



City of Ferndale

Whatcom County, Washington

Contract Documents
for the Construction of

DOUGLAS WELL #2 ACCESS ROAD PROJECT

- PART 1 – BIDDING REQUIREMENTS**
- PART 2 – CONTRACTING REQUIREMENTS**
- PART 3 – TECHNICAL SPECIFICATIONS**
- PART 4 – REFERENCE DOCUMENTS**
- PART 5 – DRAWINGS**

City of Ferndale – Project # WA 2023-01
Wilson Engineering LLC – Project # 2022-109

WILSON ENGINEERING, LLC
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JULY 3, 2023

ENGINEER'S STATEMENT

THE CONTRACT DOCUMENTS HAVE BEEN PREPARED UNDER THE DIRECTION OF THE PROFESSIONAL, REGISTERED IN THE STATE OF WASHINGTON, WHOSE SEALS AND SIGNATURES APPEAR BELOW.



**JEFF CHRISTNER, PE
PROJECT PRINCIPAL
WILSON ENGINEERING, LLC**

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END OF SECTION

**PART 1 -
BIDDING REQUIREMENTS**

SECTION 00 11 16 – INVITATION TO BID

ADVERTISEMENT FOR BIDS

Project Name: Ferndale Douglas Well #2 – Access Road Project
Bid Date: July 26th, 2023 – 2:00 PM
Pre-Bid Meeting: July 19th, 2023 – 10:00 AM

Engineer: Wilson Engineering LLC, Bellingham, WA
Engineers Estimate: \$350,000 to \$650,000 (including sales tax)

NOTICE TO BIDDERS: Sealed bids will be received from contractors by the Public Works Director, City of Ferndale, 2095 Main Street, P.O. Box 936, Ferndale, WA 98248 until 2:00 PM, Wednesday, July 26th, 2023 for the Ferndale Douglas Well #2 – Access Road Project. All bids shall be received in sealed envelopes with “FERNDALE DOUGLAS WELL #2 – ACCESS ROAD PROJECT” marked plainly thereon. The Project involves the proposed access road construction work per contract documents. Said bids will then and there be opened and read aloud. Bidders and other properly interested parties are invited to be present at the bid opening. Bids received after the time fixed for opening cannot be considered.

Please contact either Jeff Christner or Tracy Svanda, Wilson Engineering, (360) 733-6100, for project information. Only bids from bidders who have obtained the Contract Documents and have requested to be listed on the Planholders’ List, will be accepted. Copies of plans and specifications are on file for review at the City of Ferndale Public Works Department, 2095 Main Street, Ferndale, WA 98248. Hard copies are available for purchase (\$150 non-refundable fee), or may be downloaded from the project website at <https://wilsonengineering.com/bidding-documents/>

A deposit in the form of a postal money order, cashier’s check, or bond in the amount of 5% of the greatest amount bid must be submitted with each bid proposal. Should the successful bidder fail to enter into a contract or furnish a satisfactory contract bond within the time stated in the specifications, the deposit shall be forfeited to the City.

There will be a non-mandatory, pre-bid meeting for the Project held at 10:00 AM, Wednesday, July 19th, 2023, at City Hall, 2095 Main Street, Ferndale, WA 98248. A site visit to the Ferndale Douglas Well #2 site will follow the meeting.

The City shall reject any bid not accompanied by bid security. The City reserves the right to reject any or all bids if such action is in the best interest of the City. The City of Ferndale is an equal opportunity and affirmative action employer. Small, Minority and Women-owned businesses are encouraged to submit bids.

All bidders must be licensed contractors registered in the State of Washington. All work performed on this project will be subject to prevailing state wage rates. Contractor will be required to obtain a City of Ferndale business license prior to mobilization.

END OF SECTION

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

INSTRUCTIONS TO BIDDERS

Neither the State of Washington nor any of its departments or employees are, or shall be, a party to this contract or any subcontract.

1. Bidder Qualifications

- A. Prospective Bidders shall be registered by the Washington State Department of Labor and Industries in accordance with state law.
- B. Corporations shall be registered with the State of Washington, Office of the Secretary of State.
- C. Bidders shall be regularly employed in the type of work contemplated herein.

2. Bidder's Representations

Submittal of a bid shall be deemed conclusive evidence that the bidder has:

- A. Carefully examined the proposed work site, become familiar with conditions impacting the work, and incorporated such observations into the bid.
- B. Read and understands the bidding and contract documents.
- C. Produced a bid that is without exception based on the materials, equipment and systems required by the bidding documents.
- D. Produced a bid that is made based on a complete set of Bidding Documents. The Owner is not responsible for any bidding errors resulting from the use of incomplete documents.

3. Document Interpretation

- A. The bidder shall carefully study and review the Bid Documents and promptly report any errors or omissions to the Engineer.
- B. Bidders or sub-bidders shall make any requests for clarification to the Engineer. If so directed, the Engineer may require the Bidder to submit requests in writing.
- C. Interpretations, corrections and changes to the Bidding Documents shall be made by Addendum. Interpretations, corrections and changes to the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely on them.
- D. Substitutions shall not be considered prior to the receipt of bids. The Owner is not responsible for any bidding errors resulting from the use of substitutions.

4. Addenda

- A. Addenda will be mailed, emailed, delivered or faxed to all who are known by the Engineer to have received a complete set of Bidding Documents. Copies will also be provided to the locations where plans are available for review.
- B. The Bidder shall acknowledge receipt of addenda in their bid.

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

5. Bidding Procedures

- A. To be considered responsive, bids shall be submitted on the enclosed form and shall be filled in by typewriter or manually in ink.
- B. The Bid form shall include the Bidder's legal name exactly as it appears on his/her registration. Form shall be signed by the individual authorized to represent the Bidder.
- C. A list of subcontractors individually accounting for more than 10-percent of the Contract Sum and the work said subcontractor will perform shall be submitted with the bid or within one hour of the published bid time.

6. Pre-Bid Meeting

- A. There will be a pre-bid meeting at date and time shown on the Invitation to Bid.
- B. Prior to attending the pre-bid meeting, bidders shall have carefully studied and compared all drawings, specifications and other instructions to identify any inconsistency or omission. Also, any discrepancies between the contract documents and the physical condition of the locality shall be identified. The intent is to identify any questions or concerns regarding the proposed improvements that the bidders may have.

7. Bid Security

- A. Each Bid shall be accompanied by a Bid Security in the form of a cashier's check, certified check or surety bond equal to 5-percent of the total Bid amount. Security shall pledge that the Bidder shall enter into a contract with the Owner in accordance with the terms of the Bid Documents including furnishing payment and performance bonds.
- B. In the event a Bidder refuses to enter into such contract or fail to furnish such bonds as required, the bid security shall be forfeited to the Owner as liquidated damages.
- C. The Owner may retain bid securities submitted with the bid until such time as; (1) the contract has been executed and bonds received, (2) 30-days have elapsed, (3) all Bids have been rejected.

8. Submission of Bids

- A. Bids shall be submitted in a sealed envelope. Envelopes shall clearly show (1) the project's name and owner as it appears on the Bid Solicitation, (2) the Contractor's name and registration number, and (3) the time and date of the bid opening.
- B. Bids received after the published bid time and date will be returned unopened.
- C. Bids submitted by mail shall conform with the above requirements and be sent to City of Ferndale – City Hall, 2095 Main Street, P.O. Box 936, Ferndale, WA 98248, All bids shall be received in sealed envelopes with "FERNDALE DOUGLAS WELL #2 – ACCESS ROAD" marked plainly thereon. Bidder shall assume full responsibility for timely delivery of bid documents and the Owner is not responsible for bids received late.
- D. Oral, facsimile or telegraphic bids, modifications, or adjustments are not valid and will not receive consideration.

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

9. Modification or Withdrawal of Bid

- A. After the bid opening, bids shall not be withdrawn, modified or canceled by the Bidder during the stipulated time period.
- B. Bids submitted by mail prior to the bid opening may be modified or withdrawn by notice to the Owner. Such notice shall be in writing and signed by the same authorized individual signing the bid form. If such modifications or withdrawals are transmitted electronically, the original document shall be mailed and postmarked on or before the date and time of the bid opening.
- C. Withdrawn bids may be resubmitted up until the date and time of the bid opening and in accordance with these Instructions to Bidders.
- D. Bid security shall be in an amount sufficient for the bid as modified or resubmitted.

10. Opening of Bids

- A. Bids received on time will be opened and read aloud at the time and place stipulated in the Bid Solicitation. An abstract or tabulation will be made available to Bidders.
- B. Should a Bidder discover an error in his/her bid after submittal, the Bidder may request withdrawal of the bid with the following conditions:
- C. The Bidder must document the error(s) for the Owner. The Owner will review documentation and determine if the bid withdrawal and release of the Bid Security will be allowed.
- D. The Owner must receive the Bidder's intent to withdraw his/her bid submittal in writing no more than 30-hours after the bid opening (faxed notice is acceptable).
- E. The Owner alone will approve or disapprove the request for withdrawal. If approved, the Bidder will no longer be considered for Contract award and the Bid Security will be returned.
- F. If the Bidder fails to notify the Owner in accordance of an error as set forth above, and the Owner awards the Bidder the Contract, the Bidder shall either execute the Contract for the bid amount or withdraw the bid and forfeit the Bid Security.

11. Rejection of Bids

- A. The Owner reserves the right to reject any or all bids, reject a bid not accompanied by a proper bid security or other material required by the Bidding Documents, or reject a bid which is in anyway irregular or incomplete.

12. Acceptance of Bids

- A. The Owner intends to award the Contract to the lowest responsible responsive bidder whose bid submittal does not exceed available funds and conforms with the requirements described herein. The Owner shall have the right to waive informalities or irregularities in a bid submittal and to accept the bid that, in the opinion of the Owner, is in the Owner's best interest.

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

- B. After determination of the successful bidder based on the lowest responsible responsive bidder and other factors set forth in these instructions, the award may be made to said successful bidder on its base Bid and any combination of its additive bid items for which Owner determines funds will be available at the time of award.
- C. In evaluating whether a bidder is responsible, Owner will consider the qualifications of the bidder and many consider the qualifications and experience of subcontractors and suppliers purposed for those portions of the work for which the identity of subcontractors and suppliers must be submitted as provided in the bidding documents.

13. Contract Bond

- A. Bidders shall provide a contract bond as attached. Contract bond shall be signed by an approved surety or sureties, be in the full contract amount, and cover the faithful performance of the work described in the Contract Documents. The Contract Bond shall be in full effect until one year after Substantial Completion.

14. Contract Agreement and Award

- A. Owner's execution of the contract is contingent on the timely receipt of the Contract Bond and other submittals required by the Contract Documents.
- B. The award of the Contract, if it be awarded, shall be made within 45-days of the bid opening to the Bidder deemed by the Owner to be the lowest responsible responsive bidder.
- C. The 45-day period may be extended by mutual consent of the bidder and the Owner. If, after the 45-day period and no agreement to time extension has been made, the Contractor may withdraw his bid.
- D. The Owner reserves the right to award the bid schedules and bid alternates in any combination.

15. Execution of Contract

- A. The Bidder to whom the contract has been awarded shall sign the contract and return it and other submittals within 10 working days of the award.
- B. The Owner shall have the right to reject a contract submitted by a bidder if it is qualified by reservations or conditions stipulated by the bidder or its surety.
- C. No bid is binding on the Owner until executed by the City of Ferndale. No work shall be performed within the project site prior to the Notice to Proceed. Material or equipment orders or work undertaken away from the project site prior to contract execution shall be at the sole risk of the bidder.

16. Failure to Execute Contract

- A. If the bidder to whom award has been made fails to sign the contract and furnish satisfactory bonds within 10 calendar days of the award, or declares in writing its intent not to execute the contract, the bid security will be forfeited to the Owner and the second lowest responsible bidder will be notified of its receipt of award.

SECTION 00 21 13 – INSTRUCTIONS TO BIDDERS

- B. If the second lowest responsible responsive bidder fails to execute the contract and furnish bonds within 20 calendar days after such notification, forfeiture of its bid security shall also be made and the third lowest responsible responsive bidder will be notified of its receipt of award, and in like manner until either (1) the contract and bond are executed by a responsible responsive bidder, (2) or further bid submittals are rejected, or (3) the number of bids submitted is exhausted.
- C. If the contract is not executed by the Contractor and Owner within the stipulated time, and it is evident that circumstances warrant an extension of time, the Owner may extend the time for executing the contract and/or bond for a period not to exceed 10 additional calendar days.

17. Return of Bid Security

- A. When bid submittals have been examined, bid securities and deposits accompanying submittals ineligible from further consideration will be returned.
- B. All other bid securities and deposits will be held until the contract has been properly executed, after which bid securities and deposits except those subject to forfeiture will be returned.

*****END OF SECTION*****

SECTION 00 24 13 – SCOPES OF BID

BID SCHEDULE

CITY OF FERNDALE – DOUGLAS WELL #2 – ACCESS ROAD PROJECT

SCOPES OF BID

This section outlines the individual bid items listed on the Bid Schedule in Section 00 41 00 - Bid Form. The descriptions are not all-inclusive, but generally indicate where costs should be allocated within the bid proposal. Descriptions represent work that shall be complete, in-place, tested, and in full operation prior to Owner's acceptance.

Each item is to be paid on a lump sum or unit price basis and shall include furnishing all necessary planning, labor, equipment, materials, and supplies required to furnish, install and test the improvements covered under the item. Each item shall include, as applicable, work shown on the plans including all excavations, back-fill, back-fill materials, compaction, pavement removal, disposal of waste material at contractor's site, locating and protecting existing utilities and services, base and top course, paving, trenching, imported backfill, pipe bedding, cleaning, testing, surface restoration and landscaping. The scope of each bid item is outlined below. It is not intended to include all of the appurtenances of an item in the description. See appropriate Specification or WSDOT Standard Specifications and as shown on the Drawings for a more complete representation of the work. It is the responsibility of the Bidders to include all costs for the completed project in the bid items listed.

UNIT QUANTITY BID ITEMS

1. Mobilization, Lump Sum (LS)
This includes preconstruction expenses and the costs of preparatory work and operations performed by the Contractor.
2. Trench Safety System, Lump Sum (LS)
This work consists of installing trench safety excavation provisions in accordance with WSDOT, OSHA, and other applicable rules and regulations. The purpose of this provision is to ensure that the bidder agrees to comply with all relevant trench safety requirements. Include a lump sum dollar amount (even if the value is \$0.00) to be considered responsive to the bid solicitation. Partial payments will be based on approximate percentage of completion of work.
3. Preparation of SWPPP, Lump Sum (LS)
This includes all costs associated with determining, developing, preparing, and submitting a Stormwater Pollution Prevention Plan (SWPPP). SWPPP to be prepared in accordance with Section 31 32 11 – Soil Surface Erosion Control and TESC Plans and Notes. Measurement and partial payments will be based on approximate percentage of completion of SWPPP.
4. Maintenance Work for SWPPP, Lump Sum (LS)
This Includes all costs associated with implementing, adjusting, inspections, reporting, responding to precipitation events, and maintaining effective erosion and sediment control measures for the WWTP Upgrade throughout the life of the project in accordance with the Stormwater Pollution Prevention Plan, including orange barrier around project perimeter, silt fencing, straw waddle, and other sediment trapping devices; slope stabilization measures; low-impact construction practices; and project sequencing. Work also includes updating the SWPPP and keeping a current version available on-site at all times for reference. Measurement and partial payments will be based on approximate percentage of completion of the WWTP Upgrade.

SECTION 00 24 13 – SCOPES OF BID

5. 24” Culvert Inlet Extension, Lump Sum (LS)

This consists of all work and equipment, as needed, to construct the 24” diameter CPP stormwater culvert inlet extension per keyed note #1 on sheet C3.1. This includes all excavation, pipe material, water-tight pipe connection fittings, pipe zone bedding, trench zone backfill, structural fill, quarry spall armoring, etc. as needed to complete the work. Measurement and partial payments will be based on approximate percentage of completion of 24” Culvert Inlet Extension.
6. Clearing, Grubbing, Debris Removal from Proposed Access Road Alignment, Lump Sum (LS)

Includes all costs associated with clearing, removing, loading, hauling and disposing of trees, roots, brush, excess vegetation, removed boulders and debris from the access road alignments. In addition, Contractor is to remove and haul the top 2.5 to 3.0 feet of existing surface material which consists of a high percentage of organics. Work includes stockpiling of topsoil suitable for reuse at disturbed sites. On-site burning of vegetation and debris is not permitted. Measurement and partial payments will be based on approximate percentage of completion of work.
7. Geotextile Fabric, price based on Square Yards (SY)
 - A. Measurement for payment for Geotextile Fabric will be based on the actual quantity, square yards, of finished material. Includes all costs associated with providing, spreading, and permanent placement of Geotextile Fabric per keyed note A. on sheet C5.1
 - B. Payment for Geotextile Fabric will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications.
8. Structural Fill, price based on Tons (TN)
 - C. Measurement for payment for Structural Fill will be based on the actual quantity, tons, of finished material. Includes all costs associated with providing, spreading, and compacting Structural Fill per WSDOT Section 9-03.10 Structural Fill, minimum density 92% modified proctor (per ASTM D 1557).
 - D. Payment for Structural Fill will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications.
9. Gravel Base, price based on Tons (TN)
 - A. Measurement for payment for Gravel Base will be based on the actual quantity, tons, of finished material. Includes all costs associated with providing, spreading, and compacting Gravel Base per WSDOT Section 9-03.10 Gravel Base, minimum density 95% % modified proctor (per ASTM D 1557).
 - B. Payment for Gravel Base will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications.

SECTION 00 24 13 – SCOPES OF BID

10. Crushed Surfacing Base Course, price based on Tons (TN)

- A. Measurement for payment for Crushed Surfacing Base Course will be based on the actual quantity, tons, of finished material. Includes all costs associated with providing, spreading, and compacting Crushed Surfacing Base Course per WSDOT Section 9-03.9(3) Crushed Surfacing Base Course, minimum density 95% % modified proctor (per ASTM D 1557).
- B. Payment for Crushed Surfacing Base Course will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications.

11. Chain Link Fencing, Linear Foot (LF)

- A. Measurement for payment for Chain Link Fencing will be based on the actual quantity, linear feet, of finished fencing. Includes all costs associated with providing and installing Chain Link Fencing per Section 32 31 00, Plans, and other applicable rules and regulations.
- B. Payment for Chain Link Fencing will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications.

12. Chain Link Gate: 16 ft Wide Double Leaf, Lump Sum (LS)

This work consists of providing and installing a 16 foot wide double leaf gate for chain link fencing in accordance with specification Section 32 31 00, Plans, and other applicable rules and regulations.

13. Chain Link Gate: 32 ft Wide Double Leaf, Lump Sum (LS)

This work consists of providing and installing a 32 foot wide double leaf gate for chain link fencing in accordance with specification Section 32 31 00, Plans, and other applicable rules and regulations.

14. Landscaping Work for Grass Vegetation, Lump Sum (LS)

This consists of all work and equipment, as needed, to re-vegetate disturbed areas by placing Type B Topsoil and providing Hydroseeding Work per Section 02 09 20 – Landscaping.

Please note that disturbed areas are identified on the drawings (Sheet C3.1, C5.1) and the Buffer Mitigation Plan (Figure 2). The hydroseed work is to include all costs associated with hydroseeding, fertilizing, watering, and protecting new grass for disturbed areas adjacent to the proposed access road. Hydroseed plan quantity = 615 SY. The topsoil work is to include all costs associated with providing and spreading Type B Topsoil for new grass areas. Minimum topsoil thickness is to be 4-inches. Topsoil plan quantity = 205 CY.

Work also includes monitoring and care for the grass vegetation for the entire 1-year warranty period. Contractor to ensuring 100 percent survival rate and 100% removal of all Himalayan Blackberry on the planting areas. Replace any and all grass that does not survive.

Measurement and partial payments will be based on approximate percentage of completion of work.

SECTION 00 24 13 – SCOPES OF BID

15. Buffer Mitigation Work, Lump Sum (LS)

This consists of all work and equipment, as needed, to remove and dispose of existing invasive vegetation (clear and grub Planting Areas 1-4), purchase recommended buffer plantings, carefully plant buffer plantings in Planting Areas 1-4. Work includes monitoring and care for the buffer plantings for the entire 1-year warranty period. Contractor to ensuring 100 percent survival rate and 100% removal of all Himalayan Blackberry and Reed Canary Grass on the planting areas. Replace any and all plantings that do not survive. Work also includes preparation, submittal, and City approval of the 1-year Annual Monitoring Report. All work is to be performed in accordance with the Buffer Mitigation Plan prepared by GeoEngineers, June 1, 2023 (see Appendix B). Please note that the Buffer Mitigation Planting Areas are as follows: Area 1 = 418 SF, Area 2 = 117 SF, Area 3 = 11,120 SF, and Area 4 = 2,711 SF. All plants must be identified and submitted in advance for approval. In addition, the actual plant layout is to be proposed by the Contractor for approval and inspection. Furthermore, final plantings are to be re-inspected by the Engineer for approval. Measurement and partial payments will be based on approximate percentage of completion of work.

EXTRA WORK ITEMS

16. Over Excavation, price based on Cubic Yards (CY)

- A. Measurement for payment for over excavation (over excavation due to poor subsurface soil conditions at a depth greater than 3-ft below original grade elevation), as directed by the Engineer, will be based on the actual quantity, cubic yards, of finished over excavation. This work item only applies to poor subsurface soil conditions discovered at depths greater than 3-ft below original grade elevation. Over excavated material is to be hauled off-site and disposed of at a certified disposal site per specifications.
- B. Payment for over excavation, if any, will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications

17. Quarry Spalls, price based on Tons (TN)

- A. Measurement for payment for extra quarry spalls, as directed by the Engineer, will be based on the actual quantity, tons, of finished material. Includes all costs associated with providing, spreading, and compacting Quarry Spalls per WSDOT Section 9-13.1(5) Quarry Spalls, minimum density 95%.
- B. Payment for extra quarry spalls, if any, will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications.

SECTION 00 24 13 – SCOPES OF BID

18. Boulder Removal, price based on Cubic Yards (CY)

- A. Measurement for payment for boulder removal, as directed by the Engineer, will be based on the actual quantity, cubic yards of boulder removal. This extra work item only applies to boulders consisting of a volume equal to or greater than 1 cubic yard. Includes all costs associated with excavation, loading, and disposal of boulders larger than 1 cubic yard.
- B. Payment for boulder removal, if any, will be made at the Unit Price shown on Proposal, said payment will constitute full compensation for all WORK which shall be in accordance with the applicable specifications.

*****END OF SECTION*****

SECTION 00 31 13 – PRELIMINARY PROJECT PHASES

The following Preliminary Project Phasing Plan is provided for planning purposes. This phasing plan is not meant to dictate means and methods to perspective Bidders or take the place of any required planning on the part of the Bidder to provide a responsive Bid. This phasing plan is simply an outline of the work to be performed that takes into the account the lead-time and critical path nature of the submittals, ordering, and delivery of the project equipment.

Preliminary Project Phasing Plan

- A. Work Summary (July 2023 to November 2023)
 - 1. Open Bids: July 26, 2023
 - 2. Notice of Award: Early August 2023
 - 3. Preconstruction Meeting: Late August 2023
 - 4. Construction Submittals: Late August 2023
 - 5. Mobilize on-site: September 2023
 - 6. Establish Erosion Control Measures: September 2023
 - 7. Extend 24" CPP Stormwater Culvert as specified: September 2023
 - 8. Construct New Access Road: September/October 2023
 - 9. Provide Buffer Mitigation Plantings/Services as specified: Sept./Oct. 2023
 - 10. Construct Chain Link Fence and Gates: October 2023
 - 11. Provide Topsoil and Hydroseed as specified: October 2023
 - 12. Final Clean-Up, Etc.: October 2023
 - 13. Substantial Completion Deadline: November 3, 2023

*****END OF SECTION*****

SECTION 00 31 31 – BUFFER MITIGATION INFORMATION

The following wetland buffer mitigation information (Plan with mitigation work requirements) is included for the project site:

Buffer Mitigation Plan
Douglas Well #2 Project
Ferndale, Washington
for Wilson Engineering, LLC
Prepared by GeoEngineers, Inc.
June 1, 2023

A copy of this Plan is included in PART 4 – REFERENCE DOCUMENTS.

*****END OF SECTION*****

SECTION 00 31 32 – GEOTECHNICAL DATA

The following geotechnical information is available for the project site:

Limited Geotechnical Design Memorandum
Douglas Well #2 – Access Road Project
Ferndale, Washington
for Wilson Engineering, LLC
Prepared by GeoEngineers, Inc.
June 30, 2023

A copy of this memo is included in PART 4 – REFERENCE DOCUMENTS.

*****END OF SECTION*****

SECTION 00 41 00 – BID PROPOSAL

Name of Bidder: _____

**To: City of Ferndale
2095 Main Street
Ferndale, Washington 98248**

Project: Ferndale Douglas Well #2 – Access Road

UNIT QUANTITY BID ITEMS

ITEM		APPROX. QTY	UNIT	UNIT PRICE	AMOUNT
1	Mobilization	1	LS		
2	Trench Safety System	1	LS		
3	Preparation of SWPPP	1	LS		
4	Maintenance Work for SWPPP	1	LS		
5	24” Culvert Extension	1	LS		
6	Clearing, Grubbing, Debris Removal from Proposed Access Road Alignment	1	LS		
7	Geotextile Fabric	1350	SY		
8	Structural Fill	3000	TN		
9	Gravel Base	700	TN		
10	Crushed Surfacing Base Course	340	TN		
11	Chain Link Fencing	570	LF		
12	Chain Link Gate: 16 FT Wide Double Leaf	1	LS		
13	Chain Link Gate: 32 FT Wide Double Leaf	1	LS		
14	Landscaping Work for Grass Vegetation	1	LS		
15	Buffer Mitigation Services	1	LS		
SUBTOTAL UNIT QUANTITY BID ITEMS 1-15					

SECTION 00 41 00 – BID PROPOSAL

EXTRA WORK ITEMS

ITEM		APPROX. QTY	UNIT	UNIT PRICE	AMOUNT
16	Over Excavation	50	CY		
17	Quarry Spalls	50	TN		
18	Boulder Removal	5	CY		
SUBTOTAL EXTRA WORK ITEMS 16-18					

	SUBTOTAL ITEMS 1-18		\$	
	8.8% SALES TAX (City of Ferndale)		\$	
	TOTAL BID		\$	

Note 1: Mobilization items and partial payments for Mobilization shall be in accordance with WSDOT Standard Specifications Section 1-09.7.

Note 2: See Section 00 24 13 –Scopes of Bids for more description of each bid item.

Note 3: Payments will be made for actual quantities of bid items installed on the project. Estimated contract quantities provide contingencies with respect to rock and miscellaneous alignment adjustments; and to establish a not-to-exceed level of construction cost for Owner's planning purposes. If required by actual field conditions, bidders should be prepared to perform all expected and contingency work reflected in the estimated contract quantities and in the quantity ranges identified for additive and deductive unit prices. Bidders should not, however, expect to be paid the total contract price if the contingency quantities are not required to be installed by actual field conditions.

The Owner reserves the right to accept or reject any or all bid prices within thirty (30) days of the bid date.

SECTION 00 41 00 – BID PROPOSAL

Time for Completion

See Supplementary Condition 14 - Completion Date for completion time requirements.

Liquidated Damages

The undersigned agrees to pay the Owner as liquidated damages the sum as specified in the General Conditions for each consecutive calendar day that is in default after the Contract Time. Liquidated damages shall be deducted from the contract by change order or from the Contractor's application for payment as determined by Owner in its sole discretion.

Contractor is required to pay Washington State Prevailing Wages. All work performed on this project will be subject to the prevailing state wage rates.

Receipt of Addenda

Receipt of the following addenda is acknowledged:

Addendum No. _____ Addendum No. _____ Addendum No. _____
Addendum No. _____ Addendum No. _____ Addendum No. _____

Name of Firm _____

NOTE: If bidder is a corporation, write State of Incorporation; if a partnership, give full names and addresses of all parties below.

Non-Collusion Declaration: By signing below, I hereby declare that I, firm, association or corporation has (have) not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action restraining free competitive bidding for this project.

Signed by _____, Official Capacity _____

Print Name _____

Address _____

City _____ State _____ Zip Code _____

Date _____ Telephone _____ FAX _____

State of Washington Contractor's License No. _____

Federal Tax ID # _____ e-mail address: _____

Employment Security Department No. _____

***** END OF SECTION *****

SECTION 00 43 13 – BID BOND FORM

Deposit Statement

Herewith find a deposit in the form of certified check, or cashier's check, in the amount of Five percent (5%) of maximum amount bid (Total for all Bid Items + sales tax) in the attached Proposal.

Bid Bond

KNOW ALL PEOPLE BY THESE PRESENTS, that _____ the

CONTRACTOR, hereinafter known as PRINCIPAL, and _____ hereinafter known as SURETY, are held and firmly bound to the City of Ferndale hereinafter known as

OWNER, in the penal sum of _____

_____ dollars (not less than 5% of Base Bid plus Additive Alternates including Washington State Sales Tax) for the payment of which sum well and truly to be made, we do jointly and severally bind ourselves, our heirs, executors, administrators, successors and assigns firmly by these presents.

WHEREAS, the PRINCIPAL has submitted a bid for

(Project Title): _____

NOW, THEREFORE, the condition of this obligation is such that if the OWNER accepts the bid of the PRINCIPAL, and

- a. the PRINCIPAL executes such contract documents required by the terms of the bid and provides required Bonds for the performance of the contract and for the prompt payment of labor and material furnished for the project as may be specified in the bid then this obligation is satisfied, or
- b. in the event of the failure of the PRINCIPAL to execute such contract documents and provide such Bonds required by the terms of the bid, the PRINCIPAL shall pay and forfeit to the OWNER the full penal sum hereof, then this obligation shall be null and void; otherwise this obligation remains in full force and effect and the SURETY shall forthwith pay and forfeit to the OWNER, as a penalty and liquidated damages, the amount of this bond.

SIGNED, SEALED AND DATED THIS _____ day of _____, 20_____.

PRINCIPAL

SURETY

By

By

Title

Title

Address of PRINCIPAL

Address of SURETY

Note: If PRINCIPAL is Partnership, all Partners should execute bond. Surety companies executing bonds must appear on the Treasury Department's most current list (Circular 570 as amended) and be authorized to transact business in the State of Washington. A power of attorney must be provided which appoints the SURETY's true and lawful attorney-in-fact to make, execute, seal and deliver this bond.

*** END OF SECTION ***

SECTION 00 43 93 – BID SUBMITTAL CHECKLIST

The bidder is advised to use the following list to assemble all forms required to be submitted with their bids. In accordance with RCW 39.30.060, bidders shall submit the required documentation listed below.

Bid must be received prior to **2:00 P.M. PST, Wednesday, July 26, 2023.**

Bid Submittal Checklist

Part 1 – (to be submitted with the bid)

- _____ Bid Proposal (Section 00 41 00 BID PROPOSAL)
- _____ Bid Guarantee (Section 00 43 13 BID BOND or other type of Bid Guarantee)
- _____ Contractors Qualifications (Section 00 45 13)
- _____ Non-Collusion Affidavit (Section 00 45 19)
- _____ Certification of Compliance with Wage Payment Statues (Section 00 45 29)

Part 2 – (to be submitted either with the bid or within 1-hour of the bid)

- _____ List of Subcontractors (Section 00 45 33)
- _____ Subcontractors Qualifications (Section 00 45 43)

***** END OF SECTION *****

SECTION 00 45 13 - CONTRACTORS QUALIFICATIONS

CONTRACTORS QUALIFICATIONS

The below listed reference information shall be submitted with the Bid.

Bidder to list three previous drinking water well building projects and/or drinking water facility projects with similar value (\$350,000+) completed by Bidder as prime contractor. Bidder shall have successfully completed with their own equipment and personnel a minimum of three similar projects in the last seven years to be considered qualified.

1. Project: _____

(Name and Location)

Contract Amount: _____

Reference: _____

(Company Name, Contact & Telephone)

2. Project: _____

(Name and Location)

Contract Amount: _____

Reference: _____

(Company Name, Contact & Telephone)

3. Project: _____

(Name and Location)

Contract Amount: _____

Reference: _____

(Company Name, Contact & Telephone)

Bidder shall provide the following information.

1. Resume of superintendent proposed for project.
2. List and provide references (Owner and Engineer) for any project within the last three years which have involved disputes for which the Contractor filed a claim resulting in formal dispute resolution, third-party mediation or arbitration, or a lawsuit.
3. List and provide references (Owner and Engineer) for all public works contracts in which the Contractor was sued by the Owner.

*** END OF SECTION ***

SECTION 00 45 19 – NON-COLLUSION AFFIDAVIT

NON-COLLUSION AFFIDAVIT

STATE OF WASHINGTON)
) ss.
COUNTY OF WHATCOM)

The undersigned, being duly sworn, deposes and says that the person, firm, association, co-partnership or corporation herein named, has not, either directly or indirectly, entered into any agreement, participated in any collusion, or otherwise taken any action in the restraining of free competitive bidding in the preparation and submission of a proposal to the City of Ferndale for consideration in the award of a contract on the improvement named above.

Contractor

Subscribed and sworn to before me this ____ day of _____, 20__.

Notary Public in and for the
State of Washington, residing at

*****END OF SECTION*****

SECTION 00 45 29 – CERTIFICATION OF COMPLIANCE WITH WAGE PAYMENT STATUTES

The bidder hereby certifies that, within the three-year period immediately preceding the bid solicitation date (July 26, 2023), 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 declare under penalty of perjury under the laws of the State of Washington that the foregoing is true and correct.

Bidder’s Business Name

Signature of Authorized Official*

Printed Name

Title

Date

City

State or country

Check One:

Sole Proprietorship 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.*

END OF SECTION

SECTION 00 45 33 – LIST OF SUBCONTRACTORS - BIDS ON PUBLIC WORKS - IDENTIFICATION, SUBSTITUTION OF SUBCONTRACTORS

Contractor shall provide a list of all subcontractors whose work exceeds ten (10) percent of the bid. Additional sheets may be used if necessary. This combined subcontractor list must be submitted with the bid OR within one-hour of the bid as described in Section 00 43 93 – BID SUBMITTAL CHECKLIST.

Subcontractors performing more than 10% of the bid price:

Name: _____

Address: _____

Telephone Number: _____

Portion of Work: _____

Name: _____

Address: _____

Telephone Number: _____

Portion of Work: _____

Name: _____

Address: _____

Telephone Number: _____

Portion of Work: _____

Name: _____

Address: _____

Telephone Number: _____

Portion of Work: _____

***** END OF SECTION *****

SECTION 00 45 43 – SUBCONTRACTOR QUALIFICATIONS

The below listed reference information will be required 1 hour after the bid opening for all listed subcontractors of the apparent low bidder. The information may also be asked of the subcontractors of the next two low bidders at that time.

Bidder to list the following information for **three** projects for **each** of the subcontractors listed in Section 00 45 33 LIST OF SUBCONTRACTORS. The selected projects must be of equivalent size and scope to the portion of work the subcontractor will complete on the **Ferndale Douglas Well #2 – Access Road Project**, and the subcontractor must have completed the work using his/her own personnel and equipment.

(This sheet shall be duplicated for each Subcontractor)

Name of Subcontractor: _____

1. Project: _____
(Name and Location)

Contract Amount: _____

Reference: _____
(Company Name, Contact & Telephone)

2. Project: _____
(Name and Location)

Contract Amount: _____

Reference: _____
(Company Name, Contact & Telephone)

3. Project: _____
(Name and Location)

Contract Amount: _____

Reference: _____
(Company Name, Contact & Telephone)

*** END OF SECTION ***

PART 2
CONTRACTING REQUIREMENTS

SECTION 00 51 00 – NOTICE OF AWARD

NOTICE OF AWARD

To: _____

For: City of Ferndale
Douglas Well #2 – Access Road Project

The Owner has considered the BID submitted by you for the above described WORK in response to its Advertisement for Bids and Information for Bidders.

You are hereby notified that your BID has been ACCEPTED in accordance with your proposal for the amount of \$_____.

You are required by the Information for Bidders to execute the Contract and furnish the required Bond(s) and certificates of insurance within ten (10) working days from the date of this Notice of Award.

If you fail to execute said Contract and furnish said Bond(s) within ten (10) working days from the date of this Notice, the City will be entitled to consider all your rights arising out of the City’s acceptance of your BID as abandoned and as a forfeiture of your BID BOND. The Owner will be entitled to such other rights as may be granted by law.

You are required to return an acknowledged copy of this NOTICE OF AWARD to the City within 3 days of its receipt.

Dated this _____ day of _____ 20__

City of Ferndale
Owner

By _____
Title _____

=====

ACCEPTANCE OF NOTICE:

Receipt of this NOTICE OF AWARD is hereby acknowledged:

Construction Company: _____.

Dated this _____ *day of* _____, 20__

By: _____

Printed Name: _____

*****END OF SECTION*****

SECTION 00 52 00 – AGREEMENT FORM

THIS AGREEMENT is made and entered into at Ferndale, Washington, this _____ day of _____, 2023, by and between City of Ferndale, hereinafter designated as the OWNER, and _____ hereinafter designated as the CONTRACTOR.

It is made with reference to the following facts:

1. OWNER has heretofore caused to be prepared certain Contract Documents including Bidding Requirements, Contracting Requirements, Technical Specifications, Miscellaneous Documents and Plans for the construction of the **Ferndale Douglas Well #2 – Access Road Project**.
2. CONTRACTOR filed with the OWNER on _____, 20__, a proposal to complete said work.
3. Contractor agreed to accept as payment therefor the sum fully stated and set forth in the Proposal.
4. The Contract Documents fully and accurately describe the terms and conditions upon which the CONTRACTOR proposed to furnish said equipment, labor, material and appurtenances and perform said work, together with the manner and time of furnishing same.
5. Third-Party Beneficiary: The State of Washington shall be, and is hereby, named as an express third-party beneficiary of this contract, with full rights as such.

IT IS THEREFORE AGREED, first, that a copy of said Contract Documents as aforesaid, does in all particulars become a part of the Agreement by and between the parties hereto in all matters and things therein set forth and described; and further, that the OWNER and CONTRACTOR hereby accept and agree to the terms and conditions of said Contract Documents as filed completely as if said terms and conditions and plans were herein set out in full.

This Agreement shall be binding upon all parties hereto and their respective heirs, executors, administrators and assigns.

IN WITNESS WHEREOF, the parties hereto have executed, or caused to be executed by their duly authorized officials, this Agreement in triplicate each of which shall be deemed an original on the day first above written.

OWNER: CITY OF FERNDALE

By: _____

Name: _____

Title: _____

(SEAL)

ATTEST:

Name: _____

TITLE: _____

SECTION 00 52 00 – AGREEMENT FORM

APPROVED AS TO FORM:

By: _____

Name: _____

Dated: _____

CONTRACTOR _____

By: _____

Name: _____

Title: _____

(SEAL)

ATTEST:

Name: _____

Title: _____

***** END OF SECTION *****

SECTION 00 55 00 – NOTICE TO PROCEED

NOTICE TO PROCEED

DATE _____

CONTACT _____

CONTRACTOR _____

ADDRESS _____

ADDRESS _____

RE: Notice to Proceed
Ferndale Douglas Well #2 – Access Road Project
City Project No.

Dear CONTACT:

The City of Ferndale has reviewed and approved the contract bond and evidence of insurance for the aforementioned Project. Therefore, the contract has been executed.

This notice shall constitute the Notice to Proceed on the above referenced project. Contract time (___ working days) will begin on DATE. The date of completion of all work is _____.

If you have comments, questions, or require further information, please do not hesitate to contact me at (360) 384-4607.

Sincerely,

CITY OF FERNDALE

Mike Olinger
Project Manager

CC. file

*****END OF SECTION*****

SECTION 00 61 13 – PERFORMANCE AND PAYMENT BOND FORMS

**PERFORMANCE BOND
to the City of Ferndale**

KNOW ALL PEOPLE BY THESE PRESENTS, That we _____
_____ the Contractor named in the Contract hereinafter referred
to as PRINCIPAL, and _____ as SURETY, are jointly and severally held
and firmly bound to the City of Ferndale, hereinafter referred to as OWNER named in said Contract Douglas Well
#2 – Access Road Project, Ferndale, Washington, for the penal sum of,

DOLLARS (\$ _____),
lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, our
heirs, assigns, administrators and successors jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH, that Whereas, the Principal entered into a contract with
the Owner, dated the ____ day of _____, 20____, for such construction work with the City of Ferndale,
Washington.

NOW, THEREFORE, if the Principal shall well, truly and faithfully perform all of the provisions and fulfill all of
the undertakings, covenants, terms, conditions and agreements of said contract during the period of the original
contract and any extensions thereof that may be granted by the Owner, with or without notices to the surety; and
during the life of any guaranty required under the contract; and shall also well and truly perform and fulfill all of the
undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of said
contract that may hereafter be made; notice of which modifications to the surety being hereby waived, shall
indemnify and save harmless owner from all cost and damage by reason of the principal's default of failure to do so,
and shall pay the State of Washington sales and use taxes, and amounts due said state pursuant to Titles 50 and 51 of
the Revised Code of Washington then this obligation to be void, otherwise to remain in full force and effect.

IN WITNESS WHEREOF, the above bonded parties have executed this instrument under their separate seals this
____ day of _____, 20____, the name and corporate seal of each corporate party hereto affixed, and these
presents duly signed by its undersigned representatives pursuant to authority of its governing body.

Corporate Seal:

PRINCIPAL

ATTEST: (If Corporation)

By: _____

Title: _____

Corporate Seal:

SURETY

By: _____

Title: _____

SECTION 00 61 13 – PERFORMANCE AND PAYMENT BOND FORMS

**PAYMENT BOND
to the City of Ferndale**

KNOW ALL PEOPLE BY THESE PRESENTS: that

(Name of Contractor)

(Address of Contractor)

a _____, hereinafter called Principal,
(Corporation, Partnership or Individual)

and _____
(Name of Surety)

(Address of surety)

hereinafter called **SURETY**, are held and firmly bound unto _____

(Name of Owner)

(Address of Owner)

hereinafter called **OWNER**, in the penal sum of _____ Dollars, \$(_____)

in lawful money of the United States, for the payment of which sum well and truly to be made, we bind ourselves, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION is such that whereas, the Principal entered into a certain contract with the **OWNER**, dated the _____ day of _____ 20____, a copy of which is hereto attached and made a part hereof for the construction of:

NOW, THEREFORE, if the Principal shall promptly make payment to all persons, firms, **SUBCONTRACTORS**, and corporations furnishing materials for or performing labor in the prosecution of the **WORK** provided for in such contract, and any authorized extension or modification thereof including all amounts due for materials, lubricants, oil, gasoline, coal, and coke, repairs on machinery, equipment and tools, consumed or used in connection with the construction of such **WORK**, and all Insurance premiums on said **WORK**, and for all labor, performed in such **WORK** whether by **SUBCONTRACTOR** or otherwise, then this obligation shall be void; otherwise to remain in full force and effect.

SECTION 00 61 13 – PERFORMANCE AND PAYMENT BOND FORMS

PAYMENT BOND (cont.)

PROVIDED, FURTHER, that the said **SURETY** for value received hereby stipulates and agrees that no change, extension of time, alteration or addition to the terms of the contract or to the **WORK** to be performed thereunder or the **SPECIFICATIONS** accompanying the same shall in any wise affect its obligation on this **BOND**, and it does hereby waive notice of any such change, extension of time, alteration or addition to the terms of the contract or to the **WORK** or to the **SPECIFICATIONS**.

PROVIDED, FURTHER, that no final settlement between the **OWNER** and the **CONTRACTOR** shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

IN WITNESS WHEREOF, this instrument is executed in _____ counterparts, each one of which
(number)

shall be deemed an original, this the _____ day of _____

ATTEST:

Principal

(Principal) Secretary

(SEAL) By _____ (s)

(Address)

Witness as to Principal

(Address)

(Surety)

ATTEST: By _____
(Attorney -in-Fact)

Witness as to Surety

(Address)

(Address)

NOTE: Date of **BOND** must not be prior to date of Contract.
If **CONTRACTOR** is Partnership, all partners should execute **BOND**.

IMPORTANT: Surety companies executing **BONDS** must appear on the Treasury Department’s most current list (Circular 570 as amended) and be authorized to transact business in the State where the **PROJECT** is locate

***** END OF SECTION *****

SECTION 00 61 23 – RETAINAGE BOND FORM

CITY OF FERNDALE RETAINAGE INVESTMENT OPTION

CONTRACTOR: _____

PROJECT NAME: _____

DATE: _____

Pursuant to Chapter 60.28 RCW, you may choose how your retainage under this contract will be held and invested. Please complete and sign this form indicating your preference. If you fail to do so, the City of Ferndale (City) will hold your retainage as described in "Current Expense", option 1 below.

_____ 1. **Current Expense:** The City will retain your money in its Current Expense Fund Account until thirty days following final acceptance of the improvement or work as completed. You will not receive interest earned on this money.

_____ 2. **Interest Bearing Account:** The City will deposit retainage checks in an interest-bearing account in a bank, mutual savings bank, or savings and loan association, not subject to withdrawal until after the final acceptance of the improvement or work as completed or until agreed to by both parties. Interest on the account will be paid to you.

BONDS AND SECURITIES ACCEPTABLE BY THE CITY OF FERNDALE:

1. Bills, certificates, notes or bonds of the United States.
2. Other obligations of the United States or its agencies.
3. Indebtedness of the Federal national Mortgage Association.
4. Time Deposits in commercial banks.

Designate below the type of investment selected:

_____ 3. **Bond-in-Lieu:** With the consent of the City, the contractor may submit a bond for all or any portion of the amount of funds retained by the City in a form acceptable to the City and from a bonding company meeting standards established by the City, if any. Unless otherwise indicated, the contractor elects to submit a bond for the entire 5% retainage amount. Such bond and any proceeds there from shall be made subject to all claims and liens and in the same manner and priority as set forth for retained percentages in Chapter 60.28 RCW. Whenever the City accepts a bond-in-lieu of retained funds from a contractor, the contractor shall accept like bonds from any subcontractors or suppliers from which the contractor has retained funds. The contractor shall then release the funds retained from the subcontractor or supplier, to the subcontractor or supplier, within thirty days of the contractor's receipt of the retained funds from the City.

Retainage is normally released 30 - 45 days after final acceptance of work by the City, or following receipt Employment Security / Department of Revenue clearance, whichever takes longer.

(Contractor's Signature)

Date

Title: _____

***** END OF SECTION *****

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

SUPPLEMENTAL CONDITIONS

The following supplementary conditions modify WSDOT Standard Specifications. If there are any conflicts between these Supplemental Conditions and the Standard Specifications, these Supplemental Conditions shall take precedence.

1. DOCUMENTS INCORPORATED BY REFERENCE

The following documents are incorporated by reference, to include, but not be limited to:

- Specifications
- Proposal
- Drawings
- Contract
- WSDOT Standard Specifications Plans for Road, Bridge and Municipal Construction, 2023 Edition and Standard Plans for Road, Bridge and Municipal Construction, 2023 Edition

2. CONFLICT AND PRECEDENCE

In the event of any conflicting provisions or requirements between the component parts of the Contract Documents, the component parts shall take precedence in the following order:

1. Change Orders
2. Contract Form
3. Addenda
4. Permits and requirements from governmental agencies
5. Drawings
6. Supplemental Conditions
7. Technical Specifications
8. Ferndale City Standards
9. WSDOT Standard Drawings & Details
10. WSDOT Standard Specifications

3. CONTRACT PLANS AND SPECIFICATIONS

Five (5) sets of Contract Documents, three (3) sets of 11”x 17” plans, two (2) sets of 24”x 36” plans, and a flash drive with Contract Documents and plans in PDF will be furnished to the Contractor free of charge. Additional sets may be purchased at the advertised price per set.

4. EXAMINATION OF PLANS, SPECIFICATIONS AND SITE OF WORK

The bidder shall carefully examine the proposed work site (including material sites), and the contract documents. Submittal of a bid shall be conclusive evidence that the bidder has made these examinations and understands all requirements for the performance of the completed work.

The Contractor shall make deductions and conclusions as to the nature of the materials to be excavated, the difficulties which may arise from subsurface conditions, and of doing any other work affected by the subsurface conditions and shall accept full responsibility. The accuracy of information furnished by the Owner and/or Engineer and/or the plans and specifications as to underground structures, foundation conditions, character of soil, position and quantity of surface and ground water, etc., is not guaranteed. Bidders must satisfy themselves by personal examination and by such other means as they desire with respect to actual conditions in regard to existing groundwater or surface structures. Unforeseen conditions shall not constitute a claim for additional payment under the terms of the contract or constitute a basis for cancellation thereof.

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

The Specifications do not necessarily discuss complete details of construction, work or materials, performance or installation, and do not necessarily cover construction details or other items of work or fixtures of equipment may affect any installation. These details must be ascertained by the Contractor and correlated to bring the parts together to a completed whole.

Where alternate methods have not been brought to the Owner's attention, it is assumed that the Contractor has figured the costlier method or methods.

5. WORK AND MATERIALS

In addition to the requirements stated in this contract document, the following shall apply:

All work and materials under this contract shall conform to the 2023 Edition of *Standard Specifications for Road, Bridge and Municipal Construction* as prepared by Washington State Department of Transportation (WSDOT) and Washington State Chapter of American Public Works Association (APWA), and according to the instructions and recommendations of the manufacturer of the material concerned. In case of a conflict between any of the above referenced Standards, the more stringent shall apply.

References throughout the above-mentioned Standard Specifications to "State" or "Owner" shall refer to the City of Ferndale.

6. OMISSIONS AND DISCREPANCIES

Upon receipt of Award of Contract, the Contractor shall carefully study and compare all drawings, specifications and other instructions and shall, prior to ordering material or performing work, report in writing to the Owner any error, inconsistency or omission not discovered at the pre-bid meeting. If during the accomplishment of the work, a discrepancy is found between the drawings and the physical condition of the locality, it shall be the Contractor's duty to inform the Owner in writing, and the Owner shall promptly verify the same. Any work done after such discovery, until authorized, will be done at the Contractor's risk.

Minor items of work or material omitted from the original plans or specifications, but clearly inferable from the information presented and which are called for by accepted good practice, shall be provided and/or performed by the Contractor as part of the original bid.

7. SURVEYS, PERMITS, REGULATIONS

The Engineer shall provide construction staking for the project. The Contractor shall provide a minimum of 1-week notice for required construction staking. The Engineer has established horizontal references and vertical grade datum for the Contractor's use. The Contractor shall be responsible for protection and preservation of the established reference points. Re-establishing the horizontal and vertical control will be done at the expense of the Contractor by Owner's surveyors. The Engineer's construction staking scope of work is included in Part 4 – Reference Documents, Appendix A – Owner Supplied Construction Surveying.

The bidder shall be familiar with all Federal, State, and local requirements that affect the completion of work in any way (such as laws, ordinances, or rules affecting employees, subcontractors, materials, equipment or procedures). In addition, the Contractor must comply with the following Washington State Laws, including without limitation: Chapter 60.28 RCW (retainage); 39.08 RCW (bond requirements); 18.27 RCW (contractor registration); 35.22.650 RCW (equal opportunity); and 70.92 RCW (handicapped). The Owner will not consider any plea of misunderstanding or ignorance of such requirements.

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

The Owner will assist with coordinating City permit applications, if needed. The Contractor is to pick up the Land Disturbance permit from the City and fill-out remaining information required, prior to mobilization. However, the Contractor will be responsible for providing submittal information, as needed (including shop drawings, etc.) to the Engineer/City (if requested). Temporary permits, easements, and other Non-City permits shall be acquired by the Contractor (if needed).

8. EXISTING UTILITIES

The location of all existing utilities shown on the plans is per the best available information, and is therefore approximate only. The Owner/Engineer does not guarantee the accuracy of this information. The contractor shall take whatever measures deemed necessary to verify the accuracy of this information and the cost of such shall be incidental to the bid.

Forty-eight (48) hours prior to starting construction, the Contractor shall contact the City of Ferndale and Underground Utility Locate (if needed). All costs incurred by the Contractor in complying with the requirements of this Section shall be incidental to the entire project and shall be included in the contract price.

9. SUBSURFACE CONDITIONS

The CONTRACTOR shall make deductions and conclusions as to the nature of the materials to be excavated, the difficulties which may arise from subsurface conditions, and of doing any other work affected by the subsurface conditions and shall accept full responsibility. The accuracy of information furnished by the OWNER and/or ENGINEER and/or the plans and specifications as to underground structures, foundation conditions, character of soil, position and quantity of surface and ground water, etc., is not guaranteed. Bidders must satisfy themselves by personal examination and by such other means as they desire with respect to actual conditions in regard to existing groundwater or subsurface structures. Unforeseen conditions shall not constitute a claim for additional payment under the terms of the contract or constitute a basis for cancellation thereof.

PLAN AND PROCEDURES FOR THE UNANTICIPATED DISCOVERY OF CULTURAL RESOURCES AND HUMAN SKELETAL REMAINS - The following **Inadvertent Discovery Plan (IDP)** outlines procedures to follow, in accordance with state and federal laws, if archaeological materials or human remains are discovered.

Recognizing Cultural Resources: A cultural resource discovery could be prehistoric or historic. Examples include:

- An accumulation of shell, burned rocks, or other food related materials,
- Bones or small pieces of bone,
- An area of charcoal or very dark stained soil with artifacts,
- Stone tools or waste flakes (i.e. an arrowhead, or stone chips),
- Clusters of tin cans or bottles, logging or agricultural equipment that appears to be older than 50 years,
- Buried railroad tracks, decking, or other industrial materials.

When in doubt, assume the material is a cultural resource.

On-Site Responsibilities:

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

STEP 1: STOP WORK. If any City employee, Contractor or Subcontractor believes that he or she has uncovered a cultural resource at any point in the project, all work adjacent to the discovery must stop. The discovery location should be secured at all times.

STEP 2: NOTIFY CITY PROJECT MANAGEMENT TEAM AND CR/ENV/NR CONTACTS. Contact the City Project Manager, Wilson Engineering LLC, and Drayton Archaeological Research.

Contacts:

City Project Manager:

Name: Mike Olinger

Phone: (360) 384-4006

Email: MikeOlinger@cityofferndale.org

Wilson Engineering, LLC:

Name: Jeff Christner, P.E.

Phone: (360) 733-6100 ex 1252

Email: jgc@wilsonengineering.com

Cultural/Environmental/Natural

(CR/ENV/NR) Program Manager:

Name: Garth Baldwin, Drayton
Archaeological Research

Phone: (360) 739-3921

Email: garth@draytonarchaeology.com

The Project Manager or the CR/ENV/NR will make all other calls and notifications.

If human remains are encountered, treat them with dignity and respect at all times. Cover the remains with a tarp or other materials (not soil or rocks) for temporary protection in place and to shield them from being photographed. **Call the Ferndale Police Department at 360-384-3390** (Do not call 911 or speak with the media).

10. TRAFFIC CONTROL

Traffic shall be maintained in accordance with WSDOT Section 1-07.23 of the WSDOT Standard Specifications and Manual of Uniform Traffic Control Devices. The Contractor shall not close any roadway without first obtaining authorization from the city. The cost for all necessary traffic control by the Contractor shall be incidental to the entire project and shall be included in the contract price.

11. SUBCONTRACTING

The Contractor shall perform work amounting to a minimum of 50% percent of the Awarded Contract Price using his own personnel and equipment. All subcontracting shall be in conformance with WSDOT Section 1-08.1 of the WSDOT Standard Specifications.

12. PRE-CONSTRUCTION CONFERENCE

A Pre-Construction conference shall be held at a time and place fixed by the Owner which will be within two weeks from the date of notification of award of contract. At a minimum, the Contractor's project manager and field superintendent are required to attend. Subcontractors, suppliers and others interested are encouraged to attend.

13. HOURS OF WORK

The Contractor shall schedule operations so that the work will be performed during the hours of 7AM to 5PM Monday through Friday, excluding holidays. A normal 40-hour Monday through Friday work week (four 10hr or five 8hr days) is intended. The Contractor shall compensate the City \$150 per hour for each hour over 40 hours per week worked to pay for additional inspection time. The Contractor shall obtain prior approval from the City for overtime hours and schedules.

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

14. COMPLETION DATE

The contracted work is to be completed by no later than November 3, 2023. The Contractor will be limited to 30 working days (6 weeks) on-site work. The Contractor shall plan accordingly to meet this completion requirement.

15. SCHEDULE OF CONSTRUCTION & VALUES

Within 10 working days of receiving the notice to proceed, the contractor shall furnish to the City a Schedule of Values. In addition, the Contractor shall furnish a Schedule of Construction at the Pre-Construction Meeting. The Schedule shall identify the project start and finish dates with a detailed breakdown of the proposed order of work and completion dates for major phases of the work. The schedule shall be developed by a critical path method. Time required for testing, backfiring, inspections, ordering, punch lists, etc. shall be incorporated into the schedule (although they do not necessarily need to be specifically identified).

16. RETAINAGE

The owner will deduct from the partial pay estimate a retainage of five percent (5%). Upon completion of all work, specified training, final inspection, and acceptance by Owner, the amount retained under the Contract will be paid within thirty (30) days following final acceptance by Owner and receipt by the Owner of the following:

- State Department of Labor and Industries Release
- Washington State Department of Revenue Release
- Washington State Employment Security Department Release
- Contractor and Subcontractors Affidavit of Wages Paid

The retainage will not be released if any claim has been filed on the project.

17. LIQUIDATED DAMAGES

Liquidated damages will be assessed in accordance with WSDOT 1-08.9 for each working day beyond the Contracted completion dates (both Phase 1 and Phase 2 dates) listed above.

18. PHYSICAL COMPLETION FOR DOUGLAS WELL #2 – ACCESS ROAD PROJECT

Substantial Completion of the Douglas Well #2 – Access Road Project shall be defined as follows, with no exceptions:

The new access road shall be completed and all compaction test results are to be satisfactory. The new chain-link fence & gates are to be completed and available to Owner for securing the site. Also, the Wetland Buffer Mitigation Work is to be completed. In addition, the Landscaping Work For Grass Vegetation is to be completed.

19. PAYMENT TO CONTRACTOR

At least five (5) working days before the end of the month, the Contractor shall submit to the Engineer an itemized application for payment, supported by receipt or other vouchers, showing payments for materials and labor, payments to sub-contractors, and such other evidence of the Contractor's right to payment as the Engineer may direct. The Owner's progress payment shall be made approximately 30 days after the date of submittal.

The owner will deduct from the partial pay estimate a retainage as defined above. Upon completion of all work, final inspection, and acceptance by Owner, the amount retained under the Contract will

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

be paid at the expiration of the thirty (30) day period following final acceptance by owner provided the following conditions are met:

- A. Releases have been obtained from the State Department of Labor and Industries, the State of Washington Employment Security Department, the Washington State Department of Revenue, and all other departments and agencies having jurisdiction over the activities of the Contractor.
- B. No claims, as provided by law, have been filed against the retained percentage.
- C. Affidavit of Wages Paid is on file with the Owner for the Contractor and all Subcontractors.
- D. All contract work is complete in every respect, including operations and maintenance manuals, as-built drawings, etc.

20. INDEMNIFICATION

The Contractor agrees to protect, indemnify, and hold harmless the Owner, Engineer and their employees, agents, and staff, from all claims, liabilities, damages, expenses, or rights of action, directly or indirectly attributable to the Contractor's activities in connection with this contract, except for the sole negligence of the Owner or Engineer as outlined in Section WSDOT 1-07.14.

21. RECORD DRAWINGS

Before receiving payment for more than 90% of the work or declaring physical completion of the work, the Contractor will provide the Owner with accurate record information of all construction activity for the entire project (red line drawing on a full-size print). This red line drawing shall include, but not be limited to, any changes to the project and the exact location of all constructed utilities and any other existing utilities discovered during construction that are not identified on existing record information. The red line drawing shall be based on accurate field measurements tied to project benchmarks. The Owner will use this information to prepare Record Drawings. The cost for furnishing this record information shall be considered incidental to the entire project and shall be included in the contract price.

22. BARRIER REQUIREMENTS

During construction, the Contractor shall always maintain satisfactory and substantial temporary fencing, railing, barricades or steel plates at all openings, obstructions or other hazards. All such barriers shall have warning signs or lights as necessary for safety. Safe access to and protection of the construction site and the Contractor's records shall be maintained always.

23. CONTROL OF WORK

The presence or absence of an Inspector at the job site will be at the sole discretion of the Owner and such presence, or absence, of an Inspector will not relieve the Contractor of his responsibility to obtain the construction results specified in the Contract Documents. The Owner, Inspector and Engineer do not purport to be Safety Engineers and are not engaged in that capacity and shall have neither authority nor responsibility to enforce construction safety laws, rules, regulations, procedures or the safety of persons on and about the construction site. Any personal assistance which an Inspector may give the Contractor will not be construed as the basis of any assumption of responsibility in any manner, financial or otherwise, by the Owner, Inspector, or the Engineer. The Inspector is on site to ensure the project is completed in accordance with all plans and specifications, to ensure the Owner is getting what is required. They are not there to do the Contractor's scheduling or contact his subs or deliver messages.

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

24. BLASTING

Blasting is not anticipated and will not be permitted without expressed written consent of the Owner. If blasting is permitted, contractor is responsible for obtaining all necessary permits and insurance.

25. INSURANCE

The Contractor shall take out and maintain during the life of this contract Public Liability Insurance for bodily injury and property damage liability including without limitation, coverage for explosion, blasting, collapse and destruction of underground utilities (X.C.U.) and contingent liability, including products and completed operations and blanket contractual liability, as shall protect the Contractor, the Owner and the Engineer. The Contractor shall have the Owner and the Engineer specifically added as additional named insured in said policies (on Form B), all at no cost to the Owner or the Engineer. The above insurance shall cover the Owner, the Engineer, Contractor and Subcontractors for claims or damages for bodily injury, including wrongful death, as well as other claims for property damage which may arise from operations under this contract whether such operations be by themselves or by any subcontractor or anyone directly or indirectly employed by either of them. The Contractor agrees, in addition, to indemnify and save harmless the Owner and Engineer, either or both, from all suits, claims, demands, judgements, and attorney's fees, expenses or losses occasioned by the performance of this Contract by the Contractor or Subcontractor or persons working directly or indirectly for the Contractor or Subcontractor, or on account of or in consequence of any act or omission of any such person, including but not limited to neglect in safeguarding the work, or failure to conform with the safety standards for construction work adopted by the Safety Division of the Department of Labor and Industry of the State of Washington.

The amount of such insurance shall be as follows:

Bodily injury liability insurance in an amount not less than \$1,000,000.00 for injuries, including wrongful death, to any one person and subject to the same limit for each person, in an amount not less than \$2,000,000.00 on account of any one occurrence, and property damage liability insurance in an amount not less than \$1,000,000.00 for each occurrence. Builders Risk (All Risk Insurance) coverage equal to project bid amount.

The Contractor shall not cause any policy to be canceled or permit it to lapse, and all policies shall include a clause to the effect that the policy or certificate shall not be subject to cancellation or to a reduction in the required limits of liability or amounts of insurance or any other material change until notice has been mailed to the Engineer and Owner stating when, not less than thirty (30) days thereafter, such cancellation or reduction or change shall be effective. In the event notice of cancellation is received by the Owner, the Contractor shall immediately obtain other comparable insurance acceptable to the Owner and provide proof thereof to the Owner. In the event the Contractor is unable to obtain and provide such insurance, the Contractor shall immediately cease all work on the project, save and except that which is necessary to secure the site and prevent injury.

All certificates of insurance, authenticated by the proper officer of the insurer, shall state in particular those insured, the extent of the insurance, the location and operations to which the insurance applies, the expiration date, and the above-mentioned notice of cancellation clause.

Provided, however, the Owner may accept insurance covering a Subcontractor in character and amounts less than the standard requirements set forth under this subsection where such standard requirements appear excessive because of the character or extent of the work to be performed by such subcontractor.

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

A Certificate of Insurance evidencing coverage and a copy of the endorsement naming the Owner and Engineer as additional insured must be submitted to the Engineer prior to the commencement of the Contract in accordance with WSDOT Section 1-03.3.

The following endorsement for additional insured shall be included in all applicable policies and on the Certificate of Insurance:

The Owner and Engineer are additional named insured for all coverages provided by the policy of insurance and shall be fully and completely protected from all claims and risks by this policy and for any and every injury, death, damage, and/or loss of any sort whatsoever, including consequential damages, sustained by any person, organization or corporation in connection with any activity performed by the Contractor or any subcontractors or by anyone directly or indirectly by virtue of the provisions of that contract between the (Owner name), as Owner and (Contractor's name), entitled (Project Title), dated (date).

The coverages provided by this policy to the Owner or any other named insured shall not be terminated, reduced, or otherwise modified in any respect without providing at least 30 days prior written notice by certified mail to the Owner and other additional named insured. The coverages provided by this policy are primary to any insurance maintained by the Owner.

Third-Party Beneficiary: All parties agree that the State of Washington shall be, and is hereby, named as an express third-party beneficiary of this contract, with full rights as such.

26. CHANGES

The Owner reserves the right to make changes in the work within the general scope of the Contract Documents at any time during the progress of the work. The Contractor shall perform all work in accordance with the changes specified by the Owner.

Changes required by the Owner may include but are not limited to:

- (a) Deletion of any portion of the work.
- (b) Increases or decreases in quantities.
- (c) Changes in specifications and/or designs.
- (d) Method or manner of performance of the work.
- (e) Addition of any new work.
- (f) Acceleration or delay in the performance of the work.

The Owner shall have the option of paying for such changes by one or more of the following methods:

- (1) by the lump sum or unit contract prices set forth in the Proposal;
- (2) by equitable adjustment mutually agreed upon by the Contractor and the Owner; or
- (3) by Force Account in accordance with WSDOT Section 1-09.6

In the case that the Contractor and the Owner are unable to agree on the amount of equitable adjustment, the Owner will unilaterally determine the amount to be paid for the change in accordance with WSDOT Section 1-09.4. The Owner's decision concerning such amount to be paid shall be final as provided in WSDOT Section 1-05.1.

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

All administrative costs associated with change orders shall be considered to be part of the Contractor's overhead for the work as bid and not a direct cost of the change. Such administrative costs shall include, but not be limited to, costs of defining changed work, determining estimated cost of changed work, preparing proposals for change orders and negotiation of the method and amount of compensation for changed work.

The compensation for each change shall include all direct and indirect costs including, but not limited to, costs of impacts on related and indirect operations and of delay or acceleration of other work resulting from the change. Failure of the Contractor to identify all direct and indirect costs at the time of negotiation of compensation for each changed shall preclude subsequent claim, after formal execution of a change order, by the Contractor for any additional costs associated with the change.

No payment for extra work or any other change in the contract will be made unless the extra work or change has been authorized by the Owner prior to start of the extra work by the Contractor.

For (a) Deletion of any portion of the work, above, the following requirements shall apply:

No payment will be made for items which are deleted from the contract and not performed. No payment will be made for any anticipated profits which would have been earned on work deleted. Payment for costs incurred by the Contractor prior to the deletion of the work shall include and be limited to actual documented costs of field labor, equipment and materials and shall not cover and include overhead as defined in WSDOT Section 1-09.6.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of cancellation of the work will be either purchased from the Contractor by the Owner at the actual cost and shall become property of the Owner or the Owner will reimburse the Contractor for his actual costs connected with returning these materials to the suppliers.

For (b) Increases or decreases in quantities, above, the following requirements apply:

Payment for all bid items shall be at the unit prices bid, regardless of the actual final quantities of the bid items incorporated into the work and regardless of any increase or decrease from the quantities designated in the Schedule of Contract Prices.

No extra or additional payment will be made for any increase in quantity of any bid item. No extra or additional payment will be made for any decrease in quantity of any bid item. No payment will be made for any anticipated profits which would have been earned on deleted quantities.

For (c) Changes in specifications and/or designs; (d) Addition of any new work; and (e) Acceleration or delay in the performance of the work above, the following requirements shall apply:

If the Engineer determines that the above changes cause an increase or decrease in the Contractor's cost of performance of that portion of the work associated with the change and/or an increase or decrease in the contract time required for performance of the work, the increase or decrease in compensation and/or contract time will be determined by agreement of the parties.

SECTION 00 73 00 – SUPPLEMENTARY CONDITIONS

27. INCREASED OR DECREASED QUANTITIES

The Contractor shall not purchase or place orders for full quantities of materials until the work has advanced to a state permitting the determination of the exact quantities required. The original bid item quantities designated on the Proposal and other estimates of quantities of materials furnished by the Engineer shall be considered as approximate and not indicative of the actual quantities required. The Owner will not be responsible for any materials purchased in excess of actual requirements and will not be responsible for any increased costs or extra expense that the Contractor may have on account of materials or work not being ordered at some earlier date.

28. SALES TAX

The work is within the City of Ferndale. The Contractor shall correctly reference on payments of sales tax to the Washington Department of Revenue Ferndale's tax code.

29. GUARANTEES

Except where special longer warranties are required, the Contractor shall guarantee all materials and workmanship for a period of one year from the date of Substantial Completion of the project.

Neither final acceptance by the Owner nor partial and final payment nor any provision in the Contract Documents shall relieve the Contractor of responsibility for faulty materials or workmanship.

If, prior to the expiration of one year after the date of the City's acceptance of all work or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any work is found to be defective or not in compliance with the Contract Documents, the Contractor shall promptly, without cost to Owner, either correct such work, or, if it has been rejected by Owner, remove and replace it with acceptable work. If the Contractor does not promptly comply with the notification issued by the Owner for correction of defective and/or non-complying work and have the defect completely repaired within 30 calendar days, the Owner may have the work corrected or removed and replaced and all direct and indirect costs of such removal and replacement, including costs of all professional services, shall be paid by Contractor.

The guarantee shall apply to all elements and parts of the work, regardless of knowledge by the Owner, engineer and inspector(s) of defects or deficiencies and regardless of failure of the Owner, Engineer and/or inspector(s) to inform the Contractor of known or suspected defects or deficiencies prior to Substantial Completion of the work by the Owner.

All subcontractors', manufacturers', and suppliers' warranties and guarantees, express or implied, for any part of the work, materials and equipment shall be deemed obtained and shall be enforced by the Contractor for the benefit of the Owner without the necessity of formal transfer or assignment thereof. Warranties and guarantees by subcontractors, manufacturers, and suppliers shall begin on and extend for one year after the date of Substantial Completion of all work.

All work (including materials and equipment) repaired or replaced in accordance with this Section shall be guaranteed for a period of one year after the date of City's acceptance of the repair/replacement work.

***** END OF SECTION *****

**PART 3 -
TECHNICAL SPECIFICATIONS**

SECTION 01 11 10 – SUMMARY OF WORK

PART 1. GENERAL

1.01 WORK COVERED BY CONTRACT DOCUMENTS

- A. The work covered by the Contract Documents consists of furnishing all labor, equipment and materials necessary for the construction of the Douglas Well #2 – Access Road as shown on the plans and specified herein.
- B. Contractor shall furnish all labor, tools, equipment and materials not pre-purchased or supplied by the Owner. In addition, the Contractor shall provide demolition, shoring, bracing, sheeting, cribbing, falsework, pumping, dewatering, drainage, forms, and all material as required or necessary to demolish, excavate, backfill, grade, construct, lay, erect, install, test, and clean-up site. The work shall consist of, in general, the construction of the new Douglas Well #2 – Access Road and associated work.

A more detailed summary of the work is included in Section 00 24 13 SCOPES OF BID.

1.02 WORK AND RESPONSIBILITIES

- A. Unless otherwise indicated, work and responsibilities include, but are not limited to the following:
 - 1. Providing and paying for labor, materials, equipment, tools, machines, facilities, and services necessary for execution and completion of work.
 - 2. Paying required taxes.
 - 3. Giving required notices.
 - 4. Enforcing strict discipline and good order among employees.
 - 5. Using new materials, except as noted.
 - 6. Maintaining required egress and other requirements in accordance with governing Codes and Ordinances throughout the work.
 - 7. Obtaining and paying for required permits, fees and notices, see General Conditions.

1.03 SEQUENCE/PHASING

- A. These documents are not to be interpreted implicitly or explicitly as definition of procedure and sequence of operations. Order as to procedure and sequence of operations are Contractor options, consistent with contract documents and as approved by Owner. A preliminary construction phasing plan is included in Section 00 31 13 PRELIMINARY PROJECT PHASING.
- B. Site Work: Proposed stockpiling areas must be approved by the Owner.

1.04 COOPERATION AND COORDINATION

- A. Contractor is responsible for coordinating and scheduling work of subcontractors to expedite progress of the Project.
- B. Subcontractor Instructions: Subcontractors to become familiar with Conditions of the Contract and the work of other Sections related to their own work.
- C. Project Coordination and Scheduling Control: Responsibility for coordination and close adherence to time schedules rests solely with the General Contractor who shall maintain coordination and scheduling control at all times.

SECTION 01 11 10 – SUMMARY OF WORK

- D. Each separate contractor and each subcontractor responsible to the General Contractor shall cooperate diligently with the General Contractor in the execution of their work so as to cause no delay in the completion of the Project. This responsibility includes the completion of all work in a timely manner and all items of equipment connected and fully operating at the time of Substantial Completion. Each separate contractor and each subcontractor shall diligently comply with the following requirements:
1. Inform other trades of requirements at proper time to prevent delay or revisions.
 2. Be informed on the requirements of other trades and check own work for conflicts with the work of other trades.
 3. Insure delivery of materials and performance of work on coordinated schedule with other trades.
 4. Contractor is to ensure the subcontractors and equipment suppliers are responsible for compatibility and completeness of the installation and operation of the equipment in their respective Specification Sections including conformance with code requirements. If power, piping, conduit, or other work required for complete installation is not provided by others to equipment location or is not adequate for complete installation, the subcontractor or equipment supplier shall be responsible for providing the necessary connections.
- E. Notification and Correction of Defective Work: Before starting a section of work, each contractor and subcontractor shall carefully examine all preparatory work that has been executed to receive his work. Check carefully, by whatever means required, to ensure that the work and adjacent, related work will finish to proper contours, planes, and levels. Promptly notify the Contractor of any defects or imperfections in preparatory work which will in any way affect satisfactory completion of the work. Under no condition shall a section of work proceed prior to preparatory work having been completed, cured, dried, or otherwise made satisfactory to receive such related work. Correction of defective work shall be the responsibility of the contractor or subcontractor providing the defective work. Correction of work due to underlying defects shall be the responsibility of the contractor or subcontractor providing work.
- F. Intent of Drawings: The work of each contractor and subcontractor shall conform to the intent of the contract drawings. Drawings showing work of other trades are partly diagrammatic and do not intend to show in details all features of work. Each contractor shall carefully review and compare related drawings and shall thoroughly understand the building conditions affecting their work. All changes required in the work caused by failure to do so shall be at no expense to the Owner. The design is based upon dimensions and requirements for the equipment of the “first-named” manufacturer. All changes required in the work caused by the use of an approved “substitute” to the first-named manufacturer shall be at no expense to the Owner.
- G. Interferences and Right-Of-Way: Make proper provisions to minimize interferences. Where conflicts occur, gravity drainage improvements have right-of-way over mechanical and electrical work; electrical work has right-of-way over landscaping work. Submit conflicts which cannot be resolved by right-of-way to Engineer for instructions.
- H. Cooperate and coordinate with any other separate Contractors under Contract with the Owner.

SECTION 01 11 10 – SUMMARY OF WORK

1.05 CONSTRUCTION STAGING AREA

- A. Coordinate staging areas with the City.

1.06 EXISTING UTILITIES

- A. Administrative Requirements

1. The Contractor is advised that underground excavation is regulated under RCW Chapter 19.122. Included therein are the following requirements:
 - a. 48-hours before beginning any excavation work, the Contractor shall inform local utilities through the utility one-call locator service at (800) 424-5555 or 811;
 - b. Protect existing utilities in the vicinity of excavation work;
 - c. In the event of any damages, notify the utility purveyor and the utility one-call locator service immediately;
 - d. Immediately repair any damaged utilities deemed to be an emergency;
 - e. Coordinate non-emergency repairs with the utility purveyor;
 - f. Provisions for assigning the financial liability of any repair work.
 - g. Further, the Contractor is required to contact the Engineer, Wilson Engineering, LLC (Jeff Christner, P.E.), 48-hours before starting construction at (360) 733-6100.

- B. Field Protection Requirements

1. Utilities of record are shown on the Drawings insofar as possible to do so. These, however are shown for convenience only and the Owner and his representatives assume no responsibility for improper locations or failure to show utility locations on the Drawings. At Contractor's expense, immediately repair utilities damaged during construction.

1.07 MISCELLANEOUS

- A. Additional work items include, but are not limited to:

1. Maintaining a pedestrian and vehicular access to and around existing projects.
2. Not unreasonably encumbering site with materials or equipment.
3. Assuming full responsibility for protection and safekeeping of products stored on premises.
4. Moving any stored products interfering with any other Contractors.
5. Obtaining and paying for use of additional storage or work areas needed for operations.
6. Restoration of any damage to existing improvements adjacent to work site.
7. Moving and replacing items incidental to completion of the work including mailboxes, fences, small shrubs and trees, street signs, yard decorations, etc.

END OF SECTION

SECTION 01 31 00 – PROJECT COORDINATION

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

- A. Project meetings will be held to accomplish the following:
 - 1. Coordinate the work of the project and resolve any conflicts or construction problems.
 - 2. Establish a sound working relationship between the Contractor, Owner, and Engineer.
 - 3. Establish sound working procedures.
 - 4. Review job progress and quality of work.
 - 5. Expedite the work to completion within the scheduled time limit.
- B. Representatives of Contractors, subcontractors, and suppliers attending the meetings shall be qualified and authorized to act on behalf of the entity each represents.

1.02 RELATED SECTIONS:

- A. Related work specified elsewhere:
 - 1. Section 00 25 13 - Pre-Bid Conference
 - 2. Section 00 31 13 - Preliminary Project Phases
 - 3. Section 01 11 00 - Summary of Work
 - 4. Section 01 33 00 - Submittals:

1.03 PRECONSTRUCTION MEETING

- A. The pre-construction meeting will be scheduled within the time frame identified in the General Conditions after the Notice to Proceed has been issued. The Owner will notify the Contractor as to the time and place of the meeting.
- B. Present at the meeting shall be a representative of the Owner, the Engineer, the Contractor, Project Superintendent, and major subcontractors.
- C. The Contractor must be prepared for a thorough discussion and review, as well as revisions which may be deemed necessary in the opinion of the Owner, of the following:
 - 1. General project information
 - 2. Responsibilities of all involved parties
 - 3. Content of the contract
 - 4. Contractor's schedule
 - 5. Project Phasing and Schedule of construction
 - 6. Penalties and Liquidated Damages
 - 7. Subcontracts
 - 8. Status of Owner furnished materials
 - 9. Change order procedures
 - 10. Staking of work

SECTION 01 31 00 – PROJECT COORDINATION

11. Project inspection
12. Acceptance of work
13. Labor standards requirements
14. Rights-of-way and easements
15. Placement of project signs and posters
16. Handling of disputes
17. Additional issues as required.

1.04 PROGRESS MEETINGS

- A. Unless otherwise required, progress meetings will be held by the Owner on a weekly basis at a location near the site. Present at these meetings shall be the Contractor, subcontractors and suppliers as required, the Owner and other interested parties, i.e., material suppliers, public utility, etc.
- B. The Contractor must be prepared for a thorough discussion and review, as well as revisions which may be deemed necessary in the opinion of the Owner, of the following:
 1. Review work since previous meeting.
 2. Make field observations and address any conflicts or problems.
 3. Review material delivery schedules
 4. Review work progress including any issues that may impact project schedule.
 5. Review submittal schedule.
 6. Maintenance, testing and quality standards.
 7. Review any proposed changes.
 8. Review pay requests and procedures.
- C. The Owner shall preside over progress meetings. The Engineer shall be responsible for taking minutes, recording all significant proceedings and decisions. Copies of minutes shall be distributed within one week after the meeting.

1.05 SCHEDULE

- A. The Contractor shall develop and submit a preliminary construction progress schedule for the contracted work. This schedule shall be submitted to the Owner within 10 days of Contract Award.
- B. Schedule shall be a critical path diagram depicting the first day of each week and sized to be legible and permit notations and future revisions.
- C. Schedule shall be arranged chronologically by the start date of each item, and consider the following:
 1. The estimated construction progress schedule shall:
 - a. Show complete sequence of construction by activity.
 - b. Show start and stop dates of each major construction element.
 - c. Show projected percent completion for each major construction element at the first of each month.

SECTION 01 31 00 – PROJECT COORDINATION

2. Through construction, the Contractor shall record progress of each major construction element.
 3. Revisions shall show changes relative to previously submitted schedules and updated projections of progress and completion.
 4. The schedule shall be updated on a monthly basis and submitted with the pay estimate.
- D. The schedule and all subsequent revisions shall be kept at the Contractor's field office with copies available for the Engineer and Owner.

*****END OF SECTION*****

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

- A. Summarize, but not necessarily a complete listing, submittals required of the Conditions of the Contract and the General Requirements.
- B. General procedures for specification submittals. Specific requirements for submittals are included in the individual sections.

1.02 RELATED SECTIONS

- A. Related work specified elsewhere:
 - 1. Section 00 73 00 – Supplementary Conditions
 - 2. Section 01 70 00 - Contract Closeout

1.03 SUBMITTAL SCHEDULE

This listing of submittals is a checklist for the Contractor's convenience and is not an exhaustive listing of provisions of any law or the requirements of these Contract Documents. The Owner reserves the right to amend this list.

- A. With his bid, the Contractor shall furnish the following:
 - 1. Bid Proposal (Section 00 41 00 BID PROPOSAL)
 - 2. Bid Guarantee (Section 00 43 13 BID BOND or other type of Bid Guarantee),
 - 3. Certification of Nonsegregated Facilities (Attachment 3 of Section 00 73 00 SUPPLEMENTAL CONDITIONS),
 - 4. EPA Form 6100-3 DBE Program Subcontractor Performance Form (Attachment 6 in Section 00 73 00 SUPPLEMENTAL CONDITIONS) for all DbE subcontractors.
 - 5. EPA form 6100-4 DBE Program Subcontractor Utilization Form (Attachment 7 in Section 00 73 00 SUPPLEMENTAL CONDITIONS).
- B. Within 1-hour of the bid, the Contractor shall furnish the following:
 - 1. List of Subcontractors (Section 00 43 36 PROPOSED SUBCONTRACTORS FORM).
- C. Prior to executing the Contract Agreement, (Section 00 52 00 AGREEMENT FORM), the Contractor shall furnish the following:
 - 1. Payment and Performance Bonds, (Section 00 61 13 PERFORMANCE AND PAYMENT BONDS FORMS).
 - 2. Insurance Certificates.
 - 3. Prevailing wage rate requirements.
- D. 10 days after execution of the Agreement, the Contractor shall furnish the following:
 - 1. Construction schedule.
 - 2. Requests for material substitutions.
 - 3. Schedule of Values for the work.
- E. After starting construction, each month the Contractor shall furnish the following:

SECTION 01 33 00 – SUBMITTAL PROCEDURES

1. Application for Payment on Owner approved form with breakdown of work performed organized in accordance with the Schedule of Values.
 2. Updated construction schedule (submitted with each monthly pay request)
- F. With the final application for payment, the Contractor shall furnish the following:
1. Contractor's affidavit stating payment of subcontractors
 2. Subcontractors' statements of being paid
 3. Final location of all items on Owner's property for which payment is requested.
- G. Before releasing retained funds, the Contractor shall furnish the following:
1. Record drawings and related contract closeout documents
 2. Affidavits of Payment (wages, subcontractors, taxes, etc.)

1.04 GENERAL SUBMITTAL REQUIREMENTS

- A. Identification of Submittals
1. Identify each submittal with Project title and number; clearly define location of submittal in the project and/or its location in the Contract Documents.
 2. It is the responsibility of the Contractor to coordinate the work of the various trades involved with the work under this agreement. Contractor shall check all submittals by his subcontractors and mark them with his approval prior to submittal.

1.05 SUBMITTAL OF ACCESS ROAD PROJECT DRAWINGS & SAMPLES

- A. General
1. Provide submittals in PDF format.
 2. Submittal of drawings and samples shall be accompanied by a transmittal letter containing project name, Contractor's name, number of drawings and samples, titles and other pertinent data.
 3. Project drawings shall be at a convenient size. A space shall be provided in the lower right-hand corner for the review stamp.
 4. The Contractor is responsible for obtaining and distributing required prints of drawings to his subcontractors and suppliers.
 5. Contractor shall maintain a complete material list and file of approved submittals at the project site for use as reference by interested parties.
- B. Samples
1. Form of Submittal: When samples are specified to be submitted, furnish two samples, except as noted herein, of sufficient size to indicate general visual effect or as otherwise specified in the specifications, and in as nearly the form in which the material will appear on the project as practicable; i.e., submit paint on samples of actual material for which they are specified as a finish; one set of reviewed and selected samples will be retained by the owner.
 2. Review:
 - a. The Owner will check submitted samples against file samples and project requirements, will make final selection of colors and finishes from

SECTION 01 33 00 – SUBMITTAL PROCEDURES

samples, and will approve sample for application on the project in conformance with the Specifications.

- b. Should a submitted sample not be in conformance with the specifications, resubmit sample which conforms with the requirements of Contract Documents.

C. Catalog Cuts, Data & Brochures

1. Where indicated in the Specifications, catalog cuts and similar data will be accepted in lieu of access road drawings, provided they contain required information and are clearly printed. Submit manufacturer's descriptive data including catalog sheets for materials, equipment and fixtures, showing dimension, performance characteristics and capacities, wiring diagrams and controls, schedules, and other pertinent information as required.

D. Submittal of Product Certificates

1. Where manufacturer certificates are specified to be furnished attesting to conformance with specification requirements, submit certificates in triplicate prior to acceptance of the Work.

E. Test Reports

1. Submittal is classified either as "access road drawing" or "product data", depending upon whether the report is uniquely prepared for the project or a standard publication of regular product or workmanship control testing at the point of production (respectively).
2. Refer to individual sections of the Specifications for specific requirements; furnish three (3) copies when required.

F. Warranties

1. Provide warranties, guarantees and/or maintenance agreements where the Specifications require a period longer than the Contractor warranty period.

G. Operation & Maintenance Data

Furnish instructions and data on materials and equipment installed in the work in accordance with requirements of the technical provisions of the specifications and assemble as specified below. These manuals shall be submitted prior to application for payment exceeding 90% of the total contract amount.

1. Provide four (4) hard copy sets and two (2) electronic copy sets of Operation and Maintenance Data. Each hard copy set shall be bound in separate commercial quality three-ring binders with durable and cleanable plastic covers. The words "Operation and Maintenance Manual (or Instruction)" along with the type of equipment covered shall be typed or neatly printed on the cover. The electronic copy sets shall be in PDF format and stored on either CD or flash drive units.
2. Each set shall be complete with an index and, as a minimum, cover the following items:
 - a. Name, location and telephone number of manufacturer and product's model number.
 - b. Name, location and telephone number of nearest supplier and spare parts warehouse.
 - c. Start-up procedures and normal operating characteristics and instruction.

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- d. Regulation, control, shut-down and emergency instructions.
 - e. Recommended preventative maintenance procedures including a lubrication schedule with recommended lubricants.
 - f. Trouble-shooting guide.
 - g. Complete nomenclature and commercial number of all parts including exploded views of each assembly.
 - h. List of recommended spare parts.
 - i. Complete as-built elementary wiring and outline diagrams.
 - j. Statements of warranty or guarantee.
3. Operation and Maintenance Manuals shall be submitted in at least draft form for Engineer's review with Access Road Drawings, Catalog Cuts and other material submittal data. Final drafts, incorporating Engineer's comments, shall be submitted prior to Contractor's application of payment for 75 percent or more of the work.
 4. Contractor shall maintain a complete file of all Engineer reviewed Operation and Maintenance Manuals at the project site for use as a reference by interested parties.

*****END OF SECTION*****

SECTION 01 41 00 – REGULATORY REQUIREMENTS

PART 1. GENERAL

1.01 SECTION INCLUDES

As required by General Conditions: "Contractor shall comply with and give notices required by all federal, state, and local laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work." Except where otherwise expressly required by applicable Laws and Regulations, neither OWNER nor ENGINEER will be responsible for monitoring CONTRACTOR'S compliance with any Laws and Regulations. Contractor is responsible for keeping the District, Labor & Industries and other authorities completely informed of any changes in the work in a timely manner, and is responsible for informing them of any changes in the work which may affect codes and laws. This includes contract modifications, amendments, additions, access road drawings, and the like, current as of Project Manual date.

- A. Make any and all adjustments and modifications as required to conform to ordinances, and regulations.
- B. Referenced codes establish minimum requirement levels. Where provisions of various codes or standards conflict, the more stringent provisions govern. Promptly submit to Engineer written notice of observed contract document variations from legal requirements.
- C. Compliance requirements include, but are not limited to following:
 1. International Building Code and Related Standards, most recent edition, published by the International Conference of Building Officials.
 2. State Rules and Regulations for Barrier Free Design/WAC 51-10.
 3. The Americans with Disabilities Act (ADA) "Accessibility Guidelines for Buildings and Facilities."
 4. Washington State Department of Labor and Industries Regulations.
 5. Electrical Work:
 - a. Underwriters' Laboratories (UL).
 - b. National Electrical Manufacturers' Association (NEMA).
 - c. NFPA, National Electric Code (NEC), National Electric Safety Code, and above electrical listings, as applicable.
 - d. State Electrical Construction Code.
 6. Environmental Requirements: All work to be performed in compliance with relevant statutes and regulations dealing with prevention of environmental pollution and preservation of public natural resources.
 7. Standard Specifications for Road and Bridge Construction, Washington State Department of Transportation, (WSDOT) latest edition.
 8. Standard Specifications for Municipal Public Works Construction, Washington State Chapter, American Public Works Association, latest edition.
 9. Whatcom County Standards, latest editions.
 10. City of Ferndale Standards, latest edition.

SECTION 01 41 00 – REGULATORY REQUIREMENTS

1.02 MISCELLANEOUS EXPLANATIONS/INTENT

- A. Number of Specified Items Required: Wherever in these Specifications an article, device, or piece of equipment is referred to in the singular number, the reference applies to as many such articles as are shown on the Drawings or required to complete the installation.
- B. Drawings/Diagrammatic:
 - 1. Drawings are in part diagrammatic and do not necessarily show complete details of construction, work or materials, performance or installation. And they do not necessarily show how construction details, other items or work, fixtures, and equipment may affect any particular installation. Contractor is required to ascertain and correlate the work to bring the parts together into a satisfactory and completed whole.
 - 2. Furnish and install work not covered under any heading, Section, branch, class or trade of the project manual, but shown on or reasonably inferable from the Drawings. This includes all work necessary to produce the intended results. Install similarly for items more positively indicated.
- C. Wording of these Specifications: These Specifications are of the abbreviated or streamlined type and may include incomplete sentences.
 - 1. Words such as "shall", "the Contractor shall", "shall be", and similar mandatory phrases, are required to be supplied by inference in the same manner as they are in a note on the Drawings.
 - 2. Provide all items, articles, materials, and operations listed, including all labor, materials, equipment and incidentals, required for their completion.
- D. Tense, Gender, Singular, Plural: Present tense words include future tense. Words in masculine gender include feminine and neutral genders. Words in the singular include plural. Plural words include singular.
- E. All, Entire, and the Like: For brevity throughout the documents, these words may be omitted. Read their implications into all work.
- F. Specifications by Reference: Any material specified by reference or number, symbol or title of a specified standard, such as commercial standard, ANSI and ASTM documents, Federal Specifications, trade association standard, or the like, shall comply with the following:
 - 1. The latest revision requirements thereof, and any amendment or supplement thereto, in effect on Bid date or date of Owner-Contractor Agreement when there are no bids.
- G. Dimensions and Measurements on Drawings: Dimensions govern. Do not scale. Contractor is to check all dimensions in the field and verify them with respect to adjacent or incorporated work. Large scale drawings take precedence over plans, elevations, and cross sections.
- H. First Class Workmanship: First Class Workmanship is expected.
 - 1. Prior to installing any item or material, verify that receiving surfaces are plumb, level, true to line, and straight to the degree necessary to achieve tolerances specified or required. Perform without extra cost all shimmering, blocking, grinding, or patching required to make such surfaces plumb, level, true to line, and straight.

SECTION 01 41 00 – REGULATORY REQUIREMENTS

2. Take care in attention to details and fitting at intersections and junctures of materials. All joints are to be tight, straight, even, and smooth.
- I. Presence of Engineer/Owner: Do not misconstrue presence of this person or any of his representatives at the site as assuring compliance with Contract Documents.

PART 2. MATERIALS (NOT USED)

PART 3. EXECUTION (NOT USED)

*****END OF SECTION*****

SECTION 01 45 00 – QUALITY CONTROL

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

- A. Inspection and testing laboratory qualifications, duties and responsibilities.
- B. Contractor's quality control requirements.

1.02 RELATED SECTIONS

- A. Related Requirements Specified Elsewhere:
 - 1. Section 01 33 00 – Submittal Procedures
 - 2. Section 01 66 00 – Product Storage and Handling Requirements
 - 3. Section 01 70 00 – Execution and Closeout Requirements
 - 4. Technical Specifications include quality control requirements for certain portions of the work.

1.03 APPLICABLE PUBLICATIONS AND REGULATORY REQUIREMENTS

- A. ASTM E329: Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as used in Construction.
- B. WSDOT and ASHTO: Applicable sections that pertain to compaction testing for subgrade, base and top course, and asphalt testing.
- C. Washington State Building Code and International Building Code Standards.
- D. Nothing in the Drawings or Specifications shall be construed to permit Work not conforming to applicable laws, ordinances, rules or regulations.
- E. When Drawings or Specifications exceed requirements of applicable laws, ordinances, rules, or regulations, comply with documents establishing the more stringent requirements.

1.04 DEFINITIONS

- A. Factory Tests: Tests made on various products and component parts prior to shipment to the job site, including but not limited to such items as pumps, valves, miscellaneous piping equipment, electrical equipment, and precast concrete.
- B. Field Tests: Tests or analyses made at, or in the vicinity of the job site in connection with the actual construction.
- C. Product: The term "product" includes the plural thereof, and means a type or a category of manufactured goods, constructions, installations and natural and processed materials or those associated services whose characterizations, classification or functional performances determination is specified by standards.
- D. Person: The term "person" means associations, companies, corporations, educational institutions, firms, government agencies, at the Federal, State and Local level, partnerships, and societies, as well as divisions thereof, and individuals.
- E. Testing Laboratory: The term "testing laboratory" means and "person", as defined above, whose functions include testing, analyzing, or inspecting "products" as defined above, and/or evaluating the designs or specifications of such "products" according to the requirements of applicable standards.

SECTION 01 45 00 – QUALITY CONTROL

- F. Certified Test Reports: Certified test reports are reports of tests signed by a qualified professional attesting that tests were performed in accordance with the test method specified, that the test results reported are accurate, and that items tested either meet or fail to meet the stated minimum requirements. These test reports include those performed by Factory Mutual, Underwriter's Laboratories, Inc., and others.
- G. Certified Inspection Reports: Certified inspection reports are those signed by approved inspectors attesting that the items inspected meet the specification requirements other than any exceptions included in the report.
- H. Manufacturer's Certificate of Conformance or Compliance: A certificate signed by an authorized manufacturer's official attesting that the material or equipment delivered meets the specification requirements.

1.05 QUALITY CONTROL REQUIREMENTS

- A. All work under the contract shall be inspected and tested as specified herein. The Contractor shall maintain records of all inspections and tests. Approvals shall be obtained before delivery of materials to the project site.
- B. The Contractor is responsible for all field testing (liner, concrete, and compaction). The Contractor is responsible for notifying Owner and coordinating compaction test requests as discussed elsewhere in these documents. The Contractor is responsible for the costs of any repeat tests required where failed compaction tests were obtained.
- C. If required, contractor responsibility for quality control testing shall be as follows:
 - 1. Factory Tests: Unless otherwise specified, the Contractor will arrange and pay for factory tests when required by the contract documents.
 - 2. Factory Inspection: Unless otherwise specified, the Contractor will arrange and pay for factory inspection when required by the contract documents.
 - 3. Field Inspection and Tests by the Contractor: Unless otherwise specified, the Contractor shall furnish all equipment, instruments, qualified personnel, and facilities necessary to inspect all work and perform all tests when required by the contract documents. All inspections and tests performed and test results shall be promptly submitted to the Owner.
 - 4. Approval of Testing Laboratories: All laboratory work under this contract shall be performed by a laboratory approved by the Owner.
- D. Laboratory Reports: Reports shall cite the contract requirements, the test or analysis procedures used, the actual test results, and include a statement that the item tested or analyzed conforms or fails to conform to the specifications requirements. All test reports shall be signed by a representative of the testing laboratory authorized to sign certified test reports. The Contractor shall arrange for immediate and direct delivery of the signed original of all reports, certifications, and other documentation to the Owner.
- E. Repeated Tests and Inspections: The Contractor shall repeat tests and inspections after each failed test until passing test results are obtained. The retesting and reinspection shall be performed at no additional cost to the Owner and the Contractor shall reimburse the Owner for their, or their representative's, time and expenses due to the failed test results.

1.06 CONTRACTOR'S RESPONSIBILITY

- A. Access. Furnish free access to various parts of the work and assist testing inspection personnel in performance of their duties at no additional cost to the Owner.

SECTION 01 45 00 – QUALITY CONTROL

- B. **Concealed Work.** When directed by the Owner, the Contractor shall open for inspection any part of the work which has been concealed. Should the Contractor refuse or neglect such a request, the Owner may employ any other person to open up the same or do so himself. If any part of the work has been concealed in violation of the Owner's instruction or, if on being opened, it is found not to be in accordance with the terms of the Contract Documents the expense of opening and recovering, whether done by the Contractor or not, shall be charged to the Contractor. If the work has been concealed but not in violation of the Owner's instructions and is found to be in accordance with the terms of the Contract Documents the actual necessary expense of opening and recovering is done by the Contractor it shall be considered as extra work and paid for accordingly.
- C. **Notices.** The Contractor shall notify the Owner not less than 48 hours, unless otherwise noted, before work requiring inspection is started. The Contractor shall schedule portions of the work requiring inspection and testing, so that the agency's time on the project is continuous and as brief as possible.

1.07 CONSTRUCTION SURVEILLANCE BY OWNER

- A. **Appointment.** The Owner may appoint an on-site representative for surveillance of any and all portions of the work. Such surveillance may extend to any or all parts of the work, and to the preparation or manufacture of materials to be used.
- B. **Authority of On-Site Representative.**
 - 1. On-site representative is not authorized to revoke, alter, enlarge or relax the provisions of the Contract Documents, and is placed on the work site to keep the Owner informed as to the progress of the work and the manner in which it is being done.
 - 2. On-site representative may also call the attention of the Contractor to any deviations from the plans or specifications. Failure of the Owner or his representative to call the attention of the Contractor to faulty work or deviation from the Contract Documents shall not constitute acceptance of said work.
 - 3. The representative is not authorized to approve or accept any portions of the work or to issue instructions contrary to the Contract Documents.
 - 4. The representative will exercise only such additional authority as may be specially delegated to him by the Owner, notice of which will be given in writing to the Contractor.

1.08 DEFECTIVE WORK

- A. Remove and replace any work found defective or not complying with requirements of Contract Documents, at no additional cost to Owner. Work will be checked as it progresses, but failure to detect any defective work or materials shall not in any way prevent later rejection when such defect is discovered, nor shall it obligate the Owner for final acceptance.

PART 2. MATERIAL (NOT USED)

PART 3. EXECUTION (NOT USED)

(Summary of Quality Control Testing Services Follows)

SECTION 01 45 00 – QUALITY CONTROL

QUALITY CONTROL TESTING SERVICES

Services to be coordinated by the Contractor, performed by Owner's Testing Lab, and Paid by Owner/Engineer.

Earthwork

- Perform sieve/proctor tests for each source of fill material.
- Test in-place density of fills/backfills for pavement bases and utilities.

*****END OF SECTION*****

SECTION 01 50 00 – TEMPORARY FACILITIES

PART 1. GENERAL

1.01 DESCRIPTION OF SECTION

- A. The Contractor shall provide all arrangements, material and labor needed for obtaining temporary utility services.
- B. The Contractor is encouraged but not required to maintain a field office, but water and sanitation facilities must be provided for the Contractor's employees and subcontractors.
- C. Make all connections to the utility purveyor's requirements and in accordance with code requirements; remove from site upon completion of all work or when directed.
- D. Providing Temporary Facilities:
 - 1. Provide temporary construction, devices, equipment, power and convenience utilities for use, convenience and safety of personnel engaged in the work of the contract.
 - 2. Provide temporary utilities and access during construction to existing homeowners at all times.

1.02 RELATED SECTIONS

- A. Related Requirements Specified Elsewhere:
 - 1. Section 01 11 00 – Summary of Work
 - 2. Section 01 70 00 - Execution and Closeout Requirements
 - 3. Section 31 32 11 – Soil Surface Erosion Control

1.03 REGULATIONS

- A. Health and Safety: Conform with "Safety Standards for Construction Work, Chapter 296-155 WAC" by State of Washington Department of Labor and Industries.
- B. Construction Codes: Comply with regulatory construction codes as applicable.
- C. Washington State Department of Health: Comply with all applicable codes for temporary sewer and water service.

1.04 TEMPORARY FACILITIES

- A. Temporary Electrical Light & Power:
 - 1. Provide all temporary lighting and power, including pole or poles, transformer if required, for construction purposes.
 - 2. Provide temporary connections to closest utility source.
 - 3. Provide all required extension cords, lighting outlets and power outlets (grounding type), lamps, and other required equipment and accessories necessary only for adequate temporary lighting and power for construction purposes.
 - 4. Remove temporary lighting and power equipment and their connections at completion of the work or sooner if approved or directed.

SECTION 01 50 00 – TEMPORARY FACILITIES

- B. Water for Construction Purposes:
1. The Contractor is responsible for obtaining and providing water as required for the work and for testing.
 2. If agreed, Contractor to make temporary connections with metered connection with backflow preventers to utility piping as required for the work and provide meter, piping, hoses, nozzles and other accessories required.
 3. At completion, or before as directed, disconnect temporary connections and piping and remove from site.
 4. Provide secure system to prevent unauthorized use during Contractor's absence.
- C. Sanitary Facilities:
1. The Contractor shall provide temporary restroom services at the field office location, or other centrally located site. Service may be provided by contract service. Facilities shall be regularly serviced and maintained, and kept reasonably clean. Facilities shall be promptly removed at the conclusion of the work.
- D. Drinking water:
1. Provide from proven safe source, for all those connected with the work in accordance with WISHA and Health Department requirements.
 2. Pipe and transport in such manner as to keep it clean and fresh; serve in single containers or provide sanitary drinking fountains.
- E. Residential and Commercial Access:
1. Provide access to residential homes and commercial facilities (Douglas Well #1) at all times.
 2. Provide access to the area at all times for emergency and service vehicles.
- F. Job Shack:
1. Contractor is responsible for providing a job shack, if desired.
 2. Coordinate location of job shack with City.
 3. Provide all utilities (power, sewer and water) as required.
 4. Provide adequate parking (including import of base course, if required) and security as required.
- G. Equipment Storage
1. Contractor is fully responsible for safe storage of all materials and equipment.
 2. Provide all fences, gates, locks, covers, weather protection, surveillance, etc. to assure safe storage.
 3. Protect all materials and equipment from the weather.
- H. First Aid
1. In accordance with requirements of 296-24 WAC, furnish personnel trained in first aid and certified as approved by Washington Department of Labor and Industries.

SECTION 01 50 00 – TEMPORARY FACILITIES

1.05 MISCELLANEOUS PROVISIONS

- A. Cleaning Up:
 - 1. General: The Contractor and each subcontractor at all times shall keep the premises free from accumulation of waste materials or rubbish caused by his operations. Clean up work areas as required at the end of each day's work.
 - 2. Trash removal: Remove all trash and debris from site and dispose of at Contractor's expense. Allow no debris, broken or open cartons, or other refuse to collect in the project or around it; allow no inflammable or hazardous materials to be stored on the site without approved protection precautions and procedures.
 - 3. Street and parking area cleaning: Immediately clean all spilled material which results from the work of this contract and waste hauling operations; use motorized equipment and hand labor as required. Remove from streets, driveways or parking areas in time to prevent such materials from affecting traffic or clogging street drainage system; clean any drains contaminated.
- B. Noise Control: During the period of construction, provide satisfactory means, as approved by the Owner, of controlling noise originating from construction work and equipment.
- C. Dust Control: During the period of construction, provide satisfactory means of controlling dust and dirt, including application of water to control dust but not cause erosion.
- D. Temporary Erosion and Sedimentation Control: The Contractor shall provide sedimentation and erosion control in accordance with the Contract Plans and Section 31 32 11 SOIL SURFACE EROSION CONTROL in the Contract Specifications

1.06 DEBRIS CONTROL

- A. Cleaning during construction: Maintain all areas free of extraneous debris.
- B. Prevent accumulation of debris at construction site, storage and parking areas, and along access roads and haul routes.
- C. Keep storm sewers free of debris or extraneous materials.
- D. Offsite Cleanup: Prevent any leaking of materials from the vehicle used to haul offsite and clean haul routes daily.

1.07 POLLUTION CONTROL

- A. Provide all method, means and facilities required to prevent any contamination of the project site and areas adjacent to project site. Contractor will be expected to respond immediately to any spills and to take whatever measures are necessary to prevent further contamination and clean up accidental contamination. Contractor will be solely responsible for any and all costs of clean up in the event of discharge (of any kind). In the event that the Contractor is slow in responding, the Owner may elect to pay for clean-up costs directly, and all costs incurred from this, including labor, overhead, materials, management, etc., will be deducted from the next pay request.
- B. Provide methods, means, and facilities required to prevent contamination of soil, water, or atmosphere. Allow no discharge of noxious substances from construction operations.
- C. Provide systems for control of atmospheric pollutants in accordance with Federal/State/Local published rules and regulations.

SECTION 01 50 00 – TEMPORARY FACILITIES

1.08 BARRIER REQUIREMENTS

- A. During construction, the Contractor shall at all times maintain satisfactory and substantial temporary fencing, railing, barricades or steel plates at all excavations, obstructions or other hazards. All such barriers shall have warning signs or lights as necessary for safety.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION (NOT USED)

*****END OF SECTION*****

SECTION 01 60 00 – PRODUCT REQUIREMENTS

PART 1. GENERAL

1.01 DESCRIPTION OF SECTION

- A. General requirements for providing transportation, handling, storage, and protection of materials and equipment.
- B. Contractor's options in selection of products and manufacturers, and procedures for consideration of proposed substitutions.
- C. All material and equipment incorporated into the work:
 - 1. Shall be new, free from defects and of equal or superior quality as specified herein and on the drawings.
 - 2. Shall be the products of established manufacturers regularly engaged in the fabrication of such equipment.
 - 3. Shall comply with the size, type and quality specified and shall be designed for use in the particular application.
 - 4. Shall be designed, fabricated and assembled in accordance with standard engineering and shop practice.
 - 5. Shall be complete with accessories, trim, finish, safety guards, and other devices and details needed for a complete installation and for intended use and effect.

1.02 RELATED SECTIONS

- A. Related Requirements Specified Elsewhere:
 - 1. Section 01 30 00 - Submittals
 - 2. Section 01 45 00 - Quality Control

1.03 MANUFACTURER'S INSTRUCTIONS

- A. Installation of all materials and equipment shall comply with manufacturer's printed instructions. The Contractor shall have the responsibility to distribute copies of such instructions to all parties involved in the installation, including the Owner. One complete set of instructions shall be maintained on the job site during installation and until completion.
- B. All materials and equipment shall be handled, installed, connected, cleaned, conditioned and adjusted in strict accordance with such instructions and in conformance with the specified requirements. The Owner should be immediately notified should job conditions or specified requirements conflict with the manufacturer's instructions.

1.04 TRANSPORTATION AND HANDLING

- A. All materials and equipment shall be transported and handled in such a manner as to prevent any damage.
- B. Deliveries of products shall be in accordance with construction schedules as to cause no delay in the work or to conflict with work and conditions at the site.

SECTION 01 60 00 – PRODUCT REQUIREMENTS

- C. Products shall be delivered in the manufacturer's original containers with identifying labels intact and legible. Where materials are specified to conform to ASTM, Federal or other reference specifications, the materials shall be delivered to the site bearing the manufacturer's label stating that the materials meet the requirement of such referenced specifications.
- D. Products shall be inspected immediately upon delivery to assure compliance with specified requirements and approved submittals and that products are properly protected and undamaged.
- E. The Contractor shall provide personnel and equipment to receive and unload products delivered to the site. No products shall be delivered to the site unless such forces are available.

1.05 STORAGE AND PROTECTION

- A. Contractor is fully responsible for safe storage of all materials and equipment.
- B. All products shall be stored in strict accordance with the manufacturer's instructions, with seals and labels intact and legible.
- C. All products shall be arranged in a neat order and protected from damage from the weather, traffic and construction operations. Easy access for periodic inspection shall be provided.

1.06 PRODUCTS AND SUBSTITUTIONS

- A. Products:
 - 1. Where available, provide standard products of types which have been produced and used previously and successfully on other projects and in similar application.
 - 2. Where additional amounts of a product, by nature of its application, are likely to be needed by Owner at a later date for maintenance and repair or replacement work, provide a standard, domestically produced product which is likely to be available to Owner at such later date.
 - 3. For Products specified only by a reference standard, the Contractor may select any product meeting that standard.
 - 4. Where the make or name of a material is specified in the written documents or on the drawings, it is to establish a quality standard in that particular field of manufacture. Requests for substitutions of materials of other makes or names must be submitted to the Owner and must receive favorable written response from the Owner prior to ordering, furnishing or installing the proposed substitution item.
- B. Requests for Substitutions:
 - 1. For a period of thirty (30) days after the Contract Date, the Owner will consider written requests from the Contractor for substitution of Products.
 - 2. Requests for each Product substitution shall be submitted separately. Requests for substitutions will be received and considered when revisions to contract documents are not required, and the product or material is in keeping with the general intent of the Contract Documents.

SECTION 01 60 00 – PRODUCT REQUIREMENTS

3. A request for substitution by the Contractor constitutes a representation that the Contractor:
 - a. Will provide the same warranties or bonds for the substituted item as for the Product specified.
 - b. Will coordinate the installation of an accepted substitution into the work and make all other changes as required to make the work complete in all respects.
 4. Submit six (6) copies of requests for substitutions, fully identified for Product or method being replaced by substitution, including related specification section and drawing number(s), and fully documented to show compliance with requirements for substitutions.
 5. Include product data/drawings, description of methods, samples where applicable, Contractor's detailed comparison of significant qualities between specified item and proposed substitution, statement of effect on construction time and coordination with other affected work, cost information or proposal, and Contractor's statement to the effect that proposed substitution will result in overall work equal-to-or-better-than work originally indicated.
 6. The contractor agrees to pay all Engineering costs accruing as a result of checking and/or redesign due to substitutions. These costs will be charged to the Contractor and will be considered incidental to the contract price.
- C. Owner's Review
1. Within two weeks of receipt of request, or within one week of receipt of requested additional information or documentation (whichever is later), the Owner will notify the Contractor of either his acceptance or his rejection of the proposed substitution. Rejection will include statement of the reasons for rejection (non-compliance with the requirements for requested substitutions, or other reasons as detailed.)

PART 2. MATERIALS (NOT USED)

PART 3. EXECUTION (NOT USED)

*****END OF SECTION*****

SECTION 01 70 00 – EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1. GENERAL

1.01 DESCRIPTION OF SECTION

- A. Specific administrative procedures, and closeout submittals at substantial completion and at final acceptance of the work.
- B. Requirements for record documents and start-up procedures.
- C. The listing of procedures and submittals is given generally as a checklist for the Contractor's convenience. The Owner reserves the right to add to this list. This list is not an exhaustive listing of either all applicable laws or of the provisions of any law.

The Contractor shall comply with all contract requirements prior to contract closeout. Specific administrative procedures, and closeout submittals at substantial completion and at final acceptance of the work.

1.02 RELATED SECTIONS

- A. Related Requirements Specified Elsewhere:
 - 1. Section 01 33 00 – Submittal Procedures

1.03 SUBSTANTIAL COMPLETION

- A. Prior to submitting for substantial completion, the Contractor shall have:
 - 1. Delivered tools, spare parts, extra stocks of materials, and similar physical items to Owner.
 - 2. Made final changeover of locks and remove Contractor's temporary padlocks.
 - 3. Provided record information to the owner of the as-constructed facilities.
 - 4. Completed final cleaning up requirements, including but not limited to, touch-up of marred surfaces, grading, weed removal, etc.
- B. When the Contractor considers the work to be substantially complete, he shall submit to the Owner:
 - 1. Written notice that the work, or designated portion thereof, is substantially complete. (The term "substantially complete" shall be defined as in accordance with the WSDOT General Specifications and Section 00 73 00 of these documents).
 - 2. List of items to be completed or corrected and reasons for being incomplete. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all work in accordance with the Contract Documents.
 - 3. Progress payment request coincident with or first following date claimed, show either 100% completion for portion of work claimed as "substantially complete", or list incomplete items and the value of the incomplete work.
 - 4. Submit statement showing accounting of changes to the Contract Sum.
 - 5. Specific warranties, workmanship/maintenance bonds, maintenance agreements, final certification and similar documents.

SECTION 01 70 00 – EXECUTION AND CLOSEOUT REQUIREMENTS

6. Obtain and submit releases enabling Owner's full and unrestricted use of the work and access to services and utilities, including (where required) certificate of occupancy permits, operating certificates, and similar releases.
 7. Record (as-built) drawings, project manual, manual of materials, operation and maintenance manuals, and similar final record information.
- C. Upon receipt of Contractor's request, the Owner will either proceed with inspection or advise Contractor of prerequisites not fulfilled. Following initial inspection, Owner will either prepare certificate of Substantial Completion, or advise Contractor of work which must be performed prior to issuance of certificate; and repeat inspection when requested and assured that work has been substantially completed. Results of completed inspection will form the initial "punch list" for final acceptance.
- D. When the Engineer, on the basis of an inspection, concurs that the work is substantially complete, he will:
1. Prepare and deliver to the Contractor a certificate of Substantial Completion accompanied by the Contractor's list of items to be completed or corrected. The Certificate of Substantial Completion shall state the responsibilities of the Contractor for security, maintenance, heat, damages to the work and insurance and shall fix the time within which the Contractor shall complete the items listed therein. Warranties and guarantees required by the Contract Documents shall commence on the Date of Substantial Completion.
 2. The Certificate of Substantial Completion is submitted to the Contractor for their written acceptance of their responsibilities as stated therein.

1.04 FINAL INSPECTION

- A. When the Contractor considers the work to be complete, he shall submit written notice to the Owner that the work has been completed and inspected in compliance with the Contract Documents including punchlist items, and equipment and systems have been tested and are operational; and requesting a contract completion inspection.
- B. When the Engineer, on the basis of an inspection, concurs that the work is acceptable under the Contract Documents, he will notify the Contractor in writing and request the Contractor to provide remaining submittals.
- C. Should the Engineer determine that the work is not acceptable under the Contract Documents:
1. The Engineer will promptly notify the Contractor in writing giving the reasons therefor.
 2. The Contractor shall remedy the deficiencies in the work and submit a new written notice for final inspection to the Owner.

SECTION 01 70 00 – EXECUTION AND CLOSEOUT REQUIREMENTS

1.05 FINAL PAYMENT

- A. When the Contractor has satisfied all requirements of this section and all other conditions of the Contract Documents, the Contractor may submit a final Application for Payment. Should the Owner determine the Work acceptable under the Contract Documents and the Agreement fully performed, he will promptly issue a final Certificate for Payment stating that to the best of his knowledge, the Work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance due the Contractor, and as noted in the final certificate, is due and payable.
- B. The accumulated retainage shall not be paid until the Contractor submits to the Owner:
1. Affidavit that all payrolls, bills for materials and equipment, and other indebtedness connected with the work for which the Owner might in any way be responsible, have been paid or otherwise settled.
 2. Release of Lien. One will be required from each lien holder who has duly filed a notice of claim with the Owner. If any liens remain unsatisfied after the expiration of the statutory lien period, the Contractor shall refund the Owner all amounts that the Owner may be compelled to pay in discharging such lien including all costs and reasonable attorney's fees.
 3. State Department of Revenue form that all taxes have been paid.
 4. State Department of Labor and Industry affidavit of wages paid.
 5. State Department of Employment Security Contractor release.
- C. The making of final payment shall constitute a waiver of all claims by the Owner except those arising from:
1. Unsettled liens or disputes.
 2. Faulty or defective work appearing after Substantial Completion under the project guarantee and equipment warranty period.
 3. Failure of the work to comply with the requirements of the Contract Documents.
 4. Terms of any special warranties required by the Contract Documents.

The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment.

1.06 RECORD (AS-BUILT) DRAWING INFORMATION

- A. During the construction period, the Contractor shall maintain a complete set of prints for the sole purpose of maintaining a day-by-day record of installed information. This information shall include, but not limited to: the size and location of all concealed or underground piping, conduit, and ductwork; all approved deviations from the specifications and drawings; the location of any visible objects relocated due to interferences or requested relocations submitted and approved on access road drawings. Such relocations shall be dimensioned.
- B. Addenda, bulletins, field orders, and change orders shall be posted and referenced in the record set of prints.

SECTION 01 70 00 – EXECUTION AND CLOSEOUT REQUIREMENTS

1.07 RECORD PROJECT MANUALS

- A. Maintain one copy of the Contract Documents, including addenda, change orders and similar modifications issued in printed form during construction, and mark-up variations (of substance) in actual work in comparison with text of the Project Manual and modifications as issued.
- B. Give particular attention to substitutions, selection of options, and similar information on work where it is concealed or cannot otherwise be readily discerned at a later date by direct observation. Not related record drawing information and product data, where applicable.

1.08 MISCELLANEOUS RECORD SUBMITTALS

- A. Refer to other sections of these specifications for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to date(s) of substantial completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to Engineer for Owner's records.

1.09 FINAL CLEAN-UP

- A. At the completion of the work, the Contractor shall leave the premises in a neat and unobstructed condition, ready for Owner occupancy. The buildings shall be left in a dust free condition and all equipment and materials in perfect repair and adjustment.
- B. After all trades have completed their work and just before final acceptance and occupancy by owner, thoroughly clean all surfaces of project. Clean lighting fixtures and electrical equipment, including washing and polishing lenses inside and out. Wash and polish all exposed metal surfaces. Broom clean exterior paved areas and rake clear other surfaces of the grounds. All waste building materials, pipe, etc. shall be removed from the site and disposed of.

*****END OF SECTION*****

SECTION 02 09 20 – LANDSCAPING

PART 1. GENERAL

1.01 DESCRIPTION OF WORK

- A. Work in this section shall include all labor, equipment and materials necessary for re-establishing grass vegetation in areas disturbed during construction and as indicated on the drawings. Work shall include stripping, excavation, hauling, stockpiling, placing topsoil, placing compost, and hydro-seeding. See note G on sheet C5.1. In addition, see requirements in the Buffer mitigation Plan (Appendix B).

1.02 RELATED SPECIFICATIONS

- A. Section 31 20 00 – Earthwork
- B. Section 31 32 11 – Soil Surface Erosion Control

1.03 SEEDING GUARANTEE

- A. During the one (1) year guarantee period should any seeded area show signs of failure such as dead or dying areas of grass, bare spots, dead or dying plants, etc., the Contractor shall repair or replace all deficient items to the satisfaction of the Engineer.
- B. All graded areas not seeded or paved shall be covered with two (2) inch depth straw to prevent erosion. Straw to be provided and installed by the Contractor. Do not perform planting or seeding when ground is frozen, snow covered, muddy or in an otherwise unsatisfactory condition. When unforeseen conditions detrimental to plant growth are encountered, such as adverse drainage conditions, obstructions, compaction, or toxified soils, notify the Engineer before proceeding.

1.04 SUBMITTALS

- A. The Contractor shall submit product specifications and installation recommendations for all materials to be provided under this section.
- B. Submit seed vendor's blue tag certification for required grass seed mixture, indicating percentage by weight, and percentages of purity, germination, and weed seed for each grass species.
- C. Upon seeded areas acceptance, submit written maintenance instructions recommending procedures for maintenance of seeded areas.

PART 2. PRODUCTS

2.01 TOPSOIL MATERIAL

- A. Topsoil shall conform to Section 9.14.2(2) Topsoil Type B of the WSDOT Standard Specifications.

2.02 GRASS SEED

- A. Seed shall conform to Table 1 below. Seed of the following composition, proportion, and quality shall be applied at a rate of 100 pounds per acre:

SECTION 02 09 20 – LANDSCAPING

Table 1	
Kind and Variety of Seed Mixture	Pounds PLS/acre
Blue Wildrye (<i>Elymus glaucus</i>)	40
Red Fescue (<i>Festuca rubra</i> L. ssp. <i>rubra</i>)	35
Tufted Hairgrass (<i>Deschampsia cespitosa</i>)	10
Columbia Brome (<i>Bromus vulgaris</i>)	10
Meadow Barley (<i>Hordeum brachyantherum</i>)	5
Total pounds PLS/acre	100

PLS = Pure Live Seed

Seeds shall be certified “Weed Free” indicating there are no noxious or nuisance weeds in the seed.

2.03 FERTILIZER

- A. Fertilizer shall be a granular, non-burning product composed of not less than 50% organic, slow acting, guaranteed analysis professional fertilizer. Seeded area starter fertilizer containing 20% nitrogen, 26% phosphoric acid, and 6% potash by weight, or similar approved composition applied at a rate of 6.5 lbs/1000 SF.

2.04 WOOD FIBER MULCH FOR HYDRO-SEEDING

- A. Hydro-seeding to be applied to all areas disturbed and/or regraded (which will not be protected with quarry spalls, gravel, and/or pavement) during construction. Commercially prepared wood fiber mulch specifically manufactured for hydro-seeding application shall be used.
- B. Dispersing agents may be added at Contractor's option provided that the additive is not harmful to the mixture.

2.05 WATER

- A. The Contractor shall furnish water as required for planting and establishing vegetation in seeded areas. Provide all necessary hoses, equipment, attachments, and accessories for adequate watering of seeded areas.

PART 3. EXECUTION

3.01 GENERAL

- A. The Contractor shall notify the Engineer 48 hours in advance of hydroseeding operations and shall not begin the work until areas prepared or designated for seeding have been approved.
- B. Hydroseed all planting areas and disturbed areas as shown in the plans. All planting areas shall receive upland seed mix.
- C. Disturbed areas where hydroseeding is impractical may be seeded by hand with Engineer approval. When hand seeding, the seed shall be incorporated into the top 1/4" of soil by hand raking or other method approved by the engineer.
- D. Protect seed during germination in conformance with the Standard Specifications, Section 8-02.3(15)G.

SECTION 02 09 20 – LANDSCAPING

3.02 SEEDING

- A. Inspect all subgrades for debris and adverse drainage conditions. Remove all debris including rocks 1-inch in diameter and larger, sticks, roots, sod and other deleterious material. Notify the Owner of any grades or conditions which might create adverse or undesirable drainage patterns.
- B. Smoothly blend and feather topsoil into existing surrounding grades. Rake or lightly harrow topsoil until the soil is friable and of uniform texture and satisfactory for seed placement.
- C. After seeding, topsoil shall be rolled for compaction and shall be minus ½-inch below all adjacent paved or graveled surfaces. Irrigate immediately until soil is damp to about 6”.
- D. The hydro-seeding operation shall include the installation of seed, fertilizer, mulch, and tackifier with a tracer to verify uniform application.
- E. Hydro-seeding shall be done in accordance with WSDOT Spec. 8-01.3(2)B.
- F. Seed immediately after preparation of seed bed.
- G. Seed shall be applied at a rate listed above.
- H. Mulch shall be applied at a rate of 2,000 pounds per acre.

3.03 MAINTENANCE AND WATERING

- A. Water regularly until germination is consistent and the seedlings are averaging 1" in height, then reduce to less frequent intervals (but maintain appropriate soil moisture to ensure proper growth).
- B. Re-seed, approximately 21 days after germination, any barren area 12" in diameter or larger, at the specified application rate. In the event of unusual weather, over-seed when weather conditions are suitable for germination, at rate determined by Engineer (not to exceed original rate.)
- C. Apply fertilizer rate as follows: first application not earlier than 4 weeks, but not to exceed 6 weeks after installation; second application 4-6 weeks after first application, but not to exceed 10 weeks after installation.
- D. Patch, repair and re-seed any and all damaged or barren areas observed prior to final project acceptance at no additional cost to the Owner.
- E. The Contractor shall protect and care for all seeded areas until fully established and hearty. Care shall include equipment and labor necessary to provide sufficient and continuous watering of all seeded areas until final acceptance.

3.04 FINAL ACCEPTANCE

- A. Final acceptance of seeded areas shall be based on a uniform stand of grass free of weeds, pests, and diseases as determined by Engineer.

END OF SECTION

SECTION 02 41 00 - DEMOLITION

PART 1. GENERAL

1.01 DESCRIPTION

- A. Related Work Specified Elsewhere
 - 1. Scopes of Bids: Section 00 24 13
 - 2. Summary of Work: Section 01 11 00
- B. Description of System: The work covered by this section includes the furnishing of all labor, equipment, and materials necessary for the demolition, removal, rehabilitation and equipment salvage of all construction as specified herein and as shown on the drawings.

1.02 JOB CONDITIONS

- A. All removed equipment, materials, and debris, unless otherwise noted or requested by the Owner, shall become the property of the Contractor. The Contractor shall deliver all items to be salvaged (as directed by the Owner), to the storage area designated by the Owner.
- B. Protection: Ensure the safe passage of persons around the area of demolition. Conduct operations to prevent injury to adjacent buildings, structures, other facilities, and people and livestock.

PART 2. PRODUCTS

Not Used.

PART 3. EXECUTION

3.01 DEMOLITION

- A. Pollution Controls:
 - 1. Use water sprinkling, temporary enclosures, and other suitable methods to limit the amount of dust and dirt rising and scattering in the air to the lowest practical level.
 - 2. Comply with governing regulations pertaining to environmental protection.
- B. Removal Requirements:
 - 1. Provide complete removal and disposal of all structures identified for demolition. All pipes connected to abandoned structures are to be plugged/grouted in an approved manner, preventing any potential water and/or sewer leaks. Salvage items as directed by the Owner.
 - 2. Proposed equipment is to be purchased and on-hand, prior to removal of specified structures. Contractor is to coordinate removal/demolition with Owner's staff (a minimum of 2 week) prior to all removal/demolition work.
- C. Structures to be Removed (Demolished):
 - 1. Existing structures shown on plans including the portion of chain link fencing (and concrete footings, misc. appurtenances) along west edge of the existing Douglas Well gravel drive/parking area.

SECTION 02 41 00 - DEMOLITION

3.02 DISPOSAL OF DEMOLISHED MATERIALS

- A. General. Remove from the site debris, rubbish, and other materials resulting from demolition operations. Burning of removed materials from demolished structures will not be permitted on the site. Comply with all federal, state and local regulations regarding hauling and disposal.
- B. Removal. Transport materials removed from demolished structures and dispose of at a legal disposal site.

*****END OF SECTION*****

SECTION 31 10 00 – SITE CLEARING

PART 1. GENERAL

1.01 DESCRIPTION

- A. Work under this Section includes providing all labor, materials, tools, and equipment necessary for clearing, grubbing, removing and disposing of all vegetation and debris. Prior to the start of clearing and grubbing, the Owner shall clearly mark the clearing limits in the field.

1.02 RELATED SECTIONS

- A. Demolition: Section 02 41 00.

PART 2. PRODUCTS (NOT USED)

PART 3. EXECUTION

3.01 CLEARING AND GRUBBING

- A. The Contractor shall clear the entire area within the project limits by clearing and grubbing all vegetation to a minimum of 30-inches below the existing surface where new access road will be aligned. In addition, clear and grade existing surfaces beyond the access road footprint as needed to complete the project.
- B. Contractor shall exercise care as to not encroach or disturb vegetation outside of the marked clearing limits.
- C. Vegetation and debris must be hauled to a legal waste site obtained by the Contractor. All costs associated with disposing of grubbed vegetation and debris shall be incidental to the contract.

*****END OF SECTION*****

SECTION 31 20 00 - EARTHWORK

PART 1. GENERAL

1.01 DESCRIPTION

- A. Description of Work: The work covered by this section consists of excavating, hauling and disposal of excavated material, backfilling, placing, compacting and final site grading as specified herein and as shown on the drawings.
- B. Related Documents:
 - 1. Part 4: February 5, 2019 Geotechnical Engineering Letter-Report, Associated Earth Sciences, Inc. This report summarizes the geotechnical site exploration and design recommendations for the proposed wellhouse building and associated improvements.

1.02 SUBMITTALS

- A. Submit, in accordance with requirements of Section 01 33 00 – Submittal Procedures, the following:
 - 1. Gradation and moisture density curves for all imported materials.
 - 2. Proposed compacting equipment for compacting earth embankments.

1.03 QUALITY ASSURANCE

- A. All field inspections and tests will be conducted by an independent testing lab/agency hired by the Engineer. Contractor is to coordinate and schedule inspections with the Engineer. The Engineer will pay the testing lab/agency. In addition, additional QA/QC testing may be performed by the Owner/Engineer's independent testing lab/agency as desired by the Owner/Engineer. The Contractor shall allow the Owner/Engineer's representative to perform additional QA/QC testing and shall make right to the satisfaction of the Engineer all work found to be deficient in meeting the specifications. If the subgrade or fills which have been placed are below the specified density, additional compaction and testing will be required until satisfactory results are obtained. QA/QC testing and inspection by the Owner/Engineer does not relieve the Contractor from the responsibility to provide all adequate quality control measures and all testing to ensure the quality of his own work.
- B. The Engineer will use an independent soils testing lab to measure ASTM D-1557 Methods A through D dry density. Additional tests will be performed as directed by the Engineer in the field. All material samples will be taken at the time and location as agreed by the Engineer and Contractor. The Contractor shall give the Engineer ample time to perform additional QA/QC testing (if desired) of Contractor stockpiled onsite soil tested – at least 5 working days prior to installation of any embankment or backfill using onsite soils.
- C. The Engineer will use an independent soils testing lab and will perform one in place density measurement per every 100 LF of roadway and per every 1,000 square feet of native subgrade prepared and compacted prior to placement of structural backfill materials. The Engineer will perform one in place density measurement per every 500 cubic yards of structural backfill materials placed. The Engineer may increase the frequency if the properties of the soils being placed change or the equipment or procedures used by the Contractor for compacting the soil change. In place density will be measured using ASTM D-1556 or ASTM D2922 and D3017 (nuclear density) test

SECTION 31 20 00 - EARTHWORK

methods. The Contractor shall give the Owner/Engineer ample time to perform additional QA/QC testing (if desired) of the subgrade – at least 24 hours advance notice and a minimum of 4 hours for completion of testing after compaction is completed on 100 LF of roadway or 1,000 square feet of native subgrade. The Contractor shall give the Owner/Engineer ample time to perform additional QA/QC structural fill testing (if desired) – at least 24 hours advance notice and a minimum of 4 hours for completion of testing after compaction is completed on a lift.

- D. The Contractor shall pay for any additional testing deemed necessary to provide quality assurance for the work or to corroborate or protest the Owner's test results.

1.04 JOB CONDITIONS

- A. Existing Conditions:

The Contractor shall examine the site before commencing work and shall make his own deductions and conclusions as to the nature of materials to be encountered and difficulties anticipated.

1. Data results of a subsurface investigation of the site and soil conditions are included in the Geotechnical Engineering Report (PART 4 – Reference Documents). In addition, the Contractor is encouraged to visually inspect soil conditions at the site.
2. The Contractor is encouraged to visually inspect soil conditions at the site. Contractors shall make whatever investigations as are necessary to determine what measures are necessary to successfully complete the work in accordance with the Contract. The Contractor shall include in the Contract price all work necessary to perform the tasks required to complete the Work as indicated on the Plans and specified herein: including, but not limited to, sheeting, shoring, dewatering, stabilizing slopes, and any other work of temporary nature not a part of the permanent finished structure, lines, and grade.

- B. Subsurface Conditions

The Contractor shall notify the Engineer when excavation for compacted fill or structures is complete.

Groundwater may be encountered, and dewatering measures may be required for construction activities. Contractor is responsible for any dewatering considered incidental to the project. Contractor to plan accordingly.

Boulders, buried or otherwise, may be found in the project area, and boulder excavation is considered incidental, if needed.

1.05 UNSUITABLE FILL MATERIAL

- A. Unsuitable materials shall be those defined as containing volcanic ash, topsoil, vegetation matter, sludge, peat, organic clays and silts, sod, mulch, rubbish, and materials which are excessively fine or moist not allowing adequate compaction

PART 2. PRODUCTS

2.01 GEOTEXTILES

- A. NON-WOVEN GEOTEXTILE WRAP: TenCate Mirafi 160N or equal.

SECTION 31 20 00 - EARTHWORK

2.02 STRUCTURAL FILL

- A. See Processed Structural Fill Material Section 2.03. All import fill is to be imported material per WSDOT specifications or as specified. Contractor to submit proposed aggregate materials information from local supplier(s) prior to construction.
- B. Excavated soils shall not be used unless the contractor can demonstrate that the soils meet the WSDOT specification and gradation requirements indicated for the material specified. All excavated materials not used shall be hauled to a waste site.

2.03 PROCESSED STRUCTURAL FILL MATERIAL

- A. CRUSHED SURFACING TOP/BASE COURSE. Per WSDOT 9-03.9(3).
 - 1. Shall be used as indicated in the plans and specs and compacted to 95% MDD.
- B. GRAVEL BASE. Per WSDOT 9-03.10.
 - 1. Shall be used as indicated in the plans and specs and compacted to 95% MDD. When used as pavement section gravel base shall have at least 30 percent retained on the U.S. No. 4 sieve.
- C. STRUCTURAL FILL. Per WSDOT 9-03.10.

Shall be used as indicated in the plans and specs and compacted to 92% MDD.
- D. QUARRY SPALLS. Per WSDOT 9-13.1(5). Unless otherwise noted on the plans.
- E. GRAVEL BACKFILL FOR PIPE ZONE BEDDING. Per WSDOT 9-03.12(3).
- F. BANK RUN GRAVEL FOR TRENCH BACKFILL. Per 9-03.19.

PART 3. EXECUTION

3.01 GENERAL

- A. Weather Limitations: Construction shall progress only when weather conditions will not adversely affect the quality of the finished work. Soils that are not compactable due to saturation shall be aerated or removed and replaced with a compactable material. Contractor shall bear all costs for rework caused by weather conditions.
- B. Control of Water: See Section 31 23 19 – Dewatering.
- C. Water for Compaction: Contractor shall provide all water as necessary to moisture-condition Structural Fill material to achieve required compaction densities.
- D. Excavation for Structures: Conform to elevations and dimensions shown with a tolerance of plus or minus 0.10 feet and extending a sufficient distance from footings and foundations to permit placing and removal of concrete formwork, installation of services and other construction.

SECTION 31 20 00 - EARTHWORK

In excavating for footings and foundations, take care not to disturb bottom of excavation. Excavate by hand to final grade prior to placement of concrete reinforcement. Trim bottoms to required lines and grade to provide solid base for structure.

Crushed Surfacing Base Course shall be placed under all concrete slabs, footings, and foundations, including pile foundations, to the minimum depth indicated below, unless otherwise indicated, on exposed, undisturbed, compacted subgrade immediately upon completion of excavation, or greater thickness if needed to protect subgrade and support contractor selected construction equipment.

For Mat Foundations and Vaults – 12 inches minimum depth

For Shallow Foundations – 18 inches minimum depth

- E. Disposal of Excavated Materials: The Contractor is responsible for ultimate disposal of all excavated material and such disposal shall be incidental to other work. See grading and erosion control plans.
- F. Over Excavation: Excavation of materials beyond the indicated subgrade elevations shall be backfilled with Structural Fill and compacted to provide a firm and stable base at the desired elevation. Work required to remedy over excavation not authorized by the Owner or the Engineer shall be at the Contractor's expense.
- G. Stability of Excavations: Slope sides of excavations to comply with local codes and ordinances having jurisdiction. Shore and brace, as required, to prevent cave-ins. Remove prior to backfilling unless otherwise specified.
- H. Stockpile excavated materials classified as suitable material where directed, until tested and approved for fill. Place, grade, and shape stockpiles for proper drainage and erosion control as approved by the Owner. The temporary stockpile site, if required, shall be coordinated with the Owner.
- I. The Contractor's bid price shall include all costs associated with providing materials and methods for the geogrid-reinforcement where specified, if any.

3.02 SITE PREPARATION

- A. Prior to placement of Structural Fill under buildings, structures, and roadways embankments, scarify, moisture-condition, and compact subgrade soils to at least 95% of the maximum dry density (MDD) based on ASTM D-1557 if not already at 95% of the MDD. Subgrade preparation per WSDOT Standard Specification section 2-06.
- B. Benching subgrade. Slopes to be filled, which are 5:1 or steeper, shall be benched before receiving structural fill. Each bench shall be level in all horizontal directions and shall be at least 8 feet wide (perpendicular to slope contours).

3.03 STRUCTURAL FILL

- A. Structural Fill shall be placed in lifts not exceeding 10-inches in loose thickness before compaction, unless used as Backfill of Structures, Section 3.04. Structural Fill shall be compacted to 95% maximum dry density (MDD) based on ASTM D-1557.

SECTION 31 20 00 - EARTHWORK

- B. Where material must be moisture-conditioned before compaction, uniformly apply water to surface of subgrade or to layer of material, to prevent free water appearing on surface during or subsequent to compaction operations. Remove and replace, or scarify and air dry soil that is too wet to permit compaction to required density. Material that has been removed due to excessive moisture may be stockpiled or spread and allowed to dry. Assist drying by disking, harrowing or pulverizing until moisture content is reduced to satisfactory value.
- C. Maintain Structural Fill areas as a continuous working surface throughout the project. Fill surfaces are to be graded smooth and sealed or covered as appropriate at the end of each work day to prevent unacceptable wetting. After periods of rain, remove any soft material prior to placement of additional fill.
- D. Provide cut and fill slopes reasonably true to line and grade with a tolerance of plus or minus 3 inches.

3.04 GRADING

- A. General. Uniformly grade areas within limits of project site including adjacent transition areas. Smooth finished surfaces within specified tolerances, compact with uniform levels or slopes between points where finish elevations are shown or between points where finish elevations are shown or between such points and existing grades.
- B. Drainage Ditches. If any existing drainage ditches or swales exist, they should be maintained and/or fully restored to pre-construction conditions if altered in any way during construction, unless otherwise noted on the plans.

3.05 UNSUITABLE MATERIAL (OVER-EXCAVATION)

- A. In the event that during excavation unsuitable material is encountered at the subgrade (only areas that are greater than 3 feet below existing grades will qualify for extra work), the Owner/Engineer shall be notified of such areas prior placing structural fill or pouring concrete. The specific areas of unsuitable material shall be addressed as described herein. Work under this item shall be allowed ONLY upon written authorization of the Owner or Engineer.
- B. Unsuitable material shall be over-excavated 18-inches below the trench neat line and filled with Crushed Surfacing Base Course conforming to WSDOT 9-03.9(3), or locally available approved equal submitted to and reviewed by the Engineer, and compacted to 95 percent of maximum dry density described in ASTM D1557. Fill up to the trench neat line to allow room for the bedding material.

3.06 DISPOSAL OF UNSUITABLE MATERIAL (OVER-EXCAVATION)

- A. Excavated unsuitable material shall be disposed of offsite.
- B. All material which is hauled off of job site shall be documented with receipts, documenting weight (or volume agreed upon with Engineer for truck counts) and certification that it was transferred to a legal fill site. Receipts to be provided to Owner.

END OF SECTION

SECTION 31 23 33 – TRENCHING AND BACKFILL

PART 1. GENERAL

1.01 SECTION INCLUDES

- A. This section specifies trench excavation, bedding, backfilling, and compacting for utilities and related facilities.

1.02 RELATED SECTIONS

- A. Section 00 33 00 – Submittal Procedures
- B. Section 01 41 00 – Regulatory Requirements
- C. Section 01 45 00 – Quality Control
- D. Section 31 20 00 - Earthwork
- E. Section 31 32 11 – Soil Surface Erosion Control
- F. Section 33 31 00 – Sanitary Utility Sewerage Piping
- G. Section 33 41 00 – Storm Utility Drainage Piping

1.03 SPECIFIC STANDARDS

- A. The specific reference standard for this work will be Washington State Department of Transportation (WSDOT)/American Public Works Association (APWA) Standard Specifications/for Road, Bridge, and Municipal Construction, latest edition.
- B. Additional standards may also apply.

1.04 QUALITY ASSURANCE

- A. The Contractor shall comply with the requirements of all applicable regulatory agencies having jurisdiction over this work including 29 CFR PART 1926 -- SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.
- B. Material sample and proctor test results shall be provided in advance for any proposed fill material not certified to be compliant with WSDOT Standard Specs.
- C. Use equipment adequate in size, capacity, and numbers to accomplish the work of this section in a timely manner. The Engineer will reject equipment that repeatedly breaks down or fails to produce results within normal tolerances. The Contractor shall have no claim for additional payment or for extension of time due to rejection and replacement of any equipment.

1.05 JOB CONDITIONS

- A. A. The Contractor shall provide protection of existing utilities affected by the work and make every effort to minimize disruptions to all utility services.
- B. If, during the course of construction, it is anticipated that excavation will interrupt traffic or parking areas for longer than 10 to 15 minutes the Contractor must provide advance notice to the Owner. For longer intervals or complete shut-downs, the Owner requires 48 hours advance notice. This advance notice allows time to deliver community notices in advance of the route delays or re-routes. In the event of such road closures, the Contractor shall be solely responsible for all traffic control measures including but not limited to flagging, barricades and cones.

SECTION 31 23 33 – TRENCHING AND BACKFILL

- C. The Contractor shall provide a traffic control plan per WSDOT requirements. Traffic control plan to be submitted for review and acceptance prior to commencing work. See Section 01300 Submittal Procedures.
- D. Trenches shall be closed or covered with steel plates at the end of each work day.

1.06 SUBMITTALS

- A. The Contractor shall furnish the following submittals as part of completing the work associated with this section:
 - 1. Location of disposal sites for excess excavated material.
 - 2. Gradation test results for imported foundation, bedding and backfill material.
 - 3. Proctor tests for proposed imported materials which are not identified as approved for use by WSDOT.
 - 4. Geotextile fabrics cut sheets or WSDOT QPL.

PART 2. PRODUCTS

2.01 TRENCH BACKFILL MATERIAL

- A. Trench Backfill material to be per WSDOT 9-03.19, "Bank Run Gravel for Trench Backfill", and be free from debris and organic matter and other extraneous or objectionable materials. No native backfill to be used.
- B. Excavated soils shall not be used unless the contractor can demonstrate that the soils meet the WSDOT specification and gradation requirements indicated for the material specified.

2.02 BEDDING MATERIAL

- A. Bedding material for utilities shall conform to WSDOT 9-03.12(3), "Gravel Backfill for Pipe Zone Bedding," and be free from debris and organic matter and other extraneous or objectionable materials. No native bedding material to be used.
- B. Pipe bedding material and/or backfill around the pipe shall be placed in layers and tamped around the pipe to obtain complete contact per the project plans.

2.03 UTILITY WARNING TAPE

- A. Shall be APWA color-coded detectable underground marking tape. Tape shall be 6-inch wide plastic-encased aluminum foil tape capable of being located by a metal detector. Message and coding shall be per APWA Standards and shall be as follows:

Message	Color Coding
CAUTION: ELECTRIC LINE BURIED BELOW	Red
CAUTION: WATER LINE BURIED BELOW	Blue
CAUTION: SEWER LINE BURIED BELOW	Green
CAUTION: TELEPHONE LINE BURIED BELOW	Orange
CAUTION: CATV LINE BURIED BELOW	Orange
CAUTION: AIR LINE BURIED BELOW	Light Blue

SECTION 31 23 33 – TRENCHING AND BACKFILL

- B. Provide new continuous warning tape for each type of utility installed. Also provide new replacement warning tape for utilities encountered and replace any/all damaged sections of existing warning tape for those utilities. Should no warning tape exist on encountered utilities, provide a section of new tape at the crossing.

2.04 DRAIN ROCK & GRAVEL BACKFILL FOR DRAINS

- A. Drain Rock for trench drains and retaining wall drains shall conform to WSDOT 9-03.12(4) Gravel Backfill for Drains.

2.05 COBBLES (3-IN TO 4-IN)

- A. Cobbles for trench drains shall conform to WSDOT 9-03.11(2) Streambed Cobbles (4" Cobbles from table gradation).

2.06 GEOTEXTILE MATERIALS

- A. Drainage Geotextile for use in trench drains and retaining wall drains – Non-woven, moderate survivability, per Table 1 of WSDOT Standard Specification 9-33.2(1).

PART 3. EXECUTION

3.01 EXISTING UTILITIES AND RELATED FACILITIES

- A. Keep active utilities intact and in continuous operation. Regarding existing underground utilities, the Contractor shall:
 - 1. Call the utilities underground location center for field location of utilities.
 - 2. Pot hole as necessary to locate existing utilities.
 - 3. Not begin excavation until all known underground facilities in the vicinity of the proposed excavation have been either referenced on Plans, located, and/or marked on the ground.
- B. Location and dimensions shown on the Plans for existing utilities are in accordance with available information without uncovering, measuring, or other verification. Utilities/facilities whose underground location can be reasonably determined from existing above-ground features shall be considered the same as having been individually marked. In the event the Contractor discovers unknown utilities, he shall:
 - 1. Take reasonable and appropriate steps to avoid damage to the utility and/or Commission property.
 - 2. Promptly notify the Engineer for individual directions.
 - 3. All costs to repair damage to above-ground or known subsurface structures due to operator error will be borne by the Contractor.

3.02 TRENCHING

- A. Trench excavation shall conform with the most recent version of the WSDOT Standard Specifications. Special attention shall be paid to the requirements for trench safety noting that all work shall be performed in strict compliance with 29 CFR 1926.
- B. The Contractor shall be solely responsible for any shoring, cofferdams or trench safety systems employed on the project. In no way shall the Owner or Engineer assume any responsibility for trench safety or the protection of life or property implied by the use of trench safety systems.

SECTION 31 23 33 – TRENCHING AND BACKFILL

- C. The width of excavation for utility trenches shall be in accordance with WSDOT Standard Specification. No additional payment will be made for extra excavation required due to poor soil conditions.
- D. See Section 02300 Earthwork for excess material disposal requirements.
- E. The Contractor shall provide and operate all material, equipment and labor necessary to keep excavations and earth embankments free from water during construction. Dewatering shall prevent weakening foundations, undercutting trench walls, or otherwise affecting the stability of sub-grades and foundations. The Contractor shall establish and maintain positive drainage away from excavations to prevent surface water from entering excavations. Water shall be disposed of in a manner which prevents injury to public or damage to property.
- F. The Contractor shall backfill or otherwise cover all trenches at the end of each working day to protect public safety. The length of open trench excavation in advance of pipe laying operations shall not exceed 200 feet unless approved by the Owner. In no case shall the length of an open trench or size of an excavation exceed the Contractor's ability to safeguard the public welfare.

3.03 BEDDING

- A. Pipe bedding and pipe zone backfill installation shall comply with the WSDOT Standard Specifications, Section 7-08 — General Pipe Installation Requirements and per the Plans.
- B. Pipe bedding and pipe zone backfill shall be compacted to 90% of the maximum dry density described in ASTM D1557. Pipe bedding and pipe zone backfill shall be compacted in 6-inch maximum lifts.

3.04 BACKFILL

- A. Trench and structure backfilling shall comply with the most recent version of WSDOT Standard Specifications, Section 7-08 — General Pipe Installation Requirements and per the Plans.
- B. Structure backfilling shall comply with the most recent version of WSDOT Standard Specifications, Section 2-09.3(1)E Backfilling and per the Plans.
- C. In areas beneath driveways, sidewalks, or within 5-feet of the roadway template (including shoulder or structures), backfill shall be compacted to 95% of the maximum dry density described in ASTM D1557. Backfill within the roadway template shall be compacted in 6-inch maximum lifts.
- D. In landscaped or native areas outside roadway templates and not beneath pavement, gravel paving, drives or sidewalks, backfill shall be compacted to 90% of the maximum density described above.
- E. Construction shall progress only when weather conditions will not adversely affect the quality of the finished work. At the same time, the Contractor must be prepared to take such measures as are necessary to complete the construction within the specified contract period. Where soils cannot be compacted due to moisture content, material shall be aerated or removed and replaced with a suitable granular backfill material. Contractor shall bear all costs for necessary extra measures and/or rework if excavated material is made unsuitable by adverse weather conditions and not protected by contractor in accordance with WSDOT Standard Specifications covering contractor requirements for protection of excavated materials.

SECTION 31 23 33 – TRENCHING AND BACKFILL

3.05 UNSUITABLE TRENCH OVEREXCAVATION

- A. In the event that during trenching unsuitable material is encountered at the trench bottom, the Owner shall be notified of such areas prior to placing pipe. The specific areas of unsuitable material shall be addressed as described herein. Work under this item shall be allowed **ONLY** upon written authorization of the Owner.
- B. Unsuitable material shall be overexcavated 18-inches below the trench neat line and filled with Crushed Surfacing Base Course conforming to WSDOT 9-03.9(3), or locally available approved equal submitted to and reviewed by the Engineer, and compacted to 95 percent of maximum dry density described in ASTM D1557. Fill up to the trench neat line to allow room for the bedding material.

3.06 COMPACTING

- A. Compaction shall be performed in accordance with Section 31 20 00 Earthwork or as detailed on the Contract Plans.

*****END OF SECTION*****

SECTION 31 32 11 - SOIL SURFACE EROSION CONTROL

PART 1. GENERAL

1.01 SECTION INCLUDES

- A. Work includes but is not limited to following:
 - 1. Temporary measures to prevent soil erosion and sedimentation of storm sewers, streams or other bodies of water.

1.02 RELATED SECTIONS

- A. Coordinate related work specified in other parts of the Project Manual, including but not limited to following:
 - 1. Section 31 23 33 Trenching and Backfill
 - 2. Section 32 92 19 Seeding

1.03 REFERENCES

- A. WSDOT Standard Specifications for Road, Bridge and Municipal Construction, latest edition.
- B. Washington State Department of Ecology's August 2012 Edition of the Stormwater Management Manual for Western Washington, as amended in 2014.

1.04 SUBMITTALS

- A. Submit in accordance with Sections 01 33 00 and the following
 - 1. Geotextile for temporary silt fence.
 - 2. Compost for compost berm.
 - 3. Inlet protection products.
 - 4. Barrier fence.
 - 5. Track clean plates.
 - 6. Any other erosion control products proposed for use on the site.

1.05 QUALITY ASSURANCE

- A. Installer shall be a Specialist.
- B. Regulatory Requirements: Section 01 41 00.

PART 2. PRODUCTS

2.01 MATERIALS

- A. Silt Fence. Silt Fence shall comply with WSDOT Standard Specification 9-33 – Construction Geotextile and meet the properties described in Table 6 of said specification.
- B. Quarry Spalls per Earthwork Spec.
- C. Straw Mulch. Per WSDOT 9-14.4(1) – Straw

SECTION 31 32 11 - SOIL SURFACE EROSION CONTROL

- D. Compost. Compost shall be in accordance with WSDOT Standard Specification 9-14.4(8).
- E. Inlet Protection Insert. Inlet protection insert shall be in accordance with City of Bellingham Standard Detail EC-620 – Catch Basin Insert.
- F. Orange Barrier Fence. Orange barrier fence shall comply with WSDOT Standard Specification 9-14.5(8) – High Visibility Fencing.
- G. Track Clean Plates. Track clean plates shall be Track Clean™ Construction Entrance Plates or approved equal. Plates must adhere to the guidelines of BMP C105: Stabilized Construction Entrance, found in Volume II of the WA State Ecology Stormwater Management Manual of Western Washington.

PART 3. EXECUTION

3.01 PREPARATION

- A. Planning Of Construction: Plan and coordinate to reduce sediment pollution. Install all site BMPs prior to the commencement of land disturbing activities. Minimize the area of disturbance. Keep the area of clearing and grubbing to the minimum necessary for construction.

3.02 INSTALLATION

- A. Install in accordance with “Quality Assurance” provisions, “References,” and Specifications. Where these may be in conflict, the more stringent requirements govern.
- B. Pump Water. Practice sound pump water management to reduce sediment production. Discharge pump water into stabilized surfaces and allow to filter through existing vegetation. Repair discharge areas, upon completion of construction, to pre-existing conditions or better. Do not pump water into adjacent wetlands, creeks, or rivers.
- C. Stabilization. Stabilize all slopes, channels, ditches or any disturbed area as soon as possible after the final grade or final earthmoving has been completed. Upon completion of the project, stabilize all areas which were disturbed by the project to prevent accelerated erosion. Maintain any erosion and sedimentation control facility required or necessary to protect areas from erosion during the stabilization period.
- D. Earthwork.
 - 1. Control excavation for site work operations. Stockpile the material removed from the excavation in area where a minimum of sediment will be generated and where other damage will not result from the piled earth.
 - 2. Stockpile topsoil separately and redistribute where shown on plans uniformly after grading.
 - 3. Protect all stockpiled soil materials from erosion through the use of plastic sheeting or similar temporary measures, secured against wind disturbance.
 - 4. Any area stripped of vegetation, where no further work is anticipated for a period of 14 calendar days, shall be immediately stabilized with an approved erosion control method such as seeding, mulching, netting, erosion control blankets, etc.

SECTION 31 32 11 - SOIL SURFACE EROSION CONTROL

5. All disturbed areas shall be promptly and thoroughly stabilized against erosion during periods of wet weather, particularly when work is not being performed at the site.

3.03 MAINTENANCE AND CLEANING

- A. Maintenance. Maintain the erosion control measures and facilities in proper condition so that they will individually and collectively perform the functions for which they were designed. In order to ensure the effectiveness and proper maintenance of the measures and facilities, the Contractor and Owner shall make periodic inspections at sufficiently frequent intervals to detect any impairments of the structural stability, adequate capacity, or other requisites of the herein approved measures and facilities which might impair their effectiveness. Take immediate steps to correct any such impairment found to exist.
- B. Cleaning: Leave installations clean; premises free from residue of work of this section.
- C. Street Sweeping: If onsite measures fail to prevent soil migration to street, Contractor shall provide regular sweeping.
- D. Inspection, or lack thereof, shall not relieve the contractor of the responsibility of maintaining erosion control at all times. The contractor should, therefore, check all erosion control periodically on their own to ensure adequacy.

*****END OF SECTION*****

SECTION 31 50 00 - EXCAVATION SUPPORT AND PROTECTION

PART 1 - GENERAL

1.01 DESCRIPTION OF SECTION

- A. This section includes all work related to providing temporary support and protection for excavations to safeguard public health, protect workers, protect existing improvements and insure the safe prosecution of the work. The Contractor may elect to employ any combination of shoring, tunneling, boring, sliding trench shield, or other means to complete the work.
- B. The Contractor shall provide all equipment, material, labor and design services necessary to develop and maintain adequate excavation support and protection. The Contractor shall determine the need for and adequacy of excavation support and protection requirements.
- C. The Contractor shall be solely responsible for any excavation support and protection or trench safety systems employed on the project. In no way shall the Owner assume any responsibility for the protection of life or property implied by the use of such systems.

1.02 RELATED SECTIONS:

- A. Related work specified elsewhere:
 - 1. Section 31 23 33 - Trenching and Backfill

1.03 REFERENCE STANDARDS

- A. 29 CFR 1926 Subpart P - Excavations

1.04 LAWS AND REGULATIONS

- A. The Contractor shall comply with and give notices required by all federal, state, and local laws, ordinances, rules, regulations and lawful orders of public authorities applicable to performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither the Owner nor Engineer or their staff will be responsible for monitoring Contractor's compliance with Laws and Regulations.
- B. All structure excavation, trenching, and shoring shall be performed in strict compliance with 29 CFR 1926 Subpart P - Excavations as well as all other applicable local, State, Contracting Agency, and Federal laws and regulations."

SECTION 31 50 00 - EXCAVATION SUPPORT AND PROTECTION

- C. The Contractor is to provide a stamped shoring plan prior to beginning excavation work in areas where required. OSHA standards are to be followed at all times, and minimizing risk is a priority.

1.05 MEASUREMENT AND PAYMENT

- A. The costs for Excavation Support and Protection shall be included in the lump sum price for Trench Safety Systems. No extra payment will be made unless the quantity of trenching changes as direct result of a change in the scope of work by an approved change order.

PART 2 - PRODUCT

This Section Not Applicable.

PART 3 - EXECUTION

3.01 METHODS

- A. The Contractor shall make the determination as to the most effective means for ensuring excavation support and protection. This may include, but is not limited to, the following:
 - 1. The Contractor may dig open pits or perform extra excavation (at no expense to the Owner) without shoring or cofferdams.
 - 2. Use of shoring or cofferdams if in compliance.
 - 3. Specific requirements related to working in trenches shall conform with *WSDOT Standard Specifications*
- B. Any damage to existing or proposed improvements resulting from the Contractor's excavation support and protection system shall be repaired and included as a part of this pay item.

END OF SECTION

SECTION 32 31 00 – CHAIN LINK FENCES AND GATES

PART 1 - GENERAL

1.01 DESCRIPTION OF WORK

- A. Work consists of furnishing all labor, materials, and incidentals necessary to erect all security fences (6' chain link fence with barb wire) and gates at the location shown on the drawings. Construction to provide a rigid, taut fence closely conforming to the surface of the ground.
- B. Work included
 - 1. Fabric, line posts, end, corner and pull posts, gate posts, gate frames, top rails, and post braces and accessories.

1.02 RELATED SECTIONS

- A. Section 05500 - Metal Fabrications

1.03 REFERENCE STANDARDS

- A. American Society for Testing and Materials (ASTM)
 - 1. A 53 Standard Specification for Pipe, Steel, Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless, for Ordinary Uses.
 - 2. A 153 Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware.
 - 3. A 392 Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric.

1.04 SUBMITTALS

- A. Three samples, approximately 6 inches long, or 6 inches square, of fabric material (standard galvanized), post section and typical accessories.
- B. Submit access road drawings showing fence height, type of fabric, and location and size of posts and gates, including details of post tops, rails, braces, foundations, footings, gate posts, hinges, frames, latches, ties and other accessories.

SECTION 32 31 00 – CHAIN LINK FENCES AND GATES

1.05 QUALIFICATION OF INSTALLER

- A. Installer must be experienced in fence installations and must examine conditions under which fence and gates are to be installed. The Contractor shall notify the Engineer in writing of improper conditions of work, and shall not proceed with work until unsatisfactory conditions have been corrected.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Galvanized steel shall be Class 3.

2.02 FENCES, POSTS, RAILS AND BRACES

- A. All steel tubular members shall comply with provisions of ASTM A 53, Schedule 40, for weight and coating.

2.03 FABRIC

- A. Chain link fabric to conform to ASTM A 392, No. 9 gage wire, 2-inch mesh, Class 3 galvanizing.
- B. Fabric galvanized after weaving.
- C. Fabric knuckled at bottom selvage and twisted and barbed at top.

2.04 LINE POSTS

- A. Posts of galvanized steel.
- B. Posts round in section, with 2.375-inch outside diameter and weighing 3.65 lb/ft.

2.05 END, CORNER PULL POSTS

- A. Posts of galvanized steel.
- B. Posts round in section, with 2.875-inch outside diameter and weighing 5.79 lb/ft.

SECTION 32 31 00 – CHAIN LINK FENCES AND GATES

2.06 GATE POSTS

- A. Posts of galvanized steel.
- B. Gate leaves over 6 feet - 0 inch and up to and including 13 feet - 0 inch wide: 4 inches O.D. Schedule 40 pipe and weighing 9.1 lb/ft.
- C. Gate leaves over 13 feet 0 inch and up to and including 18 feet 0 inch: 6-5/8 inch O.D. Schedule 40 pipe and weighing 18.97 lb/ft.

2.06 GATE FRAMES FOR CHAIN LINK FENCING

- A. Frames of galvanized steel.
- B. Frames round in section, with 1.9-inch outside diameter, and weighing 2.72 lb/ft.
- C. Frames shall have intermediate members and/or diagonal truss rods for gate leaves more than 8 feet wide.
- D. Gate frame joints shall be made by welding or by means of heavy fittings making rigid and watertight connections.

2.07 TOP RAILS AND POST BRACES

- A. Top rails and post braces of galvanized steel.
- B. Top rails and post braces round in section, with 1.66-inch outside diameter, and weighing 2.27 -lb/ft.

2.08 BARBED WIRE

- A. Barbed wire shall be double strand twisted 12-1/2 gauge galvanized with 14 gauge, 4 point barbs spaced on approximately 5-inch centers. Extension arms to accommodate barbed wire shall withstand a 250-pound pulldown load from end of arm.

2.09 ACCESSORIES AND ATTACHMENTS

- A. Stretcher bars: Galvanized steel 3/16 by 3/4-inch in cross section, or equivalent cross section with length equal to full height of fabric.

SECTION 32 31 00 – CHAIN LINK FENCES AND GATES

- B. Truss rods: Galvanized steel, 3/8-inch-diameter, or equivalent cross section, and shall have suitable adjustment.
- C. Post tops: Caps of pressed galvanized steel. Provide with a hole suitable for through-passage of the top rail. Fit snugly to the post, have means for attaching securely to the post and exclude moisture from tabular posts.
- D. Gates swing: Swing type, complete with latches, stops, keepers, hinges, locks and fabric. Fabric to match fence. Hinges of adequate strength to support gate and not twist or turn under action of gate. Latches of plunger bar type and full gate height located in a manner that will engage the gate stop. Forked latches used for single gates less than 10 feet wide. Latches shall provide for locking. Stops shall consist of a flush plate with anchor placed in concrete to engage the plunger bar of the latch. Other approved types of stops may be used for single gates less than 10 feet wide. Keepers shall be substantial devices for securing and supporting the free end of the gate in open position.
- E. Rolling Gates: (not used)
- F. Top rail and bottom rail couplings: Outside sleeve type at least 6 inches long. At least 20% of the couplings shall have an internal heavy spring to take up expansion and contraction.
- G. Brace wire, tie wire, and tension wire:
 - 1. Galvanized wire meeting requirements of ASTM A 12 1, Class 3 coating.
 - 2. Unless otherwise designated, size of wire shall not be smaller than the following:

Tension wire	No. 7
Brace wire	No. 9
Tie wires or clips for fastening field fence to steel posts	No. 12
 - 3. Tie wires for chain-link fence of size and type recommended by manufacturer, but not smaller than No. 9 for post ties or No. 12 for rail and brace ties. Equivalent galvanized steel clips or aluminum wire or clips may be used as accepted by the Engineer.
- H. Galvanizing: All pipe sections galvanized after fabrication shall be in accordance with ASTM A 53. All other items incidental to erection of fence except fabric and wire fabric ties galvanized after fabrication in accordance with ASTM A 153. Wire fabric ties will have not less than 0.8 ounce of zinc per square foot.

SECTION 32 31 00 – CHAIN LINK FENCES AND GATES

2.10 CONCRETE FOOTINGS

- A. Concrete shall be mixed and placed in strict accord with Section 03300.

PART 3 - EXECUTION

3.01 CLEARING AND GRADING

- A. Contractor shall perform such clearing and grading as necessary to construct fence to required alignment and provide a reasonably smooth ground profile at the fence line.

3.02 POST ASSEMBLIES

- A. End, corner, gate, and pull or intermediate anchor posts placed at designated locations.
- B. Posts securely braced and holes filled with concrete. Form not required for post encasement

3.03 HORIZONTAL DEFLECTION

- A. At points of deflection where fence changes alignment by more than 5 degrees provide a post brace and truss rod in each fence panel to the post located at the angle point.
- B. Footings for all posts located at points where the change in alignment exceeds 5 degrees shall be constructed as specified for end posts.

3.04 LINE POSTS

- A. Line posts spaced at not more than 10-foot centers.

3.05 POST BRACES

- A. A brace and truss assembly shall support each gate, corner, pull, or end post for chain link fencing. Brace shall extend to each adjacent line post at mid-height of fabric. Truss shall extend from line post back to gate, corner, pull, or end post.

SECTION 32 31 00 – CHAIN LINK FENCES AND GATES

3.06 FABRIC

- A. Fabric shall not be erected until 5 days after the time of setting the posts in concrete. Fabric shall be fastened to line posts with clips or bands spaced approximately 12 inches apart and to top rail with bands or tie wires at approximately 24-inch intervals. Pull fabric taut and tie to posts, rails and tension wires. Install fabric on security side of fence and anchor to framework so that fabric remains in tension after pulling force is released.

3.07 TENSION WIRES

- A. Tension wires installed at bottom of fabric before stretching fabric and tied to each post with wire ties or clips.

3.08 ELECTRICAL GROUNDS

- A. Chain-link fence which crosses beneath any primary electrical power transmission line, other than a secondary feeder line for individual customer service, shall be properly grounded. Grounding shall consist of placing one ground rod at point of crossing and one 25 to 50 feet in each direction from the crossing.
 - 1. Chain-link fence erected adjacent to and within 50 feet of a primary power line shall be grounded by placing ground rods at not more than 500-foot intervals.
 - 2. Each applicable straight section of fence shall have at least one ground. Engineer may require installation of an additional ground at terminus of a section of fence or at other locations near areas of pedestrian traffic.
 - 3. Ground rod shall be connected to fence.

END OF SECTION

SECTION 34 00 00 – TRAFFIC MAINTENANCE

PART 1 - GENERAL

1.01 DESCRIPTION

- A. Description of Work: The work covered by this section consists of all temporary traffic control measures, including preparation/submittal of traffic control plans and implementation of approved traffic control measures, such as flagging, construction signs, traffic barricades, pedestrian barricades, steel plates for trench protection, temporary ply-wood pedestrian ramps, etc. All work is to be in compliance with Washington State DOT Standard Specifications, Section 1-10 Temporary Traffic Control.

1.02 QUALITY ASSURANCE

- A. The Owner/Engineer will monitor and request adjustments to Traffic Maintenance on an as-needed basis throughout the project.

1.03 JOB CONDITIONS

- A. Existing Conditions:
 - 1. The Contractor shall examine the site before commencing work and shall make his own deductions and conclusions as to the nature of materials to be encountered and difficulties anticipated.

PART 2 - PRODUCTS

2.01 MATERIAL.

Material shall meet the requirements of WSDOT 1-10.1(1) Materials.

PART 3 - EXECUTION

3.01 GENERAL

- A. Submit Traffic Control Plans to the Engineer for approval, prior to starting work.
- B. Access shall be maintained to private property at all times. When construction activities require that this access be temporarily interrupted, the Contractor shall:
 - a. Notify the property Owners individually.
 - b. Restrict access for 2 hours maximum unless the property owner's written permission is received and transmitted to the Engineer.

SECTION 34 00 00 – TRAFFIC MAINTENANCE

- C. The Traffic Control Supervisor shall be certified by one of the following:
- a. The Northwest Laborers-Employers Training Trust
27055 Ohio Ave.
Kingston, WA 98346
360-297-3035
 - b. Evergreen Safety Council
401 Pontius Ave. N.
Seattle, WA 98109
800-521-0778 or 206-382-4090
 - c. Or approved equal.
- D. Completely barricade all open trenches or disturbed areas and adequately sign such areas for pedestrians and traffic. All disturbed areas must be completely barricaded by cones, barricades, and warning tape prior to the end of shift. Prior to the end of shift each area must be reviewed by the Owner's Representative for approval prior to vacating the site.

END OF SECTION

PART 4
REFERENCE DOCUMENTS

APPENDIX A – OWNER SUPPLIED CONSTRUCTION SURVEYING

Appendix A – Owner Supplied Construction Surveying Services

The Owner shall furnish to the Contractor one time only all principal lines, grades, and measurements the Engineer deems necessary for completion of the work. These shall generally consist of one initial set of:

1. Verify primary survey control horizontal and vertical.
2. Boundary staking.
3. New Gravel Access road pavement edge staking.
4. New Fenceline & Gate staking
5. Monument preservation.

The Contractor will be responsible to maintain the control staking. Any additional call out for resurveying for destruction of stakes will be paid to the Owner on a time and material basis.

Contractor will contact Wilson Engineering with staking requests at least one week prior to the day staking is needed.

Survey work shall be within the following tolerances:

Stationing +.01 foot

Alignment +.01 foot (between successive points)

Superstructure Elevations +.01 foot (from plan elevations)

Substructure Elevations +.05 foot (from plan elevations)

During the progress of the work, the Contractor shall make available to the Engineer all field books including survey information, structure elevations, cross sections and quantities.

The Contractor shall be fully responsible for the close coordination of field locations and measurements with appropriate dimensions of installed structures.

APPENDIX B – BUFFER MITIGATION INFORMATION

Buffer Mitigation Plan

Douglas Well #2 Project
Ferndale, Washington

for
Wilson Engineering, LLC.

June 1, 2023

Buffer Mitigation Plan

Douglas Well #2 Project
Ferndale, Washington

for
Wilson Engineering, LLC.

June 1, 2023



554 West Bakerview Road
Bellingham, Washington 98226
360.647.1510

Buffer Mitigation Plan
Douglas Well #2 Project
Ferndale, Washington

File No. 3358-024-00

June 1, 2023

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- Appendix B. Site Photographs

1.0 INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) was contracted by Wilson Engineering LLC. (Wilson) to prepare a buffer mitigation plan in support of the Douglas Well #2 Project (project). The City of Ferndale (City) is proposing to construct a second water pump station, to be constructed in multiple phases. The access road for the well and gravel well pad will be constructed during the summer of 2023 and the new well (Douglas Well #2) will be drilled shortly thereafter (fall 2023 or spring 2024). The well house and other infrastructure for the well is proposed to be installed between the summer of 2024 through 2027. This report focuses on anticipated wetland buffer impacts and proposed mitigation for the access road and drilling of the well. Mitigation for future phases of this project, if needed, will be identified when the designs have been completed.

The project is located off Douglas Road in southwestern Ferndale, Washington (Figure 1, Vicinity Map). One wetland (Wetland A) was identified adjacent to the project area and buffers for Wetland A extend over the proposed access road and well location (GeoEngineers 2023). Permanent and temporary wetland buffer impacts have been identified as a result of the project and compensatory buffer mitigation will be needed to offset anticipated impacts. There will be approximately 12,760 square feet of permanent buffer impact and 7,140 square feet of temporary buffer impact.

The purpose of this report is to identify project impacts, discuss the mitigation plan, and describe avoidance and minimization measures to reduce potential impacts to wetlands and buffers from project activities. This mitigation plan has been prepared in accordance with City of Ferndale Municipal Code (FMC) Chapters 16.08 (Critical Areas) and multi-agency guidance contained in *Wetland Mitigation in Washington State Part 1: Agency Policies and Guidance* (Ecology et. al. 2021) and *Wetland Mitigation in Washington State Part 2: Developing Mitigation Plans* (Ecology et. al. 2006).

1.1. Project Description

The City of Ferndale is proposing to construct a second water supply pump station on an undeveloped site located off Douglas Road in Southwestern Ferndale, Washington. The project will be conducted in stages with the first phase being construction of the gravel access road and gravel well pad, the second phase includes drilling the well, and future phases will include installing the well house and other infrastructure. Impacts associated with future phases are not known at this time because future phases have not been designed. This mitigation report focuses on the impacts associated with construction of the access road, and well. As part of this project, a well pad will be built out from the access road where the well and well house infrastructure will be located. See the drawings in Appendix A, Project Drawings for more information on the project. This project work is located entirely within the buffer of Wetland A. The construction activities will be conducted approximately 1.5 feet from the wetland boundary at the closest point (Figure 2. Wetland Buffer Impacts and Enhancement Areas). Temporary erosion and sedimentation control (TESC) measures will be completed adjacent to the wetland but will not extend into wetland habitat. It is anticipated that the contractor will utilize existing roadways or parking/access areas for the existing well for staging areas. Regardless of where the staging area(s) will be located, the contractor will stage on existing impervious surfaces with no clearing required.

The below list is the construction sequence likely to take place for the project and includes a list of project activities in the order they are likely to take place. The contractor will finalize the construction sequence.

1. Locate utilities on site before construction.
2. Install traffic control measures.
3. Install TESC Best Management Practice (BMP) measures.
4. Clear and remove vegetation as needed.
5. Grade the area necessary to construct the access road and well pad. Structural components such as crushed rock and gravels will be placed and compacted for the access road and well pad.
6. Restore disturbed, unpaved ground surface as needed which includes planting native shrubs and trees, seeding with an erosion-control native grass seed mix and mulching. This will include areas of bare soil downslope of the roadway.
7. Remove TESC BMP measures once construction is complete. Also remove traffic control devices and signage.
8. Douglas Well #2 (the new well) will be drilled shortly after the road is constructed (fall 2023 or spring 2024). The well will be installed immediately south of the access road on the well pad.

1.2. Landscape Setting

The mitigation site is located onsite where the work will occur and the site is situated in the Lynden Watershed Administrative Unit in the Nooksack Water Resource Inventory Area (WRIA). Photographs of the project site and the mitigation area are provided in Appendix B, Site Photographs.

1.2.1. Project and Mitigation Site

The site is located within a parcel owned by the City of Ferndale (ID: 390230188340000) along the southern edge of Douglas Road between Imhoff Road and Angelina Street in Ferndale, Washington (Figure 1). The site is located within suburban residential areas within Section 30 of Township 39 North Range 02 East of the Willamette Meridian (W.M.) and is located within WRIA 01 (Nooksack) and Hydrologic Unit Code (HUC) 17110004 Nooksack (Nooksack). The majority of the project area consists of gently sloping grassy fields and a large central mound that is densely vegetated with Himalayan blackberry (*Rubus armeniacus*). Existing well infrastructure with a small gravel driveway is located within the northeastern portion of the assessment area. An access road off Douglas Road extends along the western edge of the property and connects to other access roads on the property that connect to Imhoff Road. The project site is bordered to the north by Douglas Road, to the west by Meadows Montessori School, to the east by a single-family residence and to the south by undeveloped fields that slope down south to a gravel road. Vegetation within the proposed project footprint includes young red alder (*Alnus rubra*) trees, Himalayan blackberry and reed canary grass (*Phalaris arundinacea*). Proposed mitigation will occur on temporarily disturbed areas, which will be restored, within the project footprint and in a disturbed portion of the wetland buffer to compensate for permanent buffer impacts.

2.0 ANTICIPATED PROJECT IMPACTS

Permanent impacts from the proposed project will be from the access road and well pad and temporary impacts are from clearing grass vegetation for construction of the road and well pad. Wetland hydrology will not be impacted from the access road and well pad because the road will be peaked in the middle which will maintain hydrology patterns. Figure 2 depicts the location of the temporary and permanent

impacts. Temporary impacts are areas that will be replanted or hydroseeded with native vegetation and currently are dominated by grasses and blackberry. Permanent impacts are from the permanent structures (access road and well pad) being installed in the buffer. Table 1 below depicts a summary of the buffer impacts.

TABLE 1. SUMMARY OF BUFFER IMPACTS

Location Impacted	Duration of Impact	Area of Impact (square feet)	Impact Description	Proposed Mitigation Action
Buffer of Wetland A	Permanent	12,760	Installation of a gravel access road and well pad in an area vegetated with reed canary grass, Himalayan blackberry and young red alder trees	Buffer Enhancement
Buffer of Wetland A	Temporary	7,140	Grass and blackberry removal	Buffer restoration ¹
Permanent Buffer Impact Total				12,760
Temporary Buffer Impact Total				7,140

Notes:

1. The entirety of the 7,140 square feet of temporary buffer impact will be hydroseeded with native grass species. However, a portion of the temporarily impacted buffer will also be enhanced by installing native trees and shrubs.

2.1. Mitigation Sequencing

Design and planning of the project followed guidelines for mitigation sequencing outlined in joint guidance prepared by Washington State Department of Ecology (Ecology), United States Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (EPA) (Ecology et. al. 2021) and the FMC 16.08.230 (Critical area mitigation). Mitigation sequencing steps are applied in descending order during project design with the goal of avoiding, minimizing, rectifying/restoring, reducing/eliminating and compensating for impacts on critical areas (in this case buffers). The following is a summary of mitigation sequencing conducted for the project.

2.1.1. Avoidance

The first criterion is to avoid impacts by not taking a certain action or parts of the action. However, given the current location of the project property and location of wetland and buffer habitat, it was not possible to completely avoid impacts to regulated buffer habitat.

2.1.2. Minimization

The second criterion is to take appropriate and practicable steps to minimize those adverse impacts that cannot be avoided. Wetland and associated buffer impacts have been minimized as much as possible. On-site minimization is proposed to reduce the magnitude of impacts to buffer functions that will result from the proposed project and, therefore, reduce the amount of compensatory mitigation required.

In addition, BMPs will be identified and will be implemented when working in the buffer or adjacent to wetland habitat to minimize adverse impacts on water quality.

2.1.3. Rectify/Restore

The project will rectify and restore areas of temporary impact where possible. After construction is completed, areas of temporary buffer impact will be hydroseeded with a native upland seed mix.

2.1.4. Reduction or Elimination

The project parcel already contains a well house and access road, located in the northeast corner of the property and so land use is not changing as a result of the project, although additional wells will be installed. In addition, the wetland and remaining portion of buffer will be protected and enhanced from the proposed project.

2.1.5. Compensation Mitigation

The next criterion is to provide appropriate and practicable compensation for unavoidable and permanent buffer impacts. The project will result in approximately 12,760 square feet of permanent buffer impacts. Compensatory mitigation for this impact is proposed using onsite buffer enhancement (e.g., installation of native trees, shrubs and herbaceous species). Compensatory mitigation shall occur concurrently with the construction of the access road. Monitoring and maintenance will be conducted according to guidelines in the FMC.

2.1.6. Monitoring

The mitigation area will be monitored as described in Section 5.0 Monitoring and Maintenance below.

3.0 BUFFER FUNCTIONS ANALYSIS

The buffer of Wetland A will be impacted as a result of the project and the buffer of the mitigation wetland will be beneficially affected as a result of mitigation actions. This section of the report analyzes existing buffer functions before and after buffer impacts and mitigation is completed.

The onsite portion of buffer habitat to be impacted was analyzed to compare pre-and post-project actions to the wetland buffer functions. Qualitative rating values were derived by GeoEngineers through subjectively assigning a value of “Low,” “Moderate” or “High” to characteristics relating to the buffer functions discussed above. Characteristics used for each qualitative rating are based on information obtained through review of Ecology publications *Wetlands in Washington State-Volume 1: A Synthesis of the Science* (Sheldon et al. 2005) and *Wetland Buffers: Use and Effectiveness* (Castelle et al. 1992). Physical characteristics that influence the effectiveness of buffers are vegetation (composition, density and roughness), percent slope and soils (Sheldon et al. 2005).

3.1. Buffer of Wetland A

The existing condition of the buffer within the project area was assessed using the functional assessment technique as outlined above. The buffer area of the impact and mitigation site was assessed for potential functional changes that are expected to result from permanently impacting a portion of the buffer (gravel road and well pads), removing grasses/blackberry and replacing with native hydroseed and enhancing buffer areas adjacent to the project with native shrubs and trees. The results of the functional assessment are presented in Table 2 below; the table depicts the analysis for the impact and mitigation area and not the overall Wetland A buffer. The overall buffer functions of Wetland A are not anticipated to significantly

change as a result of the project because the temporary impact area will be hydroseeded with native seed mix and parts of it enhanced with native trees and shrubs. Adjacent low-functioning buffer areas (outside temporary impact areas) will be enhanced compared to existing conditions, by installing native trees and shrubs and controlling noxious weeds. There will be an increase in habitat and erosion protection functions because native plants will be installed in an area dominated by invasive vegetation.

TABLE 2. WETLAND A BUFFER FUNCTION SUMMARY AT IMPACT SITE AND MITIGATION AREA

Buffer Function	Existing Conditions	Reasoning	Post Mitigation	Reasoning
Habitat	Low	Vegetation consists largely of grasses and invasive species such as Himalayan blackberry with some young red alder trees.	High	Disturbed buffer areas will be replanted with native shrub and forested vegetation connecting to the wetland. Habitat quality will be improved because native trees and shrubs will be installed in an area dominated by invasive nonnative species and diversity will increase by planting two non-pioneer tree species.
Water Quality	High	High amount of herbaceous vegetation and is situated on a slight slope.	High	Functions will remain the same because temporarily disturbed areas with bare soils will be hydroseeded with native vegetation. In addition, the area currently has a dense herbaceous vegetation community that will remain post construction.
Stormwater Detention	Moderate	High amount of herbaceous vegetation and is situated on a slight slope with no depressions or evidence of ponding.	Moderate	Functions will remain the same because newly seeded native herbaceous vegetation and the installed shrubs and trees will slow the flow of stormwater across the slope but not significantly different from existing conditions.
Groundwater Recharge	Moderate	High amount of herbaceous vegetation and is situated on a slight slope with no depressions or evidence of ponding.	Moderate	Functions will remain the same because newly seeded native herbaceous vegetation and the installed shrubs and trees will slow the flow of stormwater across the slope and allow for some infiltration/recharge of groundwater; however, not significantly different from existing conditions.
Slope Erosion Protection/ Stability	Low to Moderate	Vegetated buffer with no exposed bare ground. However, vegetation mostly consists of invasive reed canary grass and Himalayan blackberry.	High	The buffer will be densely vegetated and mulch rings around installed plants will help minimize potential erosion. The area where the buffer will be impacted and where there is ground disturbance will be replanted with native shrub and herbaceous vegetation.

4.0 PROPOSED RESTORATION AND ENHANCEMENT

Proposed buffer enhancement will offset permanent and temporary project impacts through compensatory mitigation. Wetland buffer conditions within the project and mitigation area are poor with dominant vegetation consisting of invasive species such as reed canary grass and Himalayan blackberry with some young red alder trees. Enhancement work will include installing native plants to improve and maintain habitat, hydrologic and water quality functions in the area of impact.

Approximately 7,140 square feet of wetland buffer habitat will be temporarily impacted by clearing vegetation for construction purposes and approximately 12,760 square feet of wetland buffer habitat will be permanently impacted by constructing a gravel access road and well pad. The entirety of the 7,140 square feet of temporary buffer impact will be hydroseeded with native grass species, and a portion of the temporarily impacted buffer will also be enhanced by installing native trees and shrubs. Approximately 14,366 square feet of wetland buffer will be enhanced and restored by installing native trees and shrubs. Approximately 5,534 square feet of temporarily impacted buffer located immediately adjacent to the new access road and well pad will be hydroseeded only. The total restoration and enhancement areas are 19,900 square feet. Figures 2 and 3 (Mitigation Planting Details) depict the mitigation and restoration plan for the project site.

4.1. Buffer Enhancement and Restoration

The Wetland A buffer at the project site is generally dominated by reed canary grass and Himalayan blackberry with some young red alder trees. Replacing the invasive grass and blackberry with a mix of native shrubs and trees will diversify habitat structure and create opportunities for native species to naturally recruit. Reed canary grass and Himalayan blackberry thickets are often too dense to be utilized as cover or habitat for many bird and small mammal species but stands of native shrubs present more open and attractive habitat. Additionally, natural succession of deciduous to coniferous forest is often interrupted by a blackberry understory, so installing Douglas fir will jumpstart that process. Bitter Cherry (*Prunus emarginata*), Oceanspray (*Holodiscus discolor*), Nootka rose (*Rosa nutkana*), common snowberry (*Symphoricarpos albus*) and red flowering currant (*Ribes sanguineum*) are included within the planting plan and all provide forage for birds and mammals.

The recommended mix of native shrubs and trees provides dense cover at multiple strata which helps stabilize the ground surface and the plant root structures protect the ground from potential erosion due to high flows. Low, dense vegetation can also more effectively trap sediment within the stream and improve overall water quality downstream of the project and mitigation site.

All temporarily disturbed areas will be hydroseeded and the planting areas (Planting Areas 1 through 4) identified on Figure 2 will include tree and shrub vegetation installation. Areas proposed as hydroseed only, include the area that is immediately adjacent from the proposed access road, because trees shouldn't be installed directly adjacent to the new roadway. See Table 3 below for plant species, quantities and density recommendations for the buffer enhancement area and Table 4 for the hydroseed recommendations. These quantities and species are approximate, and substitutions may occur. Figure 2 depicts the buffer enhancement area. Plant numbers and density may change from those listed in Table 3 based on existing vegetation coverage after the invasive species removal has been completed.

TABLE 3. BUFFER PLANTING RECOMMENDATIONS

Native Plant Species			Planting Area	
Common Name	Scientific Name	Plant Size	Count ¹	Density
Planting Area 1 (418 square feet)				
Douglas fir	<i>Pseudotsuga menziesii</i>	2-gallon	3	10-foot-on-center
Nootka rose	<i>Rosa nutkana</i>	1-gallon	7	5-foot-on-center
Snowberry	<i>Symphoricarpos albus</i>	1-gallon	7	5-foot-on-center
Planting Area 2 (117 square feet)				
Bitter Cherry	<i>Prunus emarginata</i>	2-gallon	1	10-foot-on-center
Nootka rose	<i>Rosa nutkana</i>	1-gallon	3	5-foot-on-center
Planting Area 3 (11,120 square feet)				
Douglas fir	<i>Pseudotsuga menziesii</i>	2-gallon	55	10-foot-on-center
Bitter Cherry	<i>Prunus emarginata</i>	2-gallon	56	10-foot-on-center
Oceanspray	<i>Holodiscus discolor</i>	1-gallon	83	5-foot-on-center
Red flowering currant	<i>Ribes sanguineum</i>	1-gallon	83	5-foot-on-center
Nootka rose	<i>Rosa nutkana</i>	1-gallon	84	5-foot-on-center
Snowberry	<i>Symphoricarpos albus</i>	1-gallon	84	5-foot-on-center
Planting Area 4 (2,711 square feet)				
Douglas fir	<i>Pseudotsuga menziesii</i>	2-gallon	13	10-foot-on-center
Bitter Cherry	<i>Prunus emarginata</i>	2-gallon	14	10-foot-on-center
Oceanspray	<i>Holodiscus discolor</i>	1-gallon	20	5-foot-on-center
Red flowering currant	<i>Ribes sanguineum</i>	1-gallon	21	5-foot-on-center
Nootka rose	<i>Rosa nutkana</i>	1-gallon	20	5-foot-on-center
Snowberry	<i>Symphoricarpos albus</i>	1-gallon	20	5-foot-on-center

Notes:

1. Plant count numbers are based on proposed square footage of enhancement areas and the on-center-spacing. Actual number of species to be determined based on available space after invasive species removal.

TABLE 4. BUFFER ENHANCEMENT NATIVE HYDROSEED MIX RECOMMENDATION

Kind and Variety of Seed Mixture	Pounds PLS/acre
Blue Wildrye (<i>Elymus glaucus</i>)	40
Red Fescue (<i>Festuca rubra</i> L. ssp. <i>rubra</i>)	35
Tufted Hairgrass (<i>Deschampsia cespitosa</i>)	10
Columbia Brome (<i>Bromus vulgaris</i>)	10
Meadow Barley (<i>Hordeum brachyantherum</i>)	5
Total pounds PLS/acre	100

Notes:

- Hydroseeded disturbed and bare soil areas only. PLS = pure live seed

4.1.1. Plant Installation

Planting details and notes are included on Figures 2 and 3. Planting activities shall be conducted as follows:

- Site preparation:
 - Mow grass, clear and grub invasive and non-native plant species, and remove manmade debris (e.g., gravel or garbage).
 - Conduct the planting immediately after mowing and clearing of non-native plant species. This will minimize re-growth of invasive species prior to planting newly opened or cleared areas.
- Plant materials and installation:
 - Under no circumstances shall planting during freezing weather or in frozen ground be permitted. No planting shall occur when temperatures are below 35 Fahrenheit (°F) or above 75 °F.
 - Install mulch rings around all newly installed plants. Mulch ring should be at least 3 inches thick, at least 16 inches in diameter. Mulch rings shall extend to within 1 inch of the plant stem/trunk but the mulch should not touch the stem/trunk.
 - Trees and shrubs
 - Trees shall be 2-gallon and shrubs shall be 1-gallon potted or bare-root.
 - If using bare-root material proper handling of the plants is important. Do not store bare-root plants exposed to the open air. Bare-root plants are generally packaged in paper bags and once picked up they shall be kept in a humid, well-ventilated cold storage area at 33 to 39 °F until planting. Do not store plants for more than 1 week before installation. If dormancy is broken during storage (budding out), those plants must be replaced. If cold storage is not available, remove packaging and heel plants into moist sawdust, straw or soil in a cool place for a maximum of 2 days, taking care to keep the sawdust, straw or soil moist. Soaking roots prior to transplanting is recommended.
 - Planting of trees and shrubs should be conducted in the dormant season (mid-November through early March) when the ground is not frozen.
- Staging for plants should occur in upland areas and not within the wetland.
- Water newly planted areas as needed, especially during the first dry season.
- Conduct regular maintenance and monitoring as described in Section 5.0 Monitoring and Maintenance of this report.

5.0 MONITORING AND MAINTENANCE

Per FMC 16.08 Appendix A, monitoring and maintenance of mitigation sites is required for at least 5 years. The buffer enhancement areas will be monitored for a period of 5 years, with monitoring events occurring after construction (as-built or Year 0) and during Years 1, 2, 3 and 5. The entirety of the enhancement areas to be planted will be monitored.

The success of the planting areas will be based on performance standards identified below. Proper maintenance of the planting areas is crucial to plant survival. Maintenance shall include, as needed, but not be limited to, watering, weeding, removal of garbage, supplementing mulch rings, replacing plant

guards and replacing dead or dying plants. Monitoring site visits will be conducted in the spring/summer with reports to the City of Ferndale by October of the monitoring year.

Observations to be recorded during each monitoring event include:

- Individual plant counts during the as-built and Year 1 monitoring events, by species, of native plants in the buffer enhancement planting areas;
- Estimated combined total percent aerial cover of all native plant species (visual estimate) within the buffer enhancement planting areas during the as-built and the Year 2, 3 and 5 monitoring events;
- Condition of native plants (alive, stressed or dead);
- Estimated cover of invasive plant species;
- Cover of temporarily impacted areas that were only hydroseeded.
- Observation of wildlife or signs of wildlife use;
- Observations of damage to the enhancement plantings and maintenance needs; and
- Photographs of the restoration and enhancement areas, at monitoring stations/transects and at established photo point locations.

Plant count data collected in buffer enhancement planting areas during the as-built event will be used as a baseline to compare with count data collected during Year 1 to identify plant survival and compare to performance standards. Percent cover data collected during Years 2, 3 and 5 will be compared to performance standards for percent cover.

5.1. Performance Standards

Performance standards for the buffer enhancement planting areas include:

- Revegetation will be considered successful if the survival rate is 100 percent in the first year.
- Himalayan blackberry and reed canary grass cover will not affect the growth and survival of native installed trees and shrubs. Whatcom County Class A listed weeds shall have 0 percent cover during each monitoring year and Whatcom County Class B and C listed weeds shall be represented by less than 15 percent coverage in the restoration areas during each monitoring year.
- Acceptable cover standards for native plants, summed across vegetation classes, will be as follows:
 - Year-2 Monitoring Event: minimum of 10 percent
 - Year-3 Monitoring Event: minimum of 30 percent
 - Year-4 Monitoring Event: minimum of 40 percent
 - Year-5 Monitoring Event: minimum of 50 percent

5.2. Reporting

5.2.1. Buffer Mitigation As-Built Reporting

A buffer mitigation as-built report will be developed after all planting activities are complete at the site. The as-built report will document the following information:

- Location of permanent buffer impact areas.
- Location of temporary buffer impact areas.
- A summary of plant species and quantities purchased and installed.
- A description of any changes to plant species or quantities from the final planting plan.
- A description of established vegetation monitoring stations/transects, including locations.
- Baseline data for plant species and counts along vegetation monitoring stations/transects.
- Baseline data for plant survival along vegetation monitoring stations/transects based on observed dead plants.
- Photographs from the vegetation monitoring stations/transects and vantage point.
- A description of established photo stations and photographs taken from those photo stations.
- Any additional information listed in permit conditions to be included in the as-built report.

Information listed above will be documented in the buffer mitigation as-built report and submitted to the City of Ferndale.

5.2.2. Annual Monitoring Reports

Data collected during annual monitoring events, as described in the above sections, and required information listed in permit conditions, will be documented in an annual monitoring report. Annual monitoring reports will be submitted to the City of Ferndale in October of each monitoring year.

5.3. Contingency Plan

If the planted areas fail to meet the standards discussed above, implementation of a contingency plan will be required. The proposed efforts can fail if certain unfavorable factors occur. Human activity, fire, erosion, invasive plant species, settling and disease may have a negative effect on newly planted vegetation. Plants obtained for this project may be diseased or become diseased over time and result in poor survival rates. Monitoring notes should include observations regarding these and other possible problems that may occur over the monitoring period. As problems are recorded, suggestions and possible solutions should be forwarded to the appropriate staff at the appropriate jurisdictional agency as a component of the monitoring reports. If more than 20 percent mortality of plantings occurs within any of the monitoring years, the mitigation plan will be re-evaluated. If alternative plant species are needed to improve survival, the selection of alternative species will be made by the monitoring biologist and approved by the City of Ferndale.

Contingency measures could include but are not limited to:

- The plants will be watered as needed to offset drought stress on installed plants.
- Species substitutions may occur when replacing dead plants, if certain species are observed to not be performing well consistently across restoration/enhancement areas.
- Grasses and other invasives will be mowed or trimmed around installed plants if the non-native species are out competing and stressing native plants.

Photographic records and monitoring data will be used to identify the need for contingency plan activation. The success of the plan is dependent upon enhancement proposed with the component characteristics described in this report. The applicant is responsible for all costs associated with the contingency plan or corrective actions including materials and labor for replanting and maintenance.

6.0 SUMMARY AND CONCLUSIONS

GeoEngineers prepared this Buffer Mitigation Plan for the City of Ferndale's proposed Douglas Well #2 project. The project is a multi-phased project; the first phase of the project consists of construction of a gravel access road, well pad and drilling of the proposed well. Future phases will identify project impacts once designs have been completed. As a result of the project, there will be impacts to the wetland buffers located in the project area.

This project includes:

- Approximately 7,140 square feet of wetland buffer habitat will be temporarily impacted by clearing vegetation for construction purposes.
- Approximately 12,760 square feet of wetland buffer habitat will be permanently impacted by constructing a gravel access road and well pad.
- The entirety of the 7,140 square feet of temporary buffer impact will be hydroseeded with native grass species, and a portion of the temporarily impacted buffer will also be enhanced by installing native trees and shrubs.
- Approximately 14,366 square feet of wetland buffer will be enhanced and restored by installing native trees and shrubs.
- Approximately 5,534 square feet of temporarily impacted buffer located immediately adjacent to the new access road and well pad will be hydroseeded only.
- The total restoration and enhancement areas are 19,900 square feet.
- Enhancement actions will include removal of reed canary grass, Himalayan blackberry and other invasive species and installation of a diverse and dense native vegetation community.

Enhancement and restoration activities will include planting and seeding with native vegetation in areas that are currently dominated by invasive species. Planting of native trees and shrubs in the buffer will increase habitat, hydrologic and water quality functions of the buffers.

This report describes the efforts to avoid and minimize impacts to wetlands and buffers and to mitigate for unavoidable impacts. The buffer enhancement will improve the habitat, hydrologic and water quality functions and will compensate for permanent impacts to the onsite impacted buffers. The proposed buffer enhancement area will be monitored and maintained for 5 years and managed in the long-term.

7.0 LIMITATIONS

GeoEngineers has prepared this Buffer Mitigation Plan in general accordance with the scope and limitations of our proposal. Within the limitations of scope, schedule and budget, our services have been executed in

accordance with the generally accepted practices for restoration and compensatory mitigation plans in this area at the time this report was prepared. No warranty or other conditions expressed or implied should be understood.

The conceptual design of restoration and mitigation sites is an evolving, scientific process based on a number of assumptions, some of which cannot be field verified during design because of budgetary, scope and seasonal limitations and/or field conditions. It is possible, based upon field conditions, that modifications to the general planting areas will be necessary to provide a greater degree of functionality leading to satisfying the intent of the conceptual design.

This report has been prepared for the exclusive use of the Wilson Engineering LLC., the City of Ferndale, their authorized agents and regulatory agencies, following the described methods and information available at the time of the work. No other party may rely on the product of our services unless we agree in advance to such reliance in writing. The information contained herein should not be applied for any purpose or project except the one originally contemplated.

The applicant is advised to contact all appropriate regulatory agencies (local, state and federal) prior to design or construction of any development to obtain necessary permits and approvals.

8.0 REFERENCES

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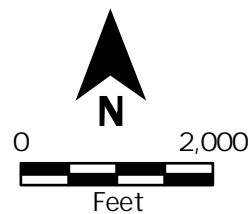
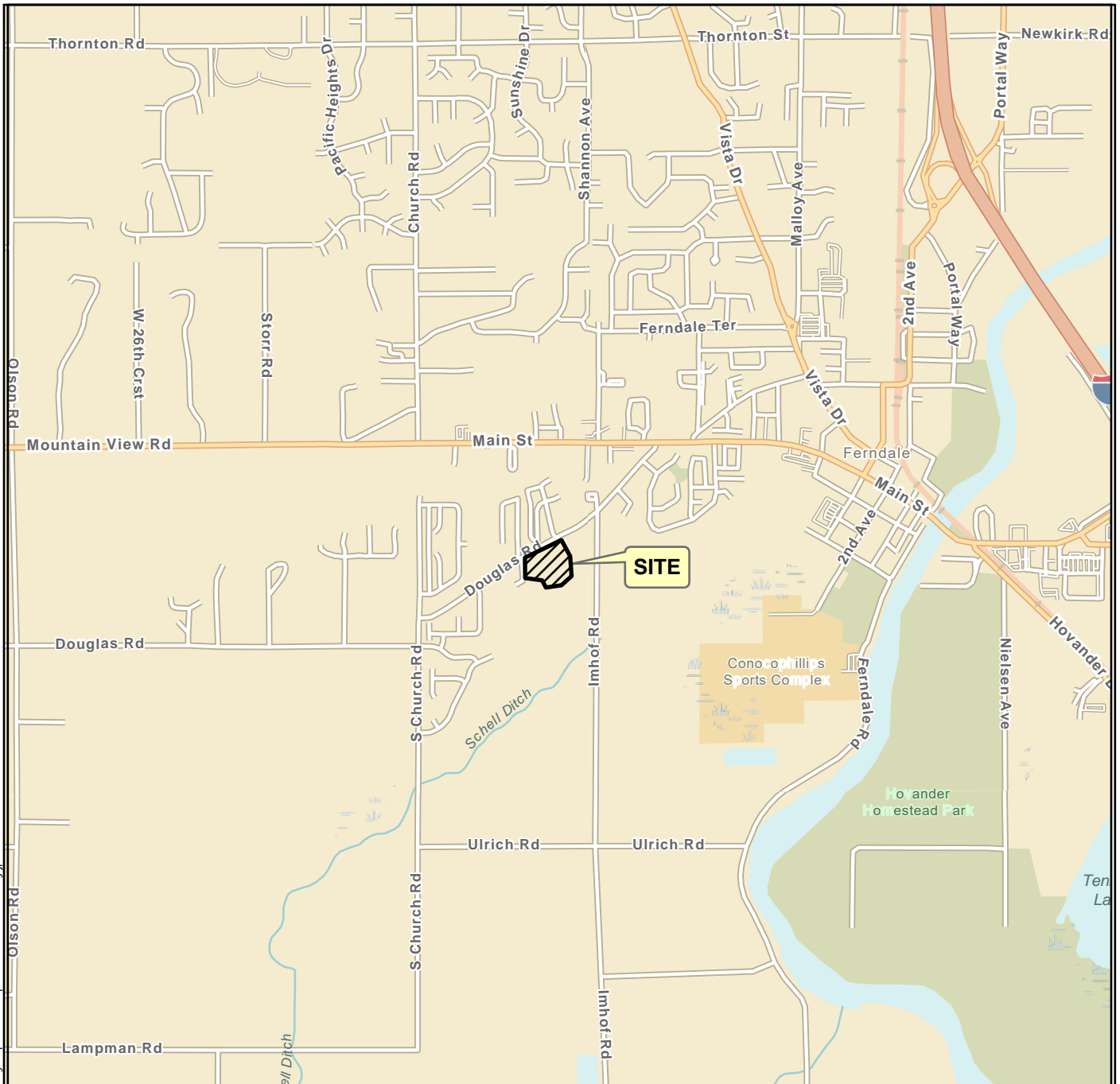
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Coordinate System: NAD 1983 UTM Zone 10N

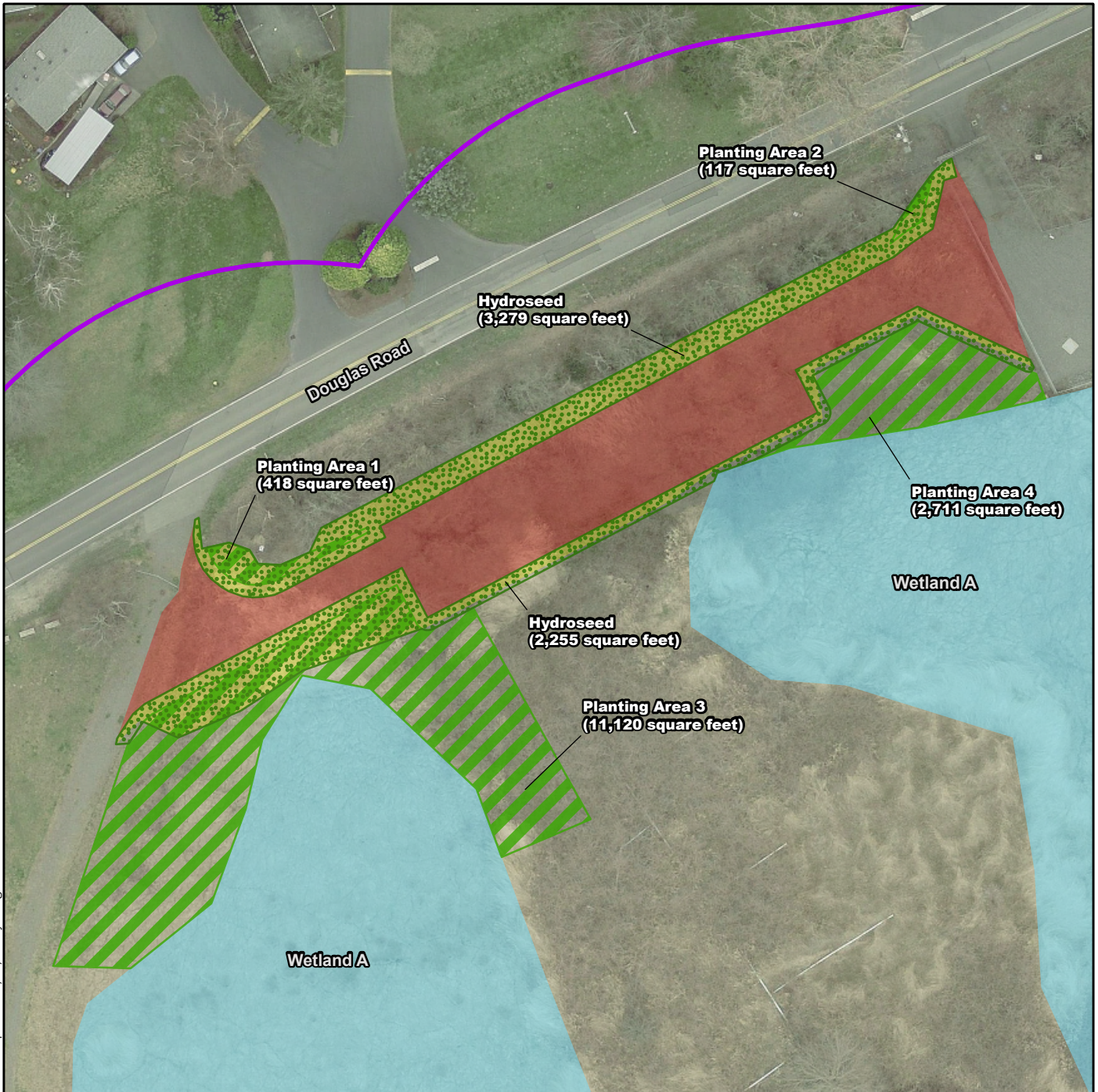
Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

Vicinity Map

Douglas Well #2 Project
 Ferndale, Washington



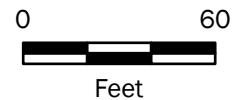
Figure 1



P:\3358024_GIS\3358024_Project\3358024_Project.aprx\3358024_Project.aprx\3358024_06_01_23 by maugust

Legend

- Permanent Wetland Buffer Impact (~12,760 SF)
- Temporary Wetland Buffer Impact (~7,140 SF)
- 165-ft Buffer
- Wetland
- Planting Areas/Wetland Buffer Enhancement
- Hydroseed



Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
Disclaimer: This figure was created for a specific purpose and project. Any use of this figure for any other project or purpose shall be at the user's sole risk and without liability to GeoEngineers. The locations of features shown may be approximate. GeoEngineers makes no warranty or representation as to the accuracy, completeness, or suitability of the figure, or data contained therein. The file containing this figure is a copy of a master document, the original of which is retained by GeoEngineers and is the official document of record.

Wetland Buffer Impacts and Enhancement Areas	
Douglas Well #2 Project Ferndale, Washington	
GEOENGINEERS	Figure 2

BUFFER PLANTING RECOMMENDATIONS

Native Plant Species			Planting Area	
Common Name	Scientific Name	Plant Size	Count ¹	Density
Planting Area 1 (418 square feet)				
Douglas fir	<i>Pseudotsuga menziesii</i>	2 Gallon	3	10-foot on-center
Nootka rose	<i>Rosa nutkana</i>	1 Gallon	7	5-foot on-center
Snowberry	<i>Symphoricarpos albus</i>	1 Gallon	7	5-foot on-center
Planting Area 2 (117 square feet)				
Bitter Cherry	<i>Prunus emarginata</i>	2 Gallon	1	10-foot on-center
Nootka rose	<i>Rosa nutkana</i>	1 Gallon	3	5-foot on-center
Planting Area 3 (11,120 square feet)				
Douglas fir	<i>Pseudotsuga menziesii</i>	2 Gallon	55	10-foot on-center
Bitter Cherry	<i>Prunus emarginata</i>	2 Gallon	56	10-foot on-center
Oceanspray	<i>Holodiscus discolor</i>	1 Gallon	83	5-foot on-center
Red flowering currant	<i>Ribes sanguineum</i>	1 Gallon	83	5-foot on-center
Nootka rose	<i>Rosa nutkana</i>	1 Gallon	84	5-foot on-center
Snowberry	<i>Symphoricarpos albus</i>	1 Gallon	84	5-foot on-center
Planting Area 4 (2,711 square feet)				
Douglas fir	<i>Pseudotsuga menziesii</i>	2 Gallon	13	10-foot on-center
Bitter Cherry	<i>Prunus emarginata</i>	2 Gallon	14	10-foot on-center
Oceanspray	<i>Holodiscus discolor</i>	1 Gallon	20	5-foot on-center
Red flowering currant	<i>Ribes sanguineum</i>	1 Gallon	21	5-foot on-center
Nootka rose	<i>Rosa nutkana</i>	1 Gallon	20	5-foot on-center
Snowberry	<i>Symphoricarpos albus</i>	1 Gallon	20	5-foot on-center

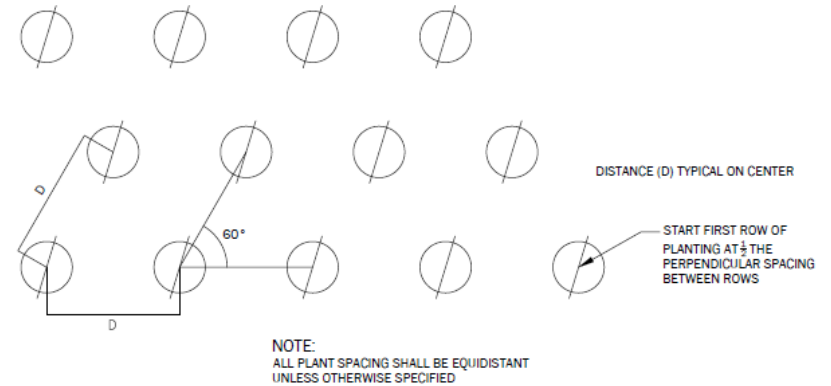
Note: 1. Plant count numbers are based on proposed square footage of enhancement areas and the on-center spacing. Actual number of species to be determined based on available space after invasive removal

BUFFER ENHANCEMENT HYDROSEED RECOMMENDATIONS

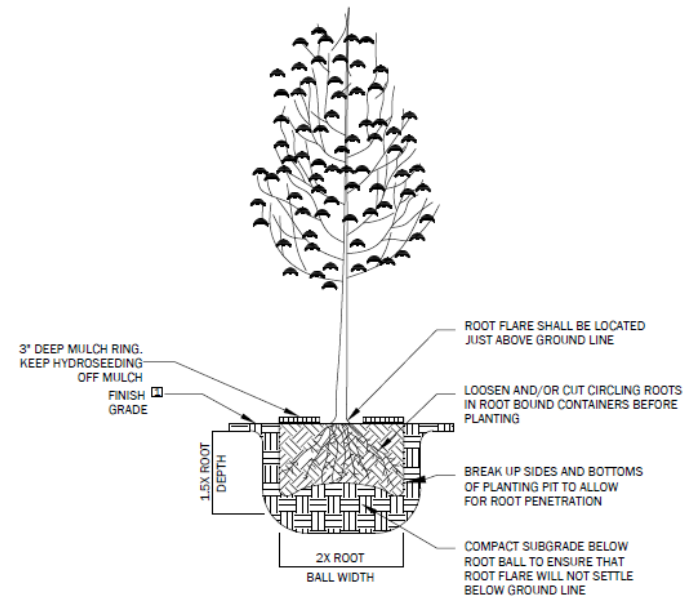
Kind and Variety of Seed Mixture	Pounds PLS/acre
Blue Wildrye (<i>Elymus glaucus</i>)	40
Red Fescue (<i>Festuca rubra</i> L. ssp. <i>rubra</i>)	35
Tufted Hairgrass (<i>Deschampsia cespitosa</i>)	10
Columbia Brome (<i>Bromus vulgaris</i>)	10
Meadow Barley (<i>Hordeum brachyantherum</i>)	5
Total pounds PLS/acre	100

Note: Hydroseed disturbed and bare soil areas only. PLS = pure live seed

Notes:
 1. The locations of all features shown are approximate.
 2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.



TRIANGULAR SPACING DETAIL (TYP.)



TREE AND SHRUB PLANTING DETAIL (TYP.)
 SCALE: NTS

Mitigation Planting Details	
Douglas Well #2 Project Ferndale, Washington	
	Figure 3

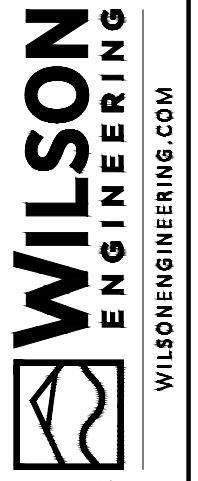
APPENDIX A

Project Drawings

CITY OF FERNDALE

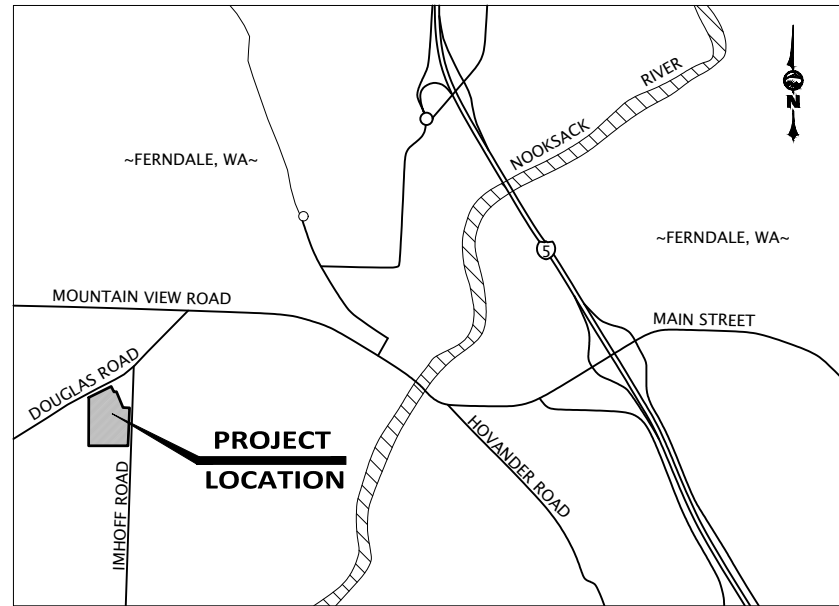
DOUGLAS WELL #2 - ACCESS ROAD PROJECT

NO.	REVISIONS	BY	DATE



07-05-2023

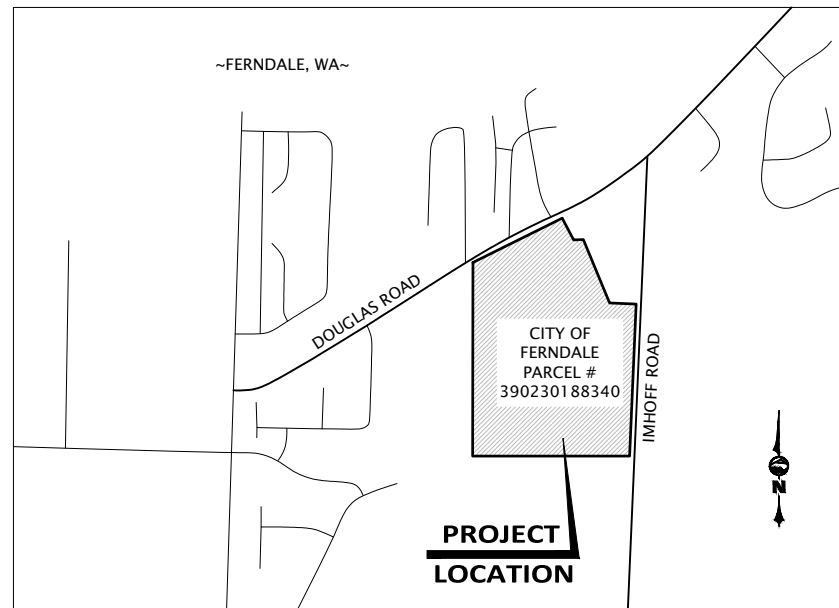
AREA MAP - NOT TO SCALE



INDEX TO DRAWINGS

1.	SHEET C0.1	COVER SHEET
2.	SHEET C0.2	LEGEND AND ABBREVIATIONS
3.	SHEET C0.3	WAC 332-130 COMPLIANCE
4.	SHEET C1.1	EXISTING CONDITIONS
5.	SHEET C2.1	TESC PLAN
6.	SHEET C2.2	TESC NOTES
7.	SHEET C2.3	TESC DETAILS
8.	SHEET C3.1	GRADING PLAN
9.	SHEET C4.1	ROAD SECTIONS
10.	SHEET C5.1	CIVIL DETAILS
11.	SHEET C5.2	CIVIL DETAILS

VICINITY MAP - NOT TO SCALE



DESIGNED BY	JCC
DRAWN BY	JGS
CHECKED BY	MFM

CITY OF FERNDALE	WASHINGTON
DOUGLAS WELL #2 - ACCESS ROAD PROJECT	
COVER SHEET	

DATE	7-3-23
SCALE	AS SHOWN
JOB NUMBER	2022-109
SHEET	C0.1
PAGE	1 OF 11



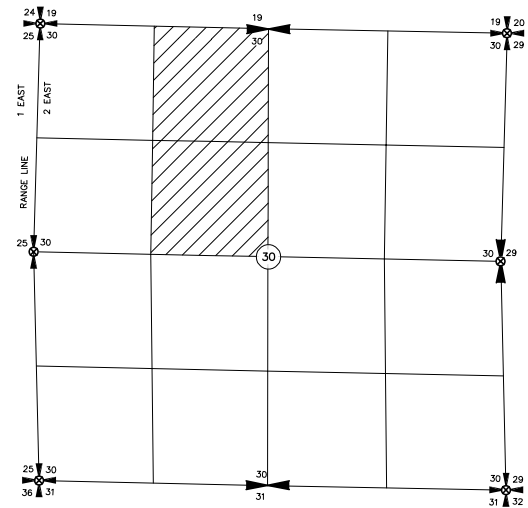
BID SET

CITY OF FERNDALE

DOUGLAS WELL #2

W.A.C. 332-130 COMPLIANCE SHEET

SECTIONAL INDEX DATA



EAST HALF OF NW QTR, SEC. 30, TWP 39 NORTH, RGE 2 EAST, W.M.

NOTICE TO USER

EFFECTIVE JANUARY 13, 2019, ALL TOPOGRAPHIC MAPS PREPARED BY A LICENSED SURVEYOR IN THE STATE OF WASHINGTON, AND SUBJECT TO THE LICENSURE AND PRACTICE REQUIREMENTS ESTABLISHED BY THE WASHINGTON STATE BOARD OF REGISTRATION FOR ENGINEERS AND LAND SURVEYORS, MUST INCLUDE THE DESCRIPTIVE NOTES AND METADATA ENUMERATED UNDER W.A.C 332-130-145 AND ITS APPURTENANT SECTIONS OF 332-130. THIS EXHIBIT IS INTENDED TO ADDRESS THE STATUTORY REQUIREMENTS STIPULATED BY THIS W.A.C DIRECTIVE.

W.A.C. 332-130-145 REQUIRED DATA

THIS SURVEY WAS PREPARED UNDER THE DIRECT SUPERVISION OF:

PAUL J. DARROW, WA PLS #50697
 SR. PROJECT SURVEYOR
 WILSON ENGINEERING LLC
 805 DUPONT STREET, SUITE 7
 BELLINGHAM, WA 98225
 360-733-6100 (EXT. 243)
 pdarrow@wilsonengineering.com

- BASIS OF ELEVATIONS:** ELEVATION VALUES AND CONTOURS DEPICTED ON THIS SURVEY ARE BASED UPON HOLDING AS FIXED THE CITY OF FERNDALE NGVD BENCHMARK MONUMENT FERN 15, HAVING AN ELEVATION OF 89.31'.
- PURPOSE OF SURVEY:** WILSON ENGINEERING PERFORMED THIS SURVEY DURING DECEMBER 2022, AT THE REQUEST OF THE CITY OF FERNDALE PURSUANT TO WELL DESIGN.
- SOURCE OF CONTOURS:** ONE-FOOT CONTOURS DEPICTED ON THIS SURVEY ARE BASED ON DIRECT FIELD OBSERVATIONS USING A TRIMBLE S-7 ROBOTIC TOTAL STATION.
- ELEVATIONS WERE ESTABLISHED ON SITE USING REDUNDANT GPS TIES TO THE FERNDALE CONTROL NETWORK.** SITE BENCHMARK IS WSE#100, SHOWN HEREON. ELEVATION=53.00'.
- ELEVATION AND/OR CONTOUR ACCURACY:** CONTOURS DEPICTED ON THE FACE OF THIS SURVEY, IF OBSERVED RELATIVE TO THE CONTROL POINTS SPECIFICALLY ENUMERATED IN THE ACCOMPANYING CONTROL TABLE, WILL BE, IN FACT, WITHIN ONE-HALF OF THE MINOR-CONTOUR INTERVAL DEPICTED HEREON. SPECIFIC ELEVATIONS DEPICTED HEREON, IF ANY, ARE EXPECTED TO BE WITHIN ONE INTEGRAL VALUE OF THE FINAL DEPICTED SIGNIFICANT FIGURE. FURTHERMORE, 90% OF ELEVATIONS EXPRESSED TO THE TENTH-FOOT, SHOULD BE WITHIN 0.1 FEET OF THAT VALUE, IF OBSERVED RELATIVE TO THE SURVEY CONTROL SPECIFICALLY ENUMERATED IN THE ACCOMPANYING CONTROL TABLE. IF OFF-SITE CONTROL IS EMPLOYED, EVEN CONTROL PURPORTING TO BE ON THE SAME DATUM OR BASED ON THE SAME OFF-SITE BENCHMARK, THEN NO ABSOLUTE STATEMENT REGARDING THE ACCURACY OF THE DEPICTED POINTS CAN BE MADE, AND VALUES SO OBSERVED ARE OUTSIDE OF THIS SURVEY'S AUTHORITY OR INTEREST.
- STATEMENT OF USE:** AS NOTED IN SECTION 2.B, THIS SURVEY WAS PREPARED FOR THE SPECIFIC PURPOSE OF WELL DESIGN. IN THE COURSE OF PREPARING THIS SURVEY, PURSUANT TO THIS PURPOSE, ANCILLARY DATA NECESSARY TO ACCOMPLISH THIS SURVEY'S INTENDED PURPOSE MAY HAVE BEEN CAPTURED. IN THE CASE OF THIS SURVEY PARCEL BOUNDARIES ARE DEPICTED, BUT THE DEPICTION OF SAME SHOULD NOT BE CONSIDERED AUTHORITATIVE AND THIS TOPOGRAPHIC SURVEY DOES NOT CONSTITUTE A RECORD OF SURVEY.
- SOURCE OF CONTROLLING BOUNDARY INFORMATION:** THE OWNERSHIP BOUNDARIES DEPICTED ON THIS SURVEY ARE BASED UPON THE DOCUMENTS ENUMERATED IN THE ACCOMPANYING "REFERENCE DOCUMENTS". BEARINGS HAVE BEEN ROTATED FROM THE RECORD VALUES IF NECESSARY TO COHERE TO THE CITY OF FERNDALE CONTROL NETWORK.
- SOURCE OF DEPICTED UTILITY INFORMATION:** UTILITY LINES DEPICTED ON THIS SURVEY ARE BASED UPON PAINT MARKS SET BY APPLIED PROFESSIONAL SERVICES. THE FOLLOWING UTILITY PROVIDERS ARE IDENTIFIED AS HAVING FACILITIES IN THE AREA: CASCADE NATURAL GAS, CITY OF FERNDALE, COMCAST, CENTURYLINK, ZIPLY FIBER, AND PUGET SOUND ENERGY.
- ACCURACY OF DEPICTED UTILITY INFORMATION:** WILSON ENGINEERING DOES NOT PROVIDE FOR-HIRE UTILITY LOCATION AND/OR MARKING SERVICES, AND CAN NOT INDEPENDENTLY ASCERTAIN THE ACCURACY OF ANY DEPICTED UTILITY THAT WAS NOT DIRECTLY OBSERVED IN THE COURSE OF THIS SURVEY.
- STATEMENT OF LIMITATIONS REGARDING UTILITY-DEPICTION ACCURACY:** USER HAS BEEN NOTIFIED THAT WILSON CAN NOT, AND DOES NOT, GUARANTEE THE ACCURACY, AT ANY LEVEL, OF DEPICTED UTILITIES BASED ON THIRD-PARTY PAINT MARKS OR RECORD INFORMATION.

ON-SITE SURVEY CONTROL TABLE

POINT #	NORTHING	EASTING	ELEVATION	DESCRIPTION
100	677954.41	1212763.03	53.00	1/2" REBAR & RED PLASTIC CAP
101	677768.06	1212475.16	50.93	MAG NAIL
103	677873.61	1212833.21	42.92	HUB & MAG NAIL
104	677688.52	1212885.55	32.54	HUB & MAG NAIL
105	677650.24	1212451.65	45.33	HUB & MAG NAIL
FERN 7	679459.13	1211031.14	147.15	BRASS MONUMENT
FERN 8	678623.10	1217288.97	29.16	BRASS MONUMENT
FERN 10	673934.78	1210873.19	8.30	

CONTROL NOTES

HORIZONTAL DATUM:
 NAD83/91

BASIS OF COORDINATES: COORDINATION AND MENSURATION ARE LOCAL GROUND VALUES, BASED UPON HOLDING THE PUBLISHED POSITION FOR THE CITY OF FERNDALE MONUMENT FERN 7, SAID MONUMENT HAS THE FOLLOWING PUBLISHED POSITION:

NORTHING = 679,459.13 USFT
 EASTING = 1,211,031.14 USFT

BASIS OF BEARINGS: BEARINGS ARE BASED UPON HOLDING THE PUBLISHED POSITIONS OF CITY OF FERNDALE MONUMENTS #7 AND #10 PER THE DATA SHEETS THEREOF. THE DERIVED INVERSE BETWEEN SAID MONUMENTS # 7 AND # 10 IS **SOUTH 01° 38' 16" WEST**, AT A DISTANCE OF **5,526.61 USFT**. THE PUBLISHED POSITION FOR THE MONUMENT # 10 IS:

NORTHING = 673,934.78 USFT
 EASTING = 1,210,973.19 USFT

VERTICAL DATUM:
 NGVD29 CITY OF FERNDALE

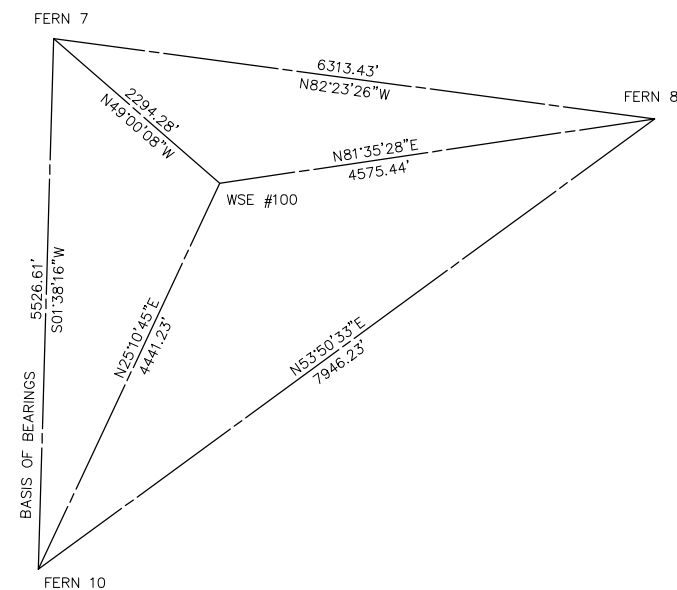
LEGAL DESCRIPTION PER AFN 1415935

ALL THAT PORTION OF THE EAST 1/2 OF THE NORTHWEST 1/4 OF SECTION 30, TOWNSHIP 39 NORTH, RANGE 2 EAST, W.M., LYING SOUTHERLY OF DOUGLAS ROAD (OLD MOUNTAIN VIEW ROAD) AND EASTERLY OF THE FOLLOWING DESCRIBED LINE, BEGINNING AT THE NORTHWEST CORNER OF SAID SECTION 30; THENCE EAST ON THE SECTION LINE BETWEEN SECTIONS 19 AND 30, A DISTANCE OF 1,402.50 FEET; THENCE SOUTH TO A POINT ON THE SOUTH LINE OF THE NORTHWEST 1/4 OF SAID SECTION 30 AND THE END POINT OF THIS LINE DESCRIPTION; EXCEPT THAT PORTION LYING NORTHERLY AND EASTERLY OF THE FOLLOWING DESCRIBED LINE; COMMENCING AT THE SOUTHEAST CORNER OF SAID NORTHWEST 1/4 OF SECTION 30; THENCE NORTH 1° 53' 00" EAST ALONG THE NORTH-SOUTH CENTERLINE OF SAID SECTION 986.39 FEET; THENCE NORTH 88° 07' 00" WEST 121.85 FEET; THENCE NORTH 31° 31' 49" WEST 320.94 FEET; THENCE NORTH 88° 07' 00" WEST 36.08 FEET; THENCE NORTH 20° 02' 00" WEST 202.36 FEET MORE OR LESS TO THE SOUTH LINE OF SAID DOUGLAS ROAD AND THE END POINT OF SAID LINE DESCRIPTION. ALSO EXCEPT COUNTY ROAD.

RECORD DOCUMENTS

- RECORD OF SURVEY #745 AFN 1362993
- FERNDALE MOBILE VILLAGE GENERAL & SPECIFIC BINDING SITE PLAN AFN 920210202
- FERNDALE MOBILE VILLAGE SPECIFIC BINDING SITE PLAN NO. 2 AFN 951221094
- RECORD OF SURVEY #1041 AFN 1415935
- PIONEER MEADOWS SHORT PLAT AFN 2110800488
- LAMPLIGHTER MOBILE COURT GENERAL BINDING SITE PLAN AFN 2016-0800800

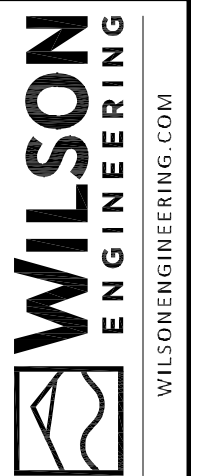
NAD 83/91 SURVEY CONTROL DIAGRAM N.T.S.



SURVEYOR'S CERTIFICATE

I HEREBY CERTIFY THAT I AM A LICENSED LAND SURVEYOR IN THE STATE OF WASHINGTON, THAT THIS MAP IS BASED ON AN ACTUAL FIELD SURVEY DONE BY ME OR UNDER MY DIRECT SUPERVISION AND THAT ALL DATA SHOWN HEREON ACTUALLY EXISTS IN THE LOCATIONS SHOWN AT THE TIME OF THIS SURVEY. THIS EXISTING CONDITIONS MAP WAS DONE AT THE REQUEST OF CITY OF FERNDALE IN 2022.

PAUL JONATHAN DARROW, P.L.S. NO. 50697 DATE
Paul Darrow 4/19/23



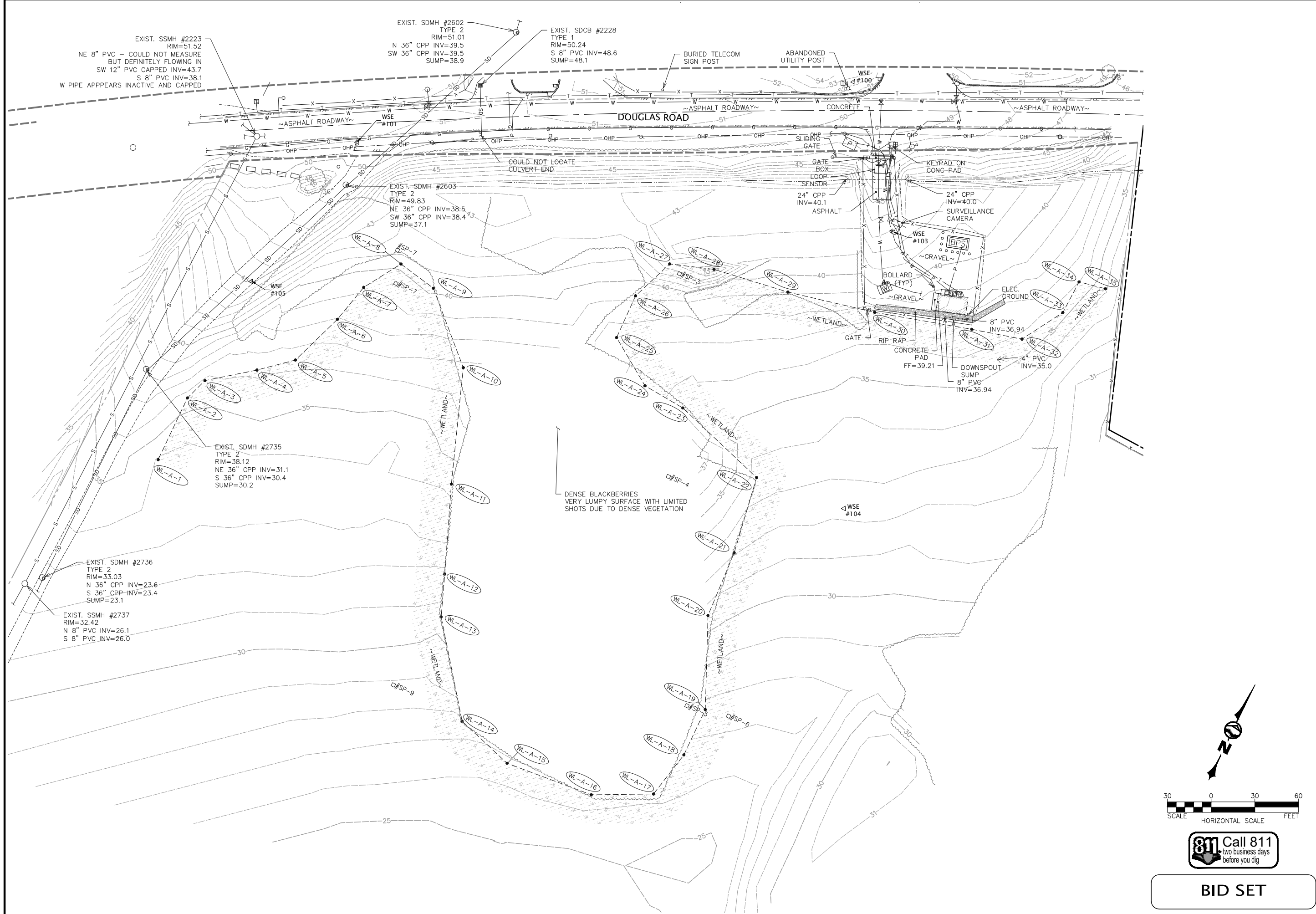
DRAWN BY	JGS	CHECKED BY	PID
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CITY OF FERNDALE
 FERNDALE
 DOUGLAS WELL #2 - ACCESS ROAD PROJECT
 W.A.C. 332-130 COMPLIANCE SHEET

SHEET	DATE	4-19-23
	SCALE	AS SHOWN
PAGE	JOB NUMBER	2022-109
	3 OF	11

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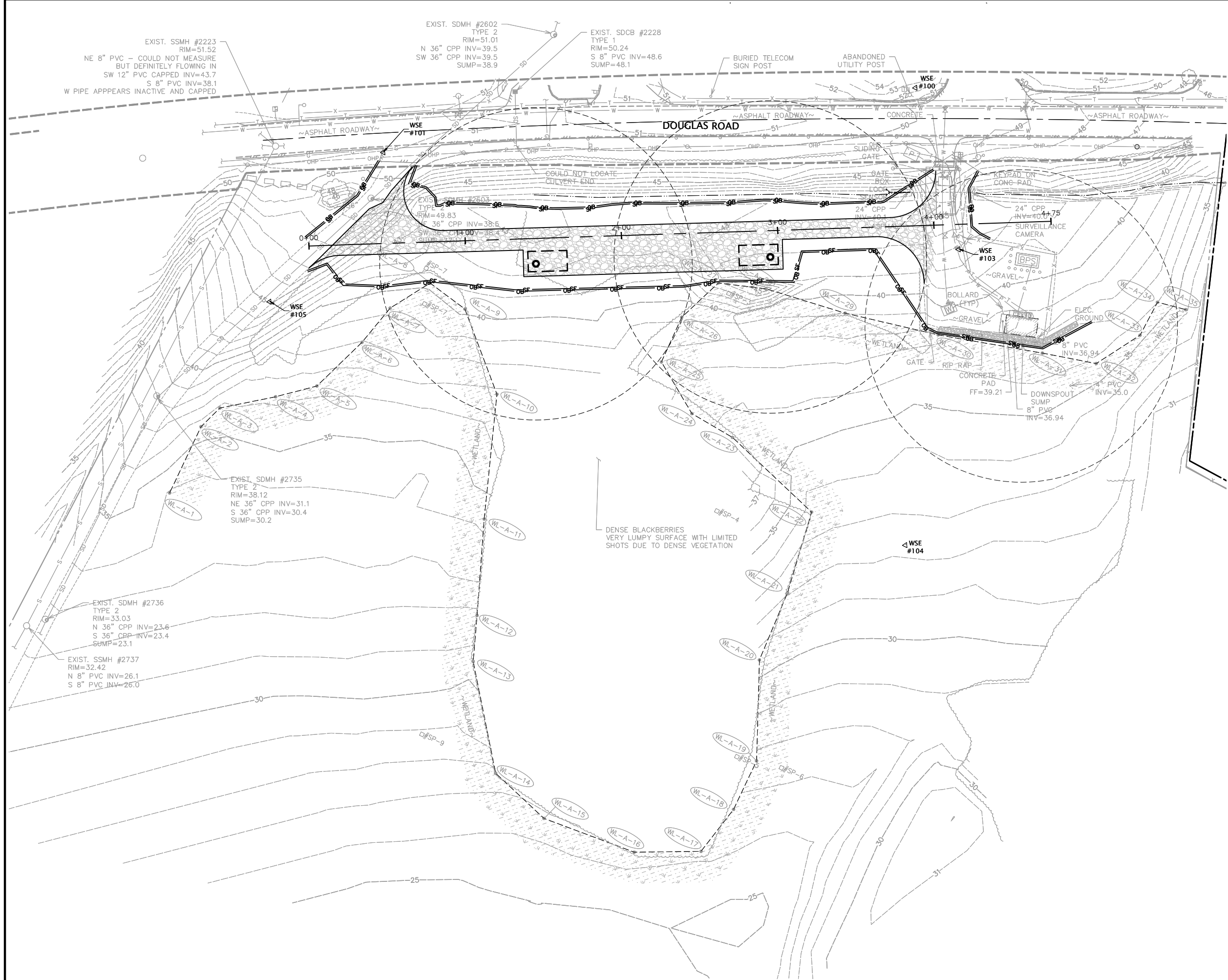
811 Call 811
two business days
before you dig

BID SET

<p>WILSON ENGINEERING WILSONENGINEERING.COM</p>		<p>DATE: 7-3-23</p>	
		<p>SCALE: AS SHOWN</p>	
<p>CITY OF FERDALE</p>		<p>FERDALE</p>	
<p>DOUGLAS WELL #2 - ACCESS ROAD PROJECT</p>		<p>WASHINGTON</p>	
<p>EXISTING CONDITIONS</p>		<p>JOB NUMBER: 2022-109</p>	
<p>SHEET: C1.1</p>	<p>PAGE: 4</p>	<p>OF: 11</p>	<p>DRAWN BY: JGS CHECKED BY: PID</p>

07-03-2023

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NO.	REVISIONS	BY	DATE

LEGEND

- SF = BMP C233: SILT FENCE PER C2.3
- SW = BMP C235: STRAW WADDLE PER C2.3
- OB = ORANGE BARRIER FENCING PER C2.3

DESIGNED BY: MFM
 DRAWN BY: JGS
 CHECKED BY: JCC

DATE: 7-3-23
 SCALE: AS SHOWN
 JOB NUMBER: 2022-109

811 Call 811
 two business days before you dig

BID SET

WILSON ENGINEERING
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CITY OF FERDALE
 DOUGLAS WELL #2 - ACCESS ROAD PROJECT
 T.E.S.C. PLAN

DATE: 7-3-23
 SCALE: AS SHOWN
 JOB NUMBER: 2022-109

SHEET: C2.1
 PAGE: 5 OF 11

07-03-2023

PLOT SETTINGS: WE AutocAD PDF (General Documentation)pc3, WILSON 11X17, Portrait, 1:2, WE APWA_UNSCREENED.ctb
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NO.	REVISIONS	BY	DATE

NARRATIVE

EROSION AND SEDIMENT CONTROL BMPs: ANTICIPATED BMPs THAT WILL BE UTILIZED INCLUDE: MINIMIZING VEGETATION REMOVAL, TEMPORARY COVER MEASURES, PERMANENT SEEDING & PLANTING, SURFACE ROUGHING, STRAW WATTLE AND FILTER FABRIC FENCING. OTHER BMPs MAY BE UTILIZED TO MINIMIZE EROSION AND SEDIMENT TRANSPORT AS CONSTRUCTION SCHEDULES AND WEATHER CONDITIONS DICTATE.

PERMANENT STABILIZATION: ALL DISTURBED AREAS OUTSIDE OF ROADWAY SHOULDERS AND PARKING AREAS WILL BE PERMANENTLY LANDSCAPED OR SEEDED AND RESTORED TO THEIR EXISTING CONDITIONS. CHANNEL LINING (PERMANENT OR BIODEGRADABLE) WILL BE INSTALLED IN ALL CONSTRUCTED SWALES AND DITCHES.

PROJECT WIDE BMPs

THE FOLLOWING BMPs SHALL BE IMPLEMENTED FOR THE ENTIRE PROJECT TO THE MAXIMUM EXTENT POSSIBLE:

BMP C101 PRESERVING NATURAL VEGETATION. CONTRACTOR SHALL CLEAR AND DISTURB ONLY AREAS REQUIRED TO CONSTRUCT IMPROVEMENTS AND SHALL DILIGENTLY MINIMIZE DISTURBED AREA.

BMP C102 BUFFER ZONES. CONTRACTOR SHALL MARK CLEARING LIMITS AND KEEP ALL EQUIPMENT AND CONSTRUCTION DEBRIS OUT OF NATURAL AREAS.

BMP C120 PERMANENT SEEDING & PLANTING. CONTRACTOR SHALL COMPLETE REQUIRED LANDSCAPING AS RAPIDLY AS POSSIBLE. ALL OTHER DISTURBED AREAS OUTSIDE OF PAVED AREAS SHALL BE HYDROSEEDING AS RAPIDLY AS POSSIBLE WITH SUITABLE SEED-MULCH-FERTILIZER MIX FOR LOCAL CLIMATE. SEED AND FERTILIZER TO MEET WSDOT STANDARD SPECIFICATIONS SECTIONS 9.14.2, & 9-14.3 RESPECTIVELY. SUBMIT ACTUAL SEED MIX TO ENGINEER FOR FINAL APPROVAL PRIOR TO INSTALLATION.

BMP C121 MULCHING . CONTRACTOR SHALL MULCH ALL LANDSCAPED AREAS AS RAPIDLY AS POSSIBLE. MULCH TO MEET WSDOT STANDARD SPECIFICATION 9-14.4. INCLUDE TACKIFIER IN SEED-MULCH-FERTILIZER MIX. TACKIFIER TO MEET WSDOT STANDARD SPECIFICATION 9-14.4(7).

BMP C130 SURFACE ROUGHENING. CONTRACTOR SHALL ROUGHEN DISTURBED AREAS PRIOR TO PERMANENT SEEDING AND PLANTING.

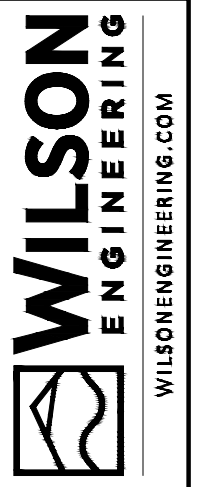
BMP C140 DUST CONTROL. CONTRACTOR SHALL KEEP DUST FROM CONSTRUCTION ACTIVITIES AND EXPOSED SOILS TO A MINIMUM. HELPFUL REFERENCES INCLUDE: CONTROL OF OPEN FUGITIVE DUST SOURCES (EPA-450/3-88-088) AND FUGITIVE DUST BACKGROUND DOCUMENT & TECHNICAL INFORMATION DOCUMENT FOR BEST AVAILABLE CONTROL MEASURES (EPA-450/2-92-004).

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE TO DESIGN, IMPLEMENT, AND MAINTAIN THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) BMP'S.
2. THE CONTRACTOR IS RESPONSIBLE TO EMPLOY A CERTIFIED EROSION & SEDIMENT CONTROL LEAD (CESCL) THAT IS ON-SITE AND RESPONSIBLE FOR ENSURING ALL CONSTRUCTION ACTIVITIES ARE IN COMPLIANCE WITH THE ESCP.
3. THIS TESC IS AN OUTLINE FOR THE CONTRACTOR TO USE AND IS NO WAY A FIXED PLAN. THIS IS A WORKING PLAN TO BE MODIFIED BY THE CONTRACTOR AT NO ADDITIONAL EXPENSE TO THE OWNER AS THE CONTRACTOR'S CERTIFIED EROSION & SEDIMENT CONTROL LEAD (CESCL) DETERMINES NECESSARY. THIS IS REQUIRED SO THE CONTRACTOR IS ABLE TO ADAPT TO PROJECT SCHEDULING AND SITE CHANGES AS CONSTRUCTION PROGRESSES.
4. BMPs: BEST MANAGEMENT PRACTICES (BMPs) REFERRED TO ON THIS PLAN AND IN THESE NOTES SHALL BE CONSTRUCTED AND MAINTAINED AS DESCRIBED IN DEPARTMENT OF ECOLOGY'S STORMWATER MANAGEMENT MANUAL FOR WESTERN WASHINGTON, CHAPTER II, "STANDARDS AND SPECIFICATIONS FOR BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL" MOST CURRENT EDITION.
5. EXTENT: THE EXTENT OF EROSION AND SEDIMENTATION CONTROL MEASURES IS DEPENDENT ON WEATHER CONDITIONS, SITE SLOPES, LENGTH OF TIME GROUND IS LEFT EXPOSED, AND THE AREA OF EXPOSED GROUND. THE CONTRACTOR SHALL AT ALL TIMES MINIMIZE THE RISK OF SITE EROSION BY CAREFUL SCHEDULING AND BY IMPLEMENTING AND MAINTAINING BMPs UNTIL THE SITE IS PERMANENTLY STABILIZED.
6. VEGETATION: EXISTING VEGETATION SHALL BE PRESERVED WHERE ATTAINABLE.
7. SLOPES: CUT AND FILL SLOPES SHALL BE CONSTRUCTED IN A MANNER THAT WILL MINIMIZE EROSION. SLOPES SHALL BE STABILIZED AS SOON AS POSSIBLE.
8. OUTLETS: STABILIZATION ADEQUATE TO PREVENT EROSION OF OUTLETS AND ADJACENT STREAM BANKS SHALL BE PROVIDED AT THE OUTLETS OF ALL CONVEYANCE SYSTEMS.
9. SITE RUNOFF: PRIOR TO FLOWING OFF THE SITE, STORMWATER RUNOFF SHALL PASS THROUGH A SILT FENCE OR EQUAL BMP.
10. ADJACENT PROPERTIES: PROPERTIES ADJACENT TO THE PROJECT SHALL BE PROTECTED FROM SEDIMENT DEPOSITION.
11. DOWNSTREAM WATERWAYS & PROPERTY: PROPERTIES AND WATERWAYS DOWNSTREAM FROM THE CONSTRUCTION SITE SHALL BE PROTECTED FROM EROSION DUE TO ANY TEMPORARY CHANGES IN VOLUME, VELOCITY, AND PEAK FLOW OF STORMWATER RUNOFF FROM THE PROJECT SITE.
12. REMOVAL OF BMPs: ALL TEMPORARY EROSION AND SEDIMENT CONTROL BMPs SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED. TRAPPED SEDIMENT SHALL BE REMOVED OR STABILIZED ON-SITE. DISTURBED SOIL AREAS RESULTING FROM REMOVAL SHALL BE PERMANENTLY STABILIZED. THE CERTIFIED EROSION SEDIMENT CONTROL LEAD, THE ENGINEER & OWNER'S ON SITE REPRESENTATIVE WILL BE RESPONSIBLE FOR THESE DECISIONS.
13. INSPECTIONS: ALL BMPs SHALL BE INSPECTED, MAINTAINED, AND REPAIRED BY THE CONTRACTOR AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL ON-SITE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED REGULARLY AS NEEDED (AT LEAST ONCE EVERY SEVEN DAYS) AND DURING/WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.5-INCHES OF RAIN PER 24-HOUR PERIOD.
14. REPORTS: THE CONTRACTOR CESCL, SHALL PREPARE AND MAINTAIN REPORTS SUMMARIZING THE SCOPE OF INSPECTIONS. THE PERSONNEL CONDUCTING THE INSPECTION, THE DATES OF THE INSPECTION, MAJOR OBSERVATIONS RELATING TO IMPLEMENTATION OF THE STORMWATER POLLUTION PREVENTION PLAN AND ACTIONS TAKEN AS A RESULT OF THESE INSPECTIONS.
15. OTHER REQUIREMENTS: THE ENGINEER OR CITY MAY REQUIRE BMPs IN ADDITION TO WHAT IS SHOWN ON THIS PLAN IF NECESSARY TO PREVENT VIOLATIONS OF SURFACE WATER QUALITY. THE CONTRACTOR SHALL IMPLEMENT THE BMPs AS REQUIRED.

CONSTRUCTION STORMWATER POLLUTION PREVENTION ELEMENTS.

1. MARK CLEARING LIMITS. PRIOR TO BEGINNING LAND-DISTURBING ACTIVITIES, INCLUDING CLEARING & GRADING, ALL CLEARING LIMITS, SENSITIVE AREAS AND THEIR BUFFERS, AND TREES THAT ARE TO BE PRESERVED WITHIN THE CONSTRUCTION AREA SHOULD BE CLEARLY MARKED TO PREVENT DAMAGE AND OFF-SITE IMPACTS. RETAIN THE DUFF LAYER, NATIVE TOP SOIL, AND NATURAL VEGETATION IN AN UNDISTURBED STATE TO THE MAXIMUM DEGREE PRACTICABLE.
2. ESTABLISH CONSTRUCTION ACCESS. IN PLACE OF A CONSTRUCTED CONSTRUCTION ENTRANCE, CONTRACTOR SHALL PROVIDE ADEQUATE PROVISIONS TO ENSURE THAT NO SEDIMENT IS TRACKED OFF THE CONSTRUCTION SITE. IN THE EVENT THAT SEDIMENT TRACKING OCCURS, CONTRACTOR SHALL REMOVE ALL TRACKED SEDIMENT IMMEDIATELY.
3. CONTROL FLOW RATES. PROPERTIES AND WATERWAYS DOWNSTREAM FROM THE DEVELOPMENT SITE SHALL BE PROTECTED FROM EROSION DUE TO INCREASES IN THE VOLUME, VELOCITY, AND PEAK FLOW RATE OF STORMWATER RUNOFF FROM THE PROJECT SITE.
4. INSTALL SEDIMENT CONTROLS. EXISTING AND PROPOSED GRADE SLOPES VARY FROM STEEP TO GRADUAL. RUNOFF NOT INFILTRATING SHOULD NOT HAVE SUFFICIENT VELOCITY TO POSE AN EROSION PROBLEM DUE TO FLAT SURFACES AND SURFACE ROUGHENING (BMP C130) ON DOWNSTREAM GRADUAL SLOPES. SILT FENCES (BMP C233) WILL BE USED TO TRAP SEDIMENT BEFORE LEAVING THE SITE.
5. STABILIZE SOILS. FROM OCTOBER 1 THROUGH APRIL 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 2 DAYS. FROM MAY 1 TO SEPTEMBER 30, NO SOILS SHALL REMAIN EXPOSED AND UNWORKED FOR MORE THAN 7 DAYS. THIS STABILIZATION REQUIREMENT APPLIES TO ALL SOILS ON SITE, WHETHER AT FINAL GRADE OR NOT. SOILS SHALL BE STABILIZED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND IF NEEDED BASED ON THE WEATHER FORECAST. STABILIZATION METHODS INCLUDE: TEMPORARY OR PERMANENT SEEDING (BMP C120), MULCHING (BMP C121), AND SURFACE ROUGHENING (BMP C130).
6. PROTECT SLOPES. SURFACE ROUGHENING (BMP C130), AND STABILIZATION OF SOILS SHOULD PROVIDE ADEQUATE PROTECTION DURING DRY AND MODERATELY WET WEATHER. PLASTIC COVERING (BMP C123) SHOULD BE ON-SITE FOR EMERGENCY PROTECTION OF EXPOSED SLOPE SURFACES DURING HEAVY RAINFALL.
7. PROTECT DRAIN INLETS. N/A
8. STABILIZE CHANNELS AND OUTLETS. DUE TO SURFACE ROUGHENING, CONCENTRATED FLOWS ARE MINIMIZED, AND SEDIMENT WILL BE TRAPPED IN SILT FENCING.
9. CONTROL POLLUTANTS. DESIGN, INSTALL, IMPLEMENT, AND MAINTAIN EFFECTIVE POLLUTION PREVENTION MEASURES TO MINIMIZE THE DISCHARGE OF POLLUTANTS.
10. CONTROL DEWATERING. TRENCH AND EXCAVATION DEWATERING SHALL BE DISCHARGED AS SHOWN ON THE PLANS TO ACHIEVE VEGETATIVE FILTRATION AND SHALL NOT ENTER STORM DRAIN SYSTEMS.
11. MAINTAIN BMPs. TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL BMPs SHALL BE MAINTAINED AND REPAIRED AS NEEDED TO ASSURE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. SEDIMENT CONTROL BMPs SHALL BE INSPECTED WEEKLY OR AFTER A RUNOFF PRODUCING STORM EVENT DURING THE DRY SEASON AND DAILY DURING THE WET SEASON. TEMPORARY EROSION AND SEDIMENT CONTROL BMPs SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY BMPs ARE NO LONGER NEEDED. FINAL SITE STABILIZATION DETERMINED BY THE CERTIFIED EROSION SEDIMENT CONTROL LEAD (CESCL) AND THE OWNER'S REPRESENTATIVE.
12. MANAGE THE PROJECT. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING THESE AND SUCH ADDITIONAL BMPs, AS MAY BE REQUIRED TO PREVENT EROSION, CONTROL SEDIMENT, AND PREVENT WATER POLLUTION.
13. PROTECT LOW IMPACT BMPs. N/A



DESIGNED BY	MFM
DRAWN BY	JGS
CHECKED BY	JCC

CITY OF FERDALE
 WASHINGTON
 FERDALE
 DOUGLAS WELL #2 - ACCESS ROAD PROJECT
 T.E.S.C. NOTES

DATE	7-3-23
SCALE	AS SHOWN
JOB NUMBER	2022-109
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PAGE	6 OF 11



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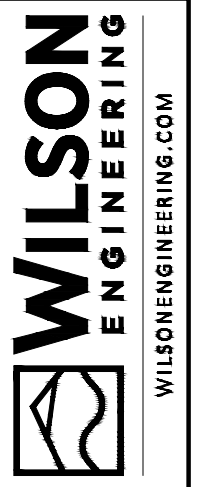
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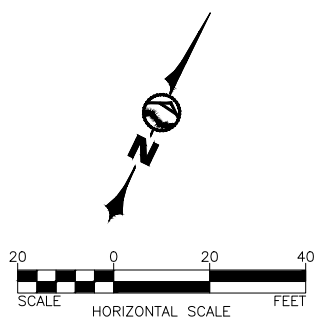
- KEYED NOTES**
- ① = EXTEND 24" CPP ±10' @ EXISTING SLOPE PER $\frac{BT-14}{CS.2}$ $\frac{BT-15}{CS.2}$
 - ② = NEW CHAIN LINK FENCE PER SECTION 02 83 00
 - ③ = APPROX. CATCH LINE IN EXISTING DITCH
 - ④ = 16-FT WIDE DOUBLE LEAF GATE.
 - ⑤ = 32-FT WIDE DOUBLE LEAF GATE.
 - ⑥ = CAREFULLY REMOVE EXISTING FENCING AND POSTS AT PROPOSED OPENING. INSTALL NEW FENCE POST AND NEW FENCING MATERIAL AT PROPOSED ALIGNMENT. ENSURE EXISTING AND PROPOSED FENCING IS TAUT AND ALIGNED PROPERLY FOR A CLEAN TRANSITION FROM EXISTING TO PROPOSED.



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 DRAWN BY: JGS
 CHECKED BY: JCC

CITY OF FERDALE
 DOUGLAS WELL #2 - ACCESS ROAD PROJECT
 GRADING PLAN

DATE: 7-3-23
 SCALE: AS SHOWN
 JOB NUMBER: 2022-109
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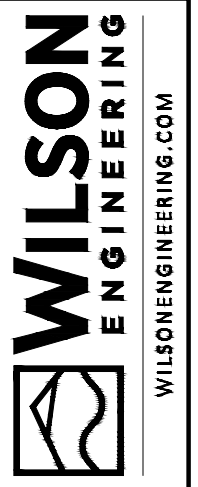
811 Call 811
 two business days before you dig

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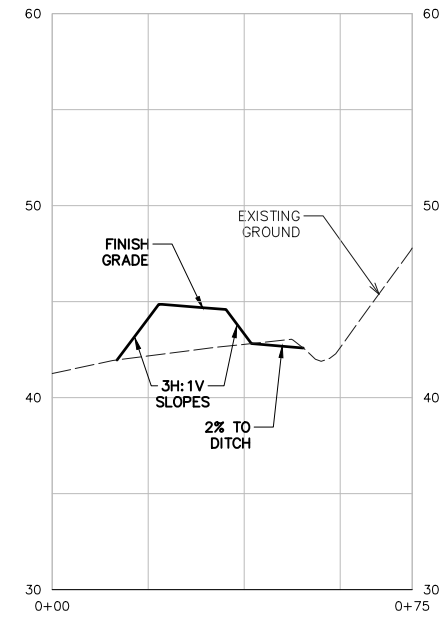
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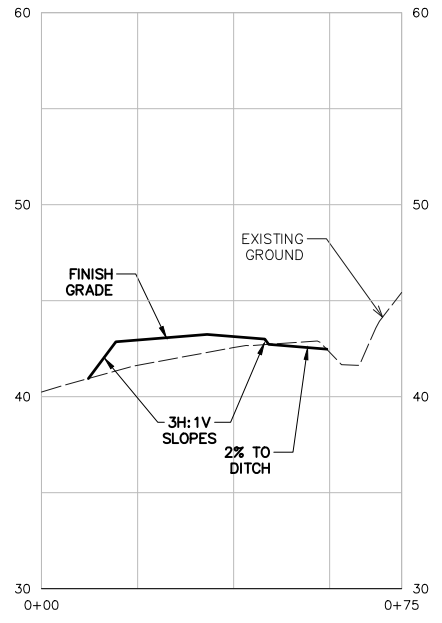


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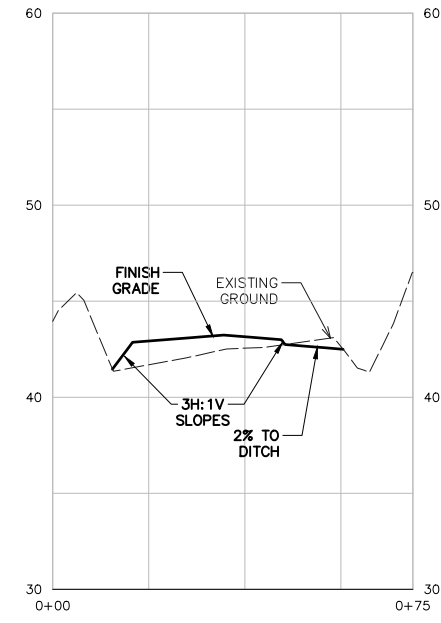
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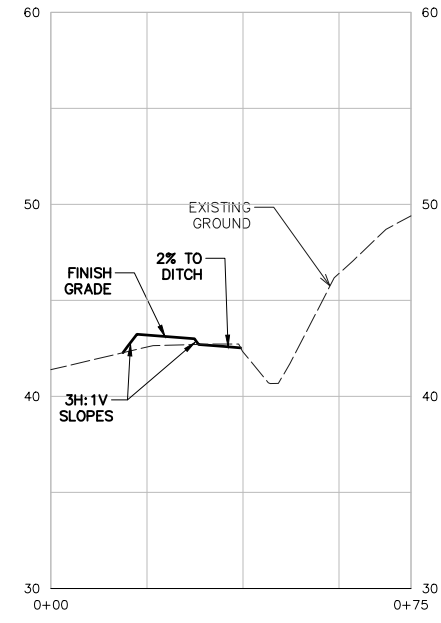
A
C5.1 SECTION A



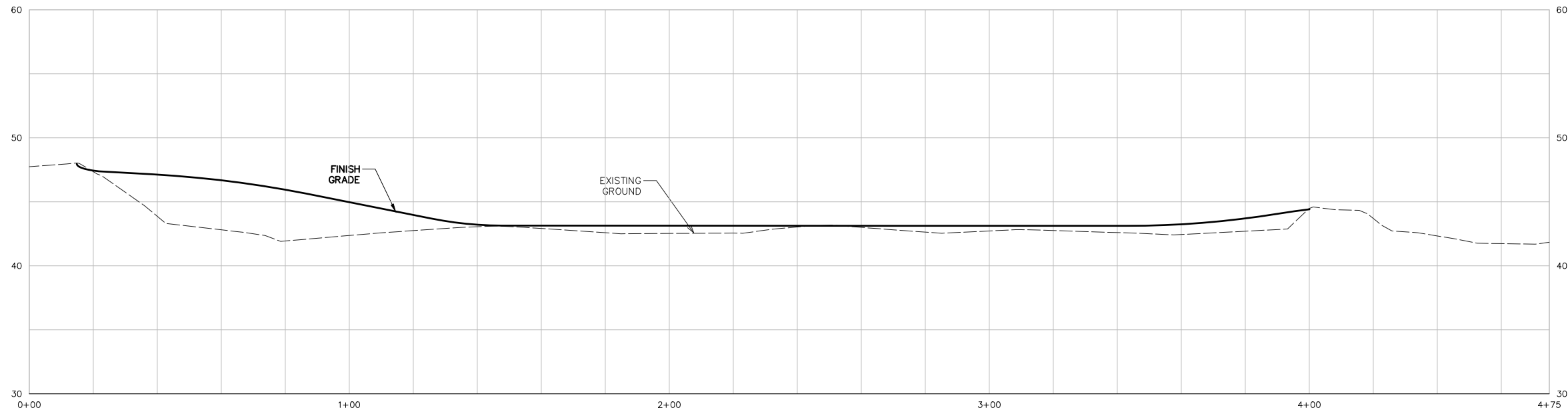
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C5.1 SECTION B



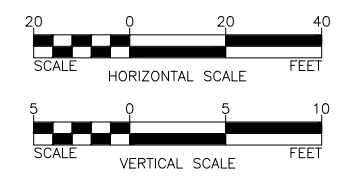
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C5.1 SECTION C



D
C5.1 SECTION D



E
C5.1 SECTION E



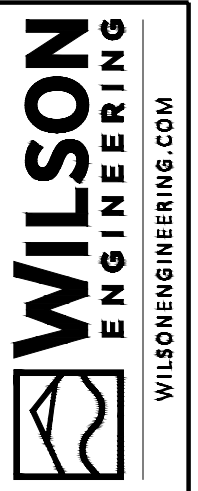
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CITY OF FERDALE
 DOUGLAS WELL #2 - ACCESS ROAD PROJECT
 ROAD SECTIONS

DATE: 7-3-23
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NO.	REVISIONS	BY	DATE
1	GEOTEXTILE FABRIC	JGC	6-30-23



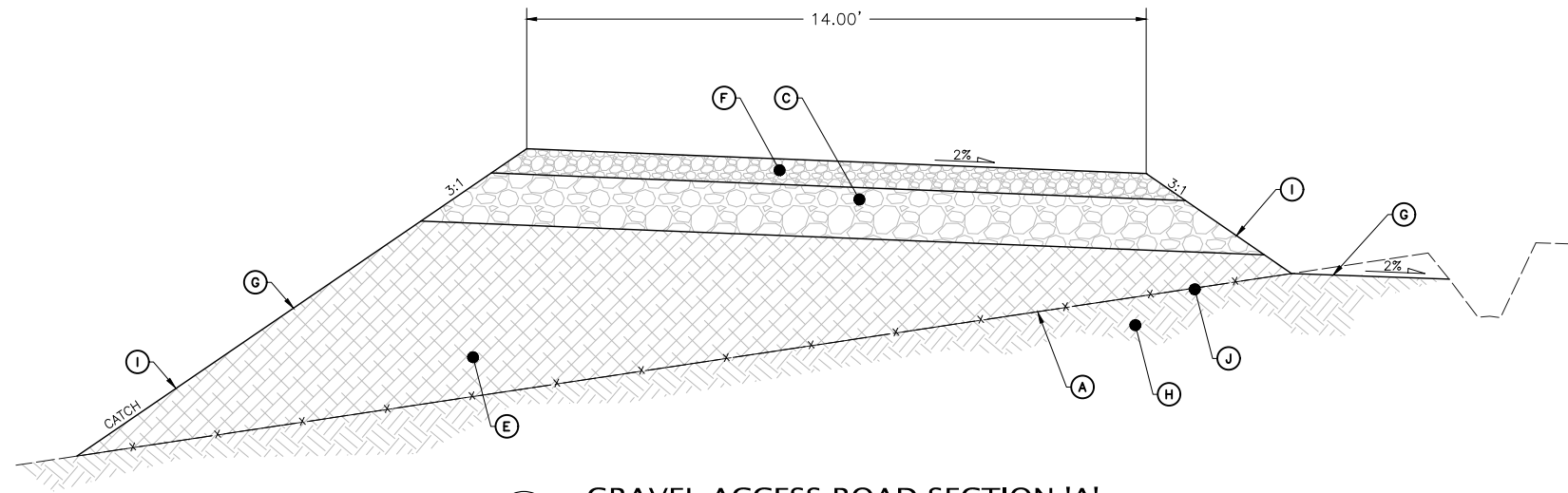
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CITY OF FERNDALE
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 FERNDALE
 DOUGLAS WELL #2 - ACCESS ROAD PROJECT
 CIVIL DETAILS

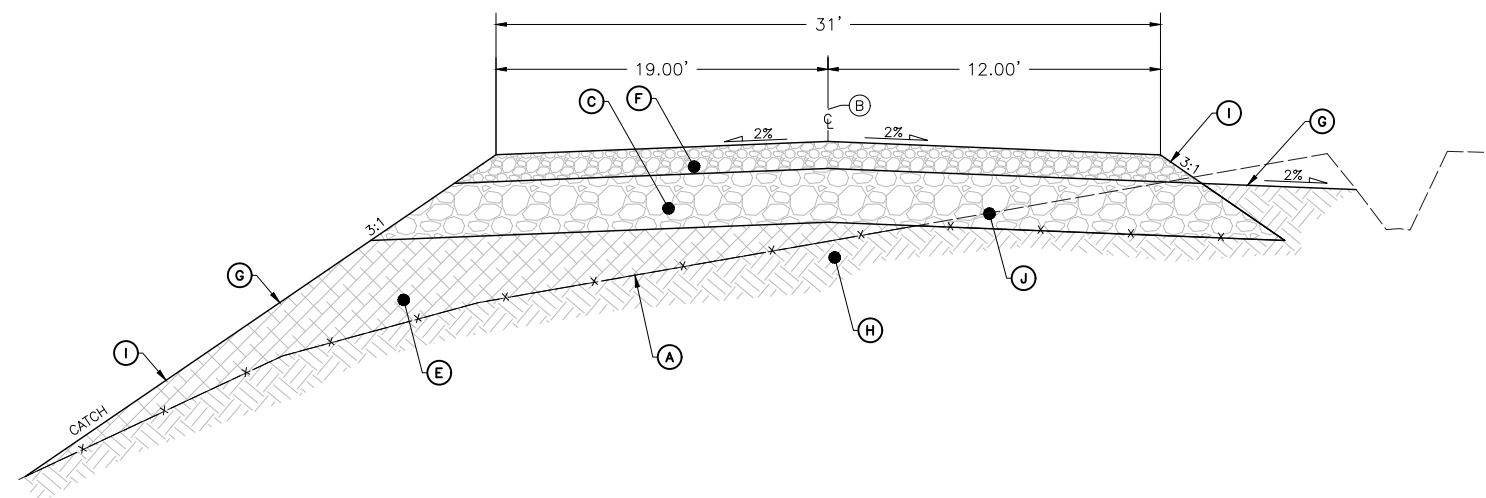
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DATE	7-3-23
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KEYED NOTES:

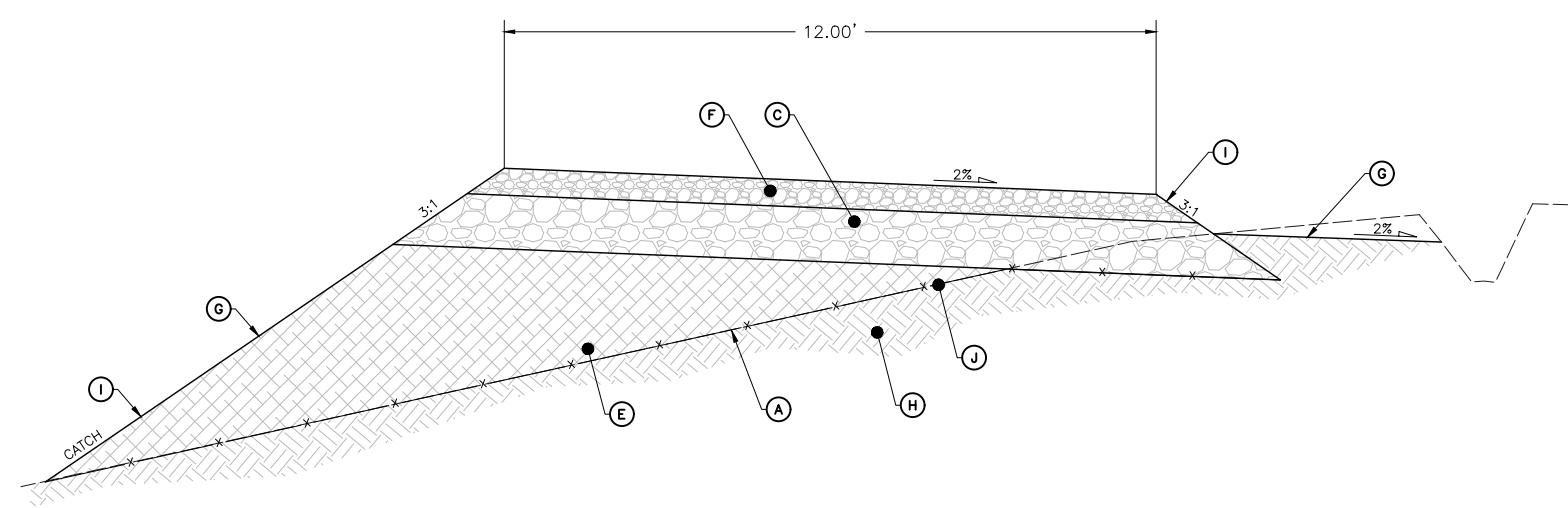
- (A) EXISTING GROUND SURFACE (AFTER CLEARING & GRUBBING). INSTALL SPECIFIED FABRIC AT INTERFACE BETWEEN EXISTING AND IMPORT MATERIAL. SPECIFIED FABRIC= NONWOVEN GEOTEXTILE FABRIC FOR SEPARATION IN ACCORDANCE WITH TABLE 3, WEDOT 9-33.2(1) WITH A GRAB TENSILE STRENGTH (ASTM D 4632) OF 160 POUNDS. FABRIC TO BE MIRAFI 160N, OR APPROVED EQUAL
- (B) CENTER OF ROADWAY
- (C) 12-INCHES GRAVEL BASE PER WSDOT 9-03.10 COMPACTED TO 95% (MIN) OPTIMUM DENSITY (ASTM 1557)
- (D) ***INTENTIONALLY BLANK***
- (E) STRUCTURAL FILL PER WSDOT 9-03.10 COMPACTED TO 92% (MIN) OPTIMUM DENSITY (ASTM 1557)
- (F) 6-INCHES CRUSHED SURFACING BASE COURSE PER WSDOT 9-03.9(3) COMPACTED TO 95% (MIN) OPTIMUM DENSITY (ASTM 1557)
- (G) PLACE 4-INCHES TOP SOIL AND SEED ALL SIDE SLOPES, SEE SPEC. SEC 02 09 20
- (H) UNDISTURBED SUITABLE NATIVE SUBGRADE. FIRM AND UNYIELDING. CONFIRM SUITABILITY WITH ENGINEER AND OWNER.
- (I) CATCH SLOPES VARY- SEE PLANS FOR ACTUAL CATCH SLOPES. MAX SLOPE= 3:1.
- (J) CLEAR & GRUB EXIST. VEGETATION. REMOVE TOPSOIL & FOREST DUFF



A
 C3.1
GRAVEL ACCESS ROAD SECTION 'A'
 NOT TO SCALE



B
 C3.1
GRAVEL ACCESS ROAD SECTION 'B'
 NOT TO SCALE



D
 C3.1
GRAVEL ACCESS ROAD SECTION 'C'
 NOT TO SCALE



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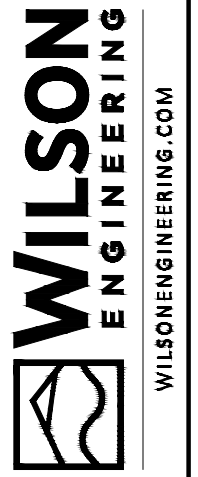
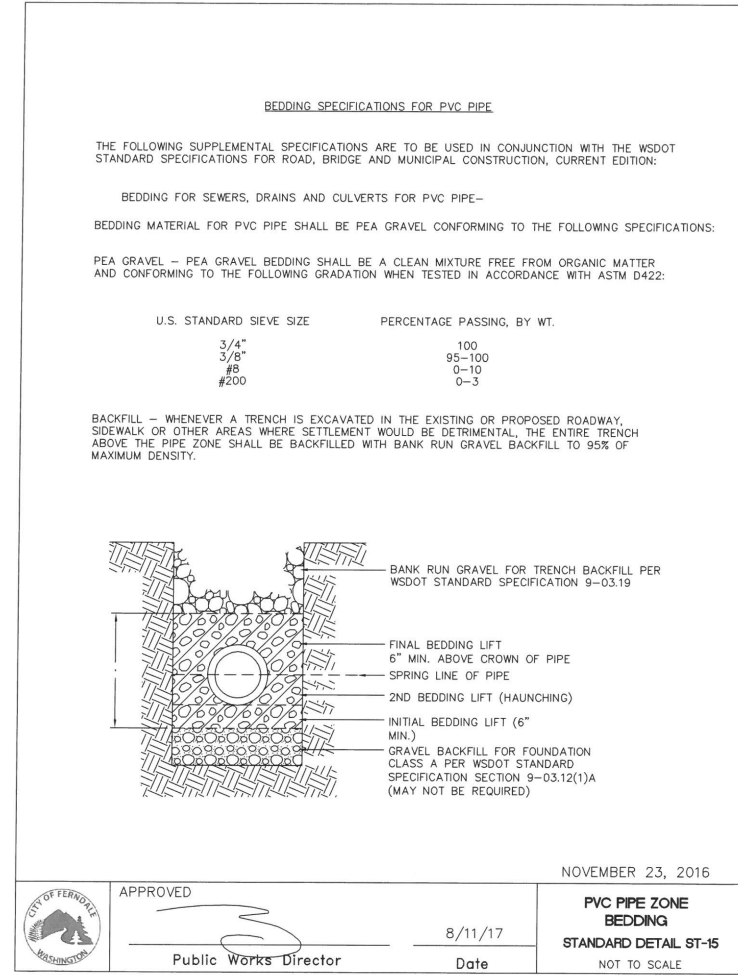
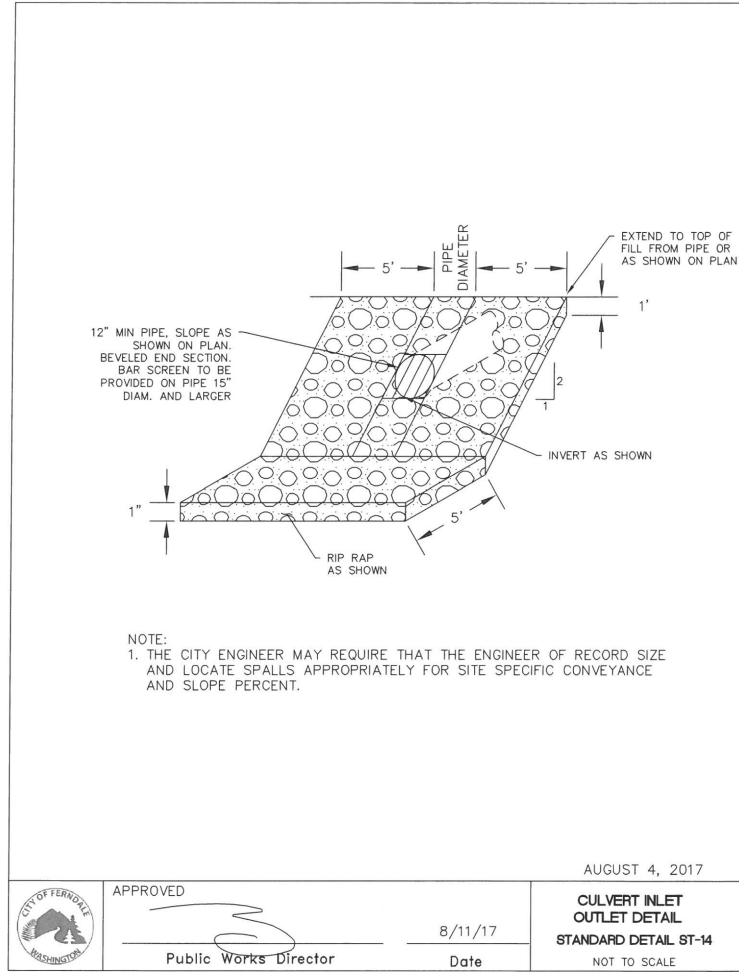
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CITY OF FERDALE

FERDALE WASHINGTON

DOUGLAS WELL #2 - ACCESS ROAD PROJECT

CIVIL DETAILS

SHEET: **C5.2**

DATE: 7-3-23

SCALE: AS SHOWN

JOB NUMBER: 2022-109

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07-03-2023

APPENDIX B
Site Photographs



Photograph 1. Wetland A looking northwest.



Photograph 2. Wetland A looking northeast.

Site Photographs

Douglas Well #2 Project
Ferndale, Washington




Figure
B-1



Photograph 3. Himalayan blackberry dominated mound in the middle of the assessment area looking northwest. The mound is disturbed upland habitat.



Photograph 4. Slope within the northern portion of the wetland looking east.

Site Photographs	
Douglas Well #2 Project Ferndale, Washington	
	Figure B-2



Photograph 5. Reed canary grass and rush, representative of vegetation in northern portions of Wetland A.



Photograph 6. Riverine portion of Wetland A associated with Schell Creek, outside of assessment area looking east.

Site Photographs

Douglas Well #2 Project
Ferndale, Washington



Figure
B-3

APPENDIX C – GEOTECHNICAL DATA

To: Jeff Christner, PE (Wilson Engineering, LLC)
From: Jacob Gillis, EIT
Sean W. Cool, PE
Date: June 30, 2023
File: 3358-024-00
Subject: Limited Geotechnical Design Memorandum
Douglas Well #2 – Access Road Project –
Gravel Maintenance Road Evaluation
Ferndale, Washington



INTRODUCTION

This memorandum presents GeoEngineers, Inc.'s (GeoEngineers) site evaluation and recommendations associated with the construction of the City of Ferndale (COF) Douglas Well #2 – Access Road in Ferndale, Washington.

The purpose of our geotechnical engineering services was to explore subsurface conditions at the site as a basis for developing geotechnical subgrade support recommendations for a new gravel access road to the new pump station facility. The scope of our services completed for the project included completing three hand auger explorations, completing three dynamic cone penetrometer tests (DCPTs), completing limited laboratory testing, performing engineering analyses and preparing this memorandum.

SITE CONDITIONS

Surface Conditions

The project site is located on the south side of Douglas Road just west of Imhoff Road in Ferndale, Washington as shown on the Site and Exploration Plan, Figure 1. The site is bounded by a relatively shallow and highly vegetated ditch to the north followed by Douglas Road, an open vegetated field to the west and south, and the existing COF Douglas Well Pump Station site to the east. The site is unoccupied. The site is relatively level, with a slight slope up to Douglas Road to the north, highly vegetated and contains medium- to large-sized deciduous trees to the north between the project site and Douglas Road.

Site Explorations

Subsurface soil conditions were evaluated on June 2, 2023 by completing three hand explorations (HA-1, HA-2, HA-3) to depths of 4 to 4.75 feet below the existing ground surface (bgs) with a shovel and a 3-inch-diameter hand auger. The hand augers were completed at the approximate locations shown on the Site and Exploration Plan attached to this memo (Figure 1). Soil encountered in the hand augers were classified in general accordance with ASTM International (ASTM) D 2488 and the classification chart listed on Key to Exploration Logs, Figure 2. The logs of the hand auger explorations are presented on Logs of Hand Auger, Figures 3 through 5. Dynamic cone penetration tests (DCPTs) were also completed at the hand exploration locations (DCPT-1 through DCPT-3) using Triggs® Wildcat DCPT equipment. The test records blow counts for 10-centimeter (cm) intervals from a 35-pound hammer falling from a height of 15 inches. The blow counts can then be corrected to obtain equivalent Standard Penetration Test (SPT) blow counts. The logs of the DCPT soundings are presented on Wildcat Dynamic Cone Logs, Figures 6 through 8. The DCPT explorations were

completed to depths of 5 feet bgs. The DCPT exploration logs are based on empirical relationships developed by Triggs Technologies, Inc.

The site explorations were completed by a staff geotechnical engineer from our firm who examined and classified the soil encountered, obtained representative soil samples and maintained a detailed log of the explorations. The exploration logs are based on our interpretation of the field and laboratory data and indicate the various types of soils encountered. It also indicates the depths at which these soils, or their characteristics change, although the change might actually be gradual. If the change occurred between samples, it was interpreted. The results of laboratory testing from representative soil samples collected within the depth of explorations are presented alongside the logs of the explorations on Figures 3 through 5.

Soil Conditions

Subsurface soil conditions encountered generally consisted of 1¼ to 2¼ feet of topsoil/fill overlying an organic dark brown sandy silty clay to clayey silt with occasional iron staining interpreted to be a relict (buried) topsoil that extended to a depth of approximately 2 to 3 feet bgs. The organic material was underlain by weathered glacial deposits consisting of light brown clayey fine sand to gray silty fine-grained sand with iron staining that extended to the explored depths of approximately 4 to 4¾ feet bgs. HA-2 encountered a lens of brown and gray clay with silt and occasional sand underlying the organic soil.

Groundwater Conditions

Groundwater was observed in all the hand auger explorations at depths ranging from 3¼ to 4 feet bgs at the time of exploration. The groundwater conditions should be expected to vary as a function of season, precipitation and other factors.

CONCLUSIONS AND RECOMMENDATIONS

The portion of the project evaluated involves constructing a gravel maintenance road at the project site. We have been provided a set of plans containing the anticipated road section prepared by Wilson Engineering, LLC dated May 12, 2023. The access road will be constructed primarily as a fill embankment. The access road section is defined as 6-inches of crushed surfacing base course (CSBC) per Washington State Department of Transportation (WSDOT) *Standard Specification 9-03.9(3)* overlying a minimum of 12-inches of aggregate for gravel base per *WSDOT Standard Specification 9-03.10*, overlying additional structural fill as necessary, also in accordance with *WSDOT Standard Specification 9-03.10*. In our opinion the proposed section will provide suitable support for the access road for moderate use, with consideration of the earthwork and fill placement recommendations in the following sections.

The site is underlain by mixed organic fill and topsoil material overlying weathered glacial deposits. It is our opinion that the site is suitable for the proposed gravel maintenance road provided that remedial excavation is incorporated into the proposed road section to mitigate the organic layer prior to structural fill placement. The road section may be constructed with earthwork considerations presented in this report.

Earthwork Considerations

In the area to be filled, we recommend that the existing upper 2 to 3 feet of soil that consist of mixed organic fill and topsoil material be removed prior to placement of fill. If not removed, these soils will likely contribute to a relatively high degree of long-term post construction settlement and potential subgrade instability. The majority of the weathered glacial deposits may remain in place. In some isolated areas with higher organic content and very soft subgrade it may be necessary to overexcavate and replace with structural fill.

The exposed subgrade soils will not support construction equipment. We recommend the use of lightweight tracked equipment for removal of topsoil and placement of structural fill material until an adequate thickness is achieved as a working surface. The materials we encountered include topsoil, and organic soft/loose silty sandy clay to clayey silt. The underlying glacial soils in the area sometimes contain cobbles and boulders that may be encountered during deeper excavation. Accordingly, the contractor should be prepared to deal with cobbles and boulders.

Ideally, earthwork should be undertaken during extended periods of dry weather (June through September) when the surficial soil will be less susceptible to disturbance and provide better support for construction equipment. Dry weather construction will help reduce earthwork costs.

Clearing and Site Preparation

Areas to be developed or graded should be cleared of surface and subsurface deleterious matter, including any debris, shrubs, trees, and associated stumps and roots. Graded areas should be stripped of organic soil. Based on our observations, stripping depths on the order of 2 to 3 feet will likely be needed to remove organic soil and root mass materials. Deeper zones of organic soil could be encountered in areas of dense vegetation or where large tree bulbs are located or were historically removed. We expect that the excavated topsoil and onsite native soils will be excavated and removed offsite.

Subgrade Preparation

Prior to placing new fills or pavement base course materials, subgrade areas for pavements should be evaluated to locate any soft or pumping soils. Native subgrade soils after stripping will likely not be suitable for a proof-roll with heavy rubber-tired equipment. We recommend the exposed subgrade areas be probed and evaluated by an engineer from our firm to determine the extent of any remaining soft unsuitable soil. If soft or pumping soils are observed, they should be removed and replaced with structural fill.

We recommend that the subgrade be compacted to the extent possible without causing undue weaving or pumping of the subgrade soils, or any loose/disturbed soil be removed. Subgrade disturbance or deterioration could occur if the subgrade is wet and cannot be dried. If the subgrade deteriorates during compaction, it may become necessary to modify the compaction criteria or methods.

We suggest consideration of a layer of nonwoven geotextile fabric for separation in accordance with Table 3, *WSDOT Standard Specification 9-33.2(1)*, with a grab tensile strength (ASTM D 4632) of 160 pounds (e.g., Mirafi 160N), be used to provide separation at the interface between the gravel base and the native fine-grained subgrade soils. It is our experience that the use of the geotextile fabric is worth the expense because of the improved construction conditions, and long-term performance.

Structural Fill

All newly placed fill should meet the criteria for structural fill presented below. The suitability of soil for use as structural fill depends on its gradation and moisture content.

Materials

Materials used to construct the subgrade of the gravel maintenance road are classified as structural fill for the purpose of this memo. Structural fill material quality varies depending upon its use as described below:

- Structural fill placed to backfill subgrade beneath the gravel maintenance road should consist of aggregate for gravel base as described in Section 9-03.10 of the most recent *WSDOT Standard Specifications*.
- Structural fill placed as crushed surfacing base course below the gravel pavement section should conform to Section 9-03.9 (3) of the most recent *WSDOT Standard Specifications*.

Fill Placement and Compaction

Structural fill should be compacted at moisture contents that are within 3 percent of the optimum moisture content as determined by ASTM D 1557 (Modified Proctor). The optimum moisture content varies with gradation and should be evaluated during construction. Fill material that is not near the optimum moisture content should be moisture conditioned prior to compaction.

Fill and backfill material should be placed in uniform, horizontal lifts and compacted with appropriate equipment. The appropriate lift thickness will vary depending on the material and compaction equipment used. Fill material should be compacted to at least 92 percent maximum dry density (MDD) as determined by ASTM Test Method D 1557 for soil 2 feet below subgrade and 95 percent MDD in the upper 2 feet. It is the contractor's responsibility to select appropriate compaction equipment and place the material in lifts that are thin enough to meet these criteria. A thicker initial lift of 12 to 18 inches may be appropriate for the first lift over soft subgrade; however, in no case should the loose lift thickness for subsequent lifts exceed 10 inches.

A representative from GeoEngineers should evaluate compaction of each lift of fill. Compaction should be evaluated by in-place compaction testing unless other methods are proposed for, and are approved by, GeoEngineers during construction. These other methods typically involve procedural placement, visual observation and proof-rolling prior to placement of CSBC layers.

LIMITATIONS

We have prepared this limited design memorandum for Wilson Engineering, LLC for the Douglas Well #2 - Access Road project. Wilson Engineering, LLC may distribute copies of this report to its authorized agents and regulatory agencies as may be required for the project.

Within the limitations of scope, schedule and budget, our services have been executed in accordance with generally accepted practices for geotechnical engineering in this area at the time this report was prepared. The conclusions, recommendations and opinions presented in this report are based on our professional knowledge, judgment and experience. No warranty, express or implied, applies to the services or this report.

JAG:SWC:atk:tlm

Attachments:

Figure 1. Site and Exploration Plan

Figure 2. Key to Exploration Logs

Figures 3 through 5. Logs of Hand Auger

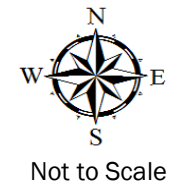
Figures 6 through 8. Wildcat Dynamic Cone Logs


Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.



Legend

 HA/DCP-1 Hand Auger/Dynamic Cone Penetration Test Location



Site and Exploration Plan	
Douglas Well #2 - Access Road Ferndale, Washington	
	Figure 1

SOIL CLASSIFICATION CHART

MAJOR DIVISIONS			SYMBOLS		TYPICAL DESCRIPTIONS	
			GRAPH	LETTER		
COARSE GRAINED SOILS	GRAVEL AND GRAVELLY SOILS	CLEAN GRAVELS <small>(LITTLE OR NO FINES)</small>		GW	WELL-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
		GRAVELS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		GP	POORLY-GRADED GRAVELS, GRAVEL - SAND MIXTURES	
		CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SW	WELL-GRADED SANDS, GRAVELLY SANDS	
		SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SP	POORLY-GRADED SANDS, GRAVELLY SAND	
	SAND AND SANDY SOILS	SANDS WITH FINES <small>(APPRECIABLE AMOUNT OF FINES)</small>		SM	SILTY SANDS, SAND - SILT MIXTURES	
		CLEAN SANDS <small>(LITTLE OR NO FINES)</small>		SC	CLAYEY SANDS, SAND - CLAY MIXTURES	
		SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		ML	INORGANIC SILTS, ROCK FLOUR, CLAYEY SILTS WITH SLIGHT PLASTICITY
			LIQUID LIMIT GREATER THAN 50		CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50		OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY		
	LIQUID LIMIT GREATER THAN 50		MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS SILTY SOILS		
	LIQUID LIMIT GREATER THAN 50		CH	INORGANIC CLAYS OF HIGH PLASTICITY		
SILTS AND CLAYS		LIQUID LIMIT GREATER THAN 50		OH	ORGANIC CLAYS AND SILTS OF MEDIUM TO HIGH PLASTICITY	
HIGHLY ORGANIC SOILS				PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS	

NOTE: Multiple symbols are used to indicate borderline or dual soil classifications

Sampler Symbol Descriptions

	2.4-inch I.D. split barrel / Dames & Moore (D&M)
	Standard Penetration Test (SPT)
	Shelby tube
	Piston
	Direct-Push
	Bulk or grab
	Continuous Coring

Blowcount is recorded for driven samplers as the number of blows required to advance sampler 12 inches (or distance noted). See exploration log for hammer weight and drop.

"P" indicates sampler pushed using the weight of the drill rig.

"WOH" indicates sampler pushed using the weight of the hammer.

NOTE: The reader must refer to the discussion in the report text and the logs of explorations for a proper understanding of subsurface conditions. Descriptions on the logs apply only at the specific exploration locations and at the time the explorations were made; they are not warranted to be representative of subsurface conditions at other locations or times.

ADDITIONAL MATERIAL SYMBOLS

SYMBOLS		TYPICAL DESCRIPTIONS
GRAPH	LETTER	
	AC	Asphalt Concrete
	CC	Cement Concrete
	CR	Crushed Rock/ Quarry Spalls
	SOD	Sod/Forest Duff
	TS	Topsoil

Groundwater Contact



Measured groundwater level in exploration, well, or piezometer



Measured free product in well or piezometer

Graphic Log Contact

Distinct contact between soil strata

Approximate contact between soil strata

Material Description Contact

Contact between geologic units

Contact between soil of the same geologic unit

Laboratory / Field Tests

%F	Percent fines
%G	Percent gravel
AL	Atterberg limits
CA	Chemical analysis
CP	Laboratory compaction test
CS	Consolidation test
DD	Dry density
DS	Direct shear
HA	Hydrometer analysis
MC	Moisture content
MD	Moisture content and dry density
Mohs	Mohs hardness scale
OC	Organic content
PM	Permeability or hydraulic conductivity
PI	Plasticity index
PL	Point load test
PP	Pocket penetrometer
SA	Sieve analysis
TX	Triaxial compression
UC	Unconfined compression
UU	Unconsolidated undrained triaxial compression
VS	Vane shear

Sheen Classification

NS	No Visible Sheen
SS	Slight Sheen
MS	Moderate Sheen
HS	Heavy Sheen

Key to Exploration Logs

Date Excavated	6/2/2023	Total Depth (ft)	4.75	Logged By	KL/JAG	Excavator	GeoEngineers, Inc.	See "Remarks" section for groundwater observed Caving not observed
				Checked By	AF2	Equipment	Hand tools	
Surface Elevation (ft) Vertical Datum	Undetermined			Easting (X) Northing (Y)	Coordinate System Horizontal Datum			

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
	1	1	MC	TS	Dark brown sandy silt to silty fine sand with occasional organic matter (roots and rootlets) (medium stiff/loose, moist) (topsoil/fill)	29		
	2	2		OL	Dark brown sandy silty clay with occasional iron staining and organic matter (soft, moist) (relict topsoil)			
	3	3	MF	SC	Light brown clayey fine sand with iron staining, occasional organic matter (partially decomposed wood) (medium dense, moist to wet) (weathered glacial deposits)	24	24	
	4							Slow groundwater seepage observed at 3¾ feet

Notes: See Figure A-1 for explanation of symbols.
 The depths on the hand-augered boring logs are based on an average of measurements across the hand-auger and should be considered accurate to ½ foot.
 Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Hand Auger HA-1



Project: Douglas Well #2 - Access Road
 Project Location: Ferndale, Washington
 Project Number: 3358-024-00

Date: 6/30/23 Path: P:\3358024\GINT\335802400.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017\GLB\GEI6_TESTPIT_IP_GEOTEC_%F

Date Excavated	6/2/2023	Total Depth (ft)	4.5	Logged By	KL/JAG	Excavator	GeoEngineers, Inc.	See "Remarks" section for groundwater observed Caving not observed
				Checked By	AF2	Equipment	Hand tools	
Surface Elevation (ft)	Undetermined			Easting (X)	Coordinate System			Horizontal Datum
Vertical Datum				Northing (Y)				

Elevation (feet)	Depth (feet)	SAMPLE		Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing					
	1	1		TS	Dark brown silty fine sand with rootlets (loose, moist) (topsoil/fill)			
	2	2	MC	OL	Dark brown clayey silt with organic matter (charcoal) (soft, moist) (relict topsoil)	41		
	3	3		CL	Brown and gray clay with silt and occasional sand, iron-staining (medium stiff, moist) (weathered glacial deposits)			Slow groundwater seepage observed at 3¼ feet
	4	4	%F	SM	Gray silty fine sand with iron-staining (loose to medium dense, wet)	34	16	

Notes: See Figure A-1 for explanation of symbols.
The depths on the hand-augered boring logs are based on an average of measurements across the hand-auger and should be considered accurate to ½ foot.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Hand Auger HA-2



Project: Douglas Well #2 - Access Road
Project Location: Ferndale, Washington
Project Number: 3358-024-00

Date: 6/30/23 Path: P:\3358024\GINT\335802400.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017\GLB\GEIB_TESTPIT_IP_GEOTEC_%F

Date Excavated	6/2/2023	Total Depth (ft)	4	Logged By	KL/JAG	Excavator	GeoEngineers, Inc.	See "Remarks" section for groundwater observed Caving not observed
				Checked By	AF2	Equipment	Hand tools	
Surface Elevation (ft) Vertical Datum	Undetermined			Easting (X) Northing (Y)		Coordinate System Horizontal Datum		

Elevation (feet)	Depth (feet)	SAMPLE		Graphic Log	Group Classification	MATERIAL DESCRIPTION	Moisture Content (%)	Fines Content (%)	REMARKS
		Testing Sample	Sample Name Testing						
			1		TS	Brown silty fine sand with rootlets (loose, moist) (topsoil/fill)			
1									
			2	MC	OL	Dark brown silty sandy clay (soft, moist) (relict topsoil)	47		
2									
			3	3/4"	SC	Gray clayey fine sand with occasional organic matter (partially decomposed wood) (loose to medium dense, moist to wet) (weathered glacial deposits)	28	35	
3									
						Grades to fine- to medium-grained sand			
4									Slow groundwater seepage observed at 4 feet

Notes: See Figure A-1 for explanation of symbols.
The depths on the hand-augered boring logs are based on an average of measurements across the hand-auger and should be considered accurate to 1/2 foot.
Coordinates Data Source: Horizontal approximated based on . Vertical approximated based on .

Log of Hand Auger HA-3



Project: Douglas Well #2 - Access Road
Project Location: Ferndale, Washington
Project Number: 3358-024-00

Date: 6/30/23 Path: P:\3358024\GINT\335802400.GPJ DBLibrary\Library\GEOENGINEERS_DF_STD_US_JUNE_2017\GLB\GEIB_TESTPIT_IP_GEOTEC_%F

WILDCAT DYNAMIC CONE LOG

GeoEngineers
554 West Bakerview Road
Bellingham, WA 98226

PROJECT NUMBER: 3358-024-00
DATE STARTED: 06-02-2023
DATE COMPLETED: 06-02-2023

HOLE #: DCPT-1
CREW: KL/JAG
PROJECT: Ferndale-Water Pump Station
ADDRESS: Douglas Road
LOCATION: Ferndale, WA

SURFACE ELEVATION: _____
WATER ON COMPLETION: _____
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	3	13.3	***				3	VERY LOOSE	SOFT
-	5	22.2	*****				6	LOOSE	MEDIUM STIFF
- 1 ft	2	8.9	**				2	VERY LOOSE	SOFT
-	3	13.3	***				3	VERY LOOSE	SOFT
-	6	26.6	*****				7	LOOSE	MEDIUM STIFF
- 2 ft	4	17.8	****				5	LOOSE	MEDIUM STIFF
-	2	8.9	**				2	VERY LOOSE	SOFT
-	6	26.6	*****				7	LOOSE	MEDIUM STIFF
- 3 ft	9	40.0	*****				11	MEDIUM DENSE	STIFF
- 1 m	13	57.7	*****				16	MEDIUM DENSE	VERY STIFF
-	18	69.5	*****				19	MEDIUM DENSE	VERY STIFF
- 4 ft	31	119.7	*****				25+	DENSE	HARD
-	28	108.1	*****				25+	MEDIUM DENSE	VERY STIFF
-	33	127.4	*****				25+	DENSE	HARD
- 5 ft	33	127.4	*****				25+	DENSE	HARD
-									
- 6 ft									
-									
- 2 m									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 6

WILDCAT DYNAMIC CONE LOG

GeoEngineers
 554 West Bakerview Road
 Bellingham, WA 98226

PROJECT NUMBER: 3358-024-00
 DATE STARTED: 06-02-2023
 DATE COMPLETED: 06-02-2023

HOLE #: DCPT-2
 CREW: KL/JAG
 PROJECT: Ferndale-Water Pump Station
 ADDRESS: Douglas Road
 LOCATION: Ferndale, WA

SURFACE ELEVATION: _____
 WATER ON COMPLETION: _____
 HAMMER WEIGHT: 35 lbs.
 CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	3	13.3	•••				3	VERY LOOSE	SOFT
-	4	17.8	••••				5	LOOSE	MEDIUM STIFF
- 1 ft	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
-	4	17.8	••••				5	LOOSE	MEDIUM STIFF
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
- 2 ft	3	13.3	•••				3	VERY LOOSE	SOFT
-	4	17.8	••••				5	LOOSE	MEDIUM STIFF
-	5	22.2	•••••				6	LOOSE	MEDIUM STIFF
- 3 ft	7	31.1	•••••••				8	LOOSE	MEDIUM STIFF
- 1 m	8	35.5	••••••••				10	LOOSE	STIFF
-	8	30.9	•••••••				8	LOOSE	MEDIUM STIFF
- 4 ft	12	46.3	•••••••••				13	MEDIUM DENSE	STIFF
-	20	77.2	••••••••••••••				22	MEDIUM DENSE	VERY STIFF
-	19	73.3	••••••••••••••				20	MEDIUM DENSE	VERY STIFF
- 5 ft	32	123.5	••••••••••••••••••••				25+	DENSE	HARD
-									
- 6 ft									
-									
- 2 m									
- 7 ft									
-									
- 8 ft									
-									
- 9 ft									
-									
- 3 m 10 ft									
-									
- 11 ft									
-									
- 12 ft									
-									
- 4 m 13 ft									

Figure 7

WILDCAT DYNAMIC CONE LOG

GeoEngineers
554 West Bakerview Road
Bellingham, WA 98226

PROJECT NUMBER: 3358-024-00
DATE STARTED: 06-02-2023
DATE COMPLETED: 06-02-2023

HOLE #: DCPT-3
CREW: KL/JAG
PROJECT: Ferndale-Water Pump Station
ADDRESS: Douglas Road
LOCATION: Ferndale, WA

SURFACE ELEVATION: _____
WATER ON COMPLETION: _____
HAMMER WEIGHT: 35 lbs.
CONE AREA: 10 sq. cm

DEPTH	BLOWS PER 10 cm	RESISTANCE Kg/cm ²	GRAPH OF CONE RESISTANCE				N'	TESTED CONSISTENCY	
			0	50	100	150		NON-COHESIVE	COHESIVE
-	4	17.8	.....				5	LOOSE	MEDIUM STIFF
-	5	22.2	.....				6	LOOSE	MEDIUM STIFF
- 1 ft	6	26.6	.....				7	LOOSE	MEDIUM STIFF
-	8	35.5	.....				10	LOOSE	STIFF
-	9	40.0	.....				11	MEDIUM DENSE	STIFF
- 2 ft	6	26.6	.....				7	LOOSE	MEDIUM STIFF
-	4	17.8	.....				5	LOOSE	MEDIUM STIFF
-	5	22.2	.....				6	LOOSE	MEDIUM STIFF
- 3 ft	6	26.6	.....				7	LOOSE	MEDIUM STIFF
- 1 m	10	44.4	.....				12	MEDIUM DENSE	STIFF
-	19	73.3	.....				20	MEDIUM DENSE	VERY STIFF
- 4 ft	48	185.3	.....				25+	VERY DENSE	HARD
-	49	189.1	.....				25+	VERY DENSE	HARD
-	11	42.5	.....				12	MEDIUM DENSE	STIFF
- 5 ft	4	15.4	....				4	VERY LOOSE	SOFT
-	3	11.6	...				3	VERY LOOSE	SOFT
-	3	11.6	...				3	VERY LOOSE	SOFT
- 6 ft									
- 2 m									
- 7 ft									
- 8 ft									
- 9 ft									
- 3 m 10 ft									
- 11 ft									
- 12 ft									
- 4 m 13 ft									

Figure 8

APPENDIX D – WASHINGTON STATE PREVAILING WAGE RATES

The State of Washington prevailing wage rates applicable for this public works project, which is located in Whatcom County, may be found at the following website address of the Department of Labor and Industries:

<https://secure.lni.wa.gov/wagelookup/>

Based on the bid submittal deadline for this project, the applicable effective date for prevailing wages for this project is July 26, 2023. A copy of the applicable prevailing wage rates are also available for viewing at the office of the Owner, located at:

City of Ferndale 2095 Main Street, Ferndale, WA 98248

Upon request, the Owner will mail a hard copy of the applicable prevailing wages for this project.