



## **RANNEY WELL DECOMMISSION**

**C.O. #972**

**AD-WORK-ENG / SW #19-001**

## **ISSUED FOR BIDDING**

**June 14, 2019**

### **DISTRICT OFFICE**

1415 Freeway Drive  
Post Office Box 1436  
Mount Vernon, WA 98273  
(360) 424-7104 -- Telephone  
(360) 424-8764 -- Facsimile

### **DISTRICT OFFICIALS**

#### Commission

Eron Berg, President  
Al Littlefield, Vice President  
Joe Lindquist, Secretary

#### General Manager

George Sidhu, P.E.

#### Engineering Manager

Mark C. Handzlik, P.E.

#### Operations Manager

Mike Fox

# Specifications and Bid Documents

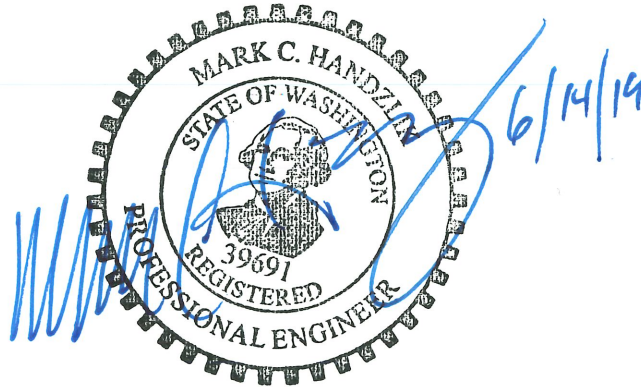
## Ranney Well Decommission

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# CERTIFICATION

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These specifications and design drawings for the **Ranney Well Decommission** have been prepared under the direction of the following Registered Professional Engineer.



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# **INVITATION TO BID**

**INVITATION TO BID  
SMALL WORKS ROSTER**

Notice is hereby given that Public Utility District No. 1 of Skagit County (District) will receive Bids from the Small Works Roster for the **RANNEY WELL DECOMMISSION**. Each bid shall be emailed to [McConnell@SkagitPUD.org](mailto:McConnell@SkagitPUD.org) or delivered to the District office, 1415 Freeway Drive, Mount Vernon, Washington 98273, to arrive no later than 10:00 AM, June 28, 2019.

**RANNEY WELL DECOMMISSION**

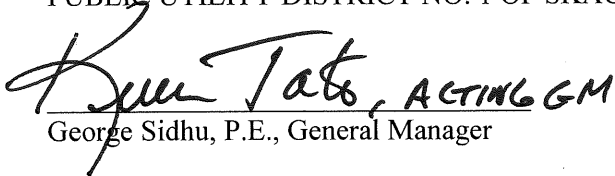
Decommissioning of Ranney well located on Skagit River Levee at 14012 Riverbend Road, Mount Vernon, Skagit County, Washington. Work includes: demolition of well house (including disposal of asbestos-containing material), removal and disposal of all appurtenances inside the well, including but not limited to plumbing, electrical, motor and pumps, capping and sealing of outlet piping and conduit from inside the well, removal of above ground portion to 4-foot below lowest existing grade. Remaining caisson to be filled with approximately 230 CY of Light Weight CDF and approximately 50 CY of Sandy Loam Clay Fill. Levee shall be restored to the original surface with specified topsoil and seed mixes.

A Pre-Bid Meeting and field visit will be held at 10:30 AM on Friday, June 21, 2019 in the Aqua Room of the District's Mount Vernon office complex at 1415 Freeway Drive, Mount Vernon, Washington and will conclude with a site visit to allow attendees access to the work site. Bidders are requested to bring their own PPE.

Construction plans, specifications, and contract documents may be viewed at the District office located at 1415 Freeway Drive, Mount Vernon, Washington 98273. Construction plans, specifications, addenda, and plan holders list for this project can be viewed or purchased on-line through Builders Exchange of Washington, Inc., at <http://www/bxwa.com>; 2607 Wetmore Avenue, Everett, WA 98201-2929, (425) 258-1303, Fax (425) 259-3832. Click on: "bxwa.com"; "Posted Projects"; "Public Works", "PUD #1 of Skagit County" and "Projects Bidding". (*Note: Bidders are encouraged to "Register as a Bidder" in order to receive automatic e-mail notification of future addenda and to be placed on the "Bidders List". This service is provided free of charge to Prime Bidders, Subcontractors and Vendors bidding this project. Contact Builders Exchange of Washington at (425) 258-1303, should you require further assistance.*) Contract documents will be available on or after June 14, 2019.

Point of Contact: Doug McConnell, Contract Administrator

PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY

  
George Sidhu, P.E., General Manager

Published: June 14, 2019 and June 21, 2019 (Skagit Valley Herald)  
June 14, 2019 (Daily Journal of Commerce)

# **INSTRUCTIONS TO BIDDERS**

## INSTRUCTIONS TO BIDDERS

### 1.01 GENERAL

The Ranney Well Decommission consists of the following:

Decommissioning of Ranney well located on Skagit River Levee at 14012 Riverbend Road, Mount Vernon, Skagit County, Washington. Work includes: demolition of well house (including disposal of asbestos-containing material), removal and disposal of all appurtenances inside the well, including but not limited to plumbing, electrical, motor and pumps, capping and sealing of outlet piping and conduit from inside the well, removal of above ground portion to 4-foot below lowest existing grade. Remaining caisson to be filled with approximately 230 CY of Light Weight CDF and approximately 50 CY of Sandy Loam Clay Fill. Levee shall be restored to the original surface with specified topsoil and seed mixes.

### 2.01 LOCATION

The District's Ranney Well is located in the Dike District #17 levee along the Skagit River, located at 14012 Riverbend Road, Mount Vernon within the County of Skagit, State of Washington as shown on the Vicinity Map.

### 3.01 EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE

Bidders shall satisfy themselves as to construction conditions by personal examination of the Plans, Specifications, other Bid Documents, and from attendance at applicable Pre-Bid Meeting to be held on June 21, 2019 at 10:30 AM at the District Office at 1415 Freeway Drive, Mount Vernon, WA 98273. Bidders shall carefully correlate their observations with the requirements of the Contract Documents, and shall otherwise satisfy themselves regarding the expense and difficulties associated with performing the Work, and shall fully account for it in their bids. The submission of a bid shall constitute a representation of compliance by the Bidder with this requirement.

### 3.03 BID DOCUMENTS

The Bid Documents for the Project include the following:

- Project Manual including General and Technical Specifications and Appendices
- Washington State Department of Transportation Standard Specifications
- Contract Drawings

### 4.01 BIDS

The project will be awarded based on the lowest responsive responsible Bidder.

Bids shall be made on the forms included herewith and shall be addressed to the Public Utility District No. 1 of Skagit County, Post Office Box 1436, 1415 Freeway Drive, Mount Vernon, Washington 98273. Each Bid shall be mailed, emailed to [McConnell@skagitpud.org](mailto:McConnell@skagitpud.org), or delivered to the Public Utility District No. 1 of Skagit County, to arrive no later than 10:00 AM



on June 28, 2019. No Bid may be withdrawn after the Bid opening or before award and execution of the contract unless the Owner does not award the contract within sixty (60) calendar days after the opening of Bids.

#### 6.01 EVALUATION OF BIDS AND AWARD OF CONTRACT

The Owner will award the Bid to the lowest responsive, responsible Bidder based on the Total Bid Amount as stated on the Bid Proposal Form. In the case of a conflict between the Total Bid Amount as stated numerically and as stated in words, the words shall take precedence.

In the case of a conflict between the quantity, unit price and unit price extension for a given bid item, the Owner will make adjustments to the unit price extensions based on the unit price. If the Bidder does not provide a unit price or a unit price extension for every bid item, the bid will be considered non-responsive.

The right is reserved by the Owner to waive any and all informality in the Bids, to reject any or all Bids, including nonresponsive, unbalanced, or conditional bids, to reject any or all schedules, to re-advertise for new Bids, or to otherwise carry out the Work. The Owner reserves the right to reject any bid that is materially unbalanced to the Owner's potential detriment. The Owner further reserves the right to delete portions of the Work.

Bids which are incomplete, or which are conditioned in any way, or which contain erasures, alterations, or items not called for in the Bid Form, or which are not in conformity with the law or these Instructions, may be rejected as non-responsive

#### 6.02 RESPONSIBILITY CRITERIA

Before the Owner awards the contract, state law is used to determine that responsible contractors and subcontractors perform the work. Bidder responsibility is determined by the Bidder successfully demonstrating its ability to satisfy the mandatory responsibility criteria and any project specific criteria established by the Owner.

To comply with the responsibility criteria for this bid, a Bidder must provide sufficient information as required. If the Bidder fails to provide the requested information within the time and manner specified in these bid documents, the Owner reserves the option to determine responsibility upon any available information related to any supplemental criteria and/or may find the Bidder not responsible. If the lowest Bidder is found not responsible, the Owner reserves the right to award to the next low Bidder without re-advertising or rebidding the project.

#### 6.03 MANDATORY RESPONSIBILITY CRITERIA

It is the intent of Owner to award a contract to the low responsible bidder. Before award, the bidder must meet the following Bidder responsibility criteria to be considered a responsible bidder. The Bidder may be required by the Owner to submit documentation demonstrating compliance with the criteria. The Bidder must:

1. Have a current certificate of registration as a contractor in compliance with chapter 18.27 RCW, which must have been in effect at the time of bid submittal;
2. Have a current Washington Unified Business Identifier (UBI) number;
3. If applicable:
  - a) Have Industrial Insurance (workers' compensation) coverage for the bidder's employees working in Washington, as required in Title 51 RCW;
  - b) Have a Washington Employment Security Department number, as required in Title 50 RCW;
  - c) Have a Washington Department of Revenue state excise tax registration number, as required in Title 82 RCW;
4. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).
5. For public works projects subject to the apprenticeship utilization requirements of RCW 3.0.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the first date of advertising for the project.

#### 6.04 SUBCONTRACTOR RESPONSIBILITY CRITERIA

Before award, the Bidder shall verify responsibility criteria for each first tier subcontractor the Contractor hires and a subcontractor of any tier subcontractor that hires other subcontractors must verify responsibility criteria for each of its subcontractors. Verification shall occur at the time of subcontract execution and shall include that each subcontractor meets the responsibility criteria listed in Section 6.03 and possesses an electrical contractor license (if required by RCW Chapter 19.28) or an elevator contractor license (if required by RCW Chapter 70.87). These verification requirements, as well as the responsibility criteria, shall be included in each of the Contractor's subcontracts of any tier. The Contractor shall certify that this verification is complete prior to contract close-out.

#### 6.06 CONTRACT TIME

The Contract completion date is an essential part of the Contract, and it will be necessary for each Bidder to satisfy the Owner of its ability to complete the Work within the time allowed. Bidders shall base their bids on utilizing the full Contract Time of 45 Calendar Days for the Work. Notice to proceed is anticipated to be issued to provide for substantial completion prior to September 30, 2019.

#### 8.01 CORRECTIONS, INTERPRETATIONS, AND ADDENDA

If Bidders find or observe any omissions, discrepancies, or need for interpretations of the Bid Documents, they shall bring such facts in writing to the attention of the Owner. Written addenda to clarify questions which arise will then be issued. Interpretations or explanations of the Contract Documents will be in the form of written addenda only. Oral statements by the Owner, Engineer, or other representative of the Owner whether made before or after award of the Contract shall in no way modify the Contract Documents.

Any requests for information or interpretation of the Bid Documents shall be made by phone or email to Doug McConnell, Contract Administrator (360) 424-7104 or mcconnell@skagitpub.org. All such requests shall be received no later than three (3) working days prior to Bid opening after which no questions regarding the work will be answered and no further addenda will be issued.

#### 11.01 BIDDER QUALIFICATIONS

All Bidders shall submit with their bids evidence of sufficient qualifications and experience for the work as specified in Bid Proposal Forms. The Owner will utilize the information submitted for the purpose of determining the responsibility of the low Bidder for determining eligibility for award.

#### 12.01 PERMITS

The Owner has obtained or will obtain the permits and approvals required for the Work as listed below. The Contractor shall comply with the provisions of all permits, approvals and easements. All other required permits or licenses (i.e. right of way permits) shall be the responsibility of the Contractor. Below is a list of the Owner-obtained permits and approvals, which are included for reference in Appendix B.

Demolition Permit – Skagit County  
WAC 173-160-381 Variance – State of WA Department of Ecology

Contractor shall obtain Demolition and Asbestos Removal Permit via the NW Clean Air Agency and provide required Notice.

Should the Contractor procure additional formal or informal access easements, rights of entry, Work or storage areas, or enter private property, he/she shall obtain and file all such private property agreements with the Owner prior to such access. The Contractor shall provide to the Owner property release forms for all Work or access on private property.

#### 13.01 PRE-BID MEETING

A Pre-Bid Meeting will be held at 10:30 AM on June 21, 2019 in the Aqua Room of the District's Mount Vernon office complex and concluding with a site visit. Attendees are requested to bring their own PPE.

END OF SECTION

## Mandatory Bidder Responsibility Checklist

The following checklist may be used by Owners in documenting that a Bidder meets the mandatory bidder responsibility criteria. It is suggested that Owners print a copy of documentation from the appropriate website to include with this checklist in the contract file.

<b>General Information</b>	
Project Name:	Project Number:
Bidder's Business Name:	Bid Submittal Deadline:
<b>Contractor Registration –</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
License Number:	Status: Active: Yes <input type="checkbox"/> No <input type="checkbox"/>
Effective Date (must be effective on or before Bid Submittal Deadline):	Expiration Date:
Is Bidder on Infraction List?	Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Current UBI Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
UBI Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Industrial Insurance Coverage –</b> <a href="https://fortress.wa.gov/lni/crpsi/MainMenu.aspx">https://fortress.wa.gov/lni/crpsi/MainMenu.aspx</a>	
Account Number:	Account Current: Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Employment Security Department Number –</b>	
Employment Security Department Number:	
<ul style="list-style-type: none"> <li>• Has Bidder provided account number on the Bid Form? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span></li> <li>• And/or have you asked the Bidder for documentation from Employment Security Department on account number? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span></li> </ul>	
<b>State Excise Tax Registration Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
Tax Registration Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Not Disqualified from Bidding –</b> <a href="http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp">http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp</a>	
Is the Bidder listed on the "Contractors Not Allowed to Bid" list of the Department of Labor and Industries? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span>	
<b>Checked by:</b>	
Name of Employee:	Date:

## Subcontractor Responsibility Checklist

The following checklist may be used by Contractors and Subcontractors in documenting that a subcontractor of any tier meets the subcontractor responsibility criteria. It is suggested that Contractors and Subcontractors print a copy of documentation from the appropriate website to include with this checklist in their contract file.

<b>General Information</b>	
Project Name:	Project Number:
Subcontractor's Business Name:	Subcontract Execution Date:
<b>Contractor Registration –</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
License Number:	Status: Active: Yes <input type="checkbox"/> No <input type="checkbox"/>
Effective Date (must be effective on or before Subcontract Bid Submittal Deadline):	Expiration Date:
<b>Current UBI Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
UBI Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Industrial Insurance Coverage –</b> <a href="https://fortress.wa.gov/lni/crpsi/MainMenu.aspx">https://fortress.wa.gov/lni/crpsi/MainMenu.aspx</a>	
Account Number:	Account Current: Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Employment Security Department Number –</b>	
Employment Security Department Number:	
<ul style="list-style-type: none"> <li>• Has Subcontractor provided account number on the Bid Form? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span></li> <li>• And/or have you asked the Subcontractor for documentation from Employment Security Department on account number? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span></li> </ul>	
<b>State Excise Tax Registration Number –</b> <a href="http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/">http://dor.wa.gov/content/doingbusiness/registermybusiness/brd/</a>	
Tax Registration Number:	Account Closed: Open <input type="checkbox"/> Closed <input type="checkbox"/>
<b>Not Disqualified from Bidding –</b> <a href="http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp">http://www.lni.wa.gov/TradesLicensing/PrevWage/AwardingAgencies/DebarredContractors/default.asp</a>	
Is the Subcontractor listed on the "Contractors Not Allowed to Bid" list of the Department of Labor and Industries? <span style="float: right;">Yes <input type="checkbox"/> No <input type="checkbox"/></span>	
<b>Contractor Licenses –</b> <a href="https://fortress.wa.gov/lni/bbip/">https://fortress.wa.gov/lni/bbip/</a>	
<u>Electrical</u> : If required by Chapter 19.28 RCW, does the Subcontractor have an Electrical Contractor's License? Yes <input type="checkbox"/> No <input type="checkbox"/>	<u>Elevator</u> : If required by Chapter 70.87 RCW, does the Subcontractor have an Elevator Contractor's License? Yes <input type="checkbox"/> No <input type="checkbox"/>
<b>Checked by:</b>	
Name of Employee:	Date:

# **BID PROPOSAL FORMS**

**BID PROPSAL FORM**

**BID TO COMMISSION**

TO: Board of Commissioners  
Public Utility District No. 1 of Skagit County, Washington

Gentlemen:

The undersigned has examined the site, specifications, plans, laws and ordinances covering the improvements contemplated. In accordance with the terms, provisions and requirements of the foregoing, the following lump sums and unit prices are tendered as an offer to perform the Work and furnish the labor, tools, equipment, materials, appurtenances, incidentals, and guarantees, where required, complete in place, in good working order.

The undersigned hereby proposes to undertake and complete the work embraced in this improvement, in accordance with the terms of the Specifications and Contract Documents, at the following lump sum and unit prices:

## BIDDER'S CHECKLIST

This Checklist has been prepared and furnished to aid Bidders in including all necessary supporting information with their Bid. Bidder's submittals shall include, but not be limited to, the following:

ITEM	CHECKED
1. Bid to Commission	_____
2. Bid Schedule	_____
3. Proposal Signature, Addenda Acknowledgement and Non-Collusion Declaration Sheet	_____
4. Subcontractor List	_____
5. Statement of Bidder's Qualifications	_____



**RANNEY WELL DECOMMISSION PROJECT**

**BID SCHEDULE**

<b>Item No.</b>	<b>Bid Schedule Description</b>	<b>Estimated Quantity</b>	<b>Unit</b>	<b>Unit Price</b>	<b>Total</b>
1	Mobilization	1	LS	\$	\$
2	SPCC Plan, TESC, Accident Prevention and Site Specific Safety Plans	1	LS	\$	\$
3	Demolition of wellhouse & removal of appurtenances	1	LS	\$	\$
4	Removal of above ground portion of well	1	LS	\$	\$
5	Seal Outlet Pipes	1	LS	\$	\$
6	Furnish and Place Light Weight CDF	230	CY	\$	\$
7	Furnish and Place Sandy Loam Clay Fill	50	CY	\$	\$
8	Site and Levee Surface Restoration	1	LS	\$	\$

**Subtotal Base Bid**    \$ \_\_\_\_\_

**Sales Tax (8.5%)**    \$ \_\_\_\_\_

**Total Bid Amount**    \$ \_\_\_\_\_

**PROPOSAL SIGNATURE, ADDENDUM ACKNOWLEDGEMENT AND NON-COLLUSION DECLARATION**

I, by signing the proposal, hereby declare, under penalty of perjury under the laws of the United States that the undersigned person(s), firm, association or corporation has (have) not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with the project for which this proposal is submitted.

SIGNATURE OF AUTHORIZED OFFICIAL(S)

NOTE: Proposal must be signed

Signature \_\_\_\_\_

Firm Name \_\_\_\_\_

Address \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_  
Washington State Contractor's License Number

Sworn to before me this \_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_

\_\_\_\_\_  
(SEAL) NOTARY PUBLIC

## SUBCONTRACTORS LIST – RCW 39.30.060 FORM

In compliance with RCW 39.30.060 for all projects estimated to cost \$1 million or more, all Bidders must complete and submit this Subcontractors List form with their Bid Proposal.

List of Subcontractors: The Bidder shall indicate on the Subcontractors List the names of the subcontractors with whom the Bidder, if awarded the contract, will subcontract for performance of the work of heating, ventilation and air conditioning, plumbing as described in Chapter 18.106 RCW, and electrical as described in Chapter 19.28 RCW.

List Bidder if Bidder Performing Work: If the Bidder will perform the work in any of the three areas required, the Bidder shall name itself for the work on the Subcontractors List.

Name Only One Form for Each Category of Work: The Bidder shall not list more than one firm (subcontractor or Bidder) for each category of work identified, unless subcontractors vary with bid alternates or additive, in which case the Bidder must indicate which firm will be used for which alternate or additive.

Substitution of Subcontractors: Substitution of any listed subcontractor may only be according to the procedure and parameters set forth in RCW 39.30.060.

Factors relating to Non-Responsiveness: Failure of the Bidder to submit the names of such subcontractors, or to name itself to perform such work, or the naming of two or more firms (subcontractor or Bidder) to perform the same work shall render the Bidder’s bid non-responsive and, therefore, void.

Applicable to Direct Subcontractors: The requirement of this section to name the Bidders’ proposed heating, ventilation and air conditioning, plumbing and electrical subcontractors applies only to proposed heating, ventilation and air conditioning, plumbing and electrical subcontractors who will contract directly with the Bidder.

Submission Requirements: The Subcontractors List must be submitted with the Bid Proposal.

Trade	<b>Bidder must check one box for each Trade. If subcontracting the work, Bidder must name the subcontractor.</b>
HVAC (Heating, Ventilation and Air Conditioning)	<input type="checkbox"/> N/A (this project does not include this work) <input type="checkbox"/> Bidder will self-perform this work <input type="checkbox"/> Name and address of subcontractor <hr/> <hr/>
Plumbing	<input type="checkbox"/> N/A (this project does not include this work) <input type="checkbox"/> Bidder will self-perform this work <input type="checkbox"/> Name and address of subcontractor <hr/> <hr/>
Electrical	<input type="checkbox"/> N/A (this project does not include this work) <input type="checkbox"/> Bidder will self-perform this work <input type="checkbox"/> Name and address of subcontractor <hr/> <hr/>

**STATEMENT OF BIDDER'S QUALIFICATIONS**

**COMPARABLE CONTRACT HISTORY**

The following is a partial list of the last five jobs our organization completed which are similar in character to this project:

Year	Project Name	Project Description	Owner Rep.	Phone No.

Name of Company: \_\_\_\_\_

Address: \_\_\_\_\_

Telephone: \_\_\_\_\_

\_\_\_\_\_ Date

\_\_\_\_\_ Signature

\_\_\_\_\_ Title

\_\_\_\_\_ Contractor's License Number

**BID BOND**

KNOW ALL MEN BY THESE PRESENTS, that we, \_\_\_\_\_

of \_\_\_\_\_  
hereinafter called the Contractor (Principal), and \_\_\_\_\_

\_\_\_\_\_ a corporation duly organized and existing under and by virtue of the laws of the State of \_\_\_\_\_ hereinafter called the Surety, and authorized to transact business within the State of Washington as Surety, are held and firmly bound unto Public Utility District No. 1 of Skagit County, Washington (Obligee) in the full and penal sum of five percent (5%) of the total bid amount appearing on the bid proposal of said principal for the work hereinafter described, for the payment of which, well and truly be made to the Owner, the Contractor and the Surety bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITIONS OF THE ABOVE OBLIGATION ARE SUCH THAT WHEREAS, the Principal herein is herewith submitting his or its bid proposal for the **RANNEY WELL DECOMMISSION PROJECT**

NOW THEREFORE, if the bid proposal submitted by the Principal is accepted, and the contract is awarded to said Principal, and if said Principal shall duly make and enter into and execute said contract and shall furnish the Performance and Payment Bond as required by the bidding and contract documents within a period of ten (10) days from and after said award, exclusive of the day of such award, then its obligation to pay the above-mentioned penal sum as liquidated damages shall be null and void, otherwise it shall remain and be in full force and effect.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Surety

By \_\_\_\_\_

By \_\_\_\_\_

Attorney-In-Fact

Title \_\_\_\_\_

Corporate Seal

Corporate Seal

The Attorney-In-Fact who executes this bond on behalf of the Surety must attach a copy of his Power of Attorney as evidence of his authority.

## Certification of Compliance with Wage Payment Statutes

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation (June 28, 2019, the bidder is not a “willful” violator, as defined in RCW 49.48.082, of any provision of chapters 49.46, 49.48, or 49.52 RCW, as determined by a final and binding citation and notice of assessment issued by the Department of Labor and Industries or through a civil judgment entered by a court of limited or general jurisdiction.

I certify under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

---

Bidder

---

Signature of Authorized Official\*

---

Printed Name

---

Title

---

Date

---

City

---

State

*Check One:*

Individual  Partnership  Joint Venture  Corporation

State of Incorporation, or if not a corporation, State where business entity was formed:

---

If a co-partnership, give firm name under which business is transacted:

---

*\* If a corporation, proposal must be executed in the corporate name by the president or vice-president (or any other corporate officer accompanied by evidence of authority to sign). If a co-partnership, proposal must be executed by a partner.*

# **AGREEMENT**

**CONTRACT NO. \_\_\_\_\_**

THIS CONTRACT is made and entered into by and between the PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY (Owner/District) and CONTRACTOR NAME (Contractor).

WITNESSETH:

WHEREAS, the Owner has caused the preparation of certain Contract Documents entitled RANNEY WELL DECOMMISSION.

WHEREAS, the Owner has invited proposals, has received and analyzed said proposals, and has duly given notice of Acceptance of Proposal to the Contractor herein set forth and as stated more in detail in the Contract Documents which are defined in Section II General Conditions, all of which Contract Documents are made a part hereof and which constitute the whole Contract between the Owner and the Contractor.

NOW, THEREFORE, it is hereby agreed that:

1. The Contractor shall furnish the work, pay all costs, and perform all requirements of this Contract in the manner specified in the Contract Documents, and;
2. The Proposal calls for unit prices and lump sums in the Bid Schedule(s) set forth in (1) above. The Owner shall pay to the Contractor a corrected Total Contract Amount computed from the unit prices and lump sums in said Bid Schedule(s) set forth in the Contractor's Proposal and the actual quantities of units furnished. Based upon the lump sum and unit prices in said Bid Schedule(s) set forth in the Contractor's Proposal and upon the quantities estimated from the Contract Drawings for bidding purposes, the estimated Total Contract Amount is (spell out dollar amount/100) Dollars (capitalize each word of the dollar amount) (\$ insert numeric dollar amount); and
3. In Washington State the Owner is required to pay state or local sales or use taxes included in the Total Contract Amount and the Contractor is required to receive the said taxes for payment to the state, the amount payable to the Contractor by the Owner shall be the Total Contract Amount as above specified including the amount of the said taxes, and;
4. It is further agreed that the Contractor will start work within ten (10) Calendar days after the date specified in the Owner's Notice to Proceed and shall be substantially complete within 45 consecutive calendar days from the date of Notice to Proceed is issued, and;

In the event that the Contractor fails to substantially complete the Project by the date of substantial completion as specified above or as modified by Change Order, the Contractor shall be liable for liquidated damages of Five Hundred Dollars (\$500) per calendar day thereafter until the Owner determines the Project to be substantially complete, and;

5. The attached Indemnification Agreement is hereby made part of this Contract.



IN WITNESS WHEREOF, two identical counterparts of this Contract, each of which shall for all purposes be deemed an original hereof, have been duly executed by the parties hereto.

(CONTRACTOR name here)

PUBLIC UTILITY DISTRICT NO. 1  
OF SKAGIT COUNTY, WASHINGTON

By \_\_\_\_\_  
(Name, Title here)

By \_\_\_\_\_  
George Sidhu, P.E., General Manager

Date \_\_\_\_\_

Date \_\_\_\_\_

## INDEMNIFICATION AGREEMENT

The Contractor agrees to defend, indemnify, and hold the District harmless from any and all claims, demands, losses, and liabilities to or by third parties arising from, resulting from, or connected with work performed or to be performed under this Contract by the Contractor, its agents, employees, and subcontractors, even though such claims may prove to be false, groundless or fraudulent, to the fullest extent permitted by law and subject to the limitations provided below.

The Contractor's duty to indemnify the District shall not apply to liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the sole negligence of the District or the District's agents or employees. The Contractor's duty to indemnify the District for liability for damages arising out of bodily injury to persons or damage to property caused by or resulting from the concurrent negligence of Contractor, its agents, employees, or subcontractors and/or the District or the District's agents or employees, shall apply only to the extent of negligence of Contractor, its agents, employees, or subcontractors.

With respect to claims against Contractor by the District pursuant to this Contract only, Contractor expressly waives any immunity that may be granted it under the Workers' Compensation, Industrial Insurance or like statutes and/or any administrative regulations issued pursuant thereto. This waiver does not include or extend to any claims by Contractor's employees directly against Contractor.

Further, Contractor's defense and indemnification obligations under this Contract shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable to or for any third party under Workers' Compensation, Industrial Insurance or like statutes and/or any administrative regulations issued pursuant thereto.

Contractor's duty to indemnify the District for liabilities or losses, other than for bodily injury to persons or damage to property caused by or resulting from negligence, shall apply only to the extent of the fault of Contractor, its agents, employees, or subcontractors, except in situations where fault is not a requirement for liability, in which case indemnity will be provided to the extent the liability or loss was caused by Contractor or its agents, employees, or subcontractors.

Contractor's duty to defend, indemnify and hold the District harmless shall include, as to all claims, demands, losses and liabilities to which it applies, the District's actual attorneys' fees and costs incurred in connection with defending such claim(s) including, without limitation, consultant and expert witness fees and expenses and personnel-related costs in addition to costs otherwise recoverable by statute or court rule.

**THE UNDERSIGNED HEREBY CERTIFY THAT THIS AGREEMENT WAS MUTUALLY NEGOTIATED.**

CONTRACTOR

PUBLIC UTILITY DISTRICT NO. 1  
OF SKAGIT COUNTY

By: \_\_\_\_\_  
Name, Title

By: \_\_\_\_\_  
George Sidhu, P.E., General Manager

Dated: \_\_\_\_\_

Dated: \_\_\_\_\_

The Contractor shall cause each of its subcontractors (and suppliers to the extent any perform any work on the Project site) to execute an Indemnification Contract substantially in the form of the foregoing by which each such entity or person assumes to the District all obligations Contractor assumes to the District as set forth above.

**PERFORMANCE AND PAYMENT BOND**

Bond No. \_\_\_\_\_  
Amount: \$ \_\_\_\_\_

KNOW ALL MEN BY THESE PRESENTS, that

Of \_\_\_\_\_  
Hereinafter called the Contractor (Principal), and \_\_\_\_\_

a corporation duly organized and existing under and by virtue of the laws of the State of \_\_\_\_\_ hereinafter called the Surety, and authorized to transact business within the State of Washington as Surety, are held and firmly bound unto Public Utility District No. 1 of Skagit County, Washington as Owner (Obligee), in the sum of \_\_\_\_\_ Dollars (\$ \_\_\_\_\_), lawful money of the United States of America, for the payment of which, well and truly be made to the Owner, the Contractor and the Surety bind themselves and each of their heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents as follows:

THE CONDITIONS OF THE ABOVE OBLIGATION ARE SUCH THAT:

WHEREAS, the Contractor has executed and entered into a certain Contract hereto attached, with the Owner, dated \_\_\_\_\_, 20\_\_\_\_\_.

For: \_\_\_\_\_

IN WITNESS: NOW THEREFORE, if Contractor, its heirs, executors, administrators, successors, or assigns, shall in all things stand to and abide by, and well and truly keep and perform the covenants, conditions and agreements in the said Contract for the duration thereof, including the one-year warranty period, and shall also well and truly perform and fulfill all the undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said Contract that may hereafter be made, at the time and in the manner therein specified and shall pay all laborers, mechanics, subcontractors or lower tier subcontractors, and material persons, and all persons who shall supply such person or persons, or subcontractors or lower tier subcontractors, with provisions and supplies for the carrying on of such work, on his or their part, and shall indemnify and save harmless Owner, its officers and agents, then this obligation shall become null and void; otherwise, it shall be and remain in full force and effect.

And Surety, for value received, hereby further stipulates and agrees that no change, extension of time, alteration or addition to the terms of Contract or to the work to be performed thereunder or the plans or specifications accompanying the same shall in any way affect its obligation of this Bond, and it does hereby waive notice of any change, extension of time, alterations or additions to the terms of the Contract, the plans or the specifications.

Surety hereby agrees that modifications and changes may be made in the terms and provisions of the Contract without notice to Surety, and any such modifications or changes increasing the total amount to be paid the Contractor shall automatically increase the obligation of the Surety on this Bond in a like amount.

The Surety expressly acknowledges that it shall be liable, under this Bond, for any liquidated damages assessed against the Contractor in accordance with the provisions of the Contract.

Any claim(s) relating to or against this Bond shall be subject to and decided by arbitration in accordance with the provisions of the Revised Code of Washington Chapter 7.04.

Any dispute relating to the performance or enforcement of the provisions of this Bond shall be governed by Washington State Law. Jurisdiction and venue shall be Skagit County Courts. If non-binding arbitration or mediation is conducted involving the Owner, the Contractor, the Surety, or any other party concerning or in any way relating the work required or alleged to be required by the Contract, the Contractor and Surety expressly consent to a

consolidated or joint arbitration if and as called for by the Owner. The prevailing party in each such litigation shall be entitled to recover its attorneys' fees, in addition to any other relief granted.

IN WITNESS WHEREOF, the Contractor and the Surety have caused this bond and two (2) counterparts thereof to be signed and sealed by their duly authorized officers.

Signed and sealed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

\_\_\_\_\_  
Contractor

\_\_\_\_\_  
Surety

By \_\_\_\_\_

By \_\_\_\_\_

Attorney-In-Fact

Title \_\_\_\_\_

Corporate Seal

Corporate Seal

Address of local office and agent of Surety Company:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

APPROVED AS TO FORM:

**PUBLIC UTILITY DISTRICT NO. 1 OF SKAGIT COUNTY**, Owner, \_\_\_\_\_, 20\_\_\_\_

This Bond is executed in pursuance of Chapter 39.08, Revised Code of Washington.

NOTE: The Surety named on this Bond shall be one which is licensed to conduct business in the state where the project is located, and named in the current list of Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies, as published in Circular 570 (amended) by the Audit Staff Bureau of Accounts, U.S. Treasury Department. All Bonds signed by an agent must be accompanied by a certified copy of the authority to act for the Surety at the time of the signing of this Bond.

Corporate Seal:

CERTIFICATE AS TO CORPORATE SEAL

I hereby certify that I am the (Assistant) Secretary of the Corporation named as Principal in the within Bond; that \_\_\_\_\_ who signed the said Bond on behalf of the Principal, was \_\_\_\_\_ of said Corporation; that I know his signature thereto is genuine, and that said Bond was duly signed, sealed, and attested for and in behalf of said Corporation by authority of its government body.

\_\_\_\_\_  
Secretary or Assistant Secretary

A copy of this bond shall be filed with the County Auditor.

**ATTACH POWER OF ATTORNEY**

**CERTIFICATE OF OWNER’S ATTORNEY**

I, the undersigned, **Peter Gilbert**, the duly authorized and acting legal representative of Public Utility District No. 1 of Skagit County, do hereby certify as follows

I have examined the attached contract(s) and the manner of execution thereof, and I am of the opinion that each of the aforesaid agreements are adequate and have been duly executed by the proper parties thereto acting through their duly authorized representatives; that said representatives have full power and authority to execute said agreements on behalf of the respective parties named thereon; and that the foregoing agreements constitute valid and legally binding obligations upon the parties executing the same in accordance with terms, conditions, and provisions thereof.

\_\_\_\_\_  
Peter Gilbert, Attorney

Date: \_\_\_\_\_

# **GENERAL CONDITIONS**

## **GENERAL CONDITIONS**

### **NOTICE OF DISCLAIMER**

TAKE NOTICE, that the General Conditions are the 2018 Edition of the Washington State Department of Transportation Standard Specifications for Road, Bridge and Municipal Construction.

TAKE NOTICE, that these General Conditions have been materially amended by certain additions, deletions or other modifications to meet the needs of the Public Utility District No.1 of Skagit County. These amendments are contained in the Supplementary General Conditions.

**END OF SECTION**



**SUPPLEMENTARY GENERAL  
CONDITIONS**

## SUPPLEMENTARY GENERAL CONDITIONS

The following provisions of the Washington State 2018 Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT) Division 1 General Requirements is hereby amended, changed, or supplemented and superseded as follows. All other provisions which are not amended, changed, or supplemented remain in full force.

1	Order of Precedence	
2	Section 1-01.3	Definitions
3	Section 1-03	Award and Execution of Contract
3.1	Section 1-03.4	Contract Bond
3.2	Section 1-03.8	Award and Execution of Contract
4	Section 1-05	Control of Work
4.1	Section 1.05.0	General
4.2	Section 1-05.4	Conformance With and Deviations from Plans and Stakes
4.3	Section 1-05.10	Guarantees
5	Section 1-07	Legal Relations and Responsibilities to the Public
5.1	Section 1-07.1(1)	Owner Safe Access
5.2	Section 1-07.6	Permits and Licenses
5.3	Section 1-07.9	Wages
5.4	Section 1-07.18	Public Liability and Property Damage Insurance
5.5	Section 1.07.26	Personal Liability of Public Officers
6	Section 1-08	Prosecution and Progress
6.1	Section 1-08.5	Time for Completion (Contract Time)
6.2	Section 1.08.9	Liquidated Damages
6.3	Section 1.08.10(2)	Termination for Public Convenience
7	Section 1-09	Measurement and Payment
7.1	Section 1-09.4	Equitable Adjustment
7.2	Section 1-09.6	Force Account
7.3	Section 1-09.11(3)	Time Limitations and Jurisdiction
7.4	Section 1-09.13(3)	Claims Resolution
7.5	Section 1-09.14	Claims Against Contractor's Retainage and/or Public Contract Bond

**1 ORDER OF PRECEDENCE. THE ORDER OF PRECEDENCE OF THE CONDITIONS OF THE CONTRACT ARE AS LISTED BELOW, FIRST IS THE HIGHEST AND LAST IS THE LOWEST:**

Addenda  
Bid Forms  
Technical Specifications  
Drawings  
Special Provisions  
Supplementary General Conditions  
Division 1 General Requirements (WSDOT) 2018 Edition

**2 SECTION 1-01.3 DEFINITIONS IS SUPPLEMENTED BY ADDING THE FOLLOWING DEFINITIONS:**

Whenever these words are used in the Contract Documents, they shall have the following meanings:

"COMMISSION": Redefined to mean the three elected Commissioners of the District; substitute for "Commission" and "Washington State Transportation Commission" whenever cited.

"CONTRACTING AGENCY", "DISTRICT" or "OWNER": Public Utility District No. 1 of Skagit, Washington; substitute for "State," "Department," and "Department of Transportation" whenever cited.

"GENERAL MANAGER": The person appointed by the Commission per RCW 54.16.100 as the chief administrative officer of the District; substitute for "Secretary" and "Secretary of Transportation" whenever cited.

"ENGINEER": Public Utility District No. 1 of Skagit County and its sub consultants.

"STANDARD PLANS": Redefined to refer to the Standard Detail Sheets included with the Plans and Specifications as well as the 2018 WSDOT Standard Plans. The requirements of the Standard Detail Sheets shall be controlling in the case of any discrepancy between the Standard Details and the 2018 WSDOT Standard Plans.

**3 SECTION 1-03 AWARD AND EXECUTION OF CONTRACT IS SUPPLEMENTED BY ADDING THE FOLLOWING:**

**3.1 Add the following to Section 1-03.4, Contract Bond:**

Upon substantial completion of the Project, the Contractor shall provide a Utility Maintenance Bond for 25% of the Total Contract Amount on the form specified by the District that warrants all equipment, materials, and labor it furnishes or performs under the Agreement against defects in design, materials, and workmanship for one (1) year after final acceptance as described in Section 1-05.10.

**3.2 Add the following new Section 1-03.8 Award and Execution of Contract:**

1-03.8 Award and Execution of Contract.

1-03.8(1) The Contract for the Project shall be awarded to the responsible Bidder submitting the lowest responsive Bid. The lowest responsive Bid shall be determined by the total of the amount of the base Bid and the amount(s) Bid for any alternate(s) which the Owner, in its discretion, elects to include in the Contract.

**4 SECTION 1-05 CONTROL OF WORK IS REVISED AS FOLLOWS:**

**4.1 Insert the following new Section 1-05.0 General:**

1-05.0 General

Where the Specifications, the Owner's instructions, laws, ordinances, or any government authority require any work to be specially tested, or inspected, the Contractor shall give the Owner timely notice that such test of completed work is ready for inspection. If the inspection is by another authority than the Owner, the Contractor shall give the Owner timely notice of the date fixed for such inspection. Required certificates of inspection by other authority than the Owner shall be secured by the Contractor.

**4.2 Revise Section 1-05.4, Conformance With And Deviation From Plans And Stakes, as follows:**

Delete the word "Engineer" and replace with "Contractor" throughout this section with reference to setting stakes, marks, lines, etc. for the layout and prosecution of the Work. All surveying and layout required for this Project shall be performed by the Contractor. The Engineer retains final authority for determination of conformity of the Work and shall be notified immediately of any errors found to cause deviations in the Work.

**4.3 Delete Section 1-05.10, Guarantees, and replace with the following:**

1-05.10 Guarantees

The Contractor shall furnish to the Contracting Agency any guarantee or warranty furnished as a normal trade practice in connection with the purchase of any equipment, materials, or items used in the construction of the project.

The Contractor shall be responsible for correcting all defects in workmanship and materials incurred within one year (365 days) after the date of final acceptance of the project. When corrections of defects are made, the Contractor shall be responsible for correcting all defects in workmanship and/or materials in the corrected Work for one year after acceptance of the correction by the Owner. The Contractor shall commence remedying such defects within seven (7) days of receipt of notice of discovery thereof from the Owner and shall complete such Work within a reasonable time. In emergencies, where damage may result from delay or where loss of service may result, such corrections may be made by the Owner, in which case the cost shall be borne by the Contractor. In the event the Contractor does not complete corrections within a reasonable time, the Work shall be otherwise accomplished and the cost of same shall be paid by the Contractor.

The Contractor shall be liable for any costs, losses, expenses, or damages, including consequential damages, suffered by the Owner resulting from defects in the Contractor's Work including but not limited to costs, labor, materials, equipment and administration

incurred by Owner in making emergency repairs of such defective Work and associated costs of engineering, inspection, and supervision by the Owner or Engineer. The Contractor shall defend, indemnify and hold the Owner harmless from any and all claims which may be made against the Owner as a result of Contractor's defective Work.

**5 SECTION 1-07 LEGAL RELATIONS AND RESPONSIBILITIES TO THE PUBLIC IS SUPPLEMENTED BY ADDING THE FOLLOWING:**

**5.1 Add the following Section 1-07.1(1) Owner Safe Access:**

**1-07.1(1) Owner Safe Access.**

The Contractor shall provide safe access for the Owner and its inspectors to adequately inspect the quality of work and the conformance with Contract Documents. The Contractor shall provide adequate lighting, ventilation, ladders, and other protective facilities as may be necessary for the safe performance of inspections.

**5.2 Add the following to Section 1-07.6, Permits And Licenses:**

The Contractor shall comply with all requirements of all permits provided by the Owner for this project.

**5.3 Add the following to Section 1-07.9, Wages, 1-07.9(1), General:**

Current Washington State Department of Labor and Industries prevailing wage rates are available at:

<http://www.lni.wa.gov/tradeslicensing/prevwage/wagerates/>

Wage rates applicable for this project are those for Skagit County with an effective date of this Contract Bid Date.

**5.4 Revise Section 1-07.18, Public Liability and Property Damage Insurance as follows:**

All reference to the State or Department of Transportation shall be supplanted with Public Utility District No. 1 of Skagit County.

**5.5 Revise Section 1-07.26, Personal Liability of Public Officers, as follows:**

Neither the Owner nor any elected official, officer, or its employees shall be personally liable for any acts or failure to act in connection with the Contract, it being understood that in such manners, they are acting solely as agents of the Owner.

No right of action shall accrue upon or by reason of this Contract to or for the use or benefit of anyone other than the parties to this Contract. The parties to this Contract are the Contractor and the Owner.

**6 SECTION 1-08, PROSECUTION AND PROGRESS, IS REVISED AS FOLLOWS:**

**6.1 Supplement Section 1-08.5, Time For Completion (Contract Time), with the following:**

Contractor shall complete all work associated with the Bid Schedule within 45 consecutive Calendar Days after the issuance of the Notice to Proceed.

**6.2 Section 1-08.9, Liquidated Damages replaced numbered paragraphs 1 and 2 with the following:**

1. To pay liquidated damages for each working day beyond the number of days established for substantial completion, to authorize the Owner to deduct these liquidated damages from any money due or coming due to the Contractor.

**6.3 Revise Section 1-08.10(2), Termination For Public Convenience, as follows:**

Substitute "Resolution" for "Executive Order", substitute "Commission" for "President", and delete "or Governor".

**7 SECTION 1-09, MEASUREMENT AND PAYMENT, IS REVISED AS FOLLOWS:**

**7.1 Supplement Section 1-09.4, Equitable Adjustment, with the following:**

All bilateral agreements shall constitute a full accord and satisfaction and represent payment in full as to adjustments in both Contract price and time of completion for all costs, whether direct or indirect, arising out of, or incidental to, or otherwise attributable to, the changed work including any and all delays and impacts resulting from the change to the contract. Acceptance of payment by Contractor pursuant to such bilateral agreement shall constitute a waiver of any and all claims, known or unknown, arising out of, or incidental to, or otherwise attributable to the changed work.

**7.2 Revise Section 1-09.6, Force Account, as follows:**

Revise Item No. 1 as follows: Substitute "21 Percent" for "29 percent" for Contractor's allowance for overhead and profit.

**7.3 Revise Section 1-09.11(3), TIME LIMITATIONS AND JURISDICTION**

Revise as follows: Substitute Public Utility District No. 1 of Skagit County for State of Washington (six times). Substitute Superior Court of Skagit County for Superior Court of Thurston County.

**7.4 Replace Sections 1-09.13(3), (3)A, (3)B and (4), Claims Resolution, with the following:**

**CLAIMS 1-09.13(3)**

The Contractor and Contracting agency mutually agree that claims submitted in accordance with Section 1-09.11 and not resolved by nonbinding ADR process, shall be resolved by litigation unless the Contracting agency elects to resolve the claim through binding arbitration.

**Venue.** The venue of any Dispute Resolution Proceedings between the parties to this Agreement shall be Mount Vernon, Washington unless otherwise mutually agreed in writing.

**Injunctive Proceedings.** Notwithstanding any other provisions of these Dispute Resolution Procedures, any Disputes otherwise subject to submission to these Dispute Resolution Procedures may instead be first submitted, by any party having a legal interest therein, to the jurisdiction of the Superior Court for Skagit County, State of Washington, if and only to the extent necessary to secure injunctive relief reasonably necessary under the circumstances.

**7.5 Add the following new Section 1-09.14 Claims Against Contractor's Retainage and/or Public Contract Bond:**

**1-09.14 Claims Against Contractor's Retainage and/or Public Contract Bond**

The Contractor shall be liable for all costs incurred by the Owner, including, but not limited to, legal fees, salary/wage costs of Owner's employees and litigation costs (whether or not recoverable by statute or court rule) arising out of claims against the retainage or the Contractor's Public Contract Bond. Owner may deduct any such costs from funds otherwise due the Contractor, including the retention, by unilateral Change Order.

END OF SECTION

# **TECHICAL SPECIFICATIONS**



**SECTION 01010**  
**SUMMARY OF WORK AND CONTRACT CONSIDERATIONS**

**PART 1 - GENERAL**

**1.1 SECTION INCLUDES**

- A. Project Conditions
- B. Summary of Work
- C. Type of Contract

**1.2 PROJECT CONDITIONS AND SPECIAL CONSIDERATIONS**

- A. Ranney Well Site
  - 1. The District's abandoned Ranney well is located in the Dike District #17 Levee along the Skagit River, located at 14012 Riverbend Road, Mount Vernon.
  - 2. A staging area is available on 14012 Riverbend Road (3.38 acres owned by the District). Contractor to obtain prior approval for use of staging area.
- B. The District will coordinate with Dike District #17 selected engineer (Ravnik & Associates, Inc) and geotechnical professional (Material Testing and Consulting, Inc) for the formal decommissioning of the well via a Variance from the "Notice of Intent to Decommission a Well" from the Department of Ecology. Contractor to follow construction recommendations in the Geotechnical Report (Appendix E).
- C. The well house roofing material tested positive for asbestos and must be properly abated; contractor is responsible for all handling and removal and permitting. See Appendix D.

**1.3 SUMMARY OF WORK**

- A. The Summary of Work for the Project is as follows:
  - 1. The Contractor shall provide a Spill Prevention, Control and Countermeasure (SPCC) Plan, an Accident Prevention Plan, site specific safety plan and a Temporary Erosion and Sediment Control (TESC) Plan. For the TESC: Use the following and/or any other Best Management Practices (BMPs) necessary to ensure turbid water and process water do not leave the site:
    - a. Use dust control in areas subject to surface and air movement of dust where on-site impacts to roadways, drainage ways, or surface waters are likely (BMPC 140)
    - b. Keep quantities of erosion prevention and sediment control materials on the project site at all times to be used for regular maintenance and emergency situation such as unexpected heavy rains (BMP C150)
    - c. Minimize and eliminate concrete, concrete process water and concrete slurry from entering waters of the State (BMP C151)
    - d. Vegetated strips reduce the transport of coarse sediment for a construction site by providing a physical barrier to sediment and reducing the runoff velocities of overland flow (BMP C234)
    - e. Use wattles in disturbed areas that require immediate erosion protection (BMP C235)
  - 2. Decommission the Ranney Well including:
    - a. Demolition of well house, removal of identified asbestos containing materials, and removal of all appurtenances from inside the caisson including but not limited to plumbing, electrical, motor and pumps. Leave collector valves

attached to lateral collector pipes. Disposal of all materials at approved disposals sites, including asbestos containing roof material. Demolition is to be conducted from inside the structure, including portions of well cassion to be removed. The Contractor shall provide all labor, materials and equipment necessary to dewater the Ranney well and excavations. Ranney well to be dewatered throughout construction activities. Ensure all (8) lateral collector valves are closed.

- b. Remove above ground portion of well to 4 feet below the lowest existing grade. Excavation shall be done at an angled slope of 1.5H:1V.
- c. Seal outlet pipes using 2 LF of non-shrink grout from inside the structure.
- d. Furnish and place approximately 230 CY of Light Weight CDF

3. Restoration of the levee

- a. Furnish and place Sandy Loam Clay Fill. Restore to levee surface with approximately 50 CY of Sandy Loam Clay fill.
- b. Site and levee restorations. Place topsoil and “Seven Way” Seed Mix. Restore crushed surfacing on existing access road. Restore staging area.

B. Related Sections include but are not necessarily limited to:

- 1. Division 0 - Bidding Requirements, Contract Forms, and Conditions of the Contract.
- 2. Division 1 - General Requirements.

**1.4 TYPE OF CONTRACT**

A. The Work described in the Contract Documents will be constructed under a single contract with Public Utility District No. 1 of Skagit County.

**PART 2 - PRODUCTS**

**2.1 ACCEPTABLE PRODUCTS**

A. Subject to compliance with the Contract Documents, the following products are acceptable:

- 1. Light Weight CDF
  - a. Mix ID#11CDFMC25P by Miles Sand & Gravel in Skagit County, WA
  - b. Approval Equal
- 2. Sandy Loam Clay Fill:
  - a. ASTM D 2487 as SW, GW, GP-GM, and SP-SM, free from: roots and other organic matter; contamination from hazardous, toxic or radiological substances; trash, debris; and frozen materials. Material shall be suitable for 95% compaction with optimum moisture content (+/- 3%). The maximum material size shall be 3-inch:

Sieve Size	Percent Passing
3-inch	100
2-inch	90-100
- inch	70-90
½-inch	55-85
No. 4	35-75
No. 40	15-50
No. 200	10-15

- b. Earthen material subject to source sampling, testing, and review for approval prior to delivery to the site.

3. Topsoil:
  - a. Topsoil Type C (WSDOT Spec. 9-14.1(3))
  - b. Approved Equal
4. Non-shrink grout
  - a. Supreme Grout by Gifford
  - b. Masterflow 713 Plus by BASF Building Systems
  - c. Sika Grout 212 by Sika
  - d. Approved Equal
5. Seed Mix
  - a. "Seven Way" Seed Mix:

% of Mixture	Pure Seed	Germ %	State of Origin
28.55	Amba Orchardgrass	95	OR
24.57	Kora Tall Fescue	90	OR
9.9	Medium Red Clover	85	OR
9.89	New Zealand White Clover	91	OR
9.78	Climax Timothy	94	Canada
4.99	Vivacious Tetraploid Annual Ryegrass	97	OR
9.6	Calibra Tetraploid Perennial Ryegrass	90	OR
.33	Other Crop		
1.69	Inert Matter		
.7	Weed Seed		
Noxious Weeds: No WA Noxious Found			

- b. Approved Equal
6. Crushed surfacing material
  - a. Materials shall conform to Section 9-03.9(3) of the Standard Specifications.

### **PART 3 - EXECUTION**

#### **3.1 FILLING OF CAISSON - LIGHT WEIGHT CDF PLACEMENT**

A. The caisson shall be filled with specified mix design in no less than three (3) lifts of equal thickness, each occurring on a separate working day.

#### **3.2 PLACEMENT OF SANDY LOAM CLAY FILL**

A. Maximum 6-inch lifts to be used for installing this type of material. Material should be within 3% of optimum moisture content during placement and verified as generally uniform in composition.

B. Compact with mechanical vibrating compaction device, Ho-Pac or equal.

C. Lifts should be compacted to at least 95% of optimum dry density based on laboratory modified Proctor analysis (per ASTM D1557), field-verified by nuclear densimeter testing or approved alternative measures. A sufficient number of tests and/or observations should be conducted to verify suitable compaction of each lift.

**END OF SECTION**

**SECTION 01025  
MEASUREMENT AND PAYMENT**

**PART 1 - GENERAL**

**1.1 SUMMARY**

A. Section includes:

1. General requirements for payment.
2. Bid schedule summaries.
3. Submittals.

B. Related Sections include but are not necessarily limited to:

1. Division 0 – General Conditions.
2. Section 01010 – Summary of Work and Contract Considerations.

**1.2 PAYMENT**

A. Payment for the work within each Bid Schedule item, as further specified herein, shall include all compensation to be received by the Contractor for furnishing all tools, equipment, supplies, and manufactured articles, and for all labor operators, and incidentals appurtenant to the items of work being described necessary to complete the Work, all in accordance with the requirements of the Contract Documents. No separate payment will be made for any item that is not specifically set forth in the Contract Documents and all costs therefore shall be included in the prices stated in the Bid Schedule.

B. If the terms “measurement and payment” and/or “measurement” and/or “payment” are not mentioned in a specification section, it is construed to mean that no separate or additional measurement will be made for the work described in that section, but shall be considered incidental and shall be included in the applicable bid item.

**1.3 BID SCHEDULE SUMMARIES**

A. Bid Schedule Item No. 1 – Mobilization

1. Measurement: No measurement will be made for Mobilization.
2. Payment: Mobilization shall be paid based on the Bid Item No. 1 lump sum (LS) price named in the proposal, which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to mobilization, demobilization and clean up.

B. Bid Schedule Item No. 2 – SPCC Plan, TESC, Accident Prevention and Site-Specific Safety Plans

1. Measurement: No measurement will be made for SPCC Plan, TESC, Accident Prevention and Site-Specific Safety Plans.
2. Payment: SPCC Plan, TESC, Accident Prevention and Site-Specific Safety Plans shall be paid at the Bid Item No. 2 lump sum (LS) price named in the proposal, which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to the following:
  - a. Prepare and submit for the District’s review a Spill Prevention, Control and Countermeasure (SPCC) Plan to be followed and kept onsite.
  - b. Prepare and submit for the District’s review an Accident Prevention Plan and Site-Specific Safety Plan to be followed and kept onsite.
  - c. Prepare and submit for the District’s review a Temporary Erosion and Sediment Control (TESC) Plan to be followed and kept onsite.
  - d. Install and maintain sediment and erosion control measures.

- e. Remove all temporary sediment and erosion control measures upon completion of the work.

C. Bid Schedule Item No. 3 – Demolition of well house and removal of appurtenances

1. Measurement: No measurement will be made for Demolition of well house and removal of appurtenances.
2. Payment: Demolition of well house and removal of appurtenances shall be paid at the Bid Item No. 3 lump sum (LS) price named in the proposal, which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to the following:
  - a. Demolition and disposal of well house and floor (lid cover) including handling, removal and disposal of asbestos containing material by qualified licensed professional.
  - b. Removal and disposal of all interior appurtenances including but not limited to plumbing, electrical, motor and pumps. Leave collector pipe valves in place and closed.
  - c. Properly dispose of materials at an approved site.
  - d. Dewater when necessary.
  - e. Ensure all (8) lateral collector pipe valves are closed.

D. Bid Schedule Item No. 4 – Removal of above ground portion of well.

1. Measurement: No measurement will be made for Removal of above ground portion of well.
2. Payment: Removal of above ground portion of Ranney well shall be paid at the Bid Item No. 4 lump sum (LS) price, named in the proposal, which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to the following:
  - a. Remove caisson to 4 feet below lowest existing grade.
  - b. Excavation and layback of levee around removed section of caisson.
  - c. Properly dispose of material at an approved site.

E. Bid Schedule Item No. 5 – Seal Outlet Pipes

1. Measurement: No measurement will be made for Seal of Outlet Pipes.
2. Payment: Seal of Outlet Pipes shall be paid at the Bid Item No. 5 lump sum (LS) price, named in the proposal, which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to the following:
  - a. Seal 8” concrete iron pipe – discharge to the river.
  - b. Seal 3 pipes that convey to 16” concrete cylinder pipe – discharge to distribution.
  - c. Seal any other pipes upon discovery.
  - d. Dewater when necessary.

F. Bid Schedule Item No. 6 – Furnish and Place Light Weight CDF

1. Measurement: Furnish and Place Light Weight CDF shall be measured by cubic yard (CY).
2. Payment: Furnish and Place Light Weight CDF shall be paid at the unit price per Bid Item No. 6 per cubic yard (CY), which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to the following:
  - a. Furnish and place Light Weight CDF in lifts not to exceed 15 feet per day.
  - b. Dewater if necessary.
3. Placement of Light Weight CDF is considered specialty work.

G. Bid Schedule Item No. 7 – Furnish and Place Sandy Loam Clay Fill

1. Measurement: Furnish and Place Sandy Loam Clay Fill shall be measured by the cubic yard (CY).

2. Payment: Furnish and Place Sandy Loam Clay Fill shall be paid at the unit price Bid Item No.7 per cubic yards (CY), which price shall constitute payment full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to the following:
  - a. Furnish and place Sandy Loam Clay Fill.

H.Bid Schedule Item No. 8 – Site and Levee Surface Restoration

1. Measurement: No measurement will be made for Site and Levee Surface Restoration.
2. Payment: Site and Levee Surface Restoration shall be paid at the Bid Item No. 8 lump sum price, named in the proposal, which price shall constitute full payment for all tools, equipment, labor, and materials required to complete this work as specified herein; including, but not limited to:
  - a. Place topsoil.
  - b. Place seed mix
3. Restoration of owner provided staging area is incidental.

**1.4 SUBMITTALS**

A. Schedule of Values. Upon acceptance of the Schedule of Values by the Owner, it shall be used as the basis for all payment requests.

B. Material submittals for:

1. Lightweight CDF Mix Design
2. Sieve analysis of Sandy Loam Clay Fill
3. Topsoil Mix
4. Seed Mix

C.Plans:

1. SPCC Plan
2. TESC Plan
3. Accident Prevention Plan
4. Site Specific Safety Plan

D. Credentials of Asbestos Removal Contractor

**PRODUCTS – (NOT APPLICABLE TO THIS SECTION)**

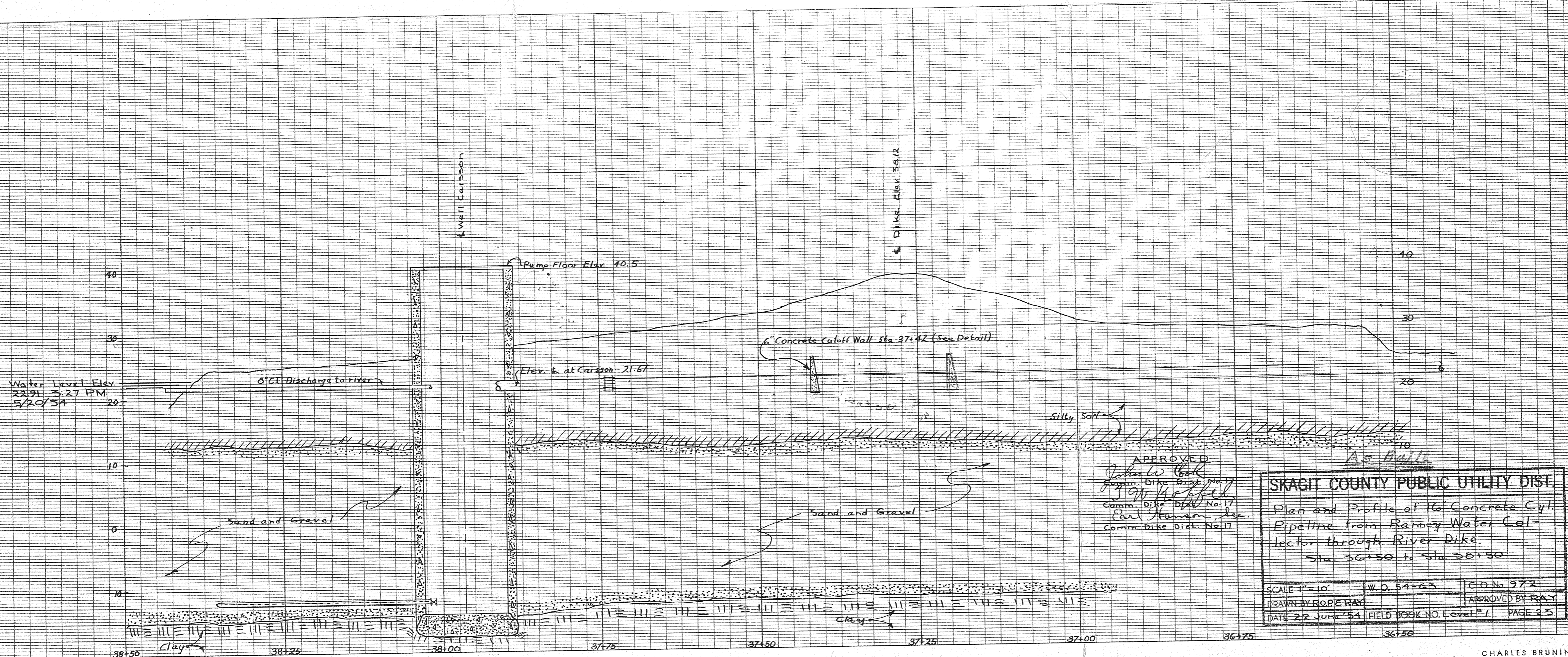
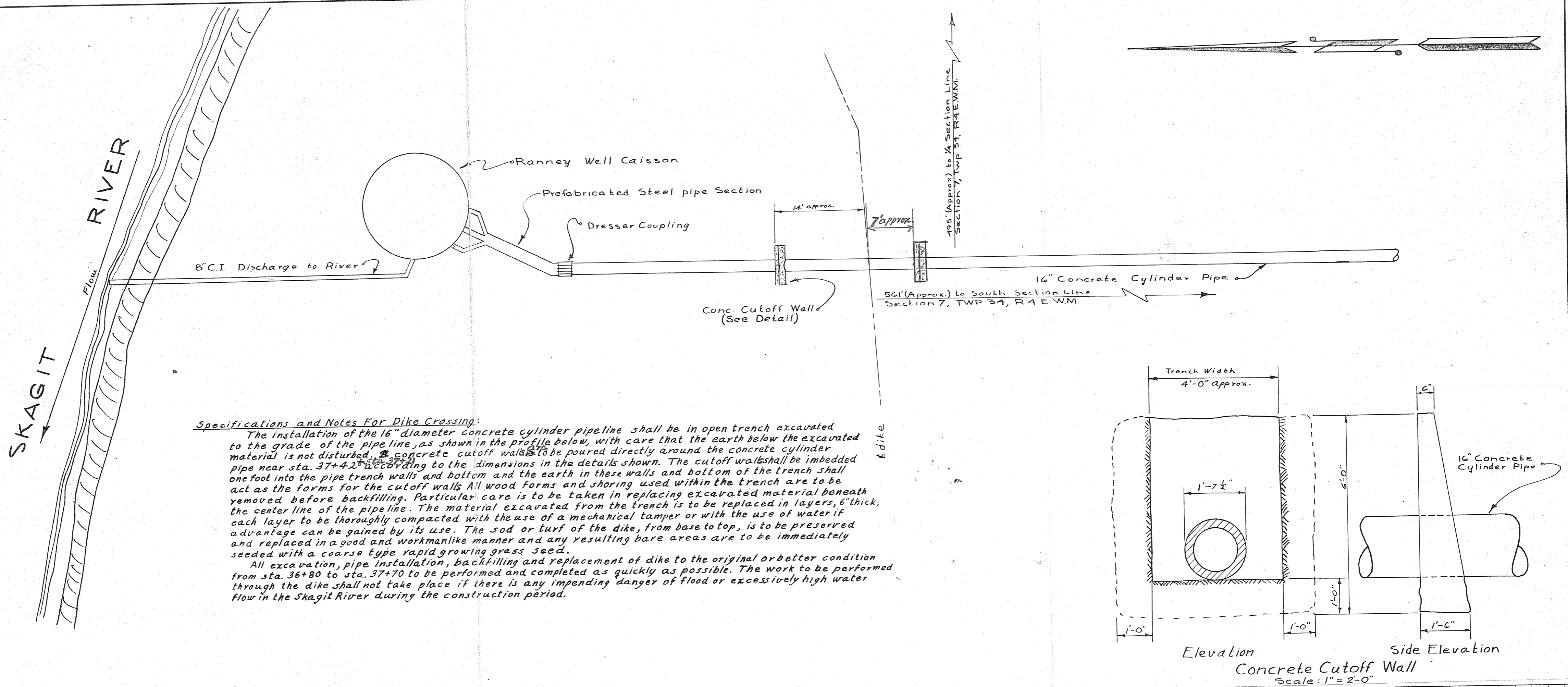
**PART 2 - EXECUTION – (NOT APPLICABLE TO THIS SECTION)**

**END OF SECTION**

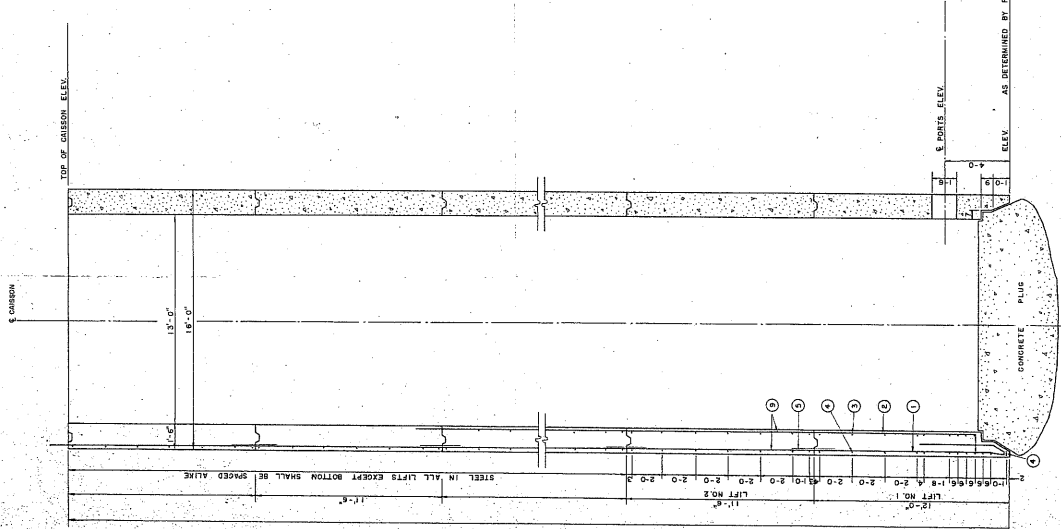
# **APPENDIX A**

## **As-Built Drawing and Narrative**

# Original Construction Drawing

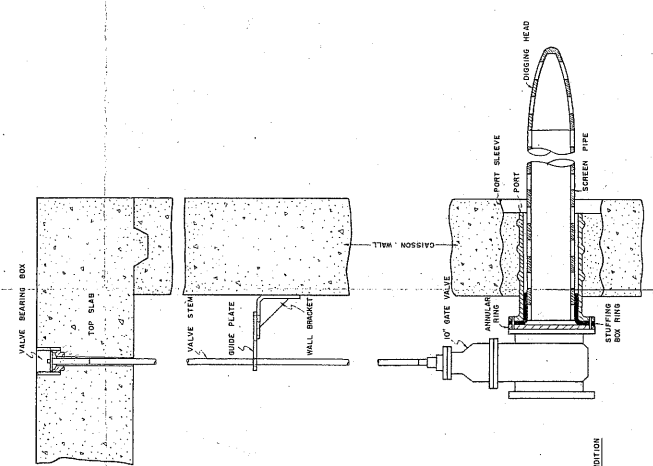






**PROJECTION DIAGRAM**

TOTAL LENGTH OF SCREEN TO BE NOT LESS THAN LINEAL FEET. ACTUAL LENGTH, ELEVATION, DIRECTION AND NUMBER OF LATERALS AS DETERMINED BY FIELD CONDITION.



**ENLARGED SECTION SHOWING SCREEN PIPE AND ACCESSORIES**  
(SCALE: 1/4" = 1'-0")

**VERTICAL SECTION THRU CAISSON**  
(SCALE: 1/4" = 1'-0")

**BAR SCHEDULE**

BAR NO.	MARK	A	B	C	D	E	F	G	H	I	J	DETAIL
1	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	A
2	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	B
3	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	C
4	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	D
5	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	E
6	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	F
7	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	G
8	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	H
9	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	I
10	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	10-0	J

TOTAL VOLUME OF CONCRETE: \_\_\_\_\_ C.Y. TOTAL WEIGHT OF REINFORCING STEEL: \_\_\_\_\_ T.

DATE: \_\_\_\_\_

REVISIONS:

NO.	DATE	DESCRIPTION

DESIGNED BY: \_\_\_\_\_

DRAWN BY: CH. W. YOUNG

SCALE: AS SHOWN

DATE: \_\_\_\_\_

APPROVED BY: \_\_\_\_\_

DRAWING NO.: \_\_\_\_\_

**RANNEY METHOD WATER SUPPLIES, INC.**  
COLUMBUS, OHIO

**CAISSON DETAIL**

FOR WATER COLLECTOR

reservoir from where it can be pumped into the transmission main.

The ground water in the big bend area is of a fairly high iron content while the river is very low in iron. By placing the laterals on the new collector in a direction toward the river, river water can be induced to flow through the river bed into the collector, thereby filtering the river water through its own silt bed. In effect then, this collector is producing a filtered river water without the cost of chemical treatment and filter washing that a river filtration plant would otherwise require. At certain periods limited amounts of the less desirable ground water would reach<sup>es</sup> the laterals but the dilution is so small that it can barely be detected.

#### Construction of the Caisson

Construction was started at the site on May 18, 1954 with the placing of the circular steel forms for the first 11½ foot high section of the caisson. The bottom of this first form was designed to form a cutting edge on the bottom of the caisson so as to allow it to sink into the ground. After the forms were in place and the reinforcing steel tied in place 29 cubic yards of concrete were poured into the forms. The concrete was allowed to set overnight and the forms removed the next morning. Then a clam shell shovel was used to excavate the earth from within this section of the caisson. As material was removed the section slowly sank into the ground. When it had dropped to where its top was nearly level with the ground surface the excavation was stopped and the steel forms for the next 11½ foot section were set in place and the process of pouring, setting, removing forms and excavating earth to allow the caisson to sink further was repeated. This was continued until the desired predetermined depth had been reached. Then a plug of concrete was poured under water on the bottom so that after a curing period of

five days the caisson could be pumped dry. The caisson was extended to 15 feet about the ground level so that its top is about  $1\frac{1}{2}$  feet above the top of the nearby dike and also the highest recorded river flood level. This makes the over all depth of the caisson about 53 feet. Over 113 cubic yards of concrete with 7,850 pounds of reinforcing steel was used to construct the collector caisson.

#### The Projection of the Laterals

The bottom section of the caisson had pipe sleeves placed in its wall before the concrete was poured for the laterals to project from. Therefore, holes did not have to be drilled through the 18 inch thick wall for the 8 inch laterals. The perforated steel pipe which is used for the laterals is made in eight foot lengths and has a wall thickness of  $\frac{3}{8}$  inch. A special bullet shaped driving head with extra large slots through it is welded to the end of the first section of each lateral. The laterals were forced outward through the caisson wall and into the water bearing strata by pushing with two 6 inch hydraulic jacks capable of producing more than 100 tons of force. By the use of special rubber packers and a 3 inch pipe, called the sand line, installed inside the eight inch screen pipe, water could only come through the slots of the driving head and sand line to the caisson. The water coming into the driving head carried all the finer material from the vicinity of the driving head into the caisson, thereby developing a bed of gravel and coarse sand around the screen as it was moved outward. The larger holes in the driving head caused the removal of sand and gravel up to a size that was larger than that which could pass through the smaller slots of the screen pipe. If, during the projection, it became apparent that not enough fine material was being removed from the bed, a method of surging with compressed air through the sand line could be employed which was very effective. After all but one to two feet of an eight foot screen section had been pushed out into the strata another eight foot section was welded onto it and the pushing continued. This process was

repeated until the driving head struck an immovable object or the desired distance had been reached for that lateral. Then a gate valve was fitted to the end of the screen pipe inside of the caisson and the sand line removed. Finally the packer was slipped out allowing a torrent of water feeding through the full length of the screen pipe to come into the caisson. The valve was then closed as rapidly as possible to keep the caisson from filling. The procedure was then repeated on the next lateral until finally all eight laterals were completed. ~~As during the operation, a caisson log was struck by the driving head or it became apparent that not enough fine material was being removed from the bed, a method of using air compressed air through the sand line could be employed which was very effective.~~

After all the laterals were completed they were flushed individually to make sure all sand and foreign matter was <sup>removed from</sup> ~~them~~. Then long stems from the gate valves were installed to extend to the top of the caisson so that the valves could be operated from the pump room ~~on the~~ floor.

#### Pump House Construction

Following the completion of the well itself the work of installing the discharge piping, pumps and other equipment was immediately started and the construction of the pump house <sup>was</sup> ~~was~~ begun, which is on the top of the well caisson. The pump house was built under the direct supervision of O. S. Laxdal, prominent builder in the <sup>Mount</sup> ~~the~~ Vernon area. The Fairbanks-Morse deep well turbine type pumps and piping was supplied and installed by Dahlman Pump and Supply of Burlington and all electric facilities and connections were completed by the Tom Dinkins Electric Company of Sedro-Woolley and <sup>Mount</sup> ~~the~~ Vernon.

The heavily reinforced concrete floor of the pump room is six inches thick and rests on four heavy rail beams which are imbedded in the

top of the caisson walls. Four pump bases and numerous holes were precast in the floor to provide for valve controls, electric conduits and other types of control and recording equipment. The eight walls of the pump house are <sup>of</sup> pumice block design with concrete corner posts joining each wall. The roof is of wood construction supported by steel rail beams. Hatches were designed into the roof to facilitate placing and removal of the pumps. The interior has been painted an attractive green with the outside painted white. Outside trim and the caisson to the ground level is a blue-gray color.

Two multiple stage deep well turbine pumps have been installed capable of delivering 700 gallons per minute (gpm) and 1,400 gpm respectively at a discharge pressure of 95 pounds per square inch (700 gpm equals one million gallons per day). Provision was made for the installation of a future pump which will have a capacity of either 2,100 gpm or 2,800 gpm at the same discharge pressure. A third small pump was installed also, which pumps directly from the only lateral that extends from the caisson in a direction away from the river. The purpose of this lateral and pump is to intercept the less desirable ground water that flows toward the river, when the river level is low, before it gets to the other laterals. This water is discharged into the river. When the river level is normal or higher the irony ground water recedes landward and is replaced by fresh supplies of river water. The little pump does not have to be used during these periods.

About 3,700 feet of 16 inch diameter concrete cylinder transmission pipe was installed by the water districts' own crews and equipment to connect this collector to the existing 12 inch transmission line which parallels highway 99 between Burlington and <sup>Mount</sup> ~~the~~ Vernon. This pipe is constructed of a steel shell with heavy wire wrapping around it. The

# **APPENDIX B**

## **Permits**



# Planning & Development Services

1800 Continental Place ♦ Mount Vernon, WA 98273  
360-416-1320 ♦ pds@co.skagit.wa.us ♦ www.skagitcounty.net/planning

## Demolition Permit

Permit **BP18-0615**  
Issue date: 08 02, 2018

Description: Demo of existing PUD pump house  
Job address: 14012 RIVER BEND ROAD MV

Parcel No: p23933

Applicant: PUBLIC UTILITY DISTRICT

PO Box 1436  
Mount Vernon, WA  
98273

Contractor:

Owner: PUBLIC UTILITY DISTRICT

PO Box 1436  
Mount Vernon, WA  
98273

Solid Waste Disposal	Public Works ph. 360-336-9400
Hazardous material (paints, asbestos)	Northwest Clean Air Agency 360-428-1617
Erosion & Sediment Control	Planning & Development Services 360-416-1320
Utilities	Sewer, water, and gas must be properly disconnected.
Septic tanks	Must be inerted by backfill or removal and backfill.
Wellheads	Must be capped.

"Construction or work for which a permit is required shall be subject to inspection by the building official and such construction or work shall remain accessible and exposed for inspection purposes until approved." IBC 109.1 "The final inspection shall be made after all work required by the building permit is completed." IBC 109.5. I hereby certify that I am the owner or I am an authorized representative of the owner of the property for which this permit is issued. This permit does not grant any right to trespass on another's property. This permit will expire three years from the date of issuance.

**I understand that Washington State Law does not allow disposal of demolition debris by burning.**

Owner/agent: Per mail Date: 8-2-18

Department agent: Pamela Aldredge Date: 8-2-18

Item#	Description	Account Code	Tot Fee	Paid	Prv. Pmts	Cur. Pmts
1000	Building Permit	128 31704221	25.00	.00	.00	.00

Total fees: \$25.00  
Total payments: \$0.00

**Additional requirements for permit #BP18-0615 :**

Cond: DEMO/FIRE

Northwest Clean Air Agency bans burning of construction and demolition debris, including lumber scraps under NWCAA Regulation 502.4. See regulations at [www.nwcleanairwa.gov](http://www.nwcleanairwa.gov) or 360-428-1617.

Cond: BURN

It is illegal to burn construction or demolition debris. See the Outdoor Burning pamphlet included in your packet.

Cond: DECOM

When demolition of a structure takes place that will involve abandonment of a well or septic system, the decommissioning and abandonment shall be in accordance with WAC 173-160-381 for wells and WAC 246-272A-0300 and SCC 12.05.190 for septic systems. Contact the Skagit County Health Department for additional information.

Cond: DEMO

When project is complete, notify the Assessor's office to have your structure removed from the tax rolls.





STATE OF WASHINGTON  
DEPARTMENT OF ECOLOGY

Northwest Regional Office • 3190 160th Ave SE • Bellevue, WA 98008-5452 • 425-649-7000  
711 for Washington Relay Service • Persons with a speech disability can call 877-833-6341

MAY 29 2019

Skagit County PUD #1  
c/o Wendy LaRocque  
Environmental Compliance Coordinator  
PO Box 1436  
Mount Vernon, WA 98273

RE: Variance request from Washington Administrative Code (WAC) 173-160-381. The property address is 14012 Riverbend Road, Mount Vernon, in the SE ¼ SW ¼ of Section 7, Township 34 North, Range 04 East, W.M., on Tax Parcel P23933 in Skagit County.

Dear Ms. LaRocque:

Ecology received your variance request via email on May 7, 2019. The request states that strict compliance with WAC 173-160-381, which details decommissioning standards for water wells, is impractical because the minimum standards do not prescribe methods for decommissioning Ranney wells. You propose improved sealing methods that meet the minimum standards for decommissioning dug wells, the well type sharing the most characteristics with Ranney wells. The variance you requested to WAC 173-160-381 is **granted** in accordance with WAC 173-160-106, to decommission the well. This variance **expires May 31, 2020**, and is granted with the provisions listed below:

1. A "Notice of Intent to Decommission a Well" and fees shall be submitted to the Department of Ecology (Ecology) at PO Box 47611, Olympia, WA, 98504-7611.
2. All other minimum construction standards found in WAC 173-160 shall be followed to prevent degradation of the groundwater resource.
3. A well report containing the details required by WAC 173-160-141 shall be submitted to Ecology at 3190 160<sup>th</sup> Ave SE, Bellevue, WA 98008, within 30 days of completion of work on the well.
4. With the exception of the specific provisions set forth (above) in this variance, all federal, state, and local requirements shall apply.
5. This variance expires **May 31, 2020**. After this date, approval of a new request for variance or an extension must be requested in writing for the work proposed.

#### Your Right To Appeal

You have a right to appeal this Order to the Pollution Control Hearings Board (PCHB) within 30 days of the date of receipt of this Order. The appeal process is governed by chapter 43.21B RCW and



Skagit County PUD #1  
c/o Wendy LaRocque  
Variance Request  
Page 2

chapter 371-08 WAC. "Date of receipt" is defined in RCW 43.21B.001(2).

To appeal, you must do the following within 30 days of the date of receipt of the Order:

- File your appeal and a copy of this Order with the PCHB (see addresses below). Filing means actual receipt by the PCHB during regular business hours.
- Serve a copy of your appeal and this Order to Ecology in paper form - by mail or in person (see addresses below). E-mail is not accepted.

You must also comply with other applicable requirements in chapter 43.21B RCW and chapter 371-08 WAC.

Street Addresses	Mailing Addresses
<b>Department of Ecology</b> Attn: Appeals Processing Desk 300 Desmond Drive SE Lacey, WA 98503	<b>Department of Ecology</b> Attn: Appeals Processing Desk PO Box 47608 Olympia, WA 98504-7608
<b>Pollution Control Hearings Board</b> 1111 Israel RD SW, Ste 301 Tumwater, WA 98501	<b>Pollution Control Hearings Board</b> PO Box 40903 Olympia, WA 98504-0903

For additional information, visit the Environmental Hearings Office Website: <http://www.eho.wa.gov>. To find laws and agency rules, visit the Washington State Legislature Website: <http://www1.leg.wa.gov/CodeReviser>.

Your attention to these laws and regulations, and cooperation with the Department of Ecology in this matter, is appreciated. Please telephone Noel S. Philip at (425) 649-7044 or email him at [noel.philip@ecy.wa.gov](mailto:noel.philip@ecy.wa.gov) if you have any questions concerning this variance.

DATED this 29 day of May, 2019, at Bellevue, Washington.

Sincerely,



Ria Berns  
Section Manager  
Water Resources Program

By certified mail: 9171 9690 0935 0206 7596 93

Enclosure: Your Right to be Heard

cc: Noel S. Philip, LHG, Well Construction Coordinator

I certify that I mailed this Order, or an identical copy thereof, postage prepaid, to the above addressee(s) this 30th day of May 2019.

 (SIGNATURE)

## **APPENDIX C**

### **Contractor Inadvertent Discovery Plan**



1415 Freeway Drive  
P.O. BOX 1436  
Mount Vernon, WA 98273-1436  
tel: (360) 424-7104  
www.SkagitPUD.org

*Owned by the people we serve.*

## **Contractor Inadvertent Discovery Plan**

### **I. Protocol**

In the event that human remains and/or cultural or archaeological resources (see section II below) are encountered during the course of project construction, the following actions shall be taken:

- A. The contractor shall immediately stop work at and adjacent to the site of discovery, call back all haul trucks in transit containing loads of site soils, move any land-altering equipment to a reasonable distance from the discovery, completely secure the site, and contact the District.
- B. If the discovery consists of cultural or archaeological items that do not include human remains, the District shall notify the following parties:
  - 1) A professional archaeologist
  - 2) The Department of Archaeology and Historic Preservation (DAHP) (Gretchen Kaehler, office: 360-586-3088; cell: 360-628-2755)
  - 3) Swinomish Indian Tribal Community (Josephine Peters, 360-466-7352)
  - 4) Upper Skagit Tribe (Scott Schuyler, 360-982-8218)
  - 5) Samish Indian Nation (Jackie Ferry, 360-293-6404)
  - 6) Stillaguamish Tribe (Kerry Lyste, 360-657-3687 ext. 14)

If the discovery consists of human remains, the District shall immediately contact the following parties:

- 1) The Skagit County Sheriff's Department (non-emergency line: 360-428-3211) and the Skagit County Coroner, (Daniel Dempsey 360-336-9431) to determine if the remains are forensic in nature.
  - 2) If the remains are not forensic in nature, the District shall contact DAHP (Gretchen Kaehler 360-586-3088 and Guy Tasa 360-586-3534); who will take the lead on determining the appropriate method of treatment for the remains and will consult with the affected tribes.
- C. The District shall issue a written order to the contractor to cease all construction operations at the location of the potential cultural resources find. The order shall contain the following:

- 1) A clear description of the work to be suspended.
- 2) Any instructions regarding issuance of further orders by the contractor for material services.
- 3) Guidance as to action to be taken on the subcontracts.
- 4) Any suggestions to the contractor as to minimization of its costs.
- 5) Estimated duration of the temporary suspension.

The work suspension order shall be effective until such time as a qualified archaeologist can be called by the District to assess the significance of the potential cultural resources and make recommendations to the State Historical Preservation Officer. If the archaeologist, in consultation with the State Historic Preservation Officer, determines that the potential find is a significant cultural resource, the District shall extend the duration of the work suspension order, in writing, and the contractor shall suspend work at the location of the find.

## **II. Protected Cultural or Archaeological Resources**

Cultural material that may be protected by law could include but is not limited to:

- Buried layers of black soil with layers of shell, charcoal, and fish and/or mammal bones.
- Buried cobbles that may indicate a hearth feature;
- Non-natural sediment or stone deposits that may be related to activity areas of people;
- Stone, bone, shell, horn, or antler tools that may include projectile points, scrapers, cutting tools, wood working wedges or axes, and grinding stones;
- Stone tools or stone flakes;
- Perennially damp areas may have preservation conditions that allow for remnants of wood and other plant fibers; in these locations there may be remains including fragments of basketry, weaving, wood tools, or carved pieces; and
- Human remains.

**APPENDIX D**  
**Asbestos Inspection Report**

**R. H. Welch**  
**Environmental/Safety Management Training & Consulting**

September 5, 2018

Ms. Wendy LaRocque, Environmental Compliance Coordinator  
Skagit PUD  
1415 Freeway Drive  
Mt. Vernon, WA 98273  
(360) 848-4451

Dear Ms. LaRocque:

This letter and the attached documentation will comprise the Asbestos Inspection Report for the 'Ranney Well' house located on the South bank of the Skagit River ~100 yards West of the I-5 bridge over the Skagit River in Mt. Vernon, WA. This structure was built in 1954.

On August 29, 2018 I personally conducted an inspection of the above mentioned property for the specific purpose of identifying the presence or absence of asbestos-containing building materials. In addition to conducting a visual assessment I collected two samples of the roofing (petroleum-base with silver coat paint). No other building materials were deemed to be of a 'suspect' nature.

Those samples were delivered to an accredited laboratory by U.S. Mail for analysis by Polarized Light Microscopy (PLM).

**Samples collected included the following:**

<b>Sample #</b>	<b>Material</b>	<b>Location</b>	<b>Asbestos %</b>
<b>PUD-001a</b>	<b>Roofing with Silver Paint</b>	<b>Exterior</b>	<b>3%<sup>1</sup></b>
<b>PUD-001b</b>	<b>Roofing with Silver Paint</b>	<b>Exterior</b>	<b>NT</b>

**NT: Not tested as the initial sample tested positive (3%).**

**<sup>1</sup> The asbestos is found in the Silver Paint, not the primary body of roofing.**

**Point Counting was ordered on the sample that tested positive in an effort to bring the result under 1%. This effort failed as the Point Count only reduced the 3% to 1.25%...still 'more than 1%'.**

**Point Counting** is an **objective** extension of the initial Polarized Light Microscopy (PLM) which is **subjective** in nature and always supersedes the initial PLM finding(s).

**Summary of Asbestos-Containing Materials (more than 1%):**  
**The single roofing material tested positive for asbestos (even though only the Silver Paint layer was more than 1% asbestos..**

**Conclusion:**

**The Roofing material is, in fact, positive for asbestos (more than 1%).**

Any building materials found to contain **more than one percent asbestos** are considered 'Asbestos-containing materials' in accordance with Title 40 Code of Federal Regulations (40 CFR), Subpart M, Section 61.141 and typically must be removed from a structure prior to any demolition, renovation or remodeling that would disturb those materials.

Laboratory reports, laboratory certification and Inspector Accreditation attached.

It is understood that the purpose of this inspection was to accommodate demolition of the structure.

This will conclude the limited Asbestos Inspection Report for the 'Ranney Well' house located on the South bank of the Skagit River ~100 yards West of the I-5 bridge over the Skagit River in Mt. Vernon, WA.

Sincerely,



Robert H. Welch,  
AHERA Building Inspector



201812580

**Robert H. Welch**  
Asbestos Inspection Data Sheet

Client: Skagit PUD Phone: 360 848-4451  
Address: 1415 Freeway Dr. - Mt. Vernon, WA 98273

Inspector: Robert Welch Date: 8-29-18  
Cert. #: RHW-BIR-18-125 Expiration Date: 7-11-19  
Building Address: 'Ranney Well' So. bank of Skagit River \*  
Res:  Com:  Pub:  Ind:  Other: \* more detail in report  
Demo:  Renov:  Remod:  Other:   
Year Const: 1954 Prev. Insp.:

Material Description	Category TSI-SM-M	F/NF	Cond.	Location	Quantity	Sample #
<u>Asst. Roofing</u>	<u>M</u>	<u>F</u>	<u>Poor</u>	<u>Exterior</u>	<u>~1800</u>	<u>PUD-001a</u>
"	"	"	"	"	"	<u>PUD-001b</u>

**Legend:**

FT: Floor Tile    ACT: 'Popcorn'    CAB: Cement Board    CT: Ceiling Tile  
AC: Air Cell    BI: Boiler Ins.    PI: Pipe Ins.    FP: Fire Proofing  
FM: Floor Mastic    R: Roofing    VS: Vinyl Sheeting    JC: Joint Compound  
G: Gasket    WB: Wallboard    M: Mortar    WB: Wallboard  
P: Plaster    SC: Soft Concrete    CAP: Cement Pipe    WP: Window Putty  
FB: Fire Brick    DW: Duct Wrap    CM: Carpet Mastic    CBM: Cove Mastic

4017 Ridge Way Mt. Vernon, WA 98273 (360) 333-7500 rhwelch05@gmail.com  
Received by Eric Zeng 8/31/18 14:40  
Analyzed by [Signature] 9/4/18 10:10

**SEATTLE ASBESTOS TEST**

Lynnwood Laboratory: 19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel: 425.673.9850, Fax: 425.673.9810, NVLAP Lab Code: 200768-0

Disclaimer: This report must not be used by the client to claim product certification, approval, or endorsement by Seattle Asbestos Test, LLC, NVLAP, NIST, or any agency of the Federal government.

**ANALYTICAL LABORATORY REPORT**  
**PLM by Method EPA/600/R-93/116**

Attn.: Mr. Robert Welch      Client: R. H. Welch      Address: 4017 Ridge Way, Mt. Vernon, WA 98273  
 Job#: Skagit PUD      Batch#: 201812580      Date Received: 8/31/2018  
 Samples Rec'd: 2      Date Analyzed: 9/4/2018      Samples Analyzed: 1  
 Project Loc.: 1415 Freeway Dr., Mt Vernon, WA 98273

Analyzed by:  Sheres Ma      Reviewed by: Steve (Fanyao) Zhang, President

Lab ID	Client Sample ID	Layer	Description	%	Asbestos Fibers	Non-fibrous Components	%	Non-asbestos Fibers
1	PUD-001a	1	Silver paint	3	Chrysotile	Paint, Filler	2	Cellulose
		2	Black asphaltic material		None detected	Asphalt/binder	3	Cellulose
		3	Black asphaltic fibrous material		None detected	Filler, Asphalt, Binder	64	Cellulose
		4	Black asphaltic material		None detected	Asphalt/binder	3	Cellulose
2	PUD-001b		Sample not analyzed					

**SEATTLE ASBESTOS TEST**

NVLAP Accreditation Lab Codes: 200768 and 200876

19701 Scriber Lake Road, Suite 103, Lynnwood, WA 98036, Tel:425.673.9850, Fax:425.673.9810  
12727 Northup Way, Suite 1, Bellevue, WA 98005, Tel:425.861.1111, Fax:425.861.1118  
Website:www.seattleasbestostest.com, Email:admin@seattleasbestostest.com

**PLM by Point Count (400 points)**

Attention: Mr. Robert Welch  
Client: R. H. Welch  
Address: 4017 Ridge Way, Mt. Vernon, WA 98273

Client Job #: Skagit PUD  
Laboratory Batch #: 201812608  
Date Received: 9/4/2018  
Samples Received: 1  
Date Analyzed: 9/4/2018

Project: 1415 Freeway Dr., Mt Vernon, WA 98273

Sample Requested for Point Count PUD-001a

Previous Analytical Information

Previously Analyzed by: Sherlee Ma  
Previous Batch #: 201812580  
Previous Lab ID: 1  
Previous Description: Silver paint  
Layer to be Point Counted: 1  
Asbestos Type Found: Chrysotile  
Asbestos Percentage Found: 3

Point Count Analytical Procedures

New Lab ID: 1


	Asbestos Points	Non-Asbestos Points	Total Points Counted
Slide 1	0	50	50
Slide 2	1	49	50
Slide 3	1	49	50
Slide 4	0	50	50
Slide 5	2	48	50
Slide 6	0	50	50
Slide 7	1	49	50
Slide 8	0	50	50
<b>Total</b>	<b>5</b>	<b>395</b>	<b>400</b>

Point Count Summary Results

Type of Asbestos: Chrysotile  
Percentage of Asbestos: 1.25%

Analyzed By: Sherlee Ma

Reviewed by: Steve Zhang, President



## **Asbestos Definitions**

**Asbestos:** a natural occurring fibrous, crystalline mineral. Most common forms are Chrysotile, Amosite and Crocidolite (also, Tremolite, Actinolite and Anthophyllite).

**DOSH:** Also referred to as 'Labor and Industries'. Requires asbestos inspections prior to any demolition, remodeling or renovation.

**Friable Asbestos:** material that can be crumbled, crushed or pulverized by hand pressure when dry.

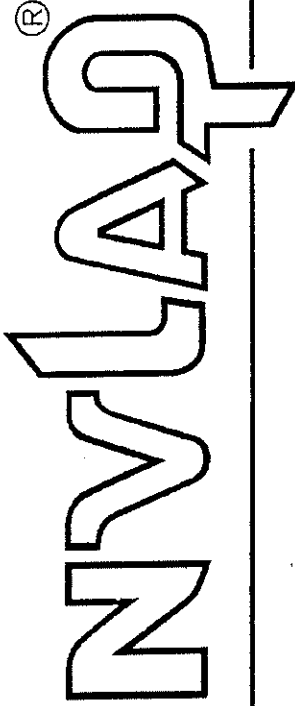
**LCAA:** Local Clean Air Agency (these agencies require asbestos inspections prior to demolition, remodeling or renovation activities).

**ND:** None (asbestos) detected...as in the laboratory process.

**NT:** Not tested (as when the first sample in a series has tested positive).

**PACM:** Material that is presumed to contain asbestos. Even if not tested, it must therefore be treated as asbestos.

United States Department of Commerce  
National Institute of Standards and Technology



---

## Certificate of Accreditation to ISO/IEC 17025:2005

---

NVLAP LAB CODE: 200768-0

**Seattle Asbestos Test, LLC**  
Lynnwood, WA

is accredited by the National Voluntary Laboratory Accreditation Program for specific services,  
listed on the Scope of Accreditation, for:

### **Asbestos Fiber Analysis**

*This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005.  
This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality  
management system (refer to joint ISO-ILAC-IAF Communiqué dated January 2009).*

---

2017-10-01 through 2018-09-30  
Effective Dates



*[Signature]*  
For the National Voluntary Laboratory Accreditation Program

# Certificate of Completion

This is to certify that on  
July 11, 2018

**Robert H. Welch**

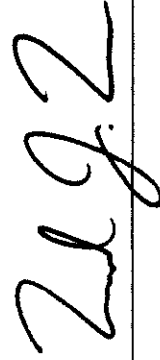
Did attend and satisfactorily complete the training requirements in accordance with  
TSCA Title II (Section 206) and 40 CFR 763 &  
Missouri State RSMo 643.230

For designation as an  
**AHERA Building Inspector (Refresher)**


Certificate No. RHW-BIR-18-125

Refresher Due:  
July 11, 2019

Presented By:



**Michael J. Moore**  
Training Director/Instructor



**RH WELCH, INC.**  
P.O. BOX 1000 • 1000 W. STATE ST. • ST. LOUIS, MO 63102

## **APPENDIX E**

# **Ranney Well Decommissioning Geotechnical Investigation and Engineering Report**

# Materials Testing & Consulting, Inc.

Geotechnical Engineering • Materials Testing • Special Inspection • Environmental Consulting



December 13, 2018

## Wendy LaRocque

*Environmental Compliance Coordinator*

Skagit PUD

1415 Freeway Drive; PO Box 1436

Mt. Vernon, WA 98273

**Subject: Ranney Well Decommissioning Geotechnical Study**  
14012 Riverbend Road  
Mt. Vernon, Washington

## MTC Project No.: 18B231-02

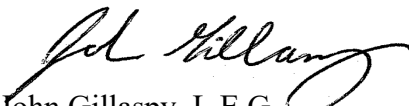
Dear Ms. LaRocque:


This letter transmits our Geotechnical Investigation and Engineering Report for the above-referenced project. Materials Testing & Consulting, Inc. (MTC) performed this geotechnical engineering study in accordance with our Revised Proposal for Geotechnical Services, dated September 5, 2018.

We would be pleased to continue our role as your geotechnical engineering consultants during the project planning and construction. We also have a keen interest in providing materials testing and special inspection during construction of this project. We will be pleased to meet with you at your convenience to discuss these services.

We appreciate the opportunity to provide geotechnical engineering services to you for this project. If you have any questions regarding this report, or if we can provide assistance with other aspects of the project, please contact me at (360) 755-1990.

Respectfully Submitted,  
**MATERIALS TESTING & CONSULTING, INC.**

  
John Gillaspay, L.E.G.  
NW Region Geotechnical Division Manager

  
Kevin Quillan, G.I.T.  
Project Geologist

Attachment: Geotechnical Investigation and Engineering Report

Corporate • 777 Chrysler Drive • Burlington, WA 98233 • Phone 360.755.1990 • Fax 360.755.1980  
SW Region • 2118 Black Lake Blvd. S.W. • Olympia, WA 98512 • Phone 360.534.9777 • Fax 360.534.9779  
NW Region • 805 Dupont, Suite #5 • Bellingham, WA 98225 • Phone 360.647.6061 • Fax 360.647.8111  
Kitsap Region • 5451 N.W. Newberry Hill Road, Suite 101 • Silverdale, WA 98383 • Phone/Fax 360.698.6787

Visit our website: [www.mtc-inc.net](http://www.mtc-inc.net)



# GEOTECHNICAL INVESTIGATION AND ENGINEERING REPORT

## RANNEY WELL DECOMMISSIONING PROJECT

14012 RIVERBEND ROAD  
MOUNT VERNON, WASHINGTON

Prepared for:

**Wendy LaRocque**

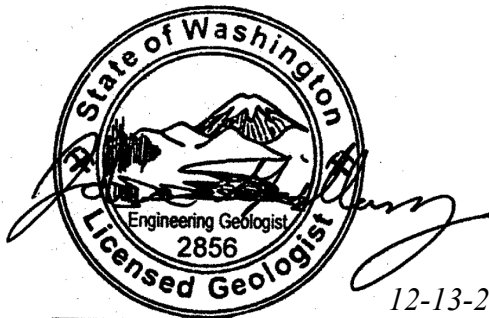
*Environmental Compliance Coordinator*

Skagit PUD

1415 Freeway Drive; PO Box 1436

Mt. Vernon, WA 98273

Prepared by:

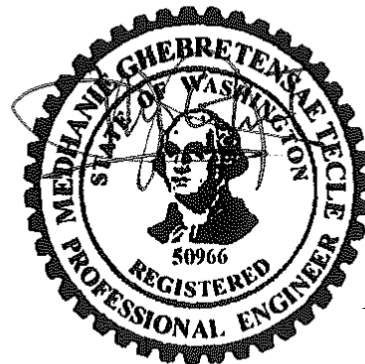


12-13-2018

**John R. Gillaspay**

John Gillaspay, L.E.G.

NW Region Geotechnical Division Manager



12-13-2018

Medhanie Tecele, P.E.

Engineering Manager

Additional Work By: Kevin Quillan, G.I.T.  
Project Geologist

### **MATERIALS TESTING & CONSULTING, INC. (MTC)**

777 Chrysler Drive

Burlington, Washington 98233

Phone: (360) 755-1990

Fax: (360) 755-1980

December 13, 2018

MTC Project Number: **18B231-02**

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## 1.0 INTRODUCTION

### 1.1 GENERAL

This report presents the findings, analyses, and recommendations of Materials Testing & Consulting, Inc.'s (MTC) geotechnical engineering investigation conducted in support of planning and design of the proposed Ranney Well decommissioning project. The client has enlisted MTC's geotechnical exploration and engineering services to investigate potential settlement hazards associated with well backfill and capping following decommissioning. The well is located approximately 1/3-mile west of Interstate I-5 along the southern levee crest of the Skagit River and is accessed at 14012 Riverbend Road, in Mt. Vernon, WA. The location and aerial photo overview of the project site is shown in Figures 1 and 2 of Appendix A and B.

### 1.2 PROJECT DESCRIPTION

It is our understanding that the client (Skagit County PUD) intends to decommission the existing Ranney Well located on the southern levee crest paralleling the Skagit River. Based on provided information, the well is approximately 53 feet deep from the crest of the Levee and consists of a 13-foot diameter concrete caisson shaft (to remain in place), floor plug of concrete, and interior piping capped with an above-grade small well house (to be removed). The project will involve some form of sealing the base and top of the well and backfilling the shaft. Materials and methods are to be determined based on further planning analysis and bearing conditions below the well.

For this purpose, the client has requested a geotechnical exploration and analysis to provide an evaluation of bearing conditions, potential for settlement, and related project concerns including recommendations for backfill and surface preparations during decommissioning. Well as-built and log data provided by the client, as well as other vicinity historical well log records, have indicated that the subsurface generally consists of approximately 15 feet of silty soils underlain by sand and gravel deposits to around 50 feet depth where clay was contacted. Subsequently, the elevated soil-fill levee embankment was built up that runs roughly east-west and passes directly adjacent to the well structure. Deeper soil data at the site and vicinity was not available prior to this work. Drilling was utilized to confirm as-built data and to explore soils conditions at and below the base of the well base to determine soil conditions and bearing suitability of underlying soils.

MTC should be given the opportunity to review the final plans and specifications for the project to ensure that the recommendations presented herein are appropriately applied as intended by this report. Recommendations and conclusions presented by this report will need to be re-evaluated in the event that changes to the proposed project are made.

### **1.3 PURPOSE AND SCOPE OF SERVICES**

The purpose of our study was to explore subsurface conditions at the site, to determine soil conditions at elevations understood to be equivalent to the existing well shaft and at elevations below the base of the well, and to assess the potential structure settlement hazard related to the proposed well decommissioning. Our scope of services was consistent with that presented in our Revised Proposal for Geotechnical Engineering Services, dated September 5, 2018, and supplemental discussions with the client prior to and during the investigation work.

## **2.0 SITE EXPLORATION AND LABORATORY TESTING**

### **2.1 SITE EXPLORATION**

MTC's geotechnical site exploration activities were performed on October 15, 2018. Field subsurface explorations directed by MTC personnel at this time consisted of Standard Penetration Test (SPT) hollow-stem auger drilling. Boring were performed by a subcontractor under the direction of MTC personnel. Exploration locations were selected in consultation with the project client representative prior to the date of field work. Additional information on the site exploration program and field methods is provided with our full exploration logs in Appendix C of this report. Exploration locations are shown approximately on the site aerial photo in Figure 2 of Appendix B.

One (1) SPT boring was advanced under the observation of an MTC Licensed Engineering Geologist and Project Geologist. MTC directed borehole advancement and sampling procedures, logged samples, and noted SPT (Standard Penetration Test) results. The boring was advanced in the area approximately 10 feet southeast of the existing well house and near the north edge of the crest of the levee (Figure 2). During advancement, disturbed split-spoon (SPT) samples were collected at 5-foot intervals through the majority of the advancement. A more frequent 2.5-foot sampling interval was utilized between 55.0 to 70 feet below present grade (BPG) at depths of interest corresponding to the known elevation of the base of the well. Collection of an undisturbed Shelby Tube sample was attempted at 60.0 feet BPG, although deep sampling conditions and use of drill fluid to repress soil heave were found to have affected sample retention during retraction. The boring was advanced to the contracted termination depth of 81.5 feet BPG at planned depths, without encountering refusal on dense or hard conditions.

Additional information on the site exploration program is discussed with our exploration logs presented in Appendix C of this report.

### **2.2 LABORATORY TESTING**

Laboratory tests were performed on selected soil samples in accordance with ASTM standards to determine index and engineering properties of the site soils. Tests included supplementary soil classification, natural moisture content, gradation analysis by sieve methods and #200 Wash, and Atterberg limit analysis. Complete laboratory test results are presented on the test reports included in Appendix D.

## 3.0 EXISTING SITE CONDITIONS

### 3.1 SURFACE DESCRIPTION

The project site is located approximately 1/3 mile west of Interstate I-5 along the southern levee crest of the Skagit River. The Ranney Well is situated at the crest and upper bank of the northern side of the levee facing the river channel. The Skagit River flows westward approximately 40 feet laterally to the north in its present channel. The well borders the north edge of a gravel access road that runs approximately east-west along the levee crest, and the site is accessed from the south by another gravel access road connecting to the public River Bend Road.

Currently, the underground well structure is capped by a small one-story circular well house that is approximately 12 feet in diameter standing above levee grade. The immediate vicinity of the Ranney Well is free of vegetation except for the maintained grassy covering that blankets the majority of the levee leading down to the river bank. To the southeast and southwest, the levee is bordered by undeveloped fields of apparent agricultural use that reside approximately 12 to 15 feet below the crest of the levee and contain a few large deciduous trees lining the dividing access road. Similar surface conditions continue further to the west. Open field conditions also continue to the east for a few hundred feet until reaching an RV park situated directly south of the river and levee.

### 3.2 AREA GEOLOGY

The *Preliminary Geologic Map of the Mount Vernon 7.5-minute Quadrangle, Skagit County, Washington* published by the USGS (D.P. Dethier and J.T. Whetten, 1981) indicates the project site is mapped within the regional Quaternary Alluvium (Qal) unit associated with the modern Skagit River channel and its former course. Quaternary alluvium is described as interbedded fluvial sand, silt, and gravel deposits as well as minor lacustrine deposits. These deposits are generally well sorted and stratified, including some subrounded and rounded clasts derived largely from metamorphic and plutonic rocks of the upper drainage basin. Common knowledge and prior project explorations of nearby areas indicate alluvial soils extend to significant depth, and that near-surface recent floodplain deposits are likely underlain by older plain and channel alluvium.

Well as-built information of the project site suggests up to as much as about 15 feet of levee fill is present, as measured from the well house floor elevation, underlain by fine-grained flood plain deposits. Sand and gravel soils are recorded at about 28 feet below the well floor, followed by clay at around 54 feet depth. Records of other well constructions in the vicinity indicate similar conditions.

The findings of MTC's explorations, consisting of bedded to gradational silty to sandy soils generally coarsening with depth underlain by clay, are consistent with map and well record resources. Variations are attributed to the complex nature of alluvial deposits in an evolving flood plain environment.

### 3.3 SOIL CONDITIONS

A general characterization of on-site soil units encountered during our exploration is presented below. The exploration log in Appendix C presents details of soils encountered by depth along with SPT data and laboratory results.

The on-site soils are generally characterized as follows in stratigraphic order to depth:

- **Crushed Gravel Road Base – Gravel with silt (GW-GM):**

Roadway base material used as surfacing for the levee access road was composed of gravel with silt and sand in a generally dense and damp condition. These soils were medium gray and contained angular gravel up to about 1.5” in diameter. The roadway base material was estimated to be approximately 2.5 feet thick from observation of drill tailings during advancement.

- **Imported Fill – Sand with Gravel to Gravel with Sand (SP-GW):**

Underlying the crushed gravel roadway base were other imported fills presumably emplaced during roadway construction as well as serving as levee cap material. These soils were found to be in a generally medium dense and dry to damp condition. Gravel content was found to increase with depth, with angular clasts up to approximately 1” in diameter. The imported fills were estimated to extend as deep as approximately 4.5 feet BPG, as estimated via drill tailings.

- **Levee Fill – Silty Sand to Sandy Silt, minor Gravel (SM-ML):**

Encountered below the upper imported fill soils were relatively fine-grained non-structural soils apparently emplaced as levee fills, extending down to about 12.5 feet BPG as estimated by cuttings observation. These soils were somewhat variable with depth, indicating different source conditions during construction. Soils were found to be in an overall loose and damp condition, and were visually estimated to contain approximately 40% to 60% silt content; sieve analysis of the 5.0-foot sample recorded 43% fines but greater variation was observed locally. The basal contact was estimated upon reaching more coarse-grained sandy material at elevations interpreted to be roughly equal to the surrounding fields to the south.

- **Upper Alluvial Deposits – Silty Sand (SM):**

Silty sand deposits interpreted as bedded native flood plain alluvium were first encountered between about 12 to 15 feet BPG, with similar soils extending down to approximately 28 feet BPG (contacts approximate). These upper alluvial deposits were predominantly fine-grained sand with little grain size variation by depth. Soil conditions were consistently loose becoming medium dense near the base of the unit, and damp before transitioning to moist and wet near the water table level at the time of drilling (~28.0 feet BPG). Small, centimeter-scale sand and sandy silt interbeds were observed in samples from the 20- and 25-foot intervals. Overall silt content was estimated to be consistently 20% to 30% throughout the horizon.

- **Coarse Alluvial Deposits (upper) – Sand to Sand with Gravel, trace Silt (SP):**  
Underlying the upper fine-grained alluvium was a thick (approximately 28-foot) horizon of coarse-grained alluvium typically consisting of sand to sand with gravel with minor to trace silt. These soils were generally medium dense and saturated and contained little interbedding of various contents. Conditions were loose at two intervals (45 and 55 feet BPG). The basal contact with underlying fine-grained soils was confirmed at 56 feet BPG in the SPT sample.
- **Fine Alluvial Deposits (upper) – Sandy Silt to Silty Clay (ML-CL):**  
Two horizons of dominantly fine-grained alluvium were encountered with depth beneath the coarse alluvial section beginning at about 56 feet BPG. The upper horizon consisted of sandy silt to silty clay extending to approximately 67 feet BPG. These soils were observed to be medium stiff in the upper half of the unit transitioning to stiff with depth. Soils were typically saturated and contained fine-grained sand as well as trace organics and rare thin organic remains.  
Atterberg analysis on soils sampled at 58 feet BPG indicated non-plastic conditions, although some low plasticity was interpreted in the field, suggesting variations in the level of plasticity and clay content within this unit. Pocket penetrometer readings recorded approximately 0.75 tons per square foot (tsf) on samples retrieved via SPT from the 58-foot and 63-foot intervals, increasing to an average of 1.0 tsf in the 65-foot sample. Penetrometer results generally concur with the blow counts of SPT sampling, indicating medium stiff to stiff consistency increasing with depth.
- **Fine Alluvial Deposits (lower) – Sandy Silt to Silty Sand (ML-SM):**  
The lower horizon of the fine-grained alluvial soil deposits was encountered at approximately 67 feet BPG and extended to an estimated lower contact of about 73.5 feet BPG. This horizon contained predominantly sandy silt becoming silty fine to medium grained sand with depth. Soils were consistently stiff or medium dense and saturated throughout the horizon. Lab analysis of the sample recovered at 70 feet BPG recorded a fines content of approximately 25%, although field estimates of 35% to 55% indicate that fines content for the entirety of the horizon varies over a wider range.
- **Coarse Alluvial Deposits (lower) – Sand, some Silt and Gravel (SP):**  
The lowermost soil horizon encountered consisted of primarily poorly-graded sand with some silt and gravel. These sands were generally coarse-grained with thin interbeds of silt- and gravel-rich deposits. Soil conditions were consistently medium dense and saturated. The unit persisted through end depth of 81.5 feet BPG. The lower contact of this unit is not constrained by the current exploration or by other information available for our review.



### 3.4 SURFACE AND GROUNDWATER CONDITIONS

Surface water conditions were not present in the immediate proximity along the crest of the levee or to the south within the open fields. The dominant surface water feature bordering the site is the Skagit River channel, which flows westward just to the north of the exploration area. The south bank of the river is roughly 40 feet from the north edge of the levee crest, estimated visually.

Soil moisture conditions and the intermittent presence of free water within the boreholes were observed and recorded during field exploration activities to further characterize groundwater conditions beneath the study area. Additionally, natural moisture laboratory tests were performed on three soil samples collected during boring activities. Soil moisture content retained in a sample taken from the upper portion of the levee fill soils (5-foot BPG interval) was 13.3%. This confirms a generally damp, non-saturated condition within the upper soils. No indication of free water or wet to saturated conditions was seen in samples from the upper 20 feet. The 25-foot sample was noted to be relatively moist. Moisture recorded in the sample obtained from the base of the upper coarse alluvial deposit (55 feet BPG) was 17.9%, confirming saturated conditions for the sandy soil. Within the sandy silt to silty clay deposit at 58 feet BPG the soil moisture retained was 58.4%, a function of its high fines content and observed plasticity of the soil at this depth.

Free water conditions and saturated soils were encountered in the boring at the predicted elevation given the water level in the Skagit River directly to the north on the date of drilling. Soil conditions were generally damp down to approximately 25.0 feet BPG, then became moist before abruptly increasing to a saturated condition in the sample obtained at 30.0 feet BPG. This, combined with the behavior of the drill rig and cuttings observed during advancement, lead to the interpretation of the groundwater level at approximately 28.0 feet BPG during advancement. This groundwater elevation correlated well with the elevation of the borehole versus the surface water elevation in the Skagit River at that time. An accurate measurement of the water level within the borehole after extraction was not feasible due to the use of drilling mud.

MTC's scope of investigation did not include determination of groundwater elevation variations as a function of seasonal or river level influences, conclusive measurement of groundwater elevations at the time of exploration, installation of monitoring wells, or monitoring of water levels over a timeframe past the field visit. The moisture conditions and groundwater levels documented on the boring log are considered valid only for the date of field exploration.

## **4.0 GEOTECHNICAL ANALYSIS & DISCUSSION**

### **4.1 COMMENTARY ON SETTLEMENT CONSIDERATIONS**

Subsurface explorations conducted in close proximity to the existing well structure and extended to approximately 25 feet past the estimated well base elevation have encountered soil conditions that warrant further consideration of their settlement risk with respect to the proposed decommissioning and backfilling. The primary geotechnical concern for the well decommissioning is the potential for vertical settlement of the well following the proposed backfilling of the open well shaft. Therefore, the main focus of our field investigation and analysis of its results was on the soils encountered at and below the base of the existing well.

No excessively very soft or very loose soils were encountered at or below the recorded base-of-well elevation that would present an obvious hazard for significant settlement to occur upon backfilling or via consolidation over the long term that could render the project infeasible. However, soil deposits at elevations corresponding to the upper approximately 10 feet directly below the base of the well were found to be sandy silt to silty clay in a medium stiff condition becoming stiff with depth, considered sensitive to loading. The following approximately 6 feet of soils were also comprised of relatively fine-grained alluvium which was generally in a stiff or medium dense condition that may have some sensitivity to excess loads. Deposits below to maximum depths explored were medium dense coarse-grained sands considered a negligible risk for settlement under the proposed loading scenario discussed below. Our boring data is in substantial agreement with as-built records from original well construction indicating that the well was constructed through a thick section of sand and gravel deposits with the base of the well founded at the top of underlying “clay” deposits.

Based on observed and measured soil consistencies in the field and the blow-count results of SPT sampling, we interpret that the sandy silt to silty clay soils present below the well base do pose some level of settlement hazard, depending on the actual loads applied. In comparison to the results of prior projects with similar soil conditions, and taking into account the limited thickness of sensitive fine-grained deposits that transition to higher strength and more coarse-grained with depth, the maximum potential magnitude of combined settlement (immediate and consolidation) was initially estimated to be on the order of 1 to 2 inches under excessive loads. For some projects and structures, uniform settlements of this magnitude are not necessarily of significant concern. In this case, we understand concerns have been raised regarding both the stability of the levee embankment as well as the potential for shearing or breakage of attached piping that could be negatively affected or disrupted by even relatively small magnitudes of settlement. Further analysis was undertaken to better quantify the anticipated settlement under the proposed backfill plan and determine a recommended course of action from a geotechnical perspective in order to minimize the risk of adverse settlement of the well structure.

## 4.2 ASSESSMENT OF SETTLEMENT POTENTIAL

The soils subject to loading beneath the base of the well are roughly 55 feet below existing exterior grade of the levee. Soil deposits at depth within an alluvial setting are considered “normally consolidated” by overburden conditions. In other words, the soils below the base of the well were, prior to the well construction, consolidated and settled by the load of the overlying soils. Application of a lesser or similar magnitude of load in comparison to the original overburden pressure should not induce additional settlement, whereas applying loads in significant excess of the original pressure will result in further consolidation of the soils to a degree dependent on the actual magnitude and dimension of the load. Furthermore, the effect of an applied load dissipates with depth, so that soil horizons directly below the load are subject to a greater increase in stress.

Initial concepts for the decommissioning depict backfill with 10 feet of concrete at the bottom of the well shaft followed by gravel borrow to near the surface. A 2-foot cap of concrete is followed by additional gravel borrow to reconstruct levee bank conditions to match adjacent sloping grades. In order to calculate settlement potential under excess loading, we assigned typical unit weights to the proposed backfills (150 pounds per cubic foot (pcf) for concrete, 135 pcf for gravel borrow) and calculated the total weight applied to one square foot at the base of the shaft. Considering the types of soil present as overburden, we assigned a bulk unit weight for original native conditions (115 pcf). The original weight was subtracted from the proposed total weight to estimate the excess load applied by the proposed backfill, approximately 1,300 pounds per square foot (psf).

MTC performed a calculation of cumulative settlement (combined initial and long-term settlement) of the 13-foot diameter well base under the estimated excess loading resulting from well backfill. Soil stratigraphy was adopted directly from boring B-1 as representing the 25 feet of soil underlying the well base elevation. In order to most accurately portray variations in the soil column and the dissipation of load with depth, soils were separated into 1-foot intervals for the upper 10 feet and 2-foot intervals through end depth. Soil parameters were assigned based on our laboratory test results and field findings, considered along with typical values for the soil types and depositional conditions. No factor of safety was applied to inputs or loads in the calculation, however the soil parameters adopted are considered relatively conservative so as to avoid underestimating potential settlement. A depth correction was also not applied.

Table 1 below displays the vertical stress applied and summarizes the results of MTC’s cumulative settlement calculation per interval. Listed depths are in reference to the existing well base elevation. Note that while a relatively high degree of accuracy is displayed for settlement per foot for tabulation purposes, these values and the resulting sum of total settlement are intended to represent only an approximation of the level of settlement potential.

**Table 1.** Estimate of Well Base Settlement Under Excess Load (1,300 psf)

DEPTH (FROM BASE – FEET)	INITIAL LOAD (PSF)	FINAL LOAD (PSF)	SETTLEMENT (CUMULATIVE - INCHES)
0	26	1326	0.1
1	79	1368	0.2
2	132	1385	0.3
3	184	1375	0.3
4	237	1343	0.4
5	289	1299	0.5
6	342	1253	0.5
7	395	1210	0.5
8	447	1175	0.6
9	500	1148	0.6
10	584	1129	0.6
12	699	1136	0.6
14	814	1169	0.7
16	929	1221	0.7
18	1049	1292	0.7
20	1175	1380	0.7
22	1300	1475	0.7
24	1425	1576	0.7
<b>TOTAL CUMULATIVE SETTLEMENT</b>			<b>~0.7 Inches</b>

This calculation has yielded a total settlement potential approaching 1 inch magnitude for the proposed backfill generating an excess load of about 1,300 psf over original overburden conditions. Generally speaking, differential settlement risk is presumed be on the order of one-half the total magnitude, in this case around 1/3- to 1/2 inches. Most of the settlement occurs in the upper 5 to 6 feet, coinciding with the greatest loads and most sensitive soils encountered. For this load and the size of well base, 90% of the load is found to be dissipated by about 20 feet depth. Therefore, conditions past the termination depth of the boring are considered to be outside the realm of concern. For comparison purposes, we ran excess load values up to 2,500 psf that could be attained by a full high-density concrete infill. Total settlements of up to about 1.5 inches could occur under this maximum stress scenario.

The above results do not factor in potential contributions of settlement reduction resulting from friction resistance along the exterior sides of the existing well casing (aka skin friction). While friction resistance and friction capacity is often accounted towards total bearing of similar underground structures (such as auger-cast piles), it is our opinion that it is most appropriate to negate its effect in this case for the following reasons. Primarily, it is understood that the well casing was constructed in segments and that the base was installed after the shaft was in place. It is conceivable that, if settlement were to initiate below the well base, the base itself or lowermost segment could move without engaging the rest of the casing. Secondly, the potential for fluctuation of the adjacent river level and occasional high-stage flood conditions presents a risk of contributing buoyancy forces that would counteract or reduce friction resistance. Finally, the soils above the well base level are considered potentially liquefiable. Under a seismic event of sufficient magnitude, the shear resistance of these soils could become temporarily nullified.

### **4.3 BACKFILL DISCUSSION AND RECOMMENDATIONS**

As detailed above, preliminary drawings for the proposed well decommissioning have depicted using a backfill sequence of concrete and gravel borrow in efforts to seal the base and top of the well while filling the existing cavity. However, as is demonstrated in Table 1, the excess load created by these materials over estimated “original” conditions is found to be enough to initiate settlement of the sensitive soils below the well base on the order of up to 1 inch total and ½ inch differential. In consideration of the initial project discussions and concerns posed to date by reviewers, this degree of settlement may exceed what is tolerable for preservation of the structure and levee.

If the goal of the project is to design the decommissioning plan to minimize the risk of vertical settlement so that it is preferably negligible, the weight of the backfill materials should as closely as possible equate to the original overburden density. One option for backfill resulting in a uniform and lighter density than the proposed may be low-density Controlled Density Fill (CDF). In our experience, low-density varieties of CDF are available that would conform closely to the original soil density (around 115 pcf). A secondary advantage of using a flowing fill such as CDF is that the backfill can be installed to a stable and uniform condition without the need for additional compaction and thin lift applications, offering a significant reduction in the amount of efforts required to install versus a traditional soil infill.

As an alternative to CDF, clear angular rock or spalls could be considered as a relatively lighter weight material versus the original proposed materials. For some rock products, the combination of void space and rock density can result in a lower overall density than would a well graded product. For especially light weight applications, pumice stone can be considered. The use of pumice backfill would come with a significant weight reduction but with a similarly significant cost trade-off. For any angular rock product, some level of compaction and installation in manageable lifts is needed. For this application in

a confined space, the level of effort to place and compact a rock product is anticipated to be less than for soil fills, but still calling for methods to be employed.

MTC may be contacted for further discussion and consultation on proposed backfill materials and methodology after the findings of this geotechnical exploration and analysis are considered by the project team.

#### **4.4 SURFACE PREPARATIONS AND LEVEE REFURBISHMENT**

Current plans for decommissioning indicate the intent to remove the above-grade well house and uppermost portion of the shaft to allow for restoration of the embankment at the well location to meet the present sloping grade of the surrounding levee. Plans depict a 2-foot concrete cap placed over the shaft backfill that is embedded below the slope surface at its downhill edge and approximately 6 to 7 feet below the levee crest on its landward side. The concrete cap is shown to be overlain by gravel borrow backfill and the surface top-dressed with landscaping soil. The final surface angle is roughly 3:1 (H:V), meeting the edge of the existing levee crest at its upper south edge.

As encountered in boring B-1, existing shallow soil conditions in the close vicinity of the well structure include approximately 4 feet of imported gravel fill soils placed along the length of the roadway comprising the crest of the levee. Below the crushed gravel surfacing and pit run gravel base soils are silty sands and sandy silts apparently placed as levee backfill in the vicinity of the well after its original construction. These soils were found to contain approximately 40% to 60% fines, and were generally loose and damp at the time of exploration.

In our opinion, the final slope restoration depicted on conceptual drawings is feasible as proposed by following the standard geotechnical recommendations and guidelines presented in Section 5.0. Specific for this application, we recommend all embankment fills be compacted to 95% of their optimum dry density per laboratory modified proctor. Fills shall be installed in horizontal lifts “strong” of the final grade to ensure all portions of the embankment are thoroughly compacted, then cut back to final grade.

## **5.0 CONSTRUCTION RECOMMENDATIONS**

### **5.1 EARTHWORK**

#### **5.1.1 *Excavation***

Excavations can generally be performed with conventional earthmoving equipment such as bulldozers, scrapers, and excavators.

Where possible, excavations made within about one foot of finished subgrade level should be performed with smooth edged buckets to minimize subgrade disturbance and the potential for softening to the greatest extent practical.

#### **5.1.2 *Subgrade Evaluation and Preparation***

After excavations have been completed to the planned subgrade elevations, but before placing fill or structural elements, the exposed subgrade soils should be evaluated under the full-time observation and guidance of an MTC representative. Where appropriate, the subgrade should be proof-rolled with a minimum of two passes with a fully loaded dump truck, water truck or scraper. In circumstances where this seems unfeasible, an MTC representative may use alternative methods for subgrade evaluation.

Any loose soil should be compacted to a firm and unyielding condition and at least to 95 percent of the modified Proctor maximum dry density per ASTM D1557. Any areas that are identified as being soft or yielding during subgrade evaluation should be over-excavated to a firm and unyielding condition or to the depth determined by the geotechnical engineer. Where over-excavation is performed below a structure, the over-excavation area should extend beyond the outside of the footing a distance equal to the depth of the over-excavation below the footing. The over-excavated areas should be backfilled with properly compacted structural fill.

#### **5.1.3 *Site Preparation, Erosion Control and Wet Weather Construction***

The relatively silty existing levee fill materials at proposed excavation and earthwork elevations are highly moisture sensitive and will become soft and difficult to compact or traverse with construction equipment when wet. During wet weather, the contractor should take measures to protect the exposed subgrades and limit construction traffic during earthwork activities.

Since the silty on-site soils will be difficult to work with during periods of wet weather due to elevated soil moisture content, and frozen soil is not suitable for use as structural fill, we recommend that earthwork activities generally take place in late spring, summer or early fall.

Dewatering efforts may be required depending on total excavation depth, season of construction, and weather conditions during earthwork. MTC recommends major earthwork activities take place during

the dry season if possible to minimize the potential for seasonal high groundwater levels near proposed excavation depth, and to reduce seepage occurrences from perched water conditions. It should be understood that some amount of water seepage from shallow sources or perched lenses may be unavoidable year-round.

## 5.2 STRUCTURAL FILL MATERIALS AND COMPACTION

### 5.2.1 *Materials*

All material placed below structures should be considered structural fill. Structural fill material shall be free of deleterious material, have a maximum particle size of 4 inches, and be compactable to the required compaction level.

Excavated levee fill materials consisting of silty sand to sandy silt are not suitable for re-use as structural fill based on observed consistency.

Existing gravel base soils preserved from the current pavement section may be suitable for reuse as structural fill. Materials proposed for reuse should be carefully segregated and stockpiled, as well as covered from inclement weather. Stockpiled soils shall be evaluated and approved prior to reuse. Material properties including gradation and moisture content shall be verified to meet project specifications for the intended use.

Imported material can be used as structural fill. Imported structural fill material should conform to Section 9-03.14(1), Gravel Borrow, of the most recent edition (at the time of construction) of the State of Washington Department of Transportation *Standard Specifications for Road, Bridge, and Municipal Construction (WSDOT Standard Specifications)*. During warm, dry weather, it will likely be necessary to add water to fill soils after residing in stockpiles if stored on site.

Controlled-density fill (CDF) or lean mix concrete can be used as an alternative to structural fill materials, except in areas where free-draining materials are required or specified.

Frozen soil is not suitable for use as structural fill. Fill material may not be placed on frozen soil.

The contractor should submit samples of each of the required earthwork materials to the geotechnical engineer for evaluation and approval prior to delivery to the site. The samples should be submitted at least 5 days prior to their delivery and sufficiently in advance of the work to allow the contractor to identify alternative sources if the material proves unsatisfactory.



### 5.2.2 *Placement and Compaction*

Prior to placement and compaction, structural fill should be moisture conditioned to within 3 percent of its optimum moisture content. Loose lifts of structural fill shall not exceed 8 inches in thickness; thinner lifts will be required for walk-behind or hand operated equipment.

All structural fill shall be compacted to a dense and unyielding condition and to a minimum percent compaction based on its modified Proctor maximum dry density as determined per ASTM D1557. Structural fill placed beneath each of the following shall be compacted to the indicated percent compaction:

Foundation and Floor Slab Subgrades:	95 Percent
Pavement Subgrades (upper 2 feet):	95 Percent
Pavement Subgrades (below 2 feet):	90 Percent
Utility Trenches (upper 4 feet):	95 Percent
Utility Trenches (below 4 feet):	90 Percent

We recommend that fill placed on slopes steeper than 3:1 (H:V) be ‘benched’ in accordance with hillside terraces entry of section 2-03.3(14) of the WSDOT Standard Specifications.

We recommend structural fill placement and compaction be observed on a full-time basis by an MTC representative. A sufficient number of tests shall be performed to verify compaction of each lift. The number of tests required will vary depending on the fill material, its moisture condition and the equipment being used. Initially, more frequent tests will be required while the contractor establishes the means and methods required to achieve proper compaction.

### 5.3 **TEMPORARY EXCAVATIONS AND SLOPES**

All excavations and slopes must comply with applicable local, state, and federal safety regulations. Construction site safety is the sole responsibility of the Contractor, who shall also be solely responsible for the means, methods, and sequencing of construction operations. We are providing soil type information solely as a service to our client for planning purposes. Under no circumstances should the information be interpreted to mean that MTC is assuming responsibility for construction site safety or the Contractor’s activities; such responsibility is not being implied and should not be inferred.

Temporary excavations in the existing levee fill soils should be inclined no steeper than 1.5H:1V unless approved by the geotechnical engineer based on observation of actual encountered conditions at the time of construction. Applying lesser grades may be necessary depending on actual conditions encountered and the potential presence of water seepage. Heavy construction equipment, building materials, excavated soil, and vehicular traffic should not be allowed near the top of any excavation. Where the

stability of adjoining walls or other structures is endangered by excavation operations, support systems such as shoring, bracing, or underpinning may be required to provide structural stability and to protect personnel working within the excavation. Earth retention, bracing, or underpinning required for the project (if any) should be designed by a professional engineer registered in the State of Washington.

Temporary excavations and slopes should be protected from the elements by covering with plastic sheeting or some other similar impermeable material. Sheeting sections should overlap by at least 12 inches and be tightly secured with sandbags, tires, staking, or other means to prevent wind from exposing the soils under the sheeting.

#### **5.4 PERMANENT SLOPES**

MTC recommends that new areas of permanent slopes including fill embankments be inclined no greater than 3H:1V. Permanent slopes should be planted with a deep-rooted, rapid-growth vegetative cover as soon as possible after completion of slope construction. Alternatively, the slope should be covered with plastic, straw, etc. until it can be landscaped.

## 6.0 ADDITIONAL RECOMMENDED SERVICES

The recommendations made in this report are based on the assumption that an adequate program of tests and observations will be made during construction to verify compliance with these recommendations. Testing and observations performed during construction should include, but not necessarily be limited to, the following:

- Geotechnical plan review and engineering consultation as needed prior to construction phase,
- Observations and testing during site preparation, earthwork, structural fill, and pavement section placement,
- Consultation on temporary excavation cutslopes and shoring if needed,
- Testing and inspection of any concrete or masonry included in the final construction plans, and
- Geotechnical consultation as may be required prior to and during construction.

We strongly recommend that MTC be retained for the construction of this project to provide these and other services. Our knowledge of the project site and the design recommendations contained herein will be of benefit in the event that difficulties arise and either modifications or additional geotechnical engineering recommendations are required or desired. We can also, in a timely fashion observe the actual soil conditions encountered during construction, evaluate the applicability of the recommendations presented in this report to the soil conditions encountered, and recommend appropriate changes in design or construction procedures if conditions differ from those described herein.

We further recommend that project plans and specifications be reviewed by us to verify compatibility with our conclusions and recommendations.

Also, MTC retains fully accredited, WABO-certified laboratory and inspection personnel, and is available for this project's testing, observation and inspection needs. Information concerning the scope and cost for these services can be obtained from our office.

## 7.0 LIMITATIONS

Recommendations contained in this report are based on our understanding of the proposed development and construction activities, our field observations and exploration and our laboratory test results. It is possible that soil and groundwater conditions could vary and differ between or beyond the points explored. If soil or groundwater conditions are encountered during construction that vary or differ from those described herein, we should be notified immediately in order that a review may be made and supplemental recommendations provided. If the scope of the proposed construction, including the proposed loads or structural locations, changes from that described in this report, our recommendations should also be reviewed.

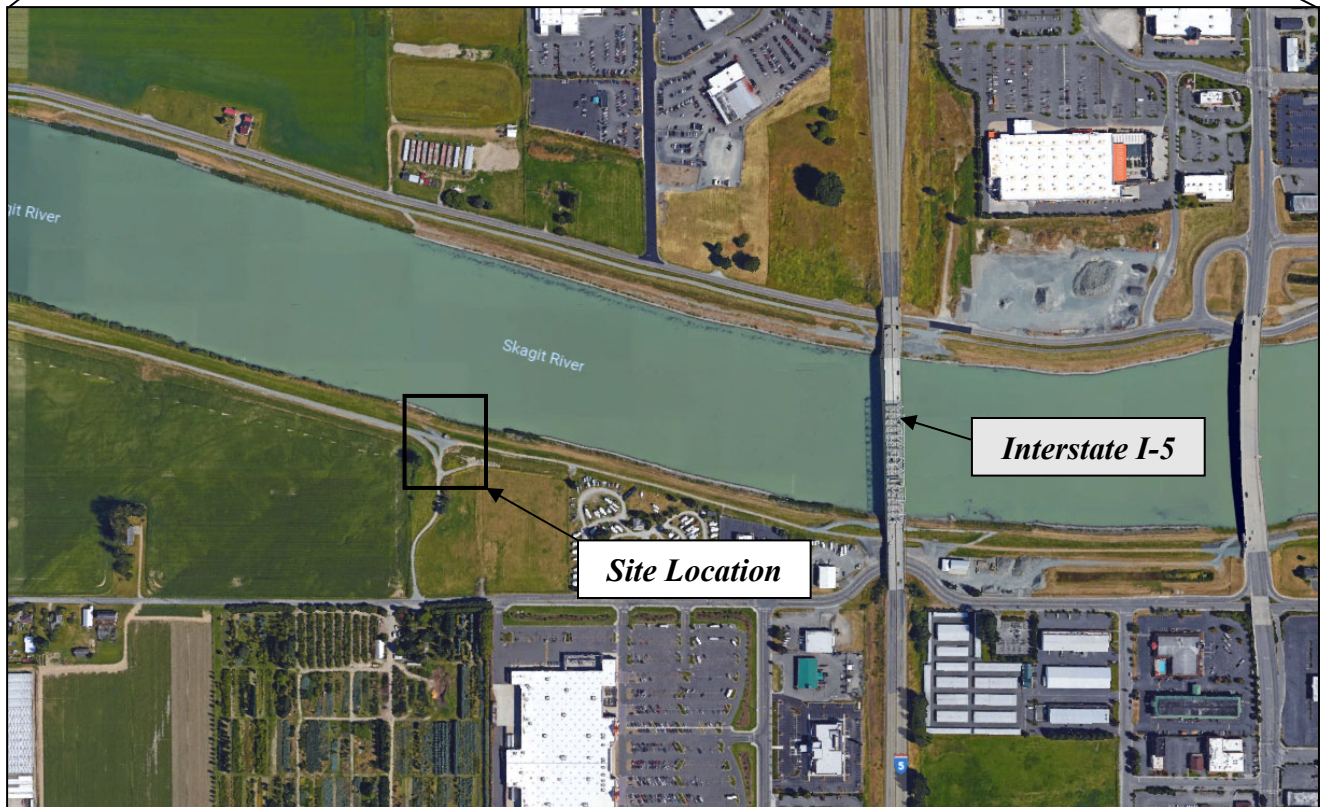
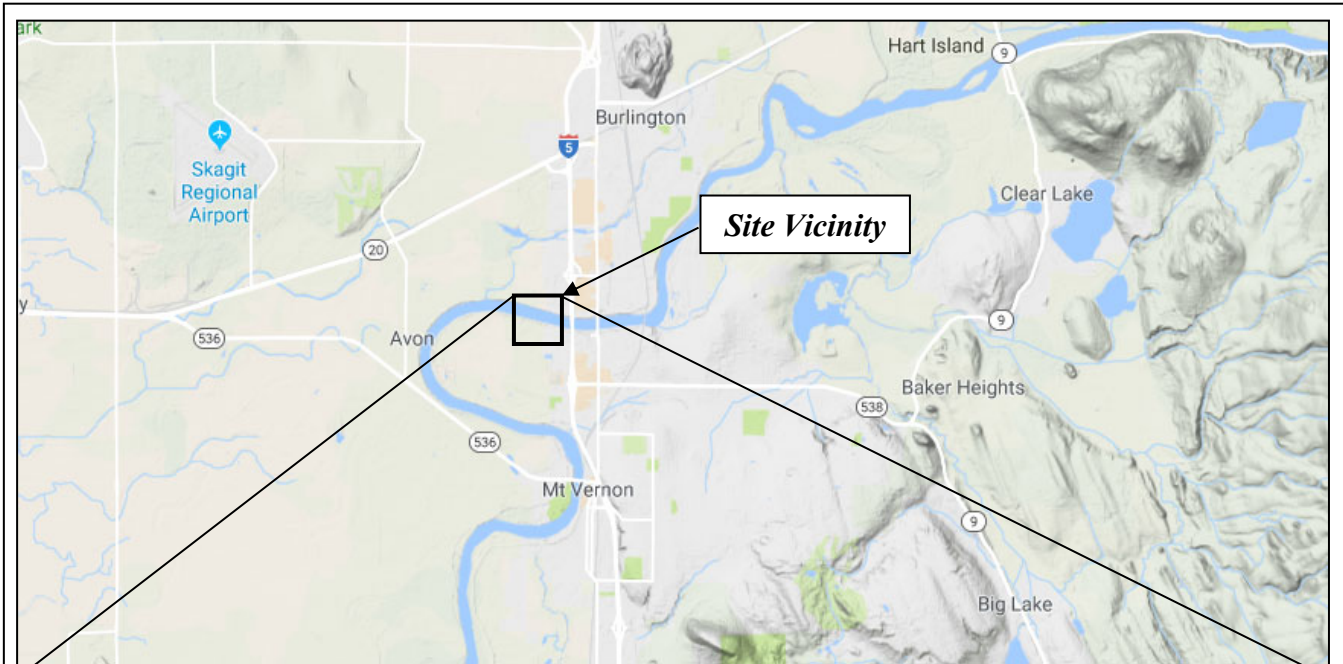
We have prepared this report in substantial accordance with the generally accepted geotechnical engineering practice as it exists in the site area at the time of our study. No warranty, express or implied, is made. The recommendations provided in this report are based on the assumption that an adequate program of tests and observations will be conducted by MTC during the construction phase in order to evaluate compliance with our recommendations. Other standards or documents referenced in any given standard cited in this report, or otherwise relied upon by the author of this report, are only mentioned in the given standard; they are not incorporated into it or “included by referenced”, as that latter term is used relative to contracts or other matters of law.

This report may be used only by the Skagit PUD and their design consultants and only for the purposes stated within a reasonable time from its issuance, but in no event later than 18 months from the date of the report. Note that if another firm assumes Geotechnical Engineer of Record responsibilities they need to review this report and either concur with the findings, conclusions, and recommendations or provide alternate findings, conclusions and recommendation under the guidance of a professional engineer registered in the State of Washington. The recommendations of this report are based on the assumption that the Geotechnical Engineer of Record has reviewed and agrees with the findings, conclusion and recommendations of this report.

Land or facility use, on- and off-site conditions, regulations, or other factors may change over time, and additional work may be required with the passage of time. Based on the intended use of the report, MTC may recommend that additional work be performed and that an updated report be issued. Non-compliance with any of these requirements by the Skagit PUD or anyone else will release MTC from any liability resulting from the use of this report by any unauthorized party and the Skagit PUD agrees to defend, indemnify, and hold harmless MTC from any claim or liability associated with such unauthorized use or non-compliance. We recommend that MTC be given the opportunity to review the final project plans and specifications to evaluate if our recommendations have been properly interpreted. We assume no responsibility for misinterpretation of our recommendations.

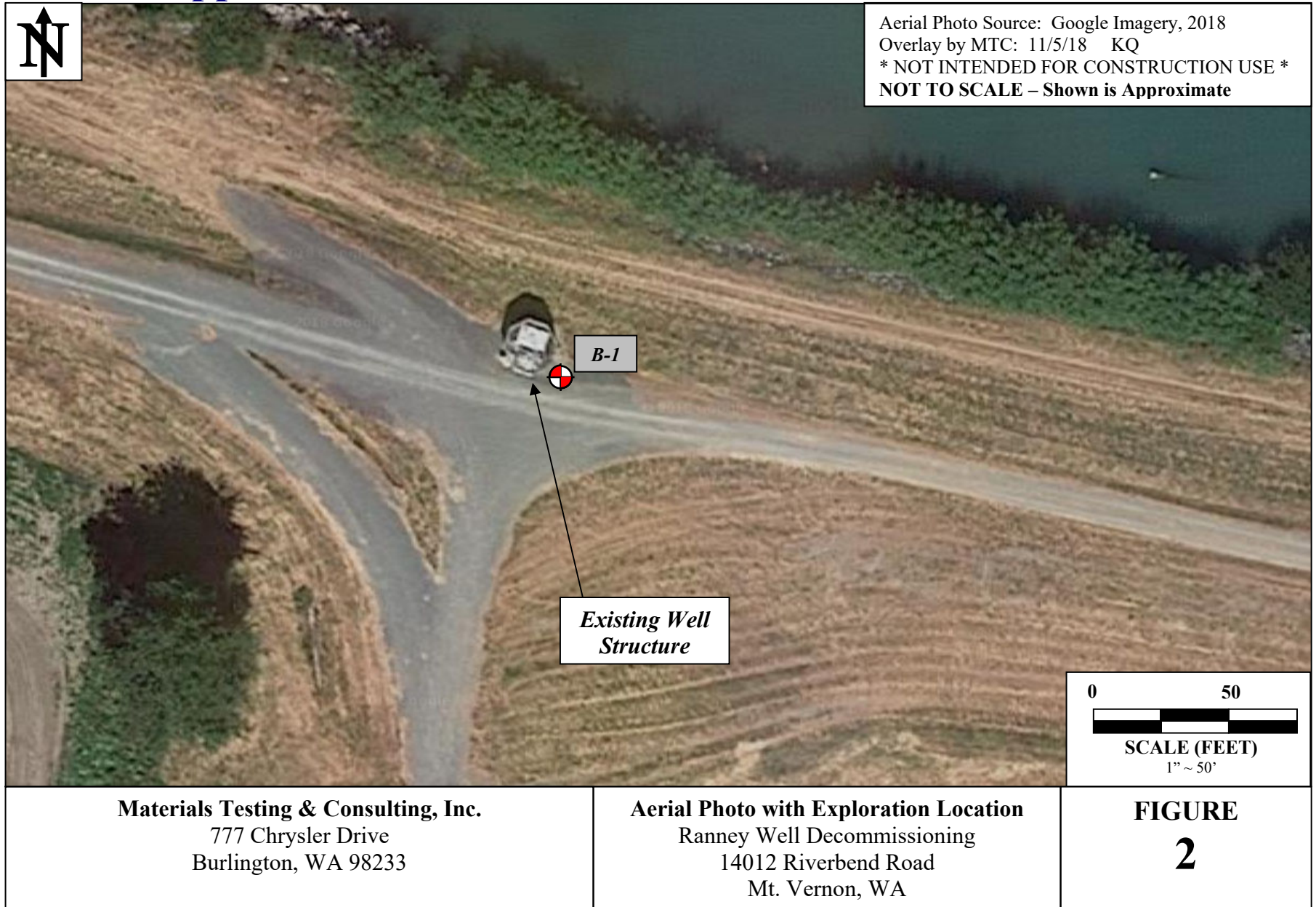
The scope of work for this subsurface exploration and geotechnical report did not include environmental assessments or evaluations regarding the presence or absence of wetlands or hazardous substances in the soil, surface water, or groundwater at this site.

# Appendix A. SITE LOCATION AND VICINITY



<p><b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98226</p>	<p><b>Regional Site Vicinity</b> Ranney Well Decommissioning 14012 Riverbend Road Mt. Vernon, WA</p>	<p><b>FIGURE</b> <b>1</b></p>
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## Appendix B. MAP OF EXPLORATION LOCATIONS



## Appendix C. EXPLORATION LOGS

Grab soil samples were collected from each exploration location and sample depth by an MTC Licensed Geologist during geotechnical borehole advancement. Soil samples collected during the field exploration were classified in accordance with ASTM D2487. All samples were placed in plastic bags to limit moisture loss, labeled, and returned to our laboratory for further examination and testing.

Exploration logs from borings are shown in full below. The explorations were monitored by MTC personnel who examined and classified the materials encountered in accordance with the Unified Soil Classification System (USCS), obtained representative soil samples, and recorded pertinent information including soil sample depths, stratigraphy, soil engineering characteristics, relative moisture contents, and groundwater occurrence. Upon completion boreholes were backfilled with native soil and bentonite chips.

The stratification lines shown on the individual logs represent the approximate boundaries between soil types; actual transitions may be either more gradual or more severe. The conditions depicted are for the date and location indicated only, and it should not necessarily be expected that they are representative of conditions at other locations and times.

**Unified Soil Classification System Chart**

Major Divisions			Graph	USCS	Typical Description
<b>Coarse Grained Soils</b>  More Than 50% Retained On No. 200 Sieve	<b>Gravel</b>  More Than 50% of Coarse Fraction Retained On No. 4 Sieve	Clean Gravels		GW	Well-graded Gravels, Gravel-Sand Mixtures
				GP	Poorly-Graded Gravels, Gravel-Sand Mixtures
		Gravels With Fines		GM	Silty Gravels, Gravel-Sand-Silt Mixtures
				GC	Clayey Gravels, Gravel-Sand-Clay Mixtures
	<b>Sand</b>  More Than 50% of Coarse Fraction Passing No. 4 Sieve	Clean Sands		SW	Well-graded Sands, Gravelly Sands
				SP	Poorly-Graded Sands, Gravelly Sands
		Sands With Fines		SM	Silty Sands, Sand-Silt Mixtures
				SC	Clayey Sands, Clay Mixtures
<b>Fine Grained Soils</b>  More Than 50% Passing The No. 200 Sieve	<b>Silts &amp; Clays</b>  Liquid Limit Less Than 50			ML	Inorganic Silts, rock Flour, Clayey Silts With Low Plasticity
				CL	Inorganic Clays of Low To Medium Plasticity
				OL	Organic Silts and Organic Silty Clays of Low Plasticity
	<b>Silts &amp; Clays</b>  Liquid Limit Greater Than 50			MH	Inorganic Silts of Moderate Plasticity
				CH	Inorganic Clays of High Plasticity
				OH	Organic Clays And Silts of Medium to High Plasticity
<b>Highly Organic Soils</b>				PT	Peat, Humus, Soils with Predominantly Organic Content

**Sampler Symbol Description**

- Standard Penetration Test (SPT)
- Shelby Tube
- Grab or Bulk
- 
- 

**Stratigraphic Contact**

- Distinct Stratigraphic Contact Between Soil Strata
- Gradual Change Between Soil Strata
- Approximate location of stratigraphic change

- Groundwater observed at time of exploration
- Measured groundwater level in exploration, well, or piezometer
- Perched water observed at time of exploration

**Modifiers**

Description	%
Trace	>5
Some	5-12
With	>12

**Soil Consistency**

Granular Soils		Fine-grained Soils	
Density	SPT Blowcount	Consistency	SPT Blowcount
Very Loose	0-4	Very Soft	0-2
Loose	4-10	Soft	2-4
Medium Dense	10-30	Firm	4-8
Dense	30-50	Stiff	8-15
Very Dense	> 50	Very Stiff	15-30
		Hard	> 30

**Grain Size**

DESCRIPTION	SIEVE SIZE	GRAIN SIZE	APPROXIMATE SIZE
Boulders	> 12"	> 12"	Larger than a basketball
Cobbles	3 - 12"	3 - 12"	Fist to basketball
Gravel	Coarse	3/4 - 3"	3/4 - 3"
	Fine	#4 - 3/4"	0.19 - 0.75"
Sand	Coarse	#10 - #4	0.079 - 0.19"
	Medium	#40 - #10	0.017 - 0.079"
	Fine	#200 - #40	0.0029 - 0.017"
Fines	Passing #200	< 0.0029"	Flour and smaller

Materials Testing & Consulting, Inc.  
777 Chrysler Drive  
Burlington, WA 98233

**Exploration Log Key**  
Ranney Well Decommissioning  
14012 Riverbend Road  
Mt. Vernon, WA

**FIGURE**  
**3**



MATERIALS TESTING & CONSULTING 777 Chrysler Drive, Burlington, WA GEOTECHNICAL SERVICES		Log of Boring B-1 (Page 1 of 3)							
SPUD Ranney Well Geotechnical Study 14012 Riverbend Road Mount Vernon, WA		Date Started : 10/15/18							
MTC Project No. 18B231-02		Date Completed : 10/15/18							
		Sampling Method : Split Spoon 2.5 and 5-ft. intervals							
		Location : ~13ft SE of Well Pump House (See Map)							
		Logged By : JRG/KQ							
Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Samples	Water Level	% Finer than #200	% Moisture	Blow Count	Blow Count Graph
								0 12.5 25 37.5 50	
0	GW-GM		GRAVEL WITH SILT AND SAND, crushed, dense, damp, gravel <1.5" angular. Medium GRAY. <b>Crushed Gravel Road Base</b> Contact estimated from cuttings observation.						
5	SP-GW		SAND WITH GRAVEL to GRAVEL WITH SAND, some silt, increased gravel content with depth, medium dense, dry to damp, gravel <1" angular. Medium GRAY. <b>Imported Fill</b>						
5	SM-ML		SILTY SAND to SANDY SILT, minor gravel (<1/2", subrounded), loose, damp, ~40-60% silt, predominantly fine grained sand becoming coarser with depth, some variability, Medium BROWN.			43.5	13.3	4	
10			Sand becomes fine to medium grained. <b>Levee Fill</b>					6	
15			SILTY SAND, 20-30% silt, loose, damp, predominantly fine-grained sand, little interbedding with gradual grain size variations. Medium BROWN. <b>Upper Alluvial Deposits</b>					7	
20	SM		Some centimeter-scale SAND WITH SOME SILT interbeds.					6	
25			Becomes damp to moist. Some centimeter-scale SANDY SILT interbeds. <b>Groundwater estimated during drilling</b>					13	
30	SP		SAND to SAND WITH GRAVEL, trace silt, medium dense, saturated, coarse grained sand, gravel little interbedding. Medium to dark GRAY.						

11-07-2018 Z:\Burlington Office\Geotechnical Services\11 Burl\2018\18Ranney Well Decom Geotech\Boring\_Logs\B-1.bor

MATERIALS TESTING & CONSULTING 777 Chrysler Drive, Burlington, WA GEOTECHNICAL SERVICES		Log of Boring B-1 (Page 2 of 3)							
SPUD Ranney Well Geotechnical Study 14012 Riverbend Road Mount Vernon, WA		Date Started : 10/15/18 Date Completed : 10/15/18 Sampling Method : Split Spoon 2.5 and 5-ft. intervals Location : ~13ft SE of Well Pump House (See Map) Logged By : JRG/KQ							
MTC Project No. 18B231-02									
Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Samples	Water Level	% Finer than #200	% Moisture	Blow Count	Blow Count Graph
30								11	
			Little to no gravel below.						
35			Thin SILTY SAND interbed.					11	
			<b>Coarse Alluvial Deposits</b>						
40								13	
	SP								
45			Loose conditions for interval.					6	
50								16	
55			Coarse sand with some gravel.					18	
						3.6	17.9	8	
			SANDY SILT to SILTY CLAY with depth, medium stiff, wet to saturated, trace organics, fine grained sand. Medium GREY.						
	ML-CL		Thin band of organics near top of sample.			44.2	58.4	5	
			<b>NON-PLASTIC Qu= 0.75 t/sf</b>						
60			<b>Fine Alluvial Deposits</b>						

11-07-2018 Z:\Burlington Office\Geotechnical Services\11 Burl\2018\18Ranney Well Decom Geotech\Boring\_Logs\B-1.bor

MATERIALS TESTING & CONSULTING 777 Chrysler Drive, Burlington, WA GEOTECHNICAL SERVICES		Log of Boring B-1 (Page 3 of 3)							
SPUD Ranney Well Geotechnical Study 14012 Riverbend Road Mount Vernon, WA		Date Started : 10/15/18 Date Completed : 10/15/18 Sampling Method : Split Spoon 2.5 and 5-ft. intervals Location : ~13ft SE of Well Pump House (See Map) Logged By : JRG/KQ							
MTC Project No. 18B231-02									
Depth in Feet	USCS	GRAPHIC	DESCRIPTION	Samples	Water Level	% Finer than #200	% Moisture	Blow Count	Blow Count Graph
								0 12.5 25 37.5 50	
60			Increase in silt content.	Shelby Tube (attempted)					
	ML-CL		<b>Fine Alluvial Deposits</b>	Qu= 0.75 t/sf				11	
65			Becomes consistently stiff.	Qu= 1.0 t/sf				10	
			SANDY SILT to SILTY SAND, some clay, stiff, saturated, 35% to 55% fine grained sand estimated. Medium GRAY.	Qu= 1.3 t/sf				14	
	ML-SM		<b>Fine Alluvial Deposits</b>			26.9		14	
			Increase in sand content with depth.						
75			SAND, some silt and gravel (<1/4", subrounded), medium dense, saturated, coarse grained sand, thin centimeter-scale interbeds of silt-rich deposits. Medium GRAY.					20	
	SP		<b>Lower Coarse Alluvial Deposits</b>						
			Gravel at bottom of sample.						
80								12	
			Termination depth at 81.5' at planned depth. Groundwater estimated at 28.0' during advancement.						
85									
90									

11-07-2018 Z:\Burlington Office\Geotechnical Services\11-Burl2018\18Raney Well Decom Geotech\Boring\_Logs\B-1.bor

## **Appendix D. LABORATORY TEST RESULTS**

Laboratory tests were conducted on representative soil samples to better identify the soil classification of the units encountered and to evaluate the material's general physical properties and engineering characteristics. A brief description of the tests performed for this study is provided below. The results of laboratory tests performed on specific samples are provided at the appropriate sample depths on the individual boring logs. However, it is important to note that these test results may not accurately represent in situ soil conditions. Our recommendations are based on our interpretation of these test results and their use in guiding our engineering judgment. MTC cannot be responsible for the interpretation of these data by others.

Soil samples for this project will be retained for a period of 3 months following completion of this report, unless we are otherwise directed in writing.

### **SOIL CLASSIFICATION**

Soil samples were visually examined in the field by our representative at the time they were obtained. They were subsequently packaged and returned to our laboratory where they were reexamined and the original description checked and verified or modified. With the help of information obtained from the other classification tests, described below, the samples were described in general accordance with ASTM Standard D2487. The resulting descriptions are provided at the appropriate locations on the individual exploration logs, located in Appendix C, and are qualitative only.


### **GRAIN-SIZE DISTRIBUTION**

Grain-size distribution analyses were conducted in general accordance with ASTM Standard D422 on representative soil samples to determine gradations of the on-site soils. The information gained from these analyses allows us to provide a description and classification of the in-place materials. In turn, this information helps us to understand engineering properties of the soil and thus how the in-place materials will react to conditions such as heavy seepage, traffic action, loading, potential liquefaction, and so forth. The results are presented in this Appendix.

### **PLASTICITY INDEX**

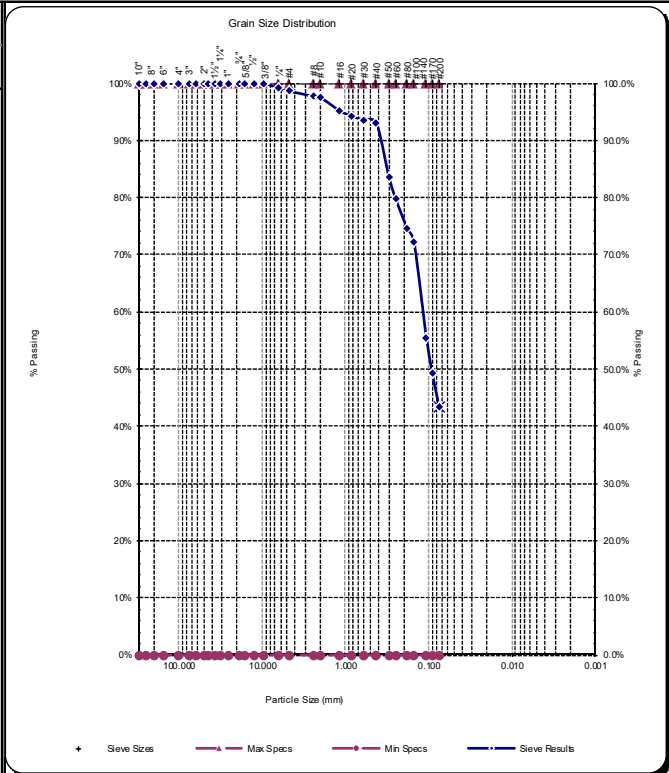
Soil liquid and plastic limits and plasticity index were determined with ASTM Standard D4318 on representative fine-grained samples. Atterburg Limits results are employed in better understanding the site materials anticipated behavior in terms of its plasticity state, moisture sensitivity and compressibility. The limits results are also used to classify fine-grained soils per ASTM Standard D2487. In addition, the liquid limit test initially determines whether the soil is plastic or non-plastic, and therefore its eligibility for plasticity testing.

## Sieve Report

<b>Project:</b> Ranney Well Decom Geotech Study <b>Project #:</b> 18B231-02 <b>Client:</b> Skagit PUD <b>Source:</b> B-1 @ 5.0' <b>Sample#:</b> B18-0911	<b>Date Received:</b> 22-Oct-18 <b>Sampled By:</b> K. Quillan / J. Gillaspay <b>Date Tested:</b> 23-Oct-18 <b>Tested By:</b> A. Eifrig	<b>ASTM D-2487 Unified Soils Classification System</b> SM, Silty Sand <b>Sample Color:</b> brown	
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ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821		
<b>Specifications</b> No Specs Sample Meets Specs ? <b>N/A</b>	D <sub>(5)</sub> = 0.009 mm      % Gravel = 1.4% D <sub>(10)</sub> = 0.017 mm      % Sand = 55.2% D <sub>(15)</sub> = 0.026 mm      % Silt & Clay = 43.5% D <sub>(30)</sub> = 0.052 mm      Liquid Limit = n/a D <sub>(50)</sub> = 0.092 mm      Plasticity Index = n/a D <sub>(60)</sub> = 0.118 mm      Sand Equivalent = n/a D <sub>(90)</sub> = 0.384 mm      Fracture %, 1 Face = n/a Dust Ratio = 7/15      Fracture %, 2+ Faces = n/a	Coeff. of Curvature, C <sub>c</sub> = 1.32 Coeff. of Uniformity, C <sub>u</sub> = 6.84 Fineness Modulus = 0.59 Plastic Limit = n/a Moisture %, as sampled = 13.3% Req'd Sand Equivalent = <span style="color: green;">✔</span> Req'd Fracture %, 1 Face = <span style="color: green;">✔</span> Req'd Fracture %, 2+ Faces = <span style="color: green;">✔</span>

ASTM C-136, ASTM D-6913					
Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric				
12.00"	300.00		100%	100.0%	0.0%
10.00"	250.00		100%	100.0%	0.0%
8.00"	200.00		100%	100.0%	0.0%
6.00"	150.00		100%	100.0%	0.0%
4.00"	100.00		100%	100.0%	0.0%
3.00"	75.00		100%	100.0%	0.0%
2.50"	63.00		100%	100.0%	0.0%
2.00"	50.00		100%	100.0%	0.0%
1.75"	45.00		100%	100.0%	0.0%
1.50"	37.50		100%	100.0%	0.0%
1.25"	31.50		100%	100.0%	0.0%
1.00"	25.00		100%	100.0%	0.0%
3/4"	19.00		100%	100.0%	0.0%
5/8"	16.00		100%	100.0%	0.0%
1/2"	12.50		100%	100.0%	0.0%
3/8"	9.50	100%	100%	100.0%	0.0%
1/4"	6.30		99%	100.0%	0.0%
#4	4.75	99%	99%	100.0%	0.0%
#8	2.36		98%	100.0%	0.0%
#10	2.00	98%	98%	100.0%	0.0%
#16	1.18		95%	100.0%	0.0%
#20	0.850		94%	100.0%	0.0%
#30	0.600		94%	100.0%	0.0%
#40	0.425	93%	93%	100.0%	0.0%
#50	0.300		84%	100.0%	0.0%
#60	0.250		80%	100.0%	0.0%
#80	0.180		75%	100.0%	0.0%
#100	0.150	72%	72%	100.0%	0.0%
#140	0.106		55%	100.0%	0.0%
#170	0.090		49%	100.0%	0.0%
#200	0.075	43.5%	43.5%	100.0%	0.0%




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**Comments:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Reviewed by:**   
 \_\_\_\_\_  
 Meghan Blodgett-Carrillo

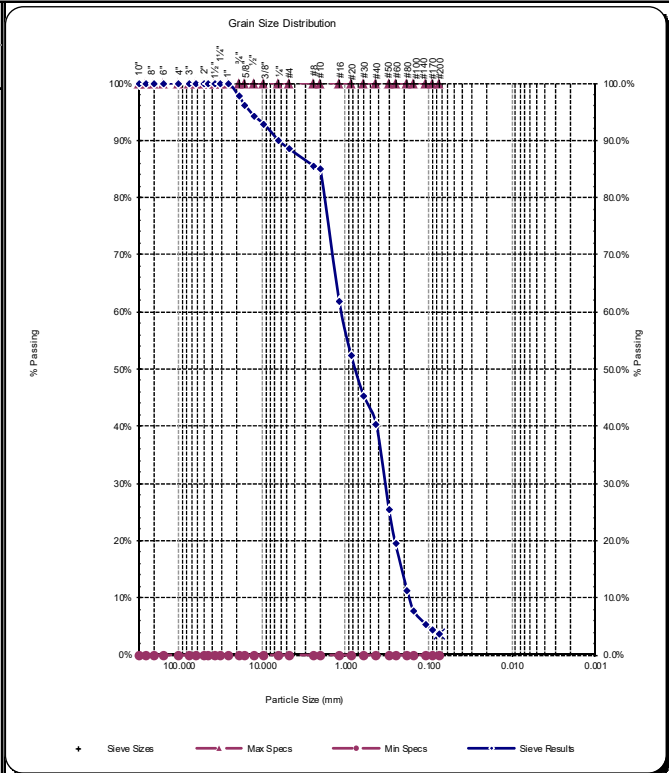
<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Sample: B-1 @ 5.0'</b> Ranney Well Decommissioning 14012 Riverbend Road Mt. Vernon, WA	<b>FIGURE</b> <span style="font-size: 2em;">4</span>
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## Sieve Report

<b>Project:</b> Ranney Well Decom Geotech Study <b>Project #:</b> 18B231-02 <b>Client:</b> Skagit PUD <b>Source:</b> B-1 @ 55.0' <b>Sample#:</b> B18-0912	<b>Date Received:</b> 22-Oct-18 <b>Sampled By:</b> K. Quillan / J. Gillaspay <b>Date Tested:</b> 23-Oct-18 <b>Tested By:</b> A. Eifrig	<b>ASTM D-2487 Unified Soils Classification System</b> SP, Poorly graded Sand <b>Sample Color:</b> gray	 Certificate #: 1396.01, 1396.02
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ASTM D-2216, ASTM D-2419, ASTM D-4318, ASTM D-5821		
<b>Specifications</b> No Specs Sample Meets Specs ? <b>N/A</b>	D <sub>(5)</sub> = 0.101 mm      % Gravel = 11.5%      Coeff. of Curvature, C <sub>c</sub> = 0.60 D <sub>(10)</sub> = 0.170 mm      % Sand = 85.0%      Coeff. of Uniformity, C <sub>u</sub> = 6.58 D <sub>(15)</sub> = 0.212 mm      % Silt & Clay = 3.6%      Fineness Modulus = 2.95 D <sub>(30)</sub> = 0.338 mm      Liquid Limit = n/a      Plastic Limit = n/a D <sub>(50)</sub> = 0.766 mm      Plasticity Index = n/a      Moisture %, as sampled = 17.9% D <sub>(60)</sub> = 1.119 mm      Sand Equivalent = n/a      Req'd Sand Equivalent = ✓ D <sub>(90)</sub> = 6.354 mm      Fracture %, 1 Face = n/a      Req'd Fracture %, 1 Face = ✓ Dust Ratio = 3/34      Fracture %, 2+ Faces = n/a      Req'd Fracture %, 2+ Faces = ✓	

ASTM C-136, ASTM D-6913					
Sieve Size		Actual Cumulative Percent Passing	Interpolated Cumulative Percent Passing	Specs Max	Specs Min
US	Metric				
12.00"	300.00		100%	100.0%	0.0%
10.00"	250.00		100%	100.0%	0.0%
8.00"	200.00		100%	100.0%	0.0%
6.00"	150.00		100%	100.0%	0.0%
4.00"	100.00		100%	100.0%	0.0%
3.00"	75.00		100%	100.0%	0.0%
2.50"	63.00		100%	100.0%	0.0%
2.00"	50.00		100%	100.0%	0.0%
1.75"	45.00		100%	100.0%	0.0%
1.50"	37.50		100%	100.0%	0.0%
1.25"	31.50		100%	100.0%	0.0%
1.00"	25.00	100%	100%	100.0%	0.0%
3/4"	19.00	98%	98%	100.0%	0.0%
5/8"	16.00		96%	100.0%	0.0%
1/2"	12.50	94%	94%	100.0%	0.0%
3/8"	9.50	93%	93%	100.0%	0.0%
1/4"	6.30		90%	100.0%	0.0%
#4	4.75	89%	89%	100.0%	0.0%
#8	2.36		85%	100.0%	0.0%
#10	2.00	85%	85%	100.0%	0.0%
#16	1.18		62%	100.0%	0.0%
#20	0.850		52%	100.0%	0.0%
#30	0.600		45%	100.0%	0.0%
#40	0.425	40%	40%	100.0%	0.0%
#50	0.300		25%	100.0%	0.0%
#60	0.250		20%	100.0%	0.0%
#80	0.180		11%	100.0%	0.0%
#100	0.150	8%	8%	100.0%	0.0%
#140	0.106		5%	100.0%	0.0%
#170	0.090		4%	100.0%	0.0%
#200	0.075	3.6%	3.6%	100.0%	0.0%



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**Comments:** \_\_\_\_\_

**Reviewed by:**   
Meghan Blodgett-Carrillo

<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Sample: B-1 @ 55.0'</b> Ranney Well Decommissioning 14012 Riverbend Road Mt. Vernon, WA	<b>FIGURE</b> <span style="font-size: 2em;">5</span>
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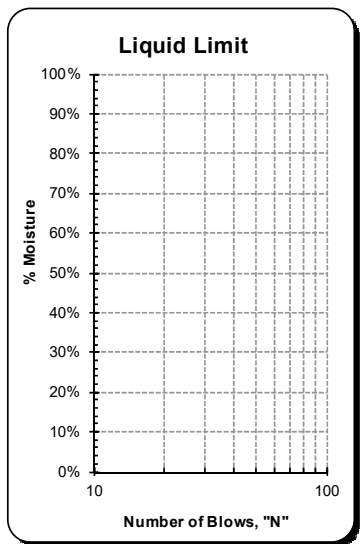
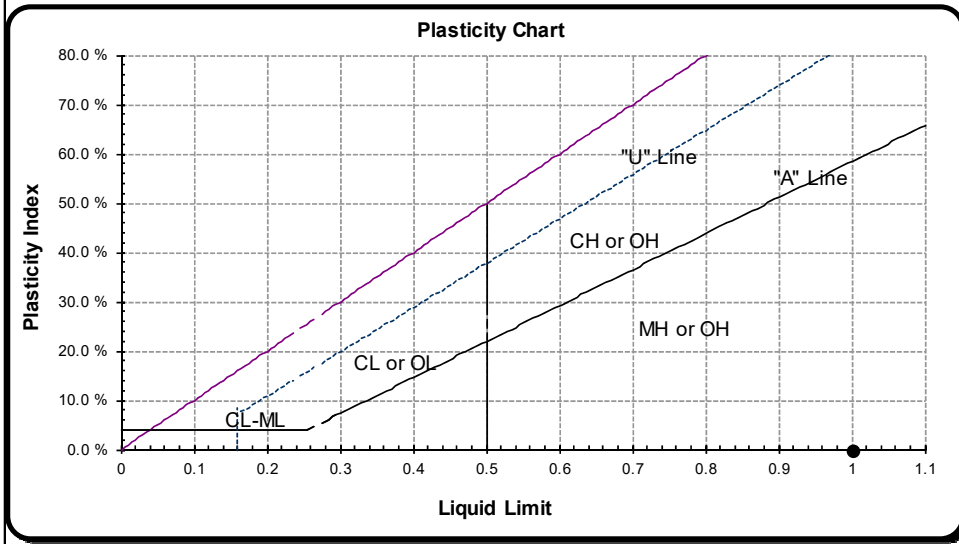
## ASTM D4318 - Liquid Limit, Plastic Limit and Plasticity Index of Soils

<b>Project:</b> Ranney Well Decom Geotech <b>Project #:</b> 18B231-02 <b>Client:</b> Skagit PUD <b>Source:</b> B-1 @ 57.5' <b>Sample #:</b> B18-0913	<b>Date Received:</b> 22-Oct-18 <b>Sampled By:</b> K. Quillan / J. Gillaspay <b>Date Tested:</b> 24-Oct-18 <b>Tested By:</b> A. Eifrig	<b>Visual Identification</b> Silt with Clay and Sand <b>Sample Color</b> gray
--	---	--

Liquid Limit Determination						
	#1	#2	#3	#4	#5	#6
Weight of Wet Soils + Pan:						
Weight of Dry Soils + Pan:						
Weight of Pan:	non-plastic					
Weight of Dry Soils:						
Weight of Moisture:						
% Moisture:						
Number of Blows:						

**Liquid Limit @ 25 Blows:** N/A  
**Plastic Limit:** N/A  
**Plasticity Index, I<sub>p</sub>:** N/A

Plastic Limit Determination						
	#1	#2	#3	#4	#5	#6
Weight of Wet Soils + Pan:						
Weight of Dry Soils + Pan:						
Weight of Pan:	non-plastic					
Weight of Dry Soils:						
Weight of Moisture:						
% Moisture:						



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**Comments:** Sample is non-plastic as it displays rapid dilatancy and does not roll down to 1/8" threads.  
 Natural moisture content - 58.4%

<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Sample: B-1 @ 57.5'</b> Ranney Well Decommissioning 14012 Riverbend Road Mt. Vernon, WA	<b>FIGURE</b> <span style="font-size: 2em;">6</span>
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# Materials Testing & Consulting, Inc.

Geotechnical Engineering • Special Inspection • Materials Testing • Environmental Consulting




Project: Raney Well Decom Geotech Study  
 Project #: 18B231-02  
 Date Received: October 22, 2018  
 Date Tested: October 23, 2018

Client: Skagit PUD  
 Sampled by: K. Quillan / J. Gillaspay  
 Tested by: A. Eifrig

**Amount of Materials Finer Than #200 Sieve - ASTM C-117, ASTM D-1140 & AASHTO T-11**

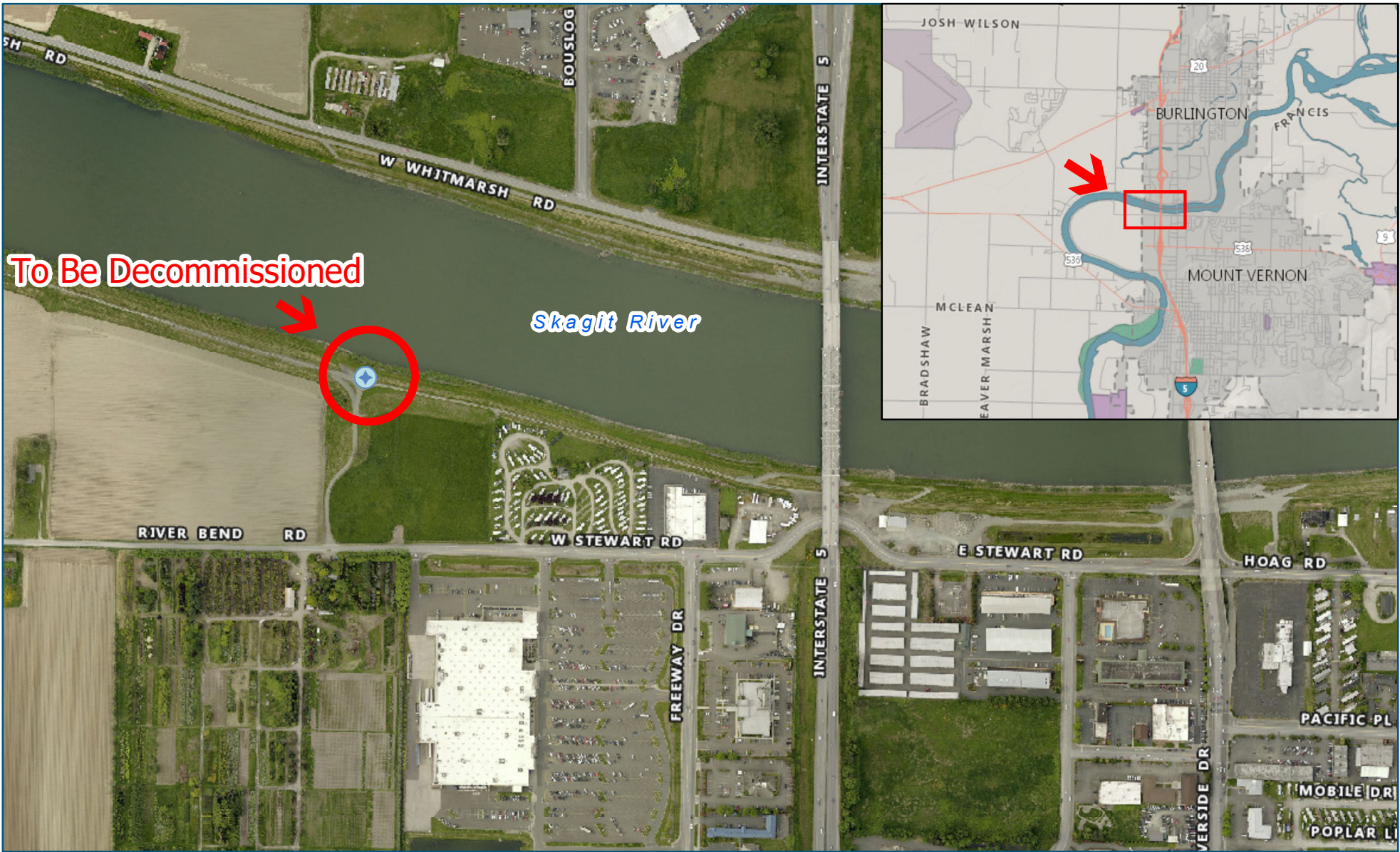
Sample #	Location	Tare	Before Wash + Tare	After Wash + Tare	Amount of Loss	% #200
B18-0913	B-1 @ 57.5'	728.1	1030.9	897.0	133.9	44.2%
B18-0914	B-1 @ 70.0'	777.5	1464.5	1279.5	185.0	26.9%

All results apply only to actual locations and materials tested. As a mutual protection to clients, the public and ourselves, all reports are submitted as the confidential property of clients, and authorization for publication of statements, conclusions or extracts from or regarding our reports is reserved pending our written approval.

Reviewed by:   
 Meghan Blodgett-Carrillo

<b>Materials Testing &amp; Consulting, Inc.</b> 777 Chrysler Drive Burlington, WA 98233	<b>Lab Samples: #200 Wash</b> Raney Well Decommissioning 14012 Riverbend Road Mt. Vernon, WA	<b>FIGURE</b> <span style="font-size: 2em;">7</span>
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### Ranney Well Vicinity Map

NAD 1983 StatePlane Washington North FIPS 4601 Feet  
Author: zemp  
5/30/2019

0 200 400 800 Feet

#### Legend

Well Location

SEC:	TWP:	RGE:	C.O.	P.N.
------	------	------	------	------

This map was created from available public records and existing map sources, not from field surveys. While great care was taken in this process, maps from different sources rarely agree as to the precise location of geographic features. The relative positioning of map features to one another results from combining different map sources without field verification.

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