features along the existing and proposed system alignments.

Deliverables:

- Site photos per project site using the following naming convention:
 - Upstream (US) or Downstream (DS)_Distance from crossing (X+XX) Brief Description
i.e.: US_0+56_Pebble Count 1
- Bankfull Width Memorandum per project site (draft and final).
- Fish Passage Determination Memorandum (one submittal).
- Geomorphology Memorandum per project site (draft and final).

Assumptions:

- Assumes one round of CITY review comments prior to the finalization of the Bankfull Width Memorandum and Geomorphology Memorandum.
- The CONSULTANT team will meet with regulators during a site visit for each site in order to receive concurrence on the bankfull width determination.

Task 2D Utility Coordination

The CONSULTANT will identify potential utility conflicts and potholing needs to be covered by a potholing vendor. The initial assessment will be based on the 30% plans to be developed under Task 5. The CONSULTANT will also support the coordination with utility owners in order to resolve any conflicts prior to the finalization of the design.

Deliverables:

- Potholing of existing utilities (up to 4 potholes for Barnacle Creek and up to 10 potholes for Heron Creek/Springdale and Ridgefield)
- Coordination with utility owners – email coordination, meeting attendance, and up to two (2) exhibits identifying utility conflicts and potholing needs.

Assumptions:

- Any utility relocations needed for the projects are not covered under this scope with the exception of simple gravity sewer main relocations
- Assumes up to four (4) 1-hr meetings with utility owners.

Task 3 Permitting Support, Cultural Resources, And Environmental Review

To help guide permitting requirements and inform how design will influence the scope and scale of project permitting, the CONSULTANT team will prepare a Critical Area Report and Cultural Resources Report per project site.

The projects are also anticipated to require preparation and submittal of the permits outlined in Task 3C to comply with the federal, state, and local environmental regulations.

Task 3A Critical Areas Investigation

For both Barnacle and Heron Creeks, preliminary work at each site will include the determination of the ordinary high-water mark (OHWM) and wetland delineation by a CONSULTANT wetland biologist. OHWM will be marked by placement of flags and GPS points within approximately 250 feet upstream and downstream of the roadway culverts. The stream channel OHWM at each site will be identified per Washington Department of Ecology’s Determining the Ordinary High Water Mark for Shoreline Management Act Compliance in Washington State (October 2016). If wetland presence is confirmed at either site, the CONSULTANT wetland biologist will flag any wetland extents with flags and GPS points, as well as document with photos and descriptions. The wetland delineation will be conducted using the 1987 Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987) as updated by the 2012 Mountains, Valleys, and Coast regional supplement. Wetland functions will be determined using the Washington State Wetland Rating System for Western Washington (Ecology 2014). Finally, OHWM and wetland boundaries will undergo post GIS processing to align field points with the other data collected under Task 2.

In accordance with City of Shoreline Municipal Code (SMC 20.80), a Critical Area Report, which documents the presence or absence of critical areas, such as geological hazards, fish and wildlife habitat,

wetlands, flood hazards, and aquifer recharges areas will be prepared for each of the projects. A preliminary Critical Area Report documenting identified critical areas within or immediately adjacent to the project area and discussing the applicable federal, state, and local requirements will be included in the Draft and Final form. The report will also include potential project effects to critical areas and corresponding mitigation sequencing (avoidance, minimization, and compensatory mitigation). A separate mitigation and monitoring plan for each site will be incorporated as part of the Critical Area Report if required.

Deliverables:

- Critical Area Report per project (Draft and Final) in electronic format.

Assumptions:

- Preliminary in-office desktop review of the project areas will be necessary to determine previously identified features and historical data. This will assist the biologists once they get into the field and become familiar with the project boundaries, previously categorized critical areas, etc.
- Field time for two biologists is expected to require one, 8-hour day to complete the delineation of critical areas per project site. Travel expenses (mileage) to and from the project sites in Shoreline, Washington from ICF's office in Seattle, Washington is also included. The site visits will be coordinated with Prime Consultant and the City.
- The CONSULTANT will not delineate on private property without authorized access. If wetlands extend onto property without access rights, the CONSULTANT will note if wetlands extend off site and stop delineating. The extent of the field work will not go beyond 250 feet up and downstream of the existing culverts and 40-feet from creek channel.
- Delineation will require the CONSULTANT to investigate up to 10 sample plots total per site.
- Field work will require delineation of not more than 3 separate wetlands or Waters of the State within 250 feet upstream and downstream of proposed project activities for each culvert site.
- Deliverable revisions assume no additional fieldwork or analysis will be required to fully address comments.
- One round of City review per project prior to preparing the Final Critical Area Reports.

City Responsibilities:

- Review of deliverables.
- Provide necessary right-of-entry.

Task 3B Cultural Resources Report

CONSULTANT cultural resources specialists will rely on the project descriptions to establish an area of potential effects (APE) for each project location. CONSULTANT will then use the APE to perform a cultural resources records review using the online Washington Information System of Archaeological and Architectural Resource Database (WISAARD). Following review of WISAARD, CONSULTANT cultural resources specialists will perform an archaeological survey and a historic built resource reconnaissance for each project site. The archaeological survey will consist of walking across the APE to inspect the ground for surface exposed archaeological deposits and features and excavating four shovel probes per site to inspect for buried archaeological deposits in areas where ground disturbance is proposed. Shovel probes are cylindrical holes that are approximately 18 inches wide and 40 inches deep. CONSULTANT will document the contents of the shovel probes and then backfill them. The historic built resource reconnaissance will consist of a cultural resources specialist inspecting both APES to determine whether historic built resources are present and document them if present.

The CONSULTANT shall prepare a cultural resources assessment report for each project consistent with Washington State Department of Archaeology and Historic Preservation (DAHP) standards. The resources to be covered include prehistoric and historic archaeological sites, historic structures, and traditional cultural properties. The cultural resources assessment report will include an introduction, description of the APE, regulatory context, environmental and cultural context, records review, methods and findings, and technical recommendations. Figures depicting the APE, resources within the APE, and field methods performed within the APE will be included as attachments to the cultural resources assessment report. The cultural resources assessment report will be written in a way that complies with the documentation requirements of Section 106 of the National Historic Preservation Act and Governors Executive Order 21-02. Following internal review, the draft cultural resources assessment report will be provided to the County and WDFW for review. Upon receipt of comments from the CITY and WDFW, CONSULTANT will review the cultural resources assessment report and provide it to the CITY for final distribution to WDFW.

Deliverables:

- Draft and final cultural resources assessment report and associated figures and appendices in electronic format for each project.

Assumptions:

- Cultural Resources work to precede geotechnical borings and potholing.
- The CITY and WDFW will provide review on the draft cultural resources assessment report in a single consolidated set of comments.
- CITY and WDFW's comments on the draft cultural resources assessment report will be minor in nature, requiring no more than 4 hours of effort to be completed by the CONSULTANT.
- Deliverable revisions assume no additional fieldwork or analysis will be required to fully address comments.

City Responsibilities:

- Review of deliverables.
- Provide necessary right-of-entry.

Task 3C Permitting Support

To support the City of Shoreline, the project team will support preparation of the following permit materials for each project site:

1. JARPA Application
2. Hydraulic Project Approval/Fish Habitat Enhancement Form
3. Endangered Species Act Compliance
4. SEPA Checklist

The CONSULTANT's permitting lead will attend one either online or onsite permitting meeting with the CITY and WDFW and representatives from Tribal Nations to review the comments after the submittal of the permitting documents.

General Task Assumptions:

- Project documents will specify that the contractor will prepare the Stormwater Pollution Prevention Plan for each site.

- Deliverable revisions assume no additional fieldwork or analysis will be required to fully address comments.
- The CONSULTANT will support the CITY by addressing minor questions and clarifications posed by the regulatory agencies, project redesign, additional elements or analysis.
- The CONSULTANT will provide up to eight (8) hours of support per project to the CITY related to response to agency comments on application.

City Responsibilities:

- Participation in coordination meetings, as necessary.
- Review of deliverables.
- Permit fees, if any, will be paid by the CITY.

3C.1 JARPA Application

The JARPA application is used to secure Section 401 and 404 Clean Water Act Permits from Washington State Department of Ecology (401) and US Army Corps of Engineers (404). CONSULTANT will complete all sections of the JARPA form for each of the project sites, not including signatures and other landowner / agent details. This Task includes coordination with CONSULTANT Team and the CITY to prepare the permit drawings, project description, purpose and need statement, and coordination to define volumes of material and areas of cut and fill anticipated in or around each of the project sites. This task includes one (1) agency coordination meeting per project.

Deliverables:

- Engineering drawings, following Corps requirements, for submission with the JARPA application for each site.
- Pre-filing meeting request to the Department of Ecology 30 days prior to JARPA submittal for each site.
- Preparation of permit package for the JARPA (Draft and Final) in electronic format for each site.
- Attendance of one (1) agency coordination meeting by up to four (4) consultant team members for a maximum of two (2) hours for each site.

Assumptions:

- The level of detail described in the JARPA application will be commiserate with the complexity of the Project work.
- Corps 404 Individual permit will not be required and a NWP 43, Stormwater Management Facilities, or NWP 27, Aquatic Habitat Restoration, Enhancement, and Establishment Activities, will be acceptable.
- All calculations of design quantities (ex. fill and excavation of materials below OHWM), and other engineered dimensions necessary to complete JARPA section shall be provided by the Prime Consultant.
- The 60% Plans will be modified for use as the JARPA drawings / Permit Plan set in accordance with the USACE Drawing Checklist (DrawingChecklist-v20191209.pdf (army.mil)).

City Responsibilities:

- The CITY will be the primary contact for coordination with regulatory agencies.

- The CITY will sign and submit the JARPA application package to permitting agencies.

3C.2 Hydraulic Project Approval

Under the Washington State Hydraulic Code, a Hydraulic Project Approval (HPA) is required from WDFW for any changes to a stream that may affect hydrology downstream (Washington Administrative Code [WAC] 220-660). The CONSULTANT will complete and submit an HPA or Fish Habitat Enhancement application using the WDFW APPS online system. Prior to HPA submittal, three (3) agency coordination meetings with representatives from WDFW and the Tribal Nations, will be held to receive input on project design and fish protection.

Deliverables:

- Preparation of permit package for the HPA or Fish Habitat Enhancement (Draft and Final), in electronic format, one per site.
- Attendance of three (3) agency coordination meetings by up to four (4) CONSULTANT team members for a maximum of two (2) hours – for each of the two sites.

Assumptions:

- Information synthesized in the JARPA and other project documentation will be used to complete the HPA - streamlining level of effort needed to complete Task 3C.2.

City Responsibilities:

- The CITY will be the primary contact for coordination with WDFW.
- The CITY will complete and sign the Authorizing Agency form allowing ICF to submit the HPA through APPS on their behalf.

3C.3 Endangered Species Act Compliance

The culverts are located on streams in a highly developed urban environment. Due to the developed nature of the project site, habitat special status species are determined to be not present, and the species are not likely to occur. However, based on consultation with WDFW and previous field work, both streams were documented as fish-bearing with the potential to indirectly affect ESA-listed fish or habitat documented downstream of the project. Therefore, it is expected a Biological Assessment will be required to document if ESA-listed species or critical habitat will be affected either directly or indirectly by the project. ICF will draft a Biological Assessment or No Effect Letter describing the project along with reasoning for why the project would not affect ESA-listed species and comply with the National Marine Fisheries Service and U.S. Fish and Wildlife Service (USFWS) (joint biological opinion, WCR-2014-1857).

Deliverables:

- Biological Assessment for ESA-listed species (Draft and Final) in electronic format, one for each of the two sites.
- Attendance of one (1) agency coordination meeting by up to four (4) consultant team members for a maximum of two (2) hours – for each of the two sites.

Assumptions:

- Consultation with federal and state agencies will be required.

3C.4 SEPA Checklist

CONSULTANT will prepare a SEPA Checklist for the culvert replacement projects based on project details and site information provided by the CITY, information collected during Tasks 2 and 3, and publicly available information.

Deliverables:

- SEPA Checklist (Draft and Final) in electronic format for each of the two sites.
- Attendance of one (1) agency coordination meeting by up to two (2) consultant team members for a maximum of two (2) hours – for each of the two sites.

Assumptions:

- The level of detail described in the SEPA checklist will be commensurate with the complexity of the work, which is a relatively minor light replacement project.
- CONSULTANT will collect and review existing information from publicly available sources, as well as information collected under Task 2 and 3 of this Scope of Work - streamlining the level of effort needed to complete this task.
- The City of Shoreline is the SEPA lead agency and is responsible for making the SEPA determination and issuing the SEPA checklist.
- It is assumed the SEPA lead agency will make either a Determination of Nonsignificance or a Mitigated Determination of Nonsignificance for the proposed projects, indicating that an Environmental Impact Statement (EIS) will not be required.

3C.5 Additional Permitting Support

CONSULTANT will support the development of the permit applications for up to two (2) City of Shoreline permits for the work proposed within private parcels. Applicable City permits could include the Clearing and Grading Permit and the Critical Areas Special Use Permit.

Deliverables:

- Up to two (2) applications for City of Shoreline permits. Includes completion of corresponding checklists and supporting material.
- Attendance of one (1) pre-application meeting by up to two (2) consultant team members for a maximum of one (1) hour – for each of the two projects.

Assumptions:

- Permit applications under this task will be developed only for the work proposed outside of the public right-of-way.
- Materials such as plan sheets and the Critical Areas Report, developed for other tasks will be used with minor adjustments for the permit applications.
- If a Stormwater Pollution Prevention Plan (SWPPP) is required, then this scope assumes the SWPPP Short Form will be utilized.

City Responsibilities:

- Participation in coordination meetings, as necessary.
- Review of deliverables.

- Permit application submittal and corresponding fee payment.

Task 4 H&H Modeling

This task will include the review and appropriate revision of any existing available hydrology models. The peak annual flows will be calculated for both Barnacle and Heron Creeks for the 2- through 500-year (including 2.3-year) recurrence intervals. In addition to the existing flows, the year 2080 climate change impacted flow will be calculated using a simple factor as determined from the Washington State Department of Fish and Wildlife (WDFW) Culverts and Climate Change web application. Data from the recently installed gauges at the two streams will be utilized to create rating curves for the two sites.

An SRH-2D or HEC-RAS 1D hydraulic model will be developed to simulate the existing and proposed condition for each site. The limits of the hydraulic model will extend approximately 300-feet upstream and downstream of each culvert. The design flows extracted from the hydrology model will be incorporated into the hydraulic model using a steady state analysis. The hydraulic models will be updated as the design progresses (through Tasks 5 and 6) to capture the most current culvert and stream design. As part of this task, hydraulic model results will be used to perform the following:

- Streambed material sizing calculations
 - Unit-Discharge Bed Design (slopes > 5%) or Modified Shields Approach (slopes < 5%).
- Large woody material quantity and volume calculations
 - WSDOT Log Metrics Calculator, version 3.
- Large woody material stability calculations
 - United States Forest Service Computational Design Tool for Evaluating the Stability of Large Wood Structures, version 1.2.
- Scour calculations; scour mechanisms to be assessed using the 100-year and 500-year flow events to include:
 - Contraction scour
 - Clear-water and live-bed methodology provided in United States (US) Federal Highway Administration (FHWA) Hydraulic Engineering Circular (HEC) 18: *Evaluating Scour at Bridges*
 - Abutment scour
 - NCHRP methodology provided in HEC 18
 - Bend scour
 - Methodology provided in the Thorne equation
 - Long-term aggradation and degradation
 - Methodology provided in HEC 20: *Stream Stability at Highway Structures*
 - Calculations to assume no upstream sediment source.

Modeling of the Springdale Court and Ridgefield Road Drainage Improvements conveyance systems shall be conducted using PCSWMM. A Hydrologic and Hydraulic (H&H) Memorandum per project will document the approach and results of the H&H analysis.

Deliverables:

- Hydrologic and Hydraulic Model Documentation per project (Draft at 60%, Final at 100%), in electronic format.
- Scour Calculations per project, in PDF and excel electronic format.
- Large woody material quantity and volume calculations per project, in PDF and excel electronic format.
- Large woody material stability calculations per project, in PDF and excel electronic format.
- Streambed material sizing calculations per project, in PDF and excel electronic format.
- Electronic files of the models.

City Responsibilities:

- Provide necessary data: flow monitoring data, existing hydrologic and hydraulic models, GIS layers for stormwater, creek lines, land use, and soils as available and needed to support the above tasks.
- Participation in coordination meetings, as necessary.
- Review of deliverables.

Assumptions:

- Hydrologic model revisions are not anticipated to represent any flow control facilities in the basin.
- Existing flow rates for the creeks will be developed at the crossing locations.
- The hydraulic model will be developed using survey data and supplemented with LiDAR as needed to adequately capture design flow inundation limits within the model domain defined above.
- One proposed condition simulation will be created for the selected alternative of each project (see Task 5A).
- Proposed large woody material will be accounted for in a composite roughness coefficient, proposed wood placements will not be explicitly modeled.
- There will be one-round of CITY comments on the Draft Hydrologic and Hydraulic Model Documentation prior to finalization.
- All submittals will be made electronically. No hard copies to be provided.
- All deliverables listed are applicable for both projects and will be prepared separately for each project unless otherwise noted.

Task 5 Project Alternatives Analysis and 30% Design

This task will focus on the alternatives analysis, selection of preferred alternative, and subsequent development of the preliminary (30% level) design for each project site.

General Assumptions:

- All submittals will be made electronically. No hard copies to be provided.
- Design will include no more than 500 linear feet of stream restoration (i.e., 250 feet upstream and 250 feet downstream).
- Design will be completed in AutoCAD and follow CONSULTANT in-house CADD standards.

- All deliverables listed are applicable for both projects and will be prepared separately for each project unless otherwise noted.
- Structural engineering involvement for this task will be limited to review of concepts/plans and cost estimating.

General City Responsibilities:

- Attendance of meetings.
- Review of deliverables.
- Provide feedback on alternatives.
- CITY will provide consolidated review comments, screened for duplicates and conflicting edits, to the CONSULTANT for the 30% Design submittal.

Task 5A Alternatives Analysis

The purpose of this task is to establish consensus on the design goals and critical components that will be incorporated in an alternatives analysis. The result of this task is the selection of a preferred alternative for each project.

5A.1 Initiation of Alternatives Development

The CONSULTANT will work with the CITY to confirm and document the project goals and design criteria. A clear problem definition will be developed based on data gathered from Tasks 2 and 3. In order for the appropriate alternatives to be developed, the CONSULTANT will perform the following:

- Kickoff meeting for the project team.
- Site visit to assess existing conditions for each site (Task 2).
- Review/apply stakeholder input.
- CONSULTANT will lead an Alternative Development Workshop for each site with CITY staff to review the preliminary findings and present suggested high-level alternatives with the goal of direction on which two alternatives to proceed with after the meeting.

Deliverables:

- Preparation for and attendance of one (1) Kickoff Meeting for each project. The CONSULTANT will prepare the agenda and minutes for the meeting.
- Preparation for and attendance of one (1) Alternative Development Workshop for each project. The CONSULTANT will prepare the agenda and minutes for the Workshop.

Assumptions:

- The Kickoff meeting will be a virtual event and last up to 1-hour.
- The analysis done during the CIP development will be relied on during this sub task. We anticipate this will occur concurrently with the survey so little new analysis will be done.
- The Alternatives Development Workshop will be a virtual event and last up to 2 hours.

5A.2 Development of Alternatives, Cost Estimates, and Evaluation Matrix

The CONSULTANT will develop up to two (2) alternatives for each of the two culverts and up to two (2) alternatives for the Springdale Court and Ridgefield Road Drainage Improvements to be evaluated by the CITY and coordinated with the regulatory stakeholders (see Task 3).

Deliverables:

- Planning Level Cost Estimates for each alternative.
- One stream plan of each proposed alternatives developed in AutoCAD Civil 3D.
- One stream profile for each alternatives developed in AutoCAD Civil 3D.
- One plan view PDF markup of a proposed detour route for each site.
- One plan view for each Springdale Court and Ridgefield Road Drainage Improvements alternative developed in AutoCAD Civil 3D.
- Evaluation Matrix for each set of alternatives.

Assumptions:

- Up to two (2) alternatives for each of the two culverts and the drainage improvements will be developed.
- No proposed condition hydraulic modeling will be completed for this task.
- Any CITY comments on the alternatives to be incorporated as part of the 30% design development (Task 5B).

5A.3 Alternative Selection Workshop

The CONSULTANT will lead a virtual workshop for the project team and CITY staff to review/discuss the Alternatives Analysis findings and suggest a preferred alternative.

Deliverables:

- Preparation for and attendance of one (1) Alternative Selection Workshop for each project site. The CONSULTANT will prepare the agenda and minutes for the Workshop.
- Alternatives Selection Memorandum for each project.

Assumptions:

- The Alternative Selection Workshop will be a virtual event and last up to 2-hour.
- The Alternatives Selection Memorandum will be a brief (2~3 page) documentation of the process, findings, and recommendation. Deliverables from 5A.2 will be included as attachments. Assumes one submittal.

Task 5B 30% Design Plans and Estimate

For the preliminary design, the CONSULTANT will design the appropriate creek and storm systems based on the selected alternative from Task 5A. A cost estimate for the preliminary design will be developed by the CONSULTANT.

A 30% Basis of Design Report will be developed to document the design criteria and summarize the 30% design. The report will include technical memos as appendices. The purpose of this report is to document the full design concept and be used as a reference as the various project phases proceed through final design.

Deliverables:

- 30% design level plans including (same for each site unless noted – assumes individual plan sets for each site):
 - Cover sheet including a vicinity map and sheet index (1 sheet).
 - General Notes (1 sheet).
 - Legend and Abbreviations (1 sheet).
 - Stream Channel Plan (1 sheet)
 - Stream Channel Profile (1 sheet)
 - Restoration Plan (up to 2 sheets)
 - Drainage plan and profile sheets
 - Up to ten (10) sheets - Heron Creek
 - Up to one (1) sheet – Barnacle Creek
- 30% design level project cost estimates.
- 30% Basis of Design Report.

Assumptions:

- Relevant codes and current design standards will be followed including the City of Shoreline Engineering Development Manual.
- The CONSULTANT drafting standards will be followed for the development of the plans.
- Review comments for the 30% submittal will be incorporated as part of the 60% design development (Task 6A).
- Large woody material details will not be included in this submittal.
- Conceptual planting schedule will be included in this submittal for review by the City of Shoreline.

Task 6 Final Design

For this task, the CONSULTANT will develop the design package through the milestones and finalize it for advertisement.

General Assumptions:

- All submittals will be made electronically. No hard copies to be provided.
- Design will include no more than 500 linear feet of stream restoration (i.e., 250 feet upstream and 250 feet downstream).
- Design will be completed in AutoCAD and follow CONSULTANT in-house CADD standards.
- CITY comments from each design phase to be incorporated into the following design phase.
- All deliverables listed are applicable for both projects and will be prepared separately for each project unless otherwise noted.
- The structural design scope will only include the culvert wingwalls/headwalls which are assumed to be cast-in-place concrete. It is assumed that the design will be similar to those depicted in the Request for Proposals (RFP).

- The culvert is assumed to be contractor designed precast concrete structure not classified as a bridge.
- Soil design conditions onsite are typical/no liquefaction risks are encountered.
- Structural shoring and dewatering design not included (by Construction Contractor, as needed)

General City Responsibilities:

- Attendance of meetings.
- Review of deliverables.
- CITY will provide consolidated review comments, screened for duplicates and conflicting edits, to the Consultant for the 60% and 90% Design submittals.

Task 6A 60% PS&E

The CONSULTANT will refine the design and associated deliverables for each project to a 60% level. The design team will attend a 30% Comment Resolution meeting between CITY staff and up to four (4) CONSULTANT staff, lasting a maximum of one (1) hour.

Deliverables:

- Comment Resolution meeting (preparation and attendance).
- 30% Comment Responses.
- 60% design level plans including (same for each site unless noted – assumes individual plan sets for each site):
 - Cover sheet including a vicinity map and sheet index (1 sheet).
 - General Notes (1 sheet).
 - Legend and Abbreviations (1 sheet).
 - Survey Control Sheets
 - Up to ten (10) plan view sheets - Heron Creek
 - Up to two (1) plan view sheet – Barnacle Creek
 - Demolition, Temporary Bypass, and TESC Sheets
 - Up to ten (10) plan view sheets - Heron Creek
 - One (1) sheet – Barnacle Creek
 - TESC and Temporary Bypass Details (1 sheet)
 - Stream Channel Plan (1 sheet)
 - Stream Channel Profile (1 sheet)
 - Stream Sections (1 sheet)
 - Stream Details (up to 2 sheets)
 - Paving Plan
 - Up to ten (10) plan view sheets - Heron Creek
 - Up to one (1) plan view sheet – Barnacle Creek

- Paving Details (1 sheet)
- Restoration Plan (up to 2 sheets)
- Restoration Details (1 sheet)
- Drainage plan and profile sheets
 - Up to ten (10) sheets - Heron Creek
 - Up to one (1) sheet – Barnacle Creek
- Drainage Details (1 sheet)
- Structural Sheets (up to 3 sheets)
- 60% design level project cost estimates.
- 60% Basis of Design Report.
- 60% Special Provisions.

Task 6B 90% PS&E

The CONSULTANT will refine the design and associated deliverables for each project to a 90% level. The design team will attend a 60% Comment Resolution meeting between CITY staff and up to four (4) CONSULTANT staff, lasting a maximum of one (1) hour.

Deliverables:

- Comment Resolution meeting (preparation and attendance).
- 60% Comment Responses.
- 90% design level plans including (same for each site unless noted – assumes individual plan sets for each site):
 - Cover sheet including a vicinity map and sheet index (1 sheet).
 - General Notes (1 sheet).
 - Legend and Abbreviations (1 sheet).
 - Survey Control Sheets
 - Up to ten (10) plan view sheets - Heron Creek
 - Up to two (1) plan view sheet – Barnacle Creek
 - Demolition, Temporary Bypass, and TESC Sheets
 - Up to ten (10) plan view sheets - Heron Creek
 - One (1) sheet – Barnacle Creek
 - TESC and Temporary Bypass Details (1 sheet)
 - Stream Channel Plan (1 sheet)
 - Stream Channel Profile (1 sheet)
 - Stream Sections (1 sheet)
 - Stream Details (up to 2 sheets)
 - Paving Plan

- Up to ten (10) plan view sheets - Heron Creek
 - Up to one (1) plan view sheet – Barnacle Creek
- Paving Details (1 sheet)
- Restoration Plan (up to 2 sheets)
- Restoration Details (1 sheet)
- Drainage plan and profile sheets
 - Up to ten (10) sheets - Heron Creek
 - Up to one (1) sheet – Barnacle Creek
- Drainage Details (1 sheet)
- Structural Sheets (up to 4 sheets)
- 90% design level project cost estimates.
- 90% Basis of Design Report.
- 90% Special Provisions.

Task 6C 100%/Ad-Ready PS&E

The CONSULTANT will refine the design and associated deliverables for each project to 100% level. The design team will attend a 90% Comment Resolution meeting between CITY staff and up to four (4) CONSULTANT staff, lasting a maximum of one (1) hour.

Deliverables:

- Comment Resolution meeting (preparation and attendance).
- 90% Comment Responses.
- 100% design level plans including (same for each site unless noted – assumes individual plan sets for each site):
 - Cover sheet including a vicinity map and sheet index (1 sheet).
 - General Notes (1 sheet).
 - Legend and Abbreviations (1 sheet).
 - Survey Control Sheets
 - Up to ten (10) plan view sheets - Heron Creek
 - Up to two (1) plan view sheet – Barnacle Creek
 - Demolition, Temporary Bypass, and TESC Sheets
 - Up to ten (10) plan view sheets - Heron Creek
 - One (1) sheet – Barnacle Creek
 - TESC and Temporary Bypass Details (1 sheet)
 - Stream Channel Plan (1 sheet)
 - Stream Channel Profile (1 sheet)
 - Stream Sections (1 sheet)

- Stream Details (up to 2 sheets)
- Paving Plan
 - Up to ten (10) plan view sheets - Heron Creek
 - Up to one (1) plan view sheet – Barnacle Creek
- Paving Details (1 sheet)
- Restoration Plan (up to 2 sheets)
- Restoration Details (1 sheet)
- Drainage plan and profile sheets
 - Up to ten (10) sheets - Heron Creek
 - Up to one (1) sheet – Barnacle Creek
- Drainage Details (1 sheet)
- Structural Sheets (up to 4 sheets)
- 100% design level project cost estimates.
- 100% Basis of Design Report.
- 100% Special Provisions.

Assumptions:

- This scope assumes that minor updates from the 100% PS&E will be needed to prepare the Ad-Ready package.

Task 7 Stakeholder Outreach Support

The CONSULTANT will provide as-needed assistance to the CITY for the stakeholder outreach process. At the beginning of the project, the CONSULTANT will work with the CITY to develop a simple Stakeholder Outreach Plan, which will outline key stakeholders (neighboring property owners, City Council, general public, and others). The outreach plan will include a protocol and schedule for how the community will be engaged as part of the design development process. This task will also attendance of stakeholder outreach meetings along with development of associated renderings of the design concepts.

Deliverables:

- Stakeholder Outreach Plan (one submittal).
- Attendance of up to four (4) stakeholder coordination meetings per project by three (3) CONSULTANT staff, lasting up to 2 hours each.
- Up to two (2) outreach exhibits per project (one submittal).

Assumptions:

- The CITY will lead this effort, including the scheduling of meetings and distribution/production of outreach material.
- All deliverables listed are applicable for both projects and will be prepared separately for each project unless otherwise noted.

City Responsibilities:

- Lead stakeholder outreach effort.

Task 8 Grant Application Support

The CONSULTANT will provide as-needed assistance to the CITY for the funding research and grant application process.

Deliverables:

- Assistance with funding research and grant application process.

Assumptions:

- The CITY will lead this effort with assistance from the CONSULTANT.
- Up to 40 hours per project have been budgeted for the CONSULTANT’s involvement in this task.

Task 9 Bid & Construction Support

The CONSULTANT will provide the following services only as directed by the CITY. The Consultant will provide limited engineering services during bid and construction of the projects. These services are expected to be:

- Provide bidding support.
- Review of contractor submittals.
- Response to contractors RFI's.
- Site visit to review unforeseen conditions.
- Site visit to review installed plantings and large wood.

Deliverables:

- Submittal review comments (PDF).
- Responses to RFI's (PDF).
- Site Visits.

Assumptions:

- Only submittals non-standard items will be reviewed by the CONSULTANT.
- Respond to a maximum of 5 RFI's per project.
- CONSULTANT will visit each site a maximum of two (2) times to review unforeseen conditions and/or large wood placement.
- CONSULTANT will visit each site a maximum of one (1) time to review soil preparation for restoration areas.
- CONSULTANT will visit each site a maximum of three (3) times to review temporary irrigation system placement (if any), plant materials, and plant placement.
- CONSULTANT WILL visit each site a maximum of one (1) time to prepare the landscape/restoration punch list.

- CONSULTANT WILL visit each site a maximum of one (1) time to perform the landscape/restoration back punch.
- The CONSULTANT will provide review for 2 RFIs related to the geotechnical elements.
- The CONSULTANT will perform up to two (2) site visits during construction for items related to the geotechnical effort.