WSDOT Generic Scope of Work for Consultant Contracts —Wetland and Stream Assessment

(Updated November 2021)

**Use this document along with Task Order Documents (TODs) to contract wetland assessment work with a** qualified consultant wetland biologist**.** This scope of work also includes assessment of other aquatic habitats, including tributaries/streams/rivers, lakes, marine habitats, and tidally influenced areas, occurring within the study area. **End products of this scope include a** Wetland and Stream Assessment Report **(WSAR), and/or a** Wetland Discipline Report**.**

**Instructions**

Modify this scope to address project-specific information. Revise highlighted text with project-specific information and remove highlighting following updates or delete when not applicable. Boxes include context and considerations.

# ****Comments and Feedback****

WSDOT wetland staff are encouraged to provide input and suggest revisions to this Scope of Work for Consultant Contracts to WSDOT HQ Wetland Program Manager, Kristen Andrews.

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| **For information related to preparing scopes of work for consultant contracts or comments contact:**   * WSDOT HQ Wetland Program Manager, Kristen Andrews   ([Kristen.Andrews@wsdot.wa.gov](mailto:Kristen.Andrews@wsdot.wa.gov))   * Regional Environmental Coordinator * Lead Regional Biologist |

# Prequalified Consultants

WSDOT prequalifies consultants to provide professional services. Find more information on the [Consultant Prequalification](https://www.wsdot.wa.gov/Business/Consulting/Prequal.htm) webpage.

# Consultant Qualifications

Individual(s) conducting wetland and other waters work for all WSDOT projects must meet WSDOT’s minimum qualifications for wetland biologists. The individual(s) must have experience and training in wetland assessment including experience performing delineations, wetland ratings, wetland functions and values evaluations, applying local jurisdiction buffer requirements, and analyzing wetland impacts. Review [minimum qualifications for wetland biologists (PDF 556)](https://wsdot.wa.gov/sites/default/files/2021-10/Env-Wet-DelinWetBioMinQual.pdf) for a complete list of required qualifications.

Additionally, the individual(s) must be familiar with WSDOT guidelines found on the [Wetlands & other waters](https://wsdot.wa.gov/engineering-standards/environmental-guidance/wetlands-other-waters) webpage and Chapter 431 Wetlands in the [Environmental Manual](https://wsdot.wa.gov/engineering-standards/all-manuals-and-standards/manuals/environmental-manual).

# Attachment X Scope of Work for Wetlands and Other Waters

WSDOT PROJECT: Wetland Delineation for SR XXX Project Name Project

TOD No.: XX.X

Agreement: Y-XXXX

WSDOT Task Manager: Name, XXX-XXX-XXXX (Contact Phone)

Consultant Contract Manager: Name, XXX-XXX-XXXX (Contact Phone)

Consultant Task Leader: Name, XXX-XXX-XXXX (Contact Phone)

Task Start Date: Month Day, 20XX

Task End Date: Month Day, 20XX

Product or service to be delivered: XXX

## Introduction

On Month Day, Four Digit Year, XXX (contact name) of the Washington State Department of Transportation (WSDOT), XXX Region/Mode requested that XXX (Wetland Consultant Name) (CONSULTANT) prepare a scope of services to conduct wetland and other waters assessment including delineation(s), ratings, functions assessment, ordinary high water mark (OHWM)/high tide line (HTL) delineations, and determination of local buffer requirements under Agreement (Y- XXXX).

## Project Purpose and Description

Include short description of project and project purpose. Use a vicinity map and figure showing project start and end mile posts (MP) and area of potential effect (APE) provided by the Project Engineer Office if available, if not coordinate with WSDOT Task Manager to obtain information.

## Scope of Work Tasks

WSDOT has identified four tasks and a budget, to be prepared by CONSULTANT, to assess wetlands and other waters and to provide sufficient documentation to WSDOT for review and submittal to regulatory agencies including but not limited to the US Army Corps of Engineers, Washington State Department of Ecology, and local jurisdictions for the SR XXX Project.

Task 1 - Delineate Wetlands and Other Waters and Perform All Assessment Tasks

Task 2 - Prepare Wetland and Stream Assessment Report

Task 3 - Prepare Wetland Discipline Report, if applicable; if N/A delete and renumber tasks

Task 4 - Project Management

## Proposed Schedule and Project Duration

Duration: Month Date to Month Date, 20XX

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| Tasks and Deliverables | Estimated Completion Dates\* |
| **Task 1—Delineate and Assess Wetlands Other Waters**  –Sketch Map of Wetlands and Data Plots  –Complete All Assessment Tasks: Delineation, Rating, Functions Analysis, Applicable Buffers | Month Date, 20XX Month Date, 20XX |
| **Task 2— Prepare Wetland and Stream Assessment Report** –Draft Wetland and Stream Assessment Report –Final Wetland and Stream Assessment Report | Month Date, 20XX Month Date, 20XX |
| **Task 3—Prepare Wetland Discipline Report** –Draft Wetland Discipline Report –Final Wetland Discipline Report | Month Date, 20XX Month Date, 20XX |
| **Task 4—Project Management** – Monthly invoices, status reports | By middle of each following month |

\*The Estimated Completion Dates are based on the assumption that notice to proceed, critical project activities and information, comments on documents, and meetings will occur in a timely manner to meet the project schedule. These dates may need to be revised should unanticipated or unreasonable delays occur.

## Consultant and Professional Classifications

The principal biologist, Name, at XXX (Wetland Consultant Name) is responsible for the quality of work of the deliverables. Biologists working on WSDOT projects should meet [minimum qualifications for wetland biologists (PDF 556)](https://wsdot.wa.gov/sites/default/files/2021-10/Env-Wet-DelinWetBioMinQual.pdf) and all deliverables should be of a quality that meets standards described on the WSDOT [Wetlands & other waters](https://wsdot.wa.gov/engineering-standards/environmental-guidance/wetlands-other-waters) webpage. The following table identifies CONSULTANT staff expected to perform on this project.

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| --- | --- |
| Consultant Staff | Professional Classification |
| Names | XXX |
| Names | XXX |
| Names | XXX |
| Names | XXX |
| Names | XXX |

# Task 1 – Delineate Wetlands and Other Waters and

# Perform All Assessment Tasks

CONSULTANT will describe and document the study area and area of potential effect (APE), perform all assessment tasks including delineation of wetlands, streams, and other waters within the study area, perform wetland ratings, functional analysis, determine DNR water type for streams, and apply local buffers in accordance with guidance and methodologies presented on the WSDOT [Wetlands & other waters](https://wsdot.wa.gov/engineering-standards/environmental-guidance/wetlands-other-waters) webpage.

## Description of the Study Area

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| **Include:**   * A study area description and note if the APE is synonymous with the study area, or if the study area extends beyond the APE. * A figure showing study area and APE boundaries. Use a figure provided by the Project Engineer Office if available. If not, create a study area figure including basic map elements: scale bar, north arrow, legend, and basic pertinent project features such as state route and mile post start and end. |

For this scope of work, the study area includes all areas where wetland and stream assessment will occur and is defined as XXX feet on either side of the toe-of-slope of SR XX between milepost (MP) XX and MP XX. This study area includes the area of potential effect (APE) or project footprint, including construction limits, temporary construction easements, potential construction staging areas, and any areas with permanent or temporary impacts. Choose which scenario applies and delete the other: The APE is synonymous with the study area. OR The study area includes both the APE (where waters are delineated) and wetland reconnaissance areas beyond the APE (where waters occurring beyond the APE are reconnoitered so that regulatory buffers extending into the APE can be applied).

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| **Considerations for scoping**   * The scope should clearly describe project areas in which wetlands, streams, and other waters will be delineated (i.e., the proposed project footprint or APE). * Often, the terms study area and APE are synonymous, representing the same areas. In some cases the study area may extend beyond the APE to include reconnaissance-level documentation of wetlands and other waters, so that regulatory buffers of adjacent waters extending into the APE may be accounted for. * Wetland rating and DNR water typing for streams is required for reconnoitered waters occurring in areas beyond the APE but included in the study area, so that local buffers extending into the APE can be determined and applied. * If both delineation and reconnaissance level assessment occurs, the plan sheets need to have different line styles applied to represent the two different assessment methods applied to the documented features. * Include other aquatic habitats that occur within the study area in the scope, including streams/rivers, lakes, marine waters, tidal waters, and jurisdictional ditches. Methods for delineation will vary depending on which aquatic habitats are present. |

## Assessment Tasks

Wetland Delineation **-** CONSULTANT will delineate wetlands within the study area following the Regional Supplement to the Corps of Engineers (Corps) Wetland Delineation Manual: Arid West Region (Version 2.0) (USACE 2008), when working in Eastern Washington; or the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0) (USACE 2010), when working in Western Washington, and all WSDOT Wetland Guidelines.

OHWM/HTL Delineation - CONSULTANT will delineate other waters in the study area. Use the Corps’ [regulatory guidance letter 05-05](https://www.nap.usace.army.mil/Portals/39/docs/regulatory/rgls/rgl05-05.pdf) for OHWM identification methods for non-tidal waters. Use HTL to delineate tidally influenced waters as directed by the Seattle District of the Corp's Special Public Notice dated February 21, 2020 found on the Corps’ [News and Updates](https://www.nws.usace.army.mil/Missions/Civil-Works/Regulatory/News-and-Updates/) page. Include jurisdictional ditch centerlines on permit application drawings and describe these features in the application narrative. Other information on stream, tidal water, and ditch assessments can be found on the WSDOT [Wetlands & other waters](https://wsdot.wa.gov/engineering-standards/environmental-guidance/wetlands-other-waters) webpage.

Naming /Flagging/Sketch Maps/Survey - CONSULTANT will flag, label, and refer to wetlands and streams consistently according to [WSDOT sensitive areas naming convention (PDF 126KB)](https://wsdot.wa.gov/sites/default/files/2021-10/Env-Wet-SiteNamingConventions.pdf). CONSULTANT will flag wetland boundaries and sample points, and OHWM or HTL in the field. CONSULTANT will prepare a sketch map or aerial photo basemap for WSDOT surveyors to use. It will include location features to help place the wetlands and streams in the landscape such as roads or other helpful landmarks, wetland and streams flag locations, wetland delineation sample point locations, and summary text about color of flagging and total number of flags per feature. WSDOT will survey wetland boundaries and sample points, and any OHWM or HTL and provide CONSULTANT with the survey data in electronic format.

Wetland Rating/Stream Classification/Buffers - Unless WSDOT directs otherwise, the CONSULTANT will rate each wetland using the Washington State Wetland Rating System for Western Washington – 2014 Update (Hruby 2014) for Eastern or Western Washington. Forest Practices water types (a DNR classification system found on the DNR [Forest Practices Water Typing](https://www.dnr.wa.gov/forest-practices-water-typing) webpage) will be applied to streams and other waters. The applicable City of XXX and/or XXX County Codes will be reviewed for applicable regulatory buffer widths. Buffers associated with each wetland and stream will be indicated on plan sheets and in the WSAR. Department of Ecology’s Translating 2004 to 2014 rating scores in buffer tables, found on Ecology’s [Wetland rating systems](https://ecology.wa.gov/Water-Shorelines/Wetlands/Tools-resources/Rating-systems) webpage, can be used when local jurisdiction codes use prior ratings system versions to establish required buffer widths. Unless WSDOT directs otherwise, when wetland and stream buffers overlap, the buffer is documented as wetland buffer.

Functions - CONSULTANT will assess wetland functions using the Wetland Functions Characterization Tool for Linear Projects (Null et al. 2000), unless WSDOT directs otherwise.

Reconnaissance Beyond APE - When the local jurisdiction requires buffers or mitigation for buffer impacts, CONSULTANT will identify (wetland and stream reconnaissance, not delineation) wetlands and streams XXX feet beyond the APE to rate the wetland, classify the streams, and identify buffer widths according to local code. Unless WSDOT directs otherwise, CONSULTANT will evaluate these wetlands and streams remotely using existing information such as aerial photos, topographic maps, national wetland inventory maps (FGDC 2013), web soil survey (NRCS 2019), stream maps, and observed field conditions and landscape observations made from within the APE.

## Assumptions

Right of Entry - WSDOT will gain right of entry to the properties within the study area and inform CONSULTANT when access to the property is available.

Timing of Wetland Delineation - Timing wetland delineations with environmental conditions is critical for getting an accurate delineation, particularly on disturbed sites. If the project schedule allows schedule wetland delineations when hydrology is most likely present during the growing season as defined in county soil surveys. In Western Washington lowlands, this is typically early spring (February–April) or mid-fall (October–November). In the upper Cascades and Eastern Washington, the dates should be adjusted using the county soil survey growing season dates.

Clear field indicators in the study area should allow determination of the presence or absence of wetland hydrology during a single sampling event. The project schedule should allow the delineation to be conducted in the early spring or mid-fall.

If the project schedule requires that the delineation be completed during late spring or summer (May–September) or winter (December–mid February) in Western Washington lowlands (adjust dates for other areas), CONSULTANT should be aware that the lack of hydrology at the time of delineation could lead to potential substantive changes following subsequent review by WSDOT staff, regulatory agency staff, and possibly private landowners with property within the study area.

Wetland Hydrology - Determination of wetland hydrology won’t require hydrologic monitoring, which involves installation of shallow groundwater monitoring wells or piezometers to gather information for at least one year. Hydrologic monitoring isn’t included in this scope of work.

For some large or complicated sites, hydrologic monitoring may be necessary to inform the wetland delineation (e.g., farmed areas or floodplains). Hydrologic monitoring takes time and will likely affect the project schedule and cost. This generic scope does not include hydrologic monitoring, which could be added if needed, or included as a supplemental scope if determined necessary.

WSDOT Review and Oversight - CONSULTANT understands that WSDOT may check any or all of the delineation, rating, and functional assessment work at any time before WSDOT accepts the draft WSAR or anytime during review of the WSAR. CONSULTANT will include an allowance in the budget for purposes of meeting with WSDOT in the field to review and accept the delineation, rating, and functional assessment.

Consultant Presence During Field Review with Agencies - WSDOT may opt to include scope for CONSULTANT to be present during field verification of wetland boundaries with agency representatives (e.g. Corps of Engineers, Department of Ecology, local city or county jurisdiction).

## **Deliverable**s- submitted by CONSULTANT

Sketch Maps - Sketch maps for surveyors of all delineated wetlands, with flag numbers labeled, wetland sample point locations, and any OHWM/HTL delineation.

Summary of wetlands and other waters - A preliminary summary of wetland and other waters delineations (delineated boundaries, data sheets, wetland acreage), wetland rating, wetland functional assessment forms, stream classification, and a table documenting buffer widths.

Sketches for Survey – Sketch maps of wetland and OHWM/HTL delineation flag locations, and wetland sample points, for WSDOT review, comment, and acceptance.

## WSDOT-Furnished Materials

WSDOT will supply the following materials needed to complete this Task:

* Project description.
* Map depicting the study area boundary and APE if different.
* Recent aerial photos of the study area, if available.
* Right of entry for lands on which wetland and stream assessment will occur.
* Appropriate cultural resources clearance or information for the study area.

# Task 2. – Prepare Wetland and Stream Assessment Report

CONSULTANT will prepare a Wetland and Stream Assessment Report (WSAR), including all report elements established in the WSDOT WSAR template found on the [Wetlands & other waters](https://wsdot.wa.gov/engineering-standards/environmental-guidance/wetlands-other-waters) webpage Preliminary design tab.

## WSAR Preparation Tasks

Draft WSAR - Using the WSDOT WSAR Template, CONSULTANT will prepare a draft WSAR for WSDOT review, comments, and acceptance. Wetland analysis must address wetland acreage within the study area, wetland rating and required rating figures, Cowardin class, a summary of principal functions, and regulated buffer widths. CONSULTANT will delineate all other jurisdictional waters encountered in the study area such as streams, lakes, marine shorelines, and tidally influenced waters. Note, document jurisdictional ditches in the permit application drawings and narrative and not in the WSAR. CONSULTANT will provide information for each wetland and other aquatic resources as required by the WSDOT WSAR Template.

Edit Draft Based on WSDOT Review - CONSULTANT will address WSDOT comments and prepare a revised draft WSAR for WSDOT review, final comments, and acceptance.

Prepare Final WSAR - Upon final approval from WSDOT, CONSULTANT will submit bound hardcopies and electronic files (Microsoft Word and a master PDF) of the final WSAR to WSDOT.

Plan Sheets Documenting Wetlands and Other Waters – Wetlands, other waters, and associated buffers in the study area will be mapped and shown on plan sheets following the WSDOT permit application drawings standards. Scale of plan sheets will be shown at a minimum scale of 1”=300’, based on survey data provided by WSDOT. Wetlands will be identified on plans by their alpha-numeric designation, Cowardin classifications, rating, and wetland acreage. All wetland delineation sample points will be identified on the same plan sheets, showing sample point name and number correlated with the corresponding delineation data sheets.

OPTIONAL ITEM: CONSULTANT will attend a site visit (up to X hours) with agency representatives (e.g., Corps of Engineers, Department of Ecology, local city or county jurisdiction) to verify wetland boundaries.

## Assumptions

Editorial Review - CONSULTANT will ensure that qualified staff conduct an editorial review of the WSAR for both grammar and technical content prior to submittal to WSDOT.

Wetland Impact Analysis Excluded From Scope - Wetland impact assessment or mitigation isn’t included in this scope of services. WSDOT will develop all compensatory wetland mitigation elements at a later project phase.

WSDOT Review and Oversight- If WSDOT finds that substantial changes are necessary to the delineation work, such as wetland boundaries, field work timing, ratings, functional assessment, and/or report, WSDOT and CONSULTANT will meet to discuss causes, responsibility, and course of action to resolve the situation.

## Deliverables- submitted by CONSULTANT

Electronic Draft WSAR - One electronic draft WSAR (text in Microsoft Word format, figures in PDF format), including delineation forms, rating forms, and functional assessment forms. Surveyed jurisdictional features (wetland boundaries, sample points, OHWM/HTL, buffers) should be provided as either Microstation files bundled with the reference files, or GIS feature classes in the following coordinate system: Washington State Plane, South Zone, NAD 83 HARN, units feet.

Hardcopy and Electronic Final WSAR - One unbound, XX bound hardcopies of the Final WASR. CONSULTANT will provide one master electronic copy (Microsoft Word and PDF format) of the final WSAR, including delineation forms, rating forms and figures, and functional assessment forms.

## WSDOT-Furnished Materials

WSDOT will supply the following materials needed to complete this Task:

* WSDOT WSAR Template.
* Survey of wetland boundaries and sample points, and any OHWM/HTL after delineation sketch map is submitted by CONSULTANT and surveyed by WSDOT.
* Project area map (electronic format).

# Task 3. – Prepare Wetland Discipline Report, if applicable

For purposes of supporting a project Environmental Impact Statement (EIS), CONSULTANT will prepare a Wetland Discipline Report to describe the wetlands and other waters within the study area. CONSULTANT will rely on information from the wetland assessment to prepare the Wetland Discipline Report.

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| **Considerations for Wetland Discipline Reports**   * For projects requiring an EIS, a Wetland Discipline Report may be used in place of a WSAR. However, there are some cases when both a WSAR and a Wetland Discipline Report may be needed. Coordinate with the project team to determine the necessary documentation for a given project. * The Wetland Discipline Report author should work with the authors of other discipline reports (such as Water Resources, Vegetation, Fish and Wildlife) to ensure consistency between reports. |

## **Discipline Report Tasks**

Preliminary Evaluation of Impacts - CONSULTANT will prepare a preliminary evaluation of impacts of the proposed project on wetlands and streams within the project APE. The project design will be superimposed upon wetlands and areal impacts evaluated on the basis of intersections between wetlands and the project APE. The impact analysis will further address the importance of the affected wetlands and the severity of the impacts, including the number of acres of wetland types involved and any temporary or indirect impacts.

PROPOSE CONSERVATION MEASURES AND BMP’S - CONSULTANT will prepare a list of proposed conservation measures and BMPs, and will obtain approval of the measures from the project engineer and environmental manager prior to include in the draft discipline report.

DRAFT WETLAND DISCIPLINE REPORT - CONSULTANT will prepare a draft Wetland Discipline Report for WSDOT review, comments, and acceptance.

EDIT DRAFT BASED ON WSDOT REVIEW - CONSULTANT will address WSDOT comments and prepare a revised draft discipline report for WSDOT review, final comments, and acceptance.

PREPARE FINAL DISCIPLINE REPORT- Upon final approval from WSDOT, CONSULTANT will prepare and submit bound hardcopies and electronic files (Microsoft Word and a master PDF) of the final Wetland Discipline Report to WSDOT.

## Assumptions

Right of Entry - WSDOT will gain right of entry to the properties within the study area and inform CONSULTANT when access to the property is available.

Editorial Review - CONSULTANT will ensure qualified staff conducts an editorial review of the Wetland Discipline Report for both grammar and technical content prior to submittal to WSDOT.

Report Consistency with Other Discipline Reports - CONSULTANT will ensure consistency of technical content, BMPs, and conservation measures among the various discipline reports.

WSDOT Review and Oversight - If WSDOT finds that substantial changes are necessary to the wetland work, such as wetland mapping, impact assessment, and/or the report, WSDOT and CONSULTANT will meet to discuss causes, responsibility, and course of action to resolve the situation.

## Deliverables- submitted by CONSULTANT

Sketch Maps - Sketch maps of all delineated wetlands and sample points and any OHWM/HTL identified for surveyors (unless already submitted with WSAR).

Data Forms - Delineation data forms, rating forms and required rating figures, and functional assessment forms (electronic format) (unless already submitted with WSAR).

Electronic Draft Wetland Discipline Report - One electronic format (text in Microsoft Word, figures in PDF format) draft Wetland Discipline Report, including all elements identified in the [Wetlands Discipline Report (PDF 49KB)](https://wsdot.wa.gov/sites/default/files/2021-10/Env-Wet-DiscRptChecklist.pdf) checklist.

Hardcopy and Electronic Final Wetland Discipline Report - One unbound, XX bound hardcopies, and one master electronic copy (Microsoft Word and PDF format) final Wetland Discipline Report, including all elements identified in the [Wetlands Discipline Report (PDF 49KB)](https://wsdot.wa.gov/sites/default/files/2021-10/Env-Wet-DiscRptChecklist.pdf) checklist. Surveyed WSAR features (wetland boundaries, sample points, OHWM/HTL, buffers) should be provided as either Microstation files bundled with the reference files, or GIS feature classes in the following coordinate system: Washington State Plane, South Zone, NAD 83 HARN, units feet.

## WSDOT-Furnished Materials

WSDOT will supply the following materials needed to complete this Task:

* Project description.
* Project design and APE (electronic format) to be overlaid on wetlands map for impact analysis.
* Map depicting the study area boundary and APE if different.
* Recent aerial photos or aerial photo base map of the study area, if available.
* Right of entry for lands on which study will occur.
* Appropriate cultural resources clearance or information for the study area.
* WSAR template.
* Available Discipline Reports from other disciplines or contact information for other discipline report authors.

# Subtask 4. – Project Management

CONSULTANT will monitor project progress including work completed, work remaining, budget expended, schedule, estimated cost of work remaining, and estimated cost at completion. CONSULTANT will manage activities within total project budget. CONSULTANT will also prepare a monthly invoice and status report and submit to WSDOT.

CONSULTANT will monitor project activities for potential changes, anticipate changes whenever possible, and with WSDOT approval, modify project tasks, task budgets, and approach. CONSULTANT will inform WSDOT if any changes will impact the cost of services, scope of services, or the schedule. CONSULTANT will manage the quality control review of all work activities and project deliverables. For budget purposes, this task assumes not more than a XX-month project schedule (Month through Month 20XX).

## Deliverables- submitted by CONSULTANT

* Budget and schedule updates.
* Monthly status reports.
* Monthly invoices.

**Budget**

CONSULTANT estimates the cost to complete all Tasks of the scope of work described above will be $XXXXX as shown on the spreadsheet in Attachment XX. The spreadsheet identifies the professional classification and personnel assigned to complete each of the tasks, lists the hours of work by task and personnel, and presents the labor costs and expenses for this project. All costs have been calculated based on the WSDOT-approved hourly rates for this agreement.

CONSULTANT will be responsible for completing this Task Order (TOD XX.X) and will function as contract and project manager. CONSULTANT will notify WSDOT immediately if the information collected during the course of their work indicates the need to expand or substantially reduce their services.

WSDOT reserves the right to make partial payment for unacceptable completion of work.

# References

1. Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Vicksburg (MS): US Army Engineer Waterways Experiment Station. Technical Report Y-87-1. Available from: <https://usace.contentdm.oclc.org/digital/collection/p266001coll1/id/4530>
2. [FGDC] Federal Geographic Data Committee. 2013. Classification of Wetlands and Deepwater Habitats of the United States. Adapted from Cowardin, Carter, Golet, and LaRoe (1997). FGDC-STD-004-2013. Second Edition. Wetlands Subcommitee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington D.C. Available from: <https://www.fgdc.gov/standards/projects/wetlands/nwcs-2013>
3. Hruby, T. 2014. Washington State Wetland Rating System for Western Washington: 2014 Update. (Publication #14-06-029). Olympia, WA: Washington Department of Ecology. Available from: <https://fortress.wa.gov/ecy/publications/documents/1406029.pdf>
4. [NRCS] Natural Resource Conservation Service [Internet]. 2019. Web Soil Survey for Washington. US Department of Agriculture. Available at: <http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx>
5. Null WS, Skinner G, Leonard W. 2000. Wetland functions characterization tool for linear projects. Olympia (WA): Washington State Department of Transportation, Environmental Affairs Office. Available from: <http://www.wsdot.wa.gov/sites/default/files/2017/08/29/Env-Wet-FunctionCharacterTool.pdf>
6. [USACE] US Army Corps of Engineers. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), ed. Wakeley JS, Lichvar RW, Noble CV, editors. Vicksburg (MS): US Army Engineer Research and Development Center. ERDC/EL TR-08-28. Available at:

<https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/reg_supp/>

1. [USACE] US Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. Wakeley JS, Lichvar RW, Noble CV, editors. Vicksburg (MS): US Army Engineer Research and Development Center. ERDC/EL TR-10-3. Available at: <https://www.usace.army.mil/Missions/Civil-Works/Regulatory-Program-and-Permits/reg_supp/>