ADDENDUM NO. 01

TO: All Plan Holders
FROM: Public Utility District No. 1 of Skamania County
PROJECT: CARSON WATER TREATMENT PLANT UPGRADE
DATE ISSUED: 6/19/2026

This Addendum modifies the Contract Documents for the above-referenced project as follows. All other terms and conditions remain unchanged. Bidders shall acknowledge receipt of this Addendum on the Bid Form.

Note: Modifications to the bid documents provided as attachments to this addendum are shown in red text. Deletions are shown as red-line strikeouts.

Addendum No. 01 to Bid Document is comprised of the items listed below:

ITEM NO. 1 – SCHEDULE REVISIONS (C-111 ADVERTISEMENT FOR BIDS)

- REPLACE with the attached version. Note the following revisions:
  - The bid opening date has been postponed by one week to July 16, 2026. The submission deadline is 2:00 p.m.
  - Hard copy bids are to be delivered to Melanie Sharp at the Skamania County PUD, 1492 Wind River Highway, Carson, WA 98610
  - Emailed or electronic submissions will not be accepted.
  - Bids will be opened and read publicly at the PUD. 1492 Wind River Highway, Carson, WA 98610 at 2:00 or shortly thereafter. There will be no virtual meeting for the bid opening.

ITEM NO. 2 – BID, VOLUME 1 – CONTRACTING REQUIREMENTS REVISIONS

- C-200 INSTRUCTIONS TO BIDDERS:
  - Article 2: Insert the following immediately after Article 2.06.B - "*2.07 This project is competitively bid in accordance with RCW 54.04.070 (Public Utility District contracts for work or materials). The estimated contract value exceeds the formal bidding threshold of $150,000 for multi-craft public works. This advertisement has been published at least thirteen (13) days before the bid due date as required by RCW 54.04.070(3)."*
  - Article 8: REVISE the bid security from 100% of the bid price to 10% of the bid price.
  - Article 18.06 B: DELETE this article.
  - Article 22.04: REVISE the bid due date from July 9, 2026 to July 16, 2026.
  - New Section: Article 23 - Bidder Responsibility Criteria (RCW 39.04.350) (see C-200 attachment)
  - New Section: Article 24 - Build American, Buy America Act (BABAA) Requirements (see C-200 attachment)
  - New Section Article 25 - Basis-of-Design Equipment (see C-200 attachment)
- C410—BID FORM FOR CONSTRUCTION CONTRACT: REPLACE with the attached version. Note the following revisions:
  - Article 6, Paragraph 8.02.A.5: RCW 39.04.350 Bidder Certification
  - Article 6, Paragraph 8.02.A.6: Build American Buy America Bidder Certification
  - Article 6, Paragraph 8.02.A.7: Membrane Filtration System Acknowledgement Bidder Certification
- C-451 QUALIFICATIONS STATEMENT

- Article 10 – ADD the following immediately after 10.01.G:
  "H. Within the three (3) years immediately preceding the date of bid solicitation, Bidder has NOT been determined by a final and binding citation from the Washington Department of Labor & Industries, or by a civil judgment, to have willfully violated (as defined in RCW 49.48.082) any provision of RCW Chapter 49.46 (Minimum Wage Act), 49.48 (Wages—Payment—Collection), or 49.52 (Wage Rebates).
  I. As of the date of bid submittal, Bidder is NOT subject to revocation of a minor work permit under RCW 49.12.390(4). (Effective July 1, 2026)"

- C-520 AGREEMENT
  - Article 9.02 A – change the bid due date from July 9, 2026 to July 16, 2026.
- C-610-PERFORMANCE BOND
  - ADD to the header: "*This bond is furnished pursuant to RCW 39.08.010 (Contractor's Bond – Public Works*)."
- C-615-PAYMENT BOND
  - ADD to the header: "*This bond is furnished pursuant to RCW 39.08.010 (Contractor's Bond – Public Works*)."
- 00 80 00 SUPPLEMENTARY CONDITIONS
  - Article 11: ADD the following immediately after Article 11.02.D: "11.02.D Change orders for differing site conditions, design changes, or other modifications to the Contract are authorized by RCW 39.04.240. All change orders shall be in writing and executed per the procedures in the General Conditions."
  - Article 15: ADD the following immediately after Article 15.06.E: "*SC-15.06.F Retainage is held in accordance with RCW 60.28.011 (Retained Percentage on Public Works). Release of retainage requires: (1) consent of surety, (2) release of liens, and (3) evidence of payment to subcontractors and suppliers. Contractor may substitute a retainage bond in lieu of withheld funds per RCW 60.28.011(1)(b). Retainage is not released until a certificate of release of retainage is issued by the Washington State Department of Revenue (DOR), Employment Security Department (ESD), and Labor and Industries (L&I)*".
  - Article 20: ADD immediately after Article 20.I: *"J. SUBMITTALS"*

    1. *Within 10 business days of NTP: Apprentice Utilization Plan identifying occupations, anticipated hours, and good faith efforts (if applicable).*
    2. *Monthly: Certified statement of labor hours and apprentice utilization percentage.*
    3. *Within 30 days of Substantial Completion: Final utilization summary with certified payrolls."*

  - Article 20: ADD immediately after Article 20.J: "K. COMPLIANCE

    1. *Failure to meet 15% without documented good faith efforts: monetary penalties equal to wage differential, paid to WA Apprenticeship Council.*
    2. *Non-compliance may result in debarment from future public works (RCW 39.04.350)."*

- Appendix E – Wage Requirements: INSERT the following before the State of Washington Prevailing Wage Section.

  "STATEMENT OF INTENT TO PAY PREVAILING WAGES (RCW 39.12.040):
  1. *Before commencing Work, Contractor shall:*

     a. Post "Statement of Intent to Pay Prevailing Wages" (Form WA Department of Labor & Industries F700-199-000) at the job site in a location accessible to workers.
     b. File the Statement of Intent with:

1) *Washington Department of Labor & Industries, Prevailing Wage Section, AND*
2) *Owner (Skamania PUD) within thirty (30) days of contract execution.*

2. *Subcontractors: Each subcontractor shall file separate Statement of Intent.*

AFFIDAVIT OF WAGES PAID (RCW 39.12.040):

1. *Within thirty (30) days of project completion, Contractor shall file "Affidavit of Wages Paid" (L&I Form F700-168-000) with:*

   a. *Washington Department of Labor & Industries, AND*
   b. *Owner (Skamania PUD).*

2. *Each subcontractor shall file separate Affidavit.*
3. *Final payment will be withheld until Contractor and all subcontractors have filed Affidavits and Owner has verified compliance.*

PENALTIES FOR NON-COMPLIANCE:

1. *Failure to pay prevailing wages: Contractor liable for unpaid wages plus interest (RCW 39.12.050).*
2. *Failure to file Statement of Intent or Affidavit: Monetary penalties up to $1,000 per violation (RCW 39.12.070).*
3. *Intentional violations: Contractor may be debarred from public works for up to three (3) years (RCW 39.12.065)".*

ITEM NO. 3 – VOLUME 2 – TECHNICAL SPECIFICATION REVISIONS

- 01 10 00 – SUMMARY OF WORK:
  - REPLACE with the attached version. Note: new clarifications on Bid Alternates No. 1 and No. 2 in paragraph 1.03.B.
- 01 14 00 – CONSTRUCTION CONSTRAINTS
  - REPLACE with the attached version. Note: See 1.07 CONSTRUCTION SEQUENCING for Construction Phasing constraints.
- 01 29 00 – MEASUREMENT AND PAYMENT:
  - 1.02.A.1 ADD the following after the last sentence: *"…and federal OSHA regulations (29 CFT 1926 Subpart P)".*
  - ADD immediately after 1.02.A.3: *" 1.02.A.4 Safety systems shall be designed by a Washington-licensed Professional Engineer and may include shoring, shielding, sloping, or benching as appropriate for soil conditions. Include all costs for engineering, installation, maintenance, and removal of trench safety systems."*
- 01 29 73—SCHEDULE OF VALUES
  - ADD the following immediately after 1.06: *"1.07 APPRENTICE UTILIZATION REQUIREMENTS: A. This project is subject to apprentice utilization requirements per RCW 39.04.320; B. Estimated contract value exceeds $1,000,000; Contractor shall employ apprentices for ≥15% of labor hours in each apprenticeable occupation, OR document good faith efforts. C. SUBMITTALS: 1. Within 10 business days of NTP: Apprentice Utilization Plan identifying occupations, anticipated hours, and good faith efforts (if applicable). 2. Monthly: Certified statement of labor hours and apprentice utilization percentage. 3. Within 30 days of Substantial Completion: Final utilization summary with certified payrolls. D COMPLIANCE: 1. Failure to meet 15% without documented good faith efforts: monetary penalties equal to wage differential, paid to WA Apprenticeship Council. 2. Non-compliance may result in debarment from future public works (RCW 39.04.350)."*
- 01 32 14 – Barchart Construction Schedule

- REPLACE with the attached version. Note: See 1.04 PHASING MILESTONES IN SCHEDULE for Phasing Milestones.

- 01 33 00 – SUBMITTAL PROCEDURES
  - ADD immediately after 1.04 P*: "Q. VENDOR EQUIPMENT COORDINATION SUBMITTALS. 1. For all equipment noted "per manufacturer" or "coordinate with vendor" on drawings: a. Submit manufacturer's installation drawings, dimensions, utility requirements, and control interface details within 60 days of NTP. b. Engineer will review for conformance with Contract Documents. c. No fabrication/installation until submittal approved. 2. Critical Vendor Submittals (minimum): - Aria Filtra T96 membrane container (foundation plan, piping/electrical connections); - Chemical feed systems (dimensional, mounting, piping); - SCADA/PLC rack and panels (I&C drawings 30S-series, 40S-series); - HVAC equipment (MAU-01, EF-01, AC-01, CU-01); - Generator & ATS (if Alternate #2 accepted)."*
- 01 35 29 –CULTURAL RESOURCES PROTECTION
  - ADD new section (see attachment)
- 01 42 18 BUILD AMERICA BUY AMERICAN ACT COMPLIANCE
  - ADD new section (see attachment)
- 01 60 00 – PRODUCTS, MATERIALS, EQUIPMENT AND SUBSTITUTIONS
  - ADD the following immediately after 1.07.A.6: *" 7. MEMBRANE FILTRATION SYSTEM SUBSTITUTIONS: Substitution of the basis-of-design containerized membrane filtration system (Aria Filtra T96) is governed by special requirements in Section 46 61 34, Part 1.01.B.5, including Contractor responsibility for all redesign and additional equipment such as filtrate pump stations. Refer to Section 46 61 34 for complete alternate system requirements."*
- 31 23 16.13 –TRENCH EXCAVATION SAFETY SYSTEMS
  - ADD new section (see attachment)
- 46 61 34-- CONTAINERIZED MEMBRANE FILTRATION SYSTEM
  - REPLACE with the attached version. Note the following:
    - New section 1.01.A.6 on BABA Compliance
    - Revised section 1.01.B.5 on Basis of Design Alternate Systems
- For EACH equipment/material specification section in Volume 2 TECHNICAL SPECIFICAITONS, ADD the following article to PART 1 - GENERAL:
  - *"1. BUILD AMERICA, BUY AMERICA ACT (BABAA) COMPLIANCE*
    A. All products and materials specified in this Section are subject to Build America, Buy America Act (BABAA) requirements.
    B. Products shall be produced in the United States per BABAA definitions in Section 01 42 18.
    C. Contractor shall submit BABAA Compliance Certification per Section 01 42 18 for all products specified in this Section.
    D. If proposed product does not comply with BABAA, Contractor shall request Owner to pursue waiver per Section 01 42 18, OR substitute BABAA-compliant product."
- ATTACHMENT A (USDA REQUIREMENTS)
  - ADD NOTE at beginning of Attachment A: *"NOTE TO BIDDERS AND CONTRACTOR: The American Iron and Steel (AIS) requirements and Build America, Buy America Act (BABAA) requirements referenced in this Attachment are implemented in the Contract Documents through SPECIFICATION SECTION 01 42 18 – BUILD AMERICA, BUY AMERICA ACT COMPLIANCE. Contractor's obligations, submittal requirements, and compliance procedures are detailed in Section 01 42 19. This Attachment provides background and Owner's obligations to USDA; Section 01 42 19 translates those requirements into enforceable Contractor work requirements."*
- ATTACHMENT B (EPA REQUIREMENTS)
  - ADD NOTE at beginning of Attachment B: *"NOTE TO BIDDERS AND CONTRACTOR: The Build America, Buy America Act (BABAA) requirements referenced in this Attachment are implemented in the Contract Documents through SPECIFICATION*

SECTION 01 42 18 – BUILD AMERICA, BUY AMERICA ACT COMPLIANCE. Contractor's obligations, submittal requirements, and compliance procedures are detailed in Section 01 42 18. This Attachment provides background and Owner's obligations to EPA; Section 01 42 18 translates those requirements into enforceable Contractor work requirements."

ITEM NO. 5 – VOLUME 4 – CONTRACT DRAWING REVISIONS

- Cover Page: REPLACLE "*Volume 3 – Construction Drawings" with "Volume 4 -- Construction Drawings".*
- Drawing G-005: ADD "*GENERAL NOTE #1 – BUILD AMERICA, BUY AMERICA ACT (BABAA) COMPLIANCE. This Project is funded in part by USDA Rural Development and EPA Fund grants, which require compliance with Build America, Buy America Act (BABAA). ALL iron, steel, manufactured products, and construction materials shown on these Drawings shall be produced in the United States per BABAA requirements, unless a waiver is obtained from USDA/EPA. Refer to SPECIFICATION SECTION 01 42 18 for BABAA compliance procedures, submittal requirements, and definitions. Contractor shall submit BABAA Compliance Certification for each product/material per Section 01 42 18. Products that do not comply with BABAA will be REJECTED unless waiver is obtained*."
- Drawing G-005: ADD "*GENERAL NOTE #2--MEMBRANE FILTRATION SYSTEM – BASIS OF DESIGN. The containerized membrane filtration system shown on these Drawings is based on the Aria Filtra "Aria FAST T96" mobile membrane filtration trailer, including integrated filtrate storage tank (min. 1,700 gallons) and filtrate forwarding pumps (two pumps, 1,400 GPM @ 75 ft TDH each). All site layout, piping, electrical, and foundation details are designed for this basis-of-design system. If Contractor proposes an alternate containerized membrane system, Contractor is responsible for all design modifications, additional equipment (such as an external filtrate pump station if the alternate does not include integrated filtrate pumps), and integration work required to achieve equivalent performance, AT NO ADDITIONAL COST TO OWNER. Refer to Specification Section 46 61 34, Part 1.01.B.5 for additional requirements. Alternate system submittals shall include revised site layout, foundation plans, P&IDs, electrical one-line diagrams, and control schematics, signed and sealed by Washington-licensed Professional Engineers*".
- Drawing G-005: ADD "*GENERAL NOTE #3-- CONTRACTOR RESPONSIBILITY: Verify all dimensions, materials, and existing conditions in field before proceeding. Do not scale drawings. Report errors, omissions, or conflicts to Stantec immediately. Contractor responsible for coordination among all trades."*
- Drawing G-601: REPLACE drawing title with *"Process Flow Diagram Phase-1 Configuration (New Membrane System Operational; Existing Plant Operational)"*.
- Drawing G-601: ADD *"General Note 1, Phase 1 Construction and Operation. This drawing shows the PHASE 1 process configuration during construction and initial operation of the new membrane filtration system. During Phase 1: OPERATIONAL SYSTEMS: - Existing WTP (sedimentation basins, filters, clearwell, high-service pumps) remains in service and supplies distribution system; - New membrane filtration system operates in parallel for testing and demonstration (filtrate recycled to membrane feed). NO PHASE 2 WORK (decommissioning, permanent tie-ins) SHALL BEGIN until: 1. New membrane system fully tested and DOH-approved; 2. 30-day successful operation demonstrated; 3. Owner issues written authorization. Refer to Section 01 14 00 for Phase 1 requirements and Drawing G-602 for Phase 2 configuration."*
- Drawing G-602: REPLACLE drawing title with "*Process Flow Diagram Phase-2 Final Configuration (New Membrane System Operational; Old Plant Decommissioned)". ADD "GENERAL NOTE 1 – PHASE 2 FINAL CONFIGURATION. This drawing shows the PHASE 2 permanent process configuration after decommissioning of the old WTP. During Phase 2: PERMANENT SYSTEMS: - New membrane filtration system is the primary treatment process; - Converted Membrane Feed Pump Station (former Filtered Water PS) pumps raw water from Bear Creek intake to membrane system; - Chlorine Contact Tank provides*

disinfection contact time; - Existing clearwell and high-service pumps supply distribution system; - Solids Handling Basin (repurposed from old sedimentation basin) receives membrane backwash waste. Refer to Section 01 14 00 for Phase 2 requirements and Drawing G-601 for Phase 1 configuration."

- Drawing C-001: ADD new heading and note under Civil General Notes, *"CONSTRUCTION PHASING. Site work and facility construction shall be phased per Specification Section 01 14 00: PHASE I (New System Construction): - Earthwork for new facilities (membrane unit pad, Chemical Building, Chlorine Contact Tank, CIP Waste Tank, partial Solids Handling Basin); - Stormwater detention pond and flow spreader; - Temporary access roads and construction fencing; - Utility connections (water, sewer, electrical) to new facilities; - Existing WTP facilities remain operational; do not disturb. PHASE II (Decommissioning and Final Site Work): - Complete Solids Handling Basin (conversion of existing sedimentation basin); Decommission or demolish old facilities (filters, old chemical building, etc.) per Demolition Plans; - Final grading, paving, and landscaping; - Remove temporary construction fencing and TESC measures; install permanent fencing. Coordinate phasing with Owner and submit detailed Phasing Plan per Section 01 14 00."*
- Drawing C-101: REVISE area noted by for staging and storage area as follows: ADD *"AND BONNEVILLE POWER"*
- Drawing E-101: ADD to end of Keynote G. *"SDG-007 is the same as 43-GEN-0210 on drawing 43I-602".*
- Drawing 30E-101: ADD to callout for OSHG 1 the text *"(30-OSHG-0810)"*.
- Drawing 30E-101: ADD to callout for OSHG 2 the text *"(30-OSHG-0820)".*
- Drawing 30E-101: REVISE Fixture Type IL1 partial Model Number from "4000LM" to "6000LM".

ITEM NO. 6 – RFP QUESTIONS/CLARIFICATIONS

Q1. **What is the Engineer's Estimate?**
A1. The Engineer's Estimate for the Base Bid is $13.9M and $0.8M for the additive bid items.

Q2. **Confirm bid bond amount is 100%. It is typically 5% - 10%.**
A2. The bid security should be 10% of the bid price. Article 8 of C-200 INSTRUCTIONS TO BIDDERS has been corrected.

Q3. **Can CAD files be provided?**
A3. CAD files will not be provided to the bidders but will be provided to the selected Contractor.

Q4. **Where will the source of water be located? Will the contractor be able to obtain water for other uses at this location? Will the contractor have to pay for water being used in other applications than testing?**
A4. The Owner will pay for water for the Contractors use. There is a 2" connection at the existing booster pump station the Contractor may use, as well as several hydrants available to fill a water truck.

Q5. **Please confirm whether the Contractor is responsible for paying for any materials testing, inspection, or related quality-control services**.
A5. The Contractor is not responsible for paying for special inspection services, however, the Contractor is responsible for coordinating and scheduling special inspection services.

Q6. **Can you please provide the micropile design loads? Are the callouts on Detail S-901, Drawing S-008, the minimums, or can the contractor design the micropiles appropriately based on the design load?**

A6. The information shown on S-901 reflects the minimum micropile design requirements based upon loadings as determined by the EOR. Length of the micropiles is based upon the geotechnical report.

ATTACHMENTS TO ADDENDUM 01:

- C-111 Advertisement for Bids (Updated Version)
- C-200 Instructions to Bidders (Updated Version)
- C-410 Bid Form (Updated Version)
- 01 10 00 Summary of Work (Updated Version)
- 01 14 00 Construction Constraints (Updated Version)
- 01 32 14 Barchart Construction Schedule (Updated Version)
- 01 35 29 Cultural Resources Protection (New section)
- 01 42 18 Build American Buy America Act Compliance (New Section)
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40 91 00-B	Supplemental - IO List	AA
40 91 20	Safety Monitoring	AA
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43 07 00	Process Piping and Equipment Insulation	BB
43 21 00	Pumps, General	BB
43 23 13.45	Self-Priming Sample Pumps	BB
43 25 02	Strainers	BB
43 25 05	Submersible Sump Pumps	BB
43 30 52	Miscellaneous Valves	BB
43 30 56	Hydraulic Gates, General	BB
43 40 04	Welded Steel Tanks	BB
43 40 08	Polyethylene Tanks	BB
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46 10 00	Equipment General Provisions	BB
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46 32 00	Sodium Hypochlorite Generation System	BB
46 33 50	Peristaltic Metering Pumps	BB
46 41 14	In-Line Mixing	BB
46 43 10	FRP Floating Decanter	BB
46 53 20	Storage Tank and Pumps	BB
46 61 34	Containerized Membrane Filtration System	BB

VOLUME 3 REFERENCE MATERIAL

Attachment A	Geotechnical Data Report
Attachment B	Containerized Membrane Filtration System Example PIDs
Attachment C	Inadvertent Discovery Plan

VOLUME 4 CONSTRUCTION DRAWINGS

SECTION C-111 – ADVERTISEMENT FOR BIDS

SKAMANIA COUNTY PUD NO. 1
CARSON, WASHINGTON
CARSON WATER TREATMENT PLANT

General Notice

Skamania County PUD No. 1 (Owner) is requesting Bids for the construction of the following Project:

Carson Water Treatment Plant RFP 21-4020

Bids for the construction of the **Carson Water Treatment Plant (Project)** must be ~~emailed~~ delivered in a sealed envelope with the subject title "Carson Water Treatment Plant" to Skamania County PUD, Melanie Sharp at the Skamania County PUD, 1492 Wind River Highway, Carson WA 98610 ~~Brooke Harrison, PE at Brooke.Harrison@stantec.com with the subject of the email titled: "Carson Water Treatment Plant"~~ by no later than ~~2:00 PM~~Thursday, July ~~09~~16, 2026 at 2:00 p.m. Bids will be opened and publicly read on Thursday, July 16, 2026 at 2:00 p.m or shortly after at the PUD 1492 Wind River Highway, Carson, Washington 98610. Bids received after Thursday, July 16, 2026 at 2:00 will not be considered. The Owner reserves the right to change the time for opening bids via addendum.~~This date shall be referred to as "Proposal Closing Time". Bids received after Proposal Closing Time, will be considered non-responsive and will not be opened. Only bids received through email will be accepted; bids received through other delivery methods such as faxing or mail may be disqualified from further consideration. At **2:30 PM, July 09, 2026**, bids will be publicly opened and read via Zoom Meeting. A link to the Zoom Meeting is included at the end of this invitation. The Owner reserves the right to change the meeting date and time for opening bids. The maximum size of an email attachment is 15 MB. Attachments larger than that may be exchanged using large file transfer platforms~~

Bidders must ~~submit~~deliver the First-tier Sub-contractor Disclosure Form (Section 00 41 00.01) in a separate ~~email~~sealed envelope ~~by **4:00 PM, July 09, 2026,**~~ **with the subject ~~of the email~~ title "FIRST-TIER SUBCONTRACTOR DISCLOSURE FOR CARSON WATER TREATMENT PLANT" to the** Skamania County PUD, 1492 Wind River Highway, Carson WA 98610. by **4:00 PM, July 16, 2026.** Failure to submit the required first-tier subcontractors list within the required two hours of the date and time for receipt of bids will deem the bid non-responsive and disqualify the bidder from further consideration.

The Project includes the following Work:

> **The Base Bid includes construction of a new 0.85 MG membrane filtration treatment plant, including a chemical building, onsite septic system, chlorine contact tank, chemical storage and feed systems, site grading, access and parking, utilities, demolition, site restoration and screening. Additive alternate bid items also include a canopy and standby generator.**

The Project has an expected duration of **550** days.

Note: If the lowest responsive bid is higher than the PUD's budget of $12M, the Notice of Award may be delayed up to 90 days after issuance of the Intent to Award.

Obtaining the Bid Documents, contact Brooke.Harrison@stantec.com

~~Bidding Documents may be downloaded from the designated website.~~ Prospective Bidders are urged to register ~~with the designated website~~ as a plan holder, even if Bidding Documents are obtained from a plan room or other source, to receive ~~. other than the designated website in either electronic or paper format. The designated website will be updated periodically with~~ addenda, lists of registered plan holders, reports, and other information relevant to submitting a Bid for the Project. ~~All official notifications, addenda, and other Bidding Documents will be~~

~~offered only through the designated website.~~ Neither Owner nor Engineer will be responsible for Bidding Documents, including addenda, if any, obtained from sources other than the designated website.

Mandatory Pre-bid Conference

A pre-bid conference for the Project will be held on **June 15, 2026 at 1:00 p.m.** at the ~~Skamania PUD headquarters at **1492 Wind River Highway, Carson, Washington 98610**~~Skamania County PUD, 1492 Wind River Highway, Carson WA 98610**.** The meeting will be followed by a site walk of the WTP project site. Attendance at the pre-bid conference is required.

Instructions to Bidders.

For all further requirements regarding bid submittal, qualifications, procedures, and contract award, refer to the Instructions to Bidders that are included in the Bidding Documents.

Domestic Preference

This project is subject to the Build America, Buy America Act (BABAA) requirements under Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953. Absent an approved waiver, all iron, steel, manufactured products, and construction materials used in this project must be produced in the United States.

The following waivers apply to this Contract: BABAA De Minimis, Small Grants, and Minor Components

The project is subject to American Iron and Steel (AIS) requirements under the Consolidated Appropriations Act of 2017 (Section 746 Division A of Title VII) mandating for all iron and steel products to be produced in the United States.

Wage Requirements

This project is subject to the requirements of the Davis-Bacon Act or State of Washington L&I wages, whichever is higher. The applicable effective date for prevailing wages is the bid due date of **July ~~09~~16, 2026**.

Apprentice Utilization Requirements (AURs)

This project is subject to the Washington State Apprenticeship Act which requires compliance with RCW 39.04.320, RCW 39.04.340 and RCW 39.04.350. The prime contractor and any subcontractor that employs hourly workers is obligated to hire apprentices that are enrolled in a state-approved apprentice program to perform 15% of the labor hours on a public works project. The Contractor shall be required to submit an “Apprentice Utilization Plan” using the PWIA System within 30 calendar days of execution, however no later than the preconstruction meeting, demonstrating how and when they intend to achieve the Apprentice Utilization Requirement.

SCHEDULE OF EVENTS:

- Release Invitation to Bid documents — June 8, 2026
- Mandatory Pre-Bid Meeting — June 15, 2026, at 1:00 PM
- Deadline to Ask Project Questions — ~~June 29~~July 7, 2026, at 11:59 PM
- Deadline to Protest Invitation to Bid Materials — ~~June 29~~July 7, 2026, at 11:59 PM
- Proposal Closing Time — July ~~9~~16, 2026, at 2:00 PM
- Bid Opening — July ~~9~~16 2026, at 2:30 PM
- First-Tier Subcontractor Disclosure Form — July ~~9~~16, 2026, at 4:00 PM

Owner reserves the right to modify this schedule of events at any time in the best interests of the Owner. Any changes to the schedule occurring before bid opening will be issued within an addendum.

~~**LINK TO BID OPENING ZOOM MEETING**: https://stantec.zoom.us/j/93895777940~~

This Advertisement is issued by:

Owner: **Skamania County PUD No. 1**
By: **Stantec**
Title: **Adam Odell, PE**
Date: **|June 8, 2026**

SECTION C-200 – INSTRUCTIONS TO BIDDERS FOR CONSTRUCTION CONTRACT

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ARTICLE 1—DEFINED TERMS

1.01 Terms used in these Instructions to Bidders have the meanings indicated in the General Conditions and Supplementary Conditions. Additional terms used in these Instructions to Bidders have the meanings indicated below:

A. Issuing Office—The office from which the Bidding Documents are to be issued, and which registers plan holders.

B. Domestic Preference – The Build America, Buy America Act (BABAA) requirements under Title IX of the Infrastructure Investment and Jobs Act (IIJA), Pub. L. 117-58, §§ 70901-70953.

C. AIS - American Iron and Steel (AIS) requirements under the Consolidated Appropriations Act of 2017 (Section 746 Division A of Title VII) mandating for all iron and steel products to be produced in the United States.

ARTICLE 2—BIDDING DOCUMENTS

2.01 Bidder shall obtain a complete set of Bidding Requirements and proposed Contract Documents (together, the Bidding Documents). See the Agreement for a list of the Contract Documents. It is Bidder's responsibility to determine that it is using a complete set of documents in the preparation of a Bid. Bidder assumes sole responsibility for errors or misinterpretations resulting from the use of incomplete documents, by Bidder itself or by its prospective Subcontractors and Suppliers.

2.02 Bidding Documents are made available for the sole purpose of obtaining Bids for completion of the Project and permission to download or distribution of the Bidding Documents does not confer a license or grant permission or authorization for any other use. Authorization to download documents, or other distribution, includes the right for plan holders to print documents solely for their use, and the use of their prospective Subcontractors and Suppliers, provided the plan holder pays all costs associated with printing or reproduction. Printed documents may not be re-sold under any circumstances.

2.03 Owner has established a Bidding Documents Website as indicated in the Advertisement or invitation to bid. Owner recommends that Bidder register as a plan holder with the Issuing Office at such website, and obtain a complete set of the Bidding Documents from such website. Bidders may rely that sets of Bidding Documents obtained from the Bidding Documents Website are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.

2.04 Bidder may register as a plan holder and obtain complete sets of Bidding Documents, in the number and format stated in the Advertisement or invitation to bid, from the Issuing Office. Bidders may rely that sets of Bidding Documents obtained from the Issuing Office are complete, unless an omission is blatant. Registered plan holders will receive Addenda issued by Owner.

2.05 Plan rooms (including construction information subscription services, and electronic and virtual plan rooms) may distribute the Bidding Documents, or make them available for examination. Those prospective bidders that obtain an electronic (digital) copy of the Bidding Documents from a plan room are encouraged to register as plan holders from the Bidding Documents Website or Issuing Office. Owner is not responsible for omissions in

Bidding Documents or other documents obtained from plan rooms, or for a Bidder's failure to obtain Addenda from a plan room.

2.06 *Electronic Documents*

A. When the Bidding Requirements indicate that electronic (digital) copies of the Bidding Documents are available, such documents will be made available to the Bidders as Electronic Documents in the manner specified.

1. Bidding Documents will be provided in Bluebeam PDF (Revu 21 Document Format) (.pdf) that is readable by Adobe Acrobat Reader Version or later. It is the intent of the Engineer and Owner that such Electronic Documents are to be exactly representative of the paper copies of the documents. However, because the Owner and Engineer cannot totally control the transmission and receipt of Electronic Documents nor the Contractor's means of reproduction of such documents, the Owner and Engineer cannot and do not guarantee that Electronic Documents and reproductions prepared from those versions are identical in every manner to the paper copies.

B. Unless otherwise stated in the Bidding Documents, the Bidder may use and rely upon complete sets of Electronic Documents of the Bidding Documents, described in Paragraph 2.06.A above. However, Bidder assumes all risks associated with differences arising from transmission/receipt of Electronic Documents versions of Bidding Documents and reproductions prepared from those versions and, further, assumes all risks, costs, and responsibility associated with use of the Electronic Documents versions to derive information that is not explicitly contained in printed paper versions of the documents, and for Bidder's reliance upon such derived information.

C. After the Contract is awarded, the Owner will provide or direct the Engineer to provide for the use of the Contractor documents that were developed by Engineer as part of the Project design process, as Electronic Documents in native file formats.

1. Electronic Documents that are available in native file format include:

    a. Construction Plans and Specifications

2. Release of such documents will be solely for the convenience of the Contractor. No such document is a Contract Document.

3. Unless the Contract Documents explicitly identify that such information will be available to the Successful Bidder (Contractor), nothing herein will create an obligation on the part of the Owner or Engineer to provide or create such information, and the Contractor is not entitled to rely on the availability of such information in the preparation of its Bid or pricing of the Work. In all cases, the Contractor shall take appropriate measures to verify that any electronic/digital information provided in Electronic Documents is appropriate and adequate for the Contractor's specific purposes.

4. In no case will the Contractor be entitled to additional compensation or time for completion due to any differences between the actual Contract Documents and any related document in native file format.

ARTICLE 3—QUALIFICATIONS OF BIDDERS

3.01 Bidder is to submit the following information with its Bid to demonstrate Bidder's qualifications to perform the Work:

A. Written evidence establishing its qualifications such as financial data, previous experience, and present commitments.

B. A written statement that Bidder is authorized to do business in the state where the Project is located, or a written certification that Bidder will obtain such authority prior to the Effective Date of the Contract.

C. Bidder's state or other contractor license number, if applicable.

D. Subcontractor and Supplier qualification information.

E. Other required information regarding qualifications as described in C-451 Qualifications Statement.

F. Owner in its sole discretion will determine if a bidder is qualified to do the advertised work.

3.02 *DELETED.*

3.03 Bidders must meet the Mandatory Bidder Responsibility Criteria as defined by Revised Code of Washington (RCW) 39.04.350(1).

A. At the time of bid submittal, have a certificate of registration in compliance with chapter 18.27 RCW, a plumbing contractor license in compliance with chapter 18.106 RCW, an elevator contractor license in compliance with chapter 70.87 RCW, or an electrical contractor license in compliance with chapter 19.28 RCW, as required under the provisions of those chapters.

B. Have a current state unified business identifier number.

C. If applicable, have industrial insurance coverage for the bidder's employees working in Washington as required in Title 51 RCW; an employment security department number as required in Title 50 RCW; and a state excise tax registration number as required in Title 82 RCW.

D. Not be disqualified from bidding on any public works contract under RCW 39.06.010 or 39.12.065(3).;

E. If bidding on a public works project subject to the apprenticeship utilization requirements in RCW 39.04.320, not have been found out of compliance by the Washington state apprenticeship and training council for working apprentices out of ratio, without appropriate supervision, or outside their approved work processes as outlined in their standards of apprenticeship under chapter 49.04 RCW for the one-year period immediately preceding the date of the bid solicitation.

F. Have received training on the requirements related to public works and prevailing wage under this chapter and chapter 39.12 RCW. The bidder must designate a person or persons to be trained on these requirements. The training must be provided by the department of labor and industries or by a training provider whose curriculum is approved by the department. The department, in consultation with the prevailing wage advisory committee, must determine the length of the training. Bidders that have completed three or more public works projects and have had a valid business license in Washington for three or more years are exempt from this subsection. The department of labor and industries must keep records of entities

that have satisfied the training requirement or are exempt and make the records available on its website. Responsible parties may rely on the records made available by the department regarding satisfaction of the training requirement or exemption.

G. Within the three-year period immediately preceding the date of the bid solicitation, not have been 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 to have willfully violated, as defined in RCW 49.48.082, any provision of chapter 49.46, 49.48, or 49.52 RCW.

3.03 No requirement in this Article 3 to submit information will prejudice the right of Owner to seek additional pertinent information regarding Bidder's qualifications.

ARTICLE 4—PRE-BID CONFERENCE

A mandatory pre-bid conference will be held at the time and location indicated in the Advertisement or invitation to bid. Representatives of Owner and Engineer will be present to discuss the Project. Bidders are encouraged to attend and participate in the conference; however, attendance at this conference is not required to submit a Bid.

Information presented at the pre-Bid conference does not alter the Contract Documents. Owner will issue Addenda to make any changes to the Contract Documents that result from discussions at the pre-Bid conference. Information presented, and statements made at the pre-bid conference will not be binding or legally effective unless incorporated in an Addendum.

ARTICLE 5—SITE AND OTHER AREAS; EXISTING SITE CONDITIONS; EXAMINATION OF SITE; OWNER'S SAFETY PROGRAM; OTHER WORK AT THE SITE.

5.01 *Site and Other Areas*

A. The Site is identified in the Bidding Documents. By definition, the Site includes rights-of-way, easements, and other lands furnished by Owner for the use of the Contractor. Any additional lands required for temporary construction facilities, construction equipment, or storage of materials and equipment, and any access needed for such additional lands, are to be obtained and paid for by Contractor.

5.02 *Existing Site Conditions*

A. *Subsurface and Physical Conditions; Hazardous Environmental Conditions*

1. The Supplementary Conditions identify the following regarding existing conditions at or adjacent to the Site:

   a. Those reports of explorations and tests of subsurface conditions at or adjacent to the Site that contain Technical Data.

   b. Those drawings known to Owner of existing physical conditions at or adjacent to the Site, including those drawings depicting existing surface or subsurface structures at or adjacent to the Site (except Underground Facilities), that contain Technical Data.

   c. Reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at or adjacent to the Site.

   d. Technical Data contained in such reports and drawings.

2. Owner will make copies of reports and drawings referenced above available to any Bidder on request. These reports and drawings are not part of the Contract Documents, but the Technical Data contained therein upon whose accuracy Bidder is entitled to rely, as provided in the General Conditions, has been identified and established in the Supplementary Conditions. Bidder is responsible for any interpretation or conclusion Bidder draws from any Technical Data or any other data, interpretations, opinions, or information contained in such reports or shown or indicated in such drawings.

3. If the Supplementary Conditions do not identify Technical Data, the default definition of Technical Data set forth in Article 1 of the General Conditions will apply.

4. *Geotechnical Baseline Report/Geotechnical Data Report:* The Bidding Documents contain a Geotechnical Engineering Report (GER).

   a. As set forth in the Supplementary Conditions, the GER describes certain select subsurface conditions that are anticipated to be encountered by Contractor during construction in specified locations ("Baseline Conditions"). The GBR is a Contract Document.

   b. The Baseline Conditions in the GER are intended to reduce uncertainty and the degree of contingency in submitted Bids. However, Bidders cannot rely solely on the Baseline Conditions. Bids should be based on a comprehensive approach that includes an independent review and analysis of the GER, all other Contract Documents, Technical Data, other available information, and observable surface conditions. Not all potential subsurface conditions are baselined.

   c. Nothing in the GER is intended to relieve Bidders of the responsibility to make their own determinations regarding construction costs, bidding strategies, and Bid prices, nor of the responsibility to select and be responsible for the means, methods, techniques, sequences, and procedures of construction, and for safety precautions and programs incident thereto.

   d. As set forth in the Supplementary Conditions, the GER is a Contract Document containing data prepared by or for the Owner in support of the GER.

B. *Underground Facilities:* Underground Facilities are shown or indicated on the Drawings, pursuant to Paragraph 5.05 of the General Conditions, and not in the drawings referred to in Paragraph 5.02.A of these Instructions to Bidders. Information and data regarding the presence or location of Underground Facilities are not intended to be categorized, identified, or defined as Technical Data.

5.03 *Other Site-related Documents*

A. No other Site-related documents are available.

5.04 *Site Visit and Testing by Bidders*

A. A Site visit is scheduled following the pre-bid conference. Maps to the Site will be available at the pre-Bid conference.

B. Bidders visiting the Site are required to arrange their own transportation to the Site.

C. All access to the Site other than during a regularly scheduled Site visit must be coordinated through the following Owner or Engineer contact for visiting the Site: John Shields, Water System Operator, jshields@skamaniapud.com, 541.490.4643. Bidder must conduct the required Site visit during normal working hours.

D. Bidder is not required to conduct any subsurface testing, or exhaustive investigations of Site conditions.

E. On request, and to the extent Owner has control over the Site, and schedule permitting, the Owner will provide Bidder general access to the Site to conduct such additional examinations, investigations, explorations, tests, and studies as Bidder deems necessary for preparing and submitting a successful Bid. Owner will not have any obligation to grant such access if doing so is not practical because of existing operations, security or safety concerns, or restraints on Owner's authority regarding the Site. Bidder is responsible for establishing access needed to reach specific selected test sites.

F. Bidder must comply with all applicable Laws and Regulations regarding excavation and location of utilities, obtain all permits, and comply with all terms and conditions established by Owner or by property owners or other entities controlling the Site with respect to schedule, access, existing operations, security, liability insurance, and applicable safety programs.

G. Bidder must fill all holes and clean up and restore the Site to its former condition upon completion of such explorations, investigations, tests, and studies.

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 *Express Representations and Certifications in Bid Form, Agreement*

A. The Bid Form that each Bidder will submit contains express representations regarding the Bidder's examination of Project documentation, Site visit, and preparation of the Bid, and certifications regarding lack of collusion or fraud in connection with the Bid. Bidder should review these representations and certifications, and assure that Bidder can make the representations and certifications in good faith, before executing and submitting its Bid.

B. If Bidder is awarded the Contract, Bidder (as Contractor) will make similar express representations and certifications when it executes the Agreement.

ARTICLE 7—INTERPRETATIONS AND ADDENDA

7.01 Owner on its own initiative may issue Addenda to clarify, correct, supplement, or change the Bidding Documents.

7.02 Bidder shall submit all questions about the meaning or intent of the Bidding Documents to Engineer in writing. Contact information and submittal procedures for such questions are as follows:

A. Adam Odell, PE; adam.odell@stantec.com.

7.03 Interpretations or clarifications considered necessary by Engineer in response to such questions will be issued by Addenda delivered to all registered plan holders. Questions received less than seven days prior to the date for opening of Bids may not be answered.

7.04 Only responses set forth in an Addendum will be binding. Oral and other interpretations or clarifications will be without legal effect. Responses to questions are not part of the Contract Documents unless set forth in an Addendum that expressly modifies or supplements the Contract Documents.

ARTICLE 8—BID SECURITY

8.01 A Bid must be accompanied by Bid security made payable to Owner in an amount of 100 percent of Bidder's maximum Bid price (determined by adding the base bid and all alternates) and in the form of a Bid bond issued by a surety meeting the requirements of Paragraph 6.01 of the General Conditions. Such Bid bond will be issued in the form included in the Bidding Documents.

8.02 The Bid security of the apparent Successful Bidder will be retained until Owner awards the contract to such Bidder, and such Bidder has executed the Contract, furnished the required Contract security, and met the other conditions of the Notice of Award, whereupon the Bid security will be released. If the Successful Bidder fails to execute and deliver the Contract and furnish the required Contract security within 15 days after the Notice of Award, Owner may consider Bidder to be in default, annul the Notice of Award, and the Bid security of that Bidder will be forfeited, in whole in the case of a penal sum bid bond, and to the extent of Owner's damages in the case of a damages-form bond. Such forfeiture will be Owner's exclusive remedy if Bidder defaults.

8.03 The Bid security of other Bidders that Owner believes to have a reasonable chance of receiving the award may be retained by Owner until the earlier of 7 days after the Effective Date of the Contract or 61 days after the Bid opening, whereupon Bid security furnished by such Bidders will be released.

8.04 Bid security of other Bidders that Owner believes do not have a reasonable chance of receiving the award will be released within 7 days after the Bid opening.

ARTICLE 9—CONTRACT TIMES

9.01 The number of days within which, or the dates by which, the Work is to be (a) substantially completed and (b) ready for final payment, and (c) Milestones (if any) are to be achieved, are set forth in the Agreement.

9.02 Deleted.

9.03 Provisions for liquidated damages, if any, for failure to timely attain Substantial Completion, or completion of the Work in readiness for final payment, are set forth in the Agreement.

ARTICLE 10—SUBSTITUTE AND "OR EQUAL" ITEMS

10.01 Deleted.

10.02 The Contract for the Work, as awarded, will be on the basis of materials and equipment specified or described in the Bidding Documents, and those "or-equal" or substitute or materials and equipment subsequently approved by Engineer prior to the submittal of Bids and identified by Addendum. No item of material or equipment will be considered by

Engineer as an “or-equal” or substitute unless written request for approval has been submitted by Bidder and has been received by Engineer within 10 days of the issuance of the Advertisement for Bids or invitation to Bidders. Each such request must comply with the requirements of Paragraphs 7.05 and 7.06 of the General Conditions, and the review of the request will be governed by the principles in those paragraphs. Each such request shall include the Manufacturer’s Certification provided in these construction Contact Documents. The burden of proof of the merit of the proposed item is upon Bidder. Engineer’s decision of approval or disapproval of a proposed item will be final. If Engineer approves any such proposed item, such approval will be set forth in an Addendum issued to all registered Bidders. Bidders cannot rely upon approvals made in any other manner. Substitutes and “or-equal” materials and equipment may be proposed in accordance with Paragraphs 7.05 and 7.06 of the General Conditions after the Effective Date of the Contract. Each such request shall include manufacturer’s Certification letter to Document compliance with Domestic Preference requirements. Refer to Manufacturer’s Certification letter provide in these contract Documents.

10.03 All prices that Bidder sets forth in its Bid will be based on the presumption that the Contractor will furnish the materials and equipment specified or described in the Bidding Documents, as supplemented by Addenda. Any assumptions regarding the possibility of post-Bid approvals of “or-equal” or substitution requests are made at Bidder’s sole risk.

ARTICLE 11—SUBCONTRACTORS, SUPPLIERS, AND OTHERS

11.01 Deleted.

11.02 For projects that cost an estimated $1 million or more: Each bidder must submit a list of all subcontractors for HVAC, plumbing, or electrical work, structural steel installation, and rebar installation (RCW 39.30.060). The list for HVAC, plumbing, and electrical must be submitted within one hour after the bid submittal deadline. The list for structural steel and rebar installation must be submitted within 48 hours after the bid submittal deadline. The bidder may also submit itself for any of these categories and/or may submit the list at the time the bid is submitted.

A. Key categories include: Microfiltration supplier, chemical feed system supplier, electrical subcontractor, onsite septic supplier, diesel generator and ATS supplier, HVAC subcontractor, fire protection subcontractor, mechanical subcontractor and SCADA integrator.

11.03 If requested by Owner, such list must be accompanied by an experience statement with pertinent information regarding similar projects and other evidence of qualification for each such Subcontractor or Supplier. If Owner or Engineer, after due investigation, has reasonable objection to any proposed Subcontractor or Supplier, Owner may, before the Notice of Award is given, request apparent Successful Bidder to submit an acceptable substitute, in which case apparent Successful Bidder will submit a substitute, Bidder’s Bid price will be increased (or decreased) by the difference in cost occasioned by such substitution, and Owner may consider such price adjustment in evaluating Bids and making the Contract award.

11.04 If apparent Successful Bidder declines to make any such substitution, Owner may award the Contract to the next lowest Bidder that proposes to use acceptable Subcontractors and Suppliers. Declining to make requested substitutions will constitute grounds for forfeiture of the Bid security of any Bidder. Any Subcontractor or Supplier, so listed and against which Owner or Engineer makes no written objection prior to the giving of the

Notice of Award will be deemed acceptable to Owner and Engineer subject to subsequent revocation of such acceptance as provided in Paragraph 7.07 of the General Conditions.

11.05 The Contractor shall not award work to Subcontractor(s) in excess of the limits stated in General Conditions 7.07A.

ARTICLE 12—PREPARATION OF BID

12.01 The Bid Form is included with the Bidding Documents.

A. All blanks on the Bid Form must be completed in ink and the Bid Form signed in ink. Erasures or alterations must be initialed in ink by the person signing the Bid Form. A Bid price must be indicated for each Bid item and alternate item listed therein.

B. Deleted.

12.02 If Bidder has obtained the Bidding Documents as Electronic Documents, then Bidder shall prepare its Bid on a paper copy of the Bid Form printed from the Electronic Documents version of the Bidding Documents. The printed copy of the Bid Form must be clearly legible, printed on 8½ inch by 11-inch paper and as closely identical in appearance to the Electronic Document version of the Bid Form as may be practical. The Owner reserves the right to accept Bid Forms which nominally vary in appearance from the original paper version of the Bid Form, providing that all required information and submittals are included with the Bid.

12.03 A Bid by a corporation must be executed in the corporate name by a corporate officer (whose title must appear under the signature), accompanied by evidence of authority to sign. The corporate address and state of incorporation must be shown.

12.04 A Bid by a partnership must be executed in the partnership name and signed by a partner (whose title must appear under the signature), accompanied by evidence of authority to sign. The official address of the partnership must be shown.

12.05 A Bid by a limited liability company must be executed in the name of the firm by a member or other authorized person and accompanied by evidence of authority to sign. The state of formation of the firm and the official address of the firm must be shown.

12.06 A Bid by an individual must show the Bidder’s name and official address.

12.07 A Bid by a joint venture must be executed by an authorized representative of each joint venturer in the manner indicated on the Bid Form. The joint venture must have been formally established prior to submittal of a Bid, and the official address of the joint venture must be shown.

12.08 All names must be printed in ink below the signatures.

12.09 The Bid must contain an acknowledgment of receipt of all Addenda, the numbers of which must be filled in on the Bid Form.

12.10 Postal and e-mail addresses and telephone number for communications regarding the Bid must be shown.

12.11 The Bid must contain evidence of Bidder’s authority to do business in the state where the Project is located, or Bidder must certify in writing that it will obtain such authority within the time for acceptance of Bids and attach such certification to the Bid.

12.12 If Bidder is required to be licensed to submit a Bid or perform the Work in the state where the Project is located, the Bid must contain evidence of Bidder’s licensure, or Bidder must

certify in writing that it will obtain such licensure within the time for acceptance of Bids and attach such certification to the Bid. Bidder's state contractor license number, if any, must also be shown on the Bid Form.

12.13 Bid documents must also include a signed certification letter stating that the Containerized Membrane Filtration System as specified in 46 61 34 complies with the American Iron and Steel and BABA requirements. Note: no waivers will be granted for this equipment. Bids that do not contain the certification will be considered a non-responsive bid and will result in disqualification.

ARTICLE 13—BASIS OF BID

13.01 *Deleted*

13.02 *Base Bid with Alternates*

A. Bidders must submit a Bid on a lump sum basis for each Base Bid Item and include a separate lump sum price for each alternate described in the Bidding Documents and as provided for in the Bid Form. The price for each alternate will be the amount added to the Base Bid if Owner selects either alternate.

B. The award of the Bid will be to a single contractor and will based on the lowest total responsive and responsible Base Bid. The Owner may or may not choose an Additive Alternate.

13.03 *Deleted*

13.04 *Deleted*

13.05 *Deleted*

13.06 *Deleted*

13.07 *Deleted*

ARTICLE 14—SUBMITTAL OF BID

14.01 The Bidding Documents include one separate unbound copy of the Bid Form, and, if required, the Bid Bond Form. The unbound copy of the Bid Form is to be completed and submitted with the Bid security and the other documents required to be submitted under the terms of Article 2 of the Bid Form.

14.02 A Bid must be received no later than the date and time prescribed and at the place indicated in the Advertisement or invitation to bid and must be enclosed in a plainly marked package with the Project title, and, if applicable, the designated portion of the Project for which the Bid is submitted, the name and address of Bidder, and must be accompanied by the Bid security and other required documents. If a Bid is sent by mail or other delivery system, the sealed envelope containing the Bid must be enclosed in a separate package plainly marked on the outside with the notation "BID ENCLOSED." A mailed Bid must be addressed to the location designated in the Advertisement.

14.03 Bids received after the date and time prescribed for the opening of bids, or not submitted at the correct location or in the designated manner, will not be accepted and will be returned to the Bidder unopened.

ARTICLE 15—MODIFICATION AND WITHDRAWAL OF BID

15.01 An unopened Bid may be withdrawn by an appropriate document duly executed in the same manner that a Bid must be executed and delivered to the place where Bids are to be submitted prior to the date and time for the opening of Bids. Upon receipt of such notice, the unopened Bid will be returned to the Bidder.

15.02 If a Bidder wishes to modify its Bid prior to Bid opening, Bidder must withdraw its initial Bid in the manner specified in Paragraph 15.01 and submit a new Bid prior to the date and time for the opening of Bids.

15.03 If within 24 hours after Bids are opened any Bidder files a duly signed written notice with Owner and promptly thereafter demonstrates to the reasonable satisfaction of Owner that there was a material and substantial mistake in the preparation of its Bid, the Bidder may withdraw its Bid, and the Bid security will be returned. Thereafter, if the Work is rebid, the Bidder will be disqualified from further bidding on the Work.

ARTICLE 16—OPENING OF BIDS

16.01 Bids will be opened at the time and place indicated in the advertisement or invitation to bid and, unless obviously non-responsive, read aloud publicly. An abstract of the amounts of the base Bids and major alternates, if any, will be made available to Bidders after the opening of Bids.

ARTICLE 17—BIDS TO REMAIN SUBJECT TO ACCEPTANCE

17.01 All Bids will remain subject to acceptance for the period of time stated in the Bid Form, but Owner may, in its sole discretion, release any Bid and return the Bid security prior to the end of this period.

ARTICLE 18—EVALUATION OF BIDS AND AWARD OF CONTRACT

18.01 If the lowest responsive bid is higher than the PUD's budget of $12M, the Notice of Award may be delayed up to 90 days after issuance of the Intent to Award.

18.02 Owner reserves the right to reject any or all Bids, including without limitation, nonconforming, nonresponsive, unbalanced, or conditional Bids. Owner also reserves the right to waive all minor Bid informalities not involving price, time, or changes in the Work.

18.03 Owner will reject the Bid of any Bidder that Owner finds, after reasonable inquiry and evaluation, to not be responsible.

18.04 If Bidder purports to add terms or conditions to its Bid, takes exception to any provision of the Bidding Documents, or attempts to alter the contents of the Contract Documents for purposes of the Bid, whether in the Bid itself or in a separate communication to Owner or Engineer, then Owner will reject the Bid as nonresponsive.

18.05 If Owner awards the contract for the Work, such award will be to the responsible Bidder submitting the lowest responsive Bid.

18.06 *Evaluation of Bids*

A. In evaluating Bids, Owner will consider whether the Bids comply with the prescribed requirements, and such alternates, unit prices, and other data, as may be requested in the Bid Form or prior to the Notice of Award.

B. ~~In the comparison of Bids, alternates will be applied in the same order of priority as listed in the Bid Form. To determine the Bid prices for purposes of comparison, Owner will announce to all bidders a "Base Bid plus alternates" budget after receiving all Bids, but prior to opening them. For comparison purposes alternates will be accepted, following the order of priority established in the Bid Form, until doing so would cause the budget to be exceeded. After determination of the Successful Bidder based on this comparative process and on the responsiveness, responsibility, 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 alternate Bids for which Owner determines funds will be available at the time of award.~~

C. Deleted

D. Deleted

E. Deleted

F. Deleted

18.07 In evaluating whether a Bidder is responsible, Owner will consider the qualifications of the Bidder and may consider the qualifications and experience of Subcontractors and Suppliers proposed for those portions of the Work for which the identity of Subcontractors and Suppliers must be submitted as provided in the Bidding Documents.

18.08 Owner may conduct such investigations as Owner deems necessary to establish the responsibility, qualifications, and financial ability of Bidders and any proposed Subcontractors or Suppliers.

ARTICLE 19—BONDS AND INSURANCE

19.01 Article 6 of the General Conditions, as may be modified by the Supplementary Conditions, sets forth Owner's requirements as to performance and payment bonds, other required bonds (if any), and insurance. When the Successful Bidder delivers the executed Agreement to Owner, it must be accompanied by required bonds and insurance documentation.

19.02 Article 8, Bid Security, of these Instructions, addresses any requirements for providing bid bonds as part of the bidding process.

ARTICLE 20—SIGNING OF AGREEMENT

20.01 When Owner issues a Notice of Award to the Successful Bidder, it will be accompanied by the unexecuted counterparts of the Agreement along with the other Contract Documents as identified in the Agreement. Within 15 days thereafter, Successful Bidder must execute and deliver the required number of counterparts of the Agreement and any bonds and insurance documentation required to be delivered by the Contract Documents to Owner. Within 10 days thereafter, Owner will deliver one fully executed counterpart of the Agreement to Successful Bidder, together with printed and electronic copies of the Contract Documents as stated in Paragraph 2.02 of the General Conditions. The

Successful Bidder must sign the Owner's Agreement as presented by the Owner. The Owner is not required to accept any changes to the Agreement.

ARTICLE 21—SALES AND USE TAXES

21.01 The Owner is subject to Washington State Sales and Use Taxes on materials and equipment used in the work.

ARTICLE 22—FEDERAL REQUIREMENTS

22.01 If the contract price is in excess of $100,000, provisions of the Contract Work Hours and Safety Standards Act at 29 CFR 5.5(b) apply.

22.02 Federal requirements in Article 19 of the Supplementary Conditions and funding requirements included in attachments to the bid documents apply to this Contract.

22.03 Contract Wage Hours and Safety Standards Act (CWHSSA): Under the Davis-Bacon and Related Acts (DBRA), all contracts awarded under EPA assistance agreements (grants) in excess of $100,000 that involve the employment of mechanics or laborers require contractors and subcontractors to comply with the overtime provisions of the Contract Wage Hours and Safety Standards Act (CWHSSA) at 40 U.S.C. 3702 and 3704, as supplemented by Department of Labor regulations in 29 CFR Part 5 and 2 CFR 200 Appendix II(E).

22.04 The applicable effective date for prevailing wages is the bid due date of July ~~9~~16, 2026.

ARTICLE 23—BIDDER RESPONSIBILITY CRITERIA (RCW 39.04.350)

23.01 Before award, the apparent low bidder must meet all responsibility criteria in RCW 39.04.350, including:

A. Valid contractor registration per RCW 18.27 (general contractors) or applicable trade license (RCW 18.106 plumbing, RCW 19.28 electrical, RCW 70.87 elevator).

B. Current State Unified Business Identifier number.

C. Industrial insurance (L&I), Employment Security Department number, and state excise tax registration.

D. Not disqualified from bidding under RCW 39.06.010 or RCW 39.12.065(3).

E. If project subject to apprentice utilization (RCW 39.04.320), not found out of compliance with apprenticeship ratio/supervision requirements in the 12 months preceding bid.

F. Completion of prevailing wage training per RCW 39.04.350(1)(f), OR exemption (≥3 public works projects completed AND ≥3 years WA business license). Bidder shall certify training completion or exemption on Bid Form.

G. No willful violations of wage payment laws (RCW 49.46, 49.48, 49.52) in the 3 years preceding bid, as determined by final L&I citation or court judgment.

H. No revocation of minor work permit per RCW 49.12.390(4) (effective July 1, 2026).

23.02 Bidder shall submit SWORN STATEMENT OF BIDDER RESPONSIBILITY (Form 00 45 15) with bid, verifying under penalty of perjury compliance with criteria (7) and (8) above, per RCW 39.04.350(2).

A. Owner may request additional documentation to verify responsibility criteria. Failure to provide documentation within the time specified may result in a determination of non-responsibility.

ARTICLE 24—BUILD AMERICA, BUY AMERICA ACT (BABAA) REQUIREMENTS

24.01 FUNDING SOURCE AND APPLICABILITY

A. This Project is funded in part by:

1. United States Department of Agriculture (USDA) Rural Development grant
2. U.S. Environmental Protection Agency (EPA) grant

B. Federal funding requires compliance with Build America, Buy America Act (BABAA), enacted November 15, 2021 (Pub. L. 117-58, Section 70901 et seq.).

C. BABAA applies to ALL iron, steel, manufactured products, and construction materials incorporated into the Project, regardless of value or whether specific item is paid with federal or local funds (entire Project is subject to BABAA if any portion is federally funded).

24.02 SUMMARY OF REQUIREMENTS

A. IRON AND STEEL PRODUCTS: All iron or steel products used in the Project (including structural steel, reinforcing steel, piping, valves, tanks, handrails, grating, conduit, etc.) shall be produced in the United States. This means ALL manufacturing processes—from initial melting through final product formation—must occur in the U.S.

B. MANUFACTURED PRODUCTS: All manufactured products (including pumps, membrane systems, motors, control panels, HVAC equipment, geomembranes, doors, windows, etc.) shall be manufactured in the United States, meaning:

a. Product is assembled in the United States, AND

b. More than 55% of the total cost of product components is attributable to components manufactured in the United States.

C. CONSTRUCTION MATERIALS: All construction materials (non-ferrous metals, plastic/polymer products, glass, lumber, drywall, etc.) shall have all manufacturing processes occur in the United States.

24.03 BIDDER RESPONSIBILITIES

A. Bidders shall investigate and verify that all products and materials proposed for use in the Work comply with BABAA requirements.

B. Bidders shall include in Base Bid price and Additive Alternate prices the full cost of providing BABAA-compliant products, including any premium cost compared to foreign-sourced alternatives.

C. Bidders proposing products that do NOT comply with BABAA must notify Owner in writing BEFORE bid opening. Owner will determine whether to seek a waiver from USDA/EPA (see Part D below). If waiver is not obtained, Bidder must provide BABAA-compliant alternate at Bidder's expense.

24.04 WAIVERS

A. BABAA waivers may be available if:

1. Product is not produced in U.S. in sufficient quantity or quality (nonavailability waiver), OR
2. U.S.-produced product costs more than 25% higher than foreign alternative (unreasonable cost waiver), OR
3. Application of BABAA is inconsistent with public interest (rare; discretionary).

B. Waiver requests are submitted by OWNER (not Contractor) to USDA and EPA.

C. Contractor may NOT assume waiver will be granted. If Contractor bids non-compliant product without advance coordination with Owner and waiver is denied, Contractor shall provide compliant product at Contractor's expense (no change order).

24.05 CONTRACT REQUIREMENTS

A. Detailed BABAA compliance procedures, submittal requirements, and certifications are specified in:
1. Section 01 42 19 – Build America, Buy America Act Compliance
2. Applicable technical specification sections

B. Bidders are responsible for reviewing these requirements and pricing accordingly.

24.06 ENFORCEMENT

A. Owner will reject any product that does not comply with BABAA (unless waiver obtained).

B. If non-compliant product is installed, Contractor shall remove and replace with compliant product at Contractor's expense, regardless of construction progress or Project schedule impact.

C. Noncompliance discovered during USDA/EPA audit may result in federal funding clawback (Owner required to return grant funds). Owner reserves right to seek reimbursement from Contractor for funding losses due to Contractor's BABAA noncompliance.

ARTICLE 25—BASIS-OF-DESIGN EQUIPMENT

25.01 *BASIS-OF-DESIGN EQUIPMENT – MEMBRANE FILTRATION SYSTEM*

A. The containerized membrane filtration system is designed based on the Aria Filtra "Aria FAST T96" mobile membrane filtration trailer, which includes integrated filtrate storage tank and filtrate forwarding pumps.

B. Bidders may propose alternate containerized membrane filtration systems from approved equal manufacturers (see Technical Specification Section 46 61 34, Part 1.01.B.4), subject to the following conditions:
1. Bidder/Contractor is responsible for ALL costs associated with redesign, engineering, additional equipment, and integration required to accommodate 15 the alternate system.
2. If the alternate system does not include components that are integrated in the Aria Filtra T96 (such as filtrate storage tank and high-service filtrate pumps), Bidder must include the cost of providing equivalent components (e.g., a

separate filtrate pump station) in the Base Bid. No change orders or additional compensation will be granted for such equipment or design work.

3. Refer to Technical Specification Section 46 61 34, Part 1.01.B.5 for complete requirements and examples of Contractor responsibilities for alternate systems.

C. Bidders are advised to carefully review Section 46 61 34 before pricing alternate membrane systems to ensure all required components and design services are included in the bid price.

SECTION C410 – BID FORM FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

1.01 This Bid is submitted to: **Skamania County PUD No. 1, 1492 Wind River Hwy, Carson, Washington 98610.**

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

1.03 This project will be partially funded with Federal funds from the United States Department of Agriculture, Rural Development and the US Environmental Protection Agency and therefore is subject to the Federal laws and regulations associated with these programs. By submitting a bid, the bidder agrees to comply with these programs.

ARTICLE 2—ATTACHMENTS TO THIS BID

2.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security;

B. List of Proposed Subcontractors in accordance with RCW 39.30.060;

C. Proposed Supplier/Subcontractor for the welded steel tank;

D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;

E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;

F. Required Bidder Qualification Statement C-451 with supporting data;

G. If Bid amount exceeds $10,000, signed Compliance Statement (RD 400-6). Refer to specific equal opportunity requirements set forth in the Supplementary Conditions of the Construction Contract (EJCDC C-800);

H. If the Bid amount exceeds $25,000, signed Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion - Lower Tier Covered Transactions (AD-1048);

I. If the Bid amount exceeds $100,000, signed RD Instruction 1940-Q Exhibit A-1, Certification for Contracts, Grants, and Loans.

J. If the public works contract is awarded after July 1, 2024 and the contract price is in excess of $2,000,000, provisions of the Washington State Apprenticeship Act which includes minimum Apprenticeship Utilization Requirements (AURs), incentives and penalties as described in RCW 39.04.320, RCW 39.04.340 and RCW 39.04.350 apply.

K. Signed certification of Good Faith Efforts, Contract Language Administration and Contract Language.

L. Signed certification of Sworn Statement of Compliance with Small, Women and Minority Business Utilization Requirements.

M. Signed Certification Regarding Lobbying Activities

N. Signed certification letter stating that the Containerized Membrane Filtration System as specified in 46 61 34 complies with the American Iron and Steel and BABA requirements. Note: no waivers will be granted for this equipment.

ARTICLE 3—BASIS OF BID—BASE BID LUMP SUM AND ADDITIVE ALTERNATE LUMP SUM BIDS

Bidders must submit lump sum prices for each Base Bid Item and each Additive Alternate Bids. The award of the Bid will be to a single contractor and will be based on the lowest total responsive and responsible Base Bid. The Owner may or may not choose to award an Additive Alternate.

A. Base Bid - Lump Sum Bids

Item 1: Lump Sum Bid Price	$
Item 2: Trench Excavation Safety Systems Lump Sum Price	$
Item 3: Washington State Sales & Use Taxes (7.7%) Lump Sum Price	$
Total Base Bid Price	$

B. Additive Alternate Lump Sum Bids (see description in 01 10 00 Summary of Work)

Alternate A – Canopy (Additive)	$
Alternate A - Washington State Sales & Use Taxes	$
Total Additive Alternate A Bid Price	$
Alternate B – Standby Generator (Additive)	$
Alternate B - Washington State Sales & Use Taxes	$
Total Additive Alternate B Bid Price	$

ARTICLE 4—DELETED

ARTICLE 5—DELETED

ARTICLE 6—TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions within the number of calendar days indicated in the Agreement.

6.02 Deleted.

6.03 Deleted.

6.04 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 7—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

7.01 *Bid Acceptance Period*

A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

7.02 *Instructions to Bidders*

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

7.03 *Receipt of Addenda*

A. Bidder hereby acknowledges receipt of the following Addenda: **Add rows as needed. Bidder is to complete table.**

Addendum Number	Addendum Date

ARTICLE 8—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

8.01 *Bidder's Representations*

A. In submitting this Bid, Bidder represents the following:

1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work including all Domestic Preference requirements and Washington State Apprenticeship Utilization Requirements.
4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

9. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

8.02 *Bidder's Certifications*

A. The Bidder certifies the following:

1. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.

2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.

3. Bidder has not solicited or induced any individual or entity to refrain from bidding.

4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:

a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.

b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.

c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.

d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

5. BIDDER CERTIFICATIONS (RCW 39.04.350)

[ ] Bidder (or designated employee _____ _____) completed WA prevailing wage training approved by L&I.

OR

[ ] Bidder qualifies for training exemption: ≥3 public works projects completed in WA AND ≥3 years WA business license held.

a. Bidder acknowledges false certification may result in disqualification and debarment.

6. BUILD AMERICA, BUY AMERICA ACT (BABAA) CERTIFICATION

a. Bidder certifies:

1) Bidder has reviewed Build America, Buy America Act (BABAA) requirements in Section 01 42 18 and Appendix [Vol 3, Attachments A & B].

2) Bidder understands that all iron, steel, manufactured products, and construction materials incorporated into the Work must comply with BABAA (produced in the United States) unless a waiver is obtained from USDA/EPA.

3) Bidder's Base Bid price and Additive Alternate prices include full cost of BABAA-compliant materials and products.

4) Bidder identifies the following products (if any) that do NOT comply with BABAA and for which Bidder requests Owner to pursue waiver:

Product Description:

_____

Manufacturer/Country of Origin:

_____

Reason for Noncompliance:

_____

Estimated Cost Premium if U.S.-Compliant Product Required: $_____

(Attach additional sheets if needed)

5) If no products listed above, Bidder certifies that all products proposed for the Work are BABAA-compliant to the best of Bidder's knowledge based on manufacturer representations.

6) Bidder acknowledges that false certification may result in bid rejection, contract termination, or debarment from future public works contracts.

7. MEMBRANE FILTRATION SYSTEM ACKNOWLEDGMENT

a. Bidder acknowledges that the containerized membrane filtration system is based on the Aria Filtra T96 trailer, which includes integrated filtrate storage tank and filtrate forwarding pumps. If Bidder's price is based on an alternate membrane system, Bidder confirms that the Base Bid price includes ALL costs for: Redesign and engineering (stamped by Washington-licensed PE); Additional equipment required for equivalent functionality (e.g., external filtrate pump station if alternate system does not include integrated filtrate pumps); Integration with site layout, electrical, controls, and SCADA systems; Regulatory review and permitting updates.

b. Bidder understands that NO CHANGE ORDERS or additional compensation will be granted for redesign or equipment required to implement an alternate membrane system.

BIDDER'S PROPOSED MEMBRANE SYSTEM MANUFACTURER:

_____

(IF ARIA FILTRA T96, WRITE "ARIA FILTRA – BASIS OF DESIGN")

BIDDER hereby submits this Bid as set forth above:

Bidder:

_____

(typed or printed name of organization)

By: _____

(individual's signature)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Date: _____

(typed or printed)

If Bidder is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.

Attest: _____

(individual's signature)

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Date: _____

(typed or printed)

Address for giving notices:

_____

_____

Bidder's Contact:

Name: _____

(typed or printed)

Title: _____

(typed or printed)

Phone: _____

Email: _____

Address:

_____

_____

_____

Bidder's Contractor License No.: (if applicable) _____

SECTION 01 10 00 – SUMMARY OF WORK

PART 1 -- GENERAL

1.01 THE SUMMARY

A. The Work to be performed under this Contract shall consist of furnishing plant, tools, equipment, materials, supplies, and manufactured articles, and furnishing all labor, transportation, and services, including fuel, power, water, and essential communications, and performing all work or other operations required for the fulfillment of the Contract in strict accordance with the Contract Documents. The Work shall be complete, and all work, materials, and services not expressly indicated or called for in the Contract Documents which may be necessary for the complete and proper construction of the Work in good faith shall be provided by the Contractor as though originally so indicated, at no increase in cost to the Owner.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Reference Specifications

01 33 00	Submittal Procedures

1.03 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this Contract comprises the construction of a new one million gallon per day water filtration plant which includes:

1. Modifications to the influent and effluent pipelines

2. Repurposing the existing Filtered Water Pump Station for use as a Raw Water Pump Station.

3. Skid-mounted membrane equipment housed in a weather-resistant enclosure provided by the manufacturer

    a. The basis of design is the Aria Filtra “Aria FAST T96” containerized membrane filtration system. Bids may propose an approved equal membrane system; however, any alternate system must match or exceed the performance and functional integration of the basis of design. The contractor is responsible for all redesign, design adjustments and additional components (e.g., external filtrate pumping systems, additional tanks, electrical/control modifications) necessary for an alternate system, at no extra cost to the Owner. See Section 46 61 34, Part 1.01.B.5.

4. A pre-engineered metal building containing:

    a. Control room and lab

    b. Bathroom

    c. Chemical storage and feed equipment

5. Retrofit of the existing water treatment plant for backwash clarification

6. Construction of a new Chlorine Contact Tank

7. Retrofit of the existing pond/basin for solids storage

8. An underground Clean-In-Place storage tank

B. The following is a list of additive alternate bid items. These items may be included in the project if the District's budget is sufficient.

1. The covered canopy, which extends from the Chemical Building to the membrane treatment units

a. SCOPE INCLUDED IN ALTERNATE NO. 1:

1) Design (stamped by WA-licensed PE), fabrication, and installation of covered canopy/walkway structure extending from Chemical Building to containerized membrane filtration units

2) Structural steel frame and columns

3) Concrete spread footings for canopy columns

4) Roof panels (standing seam metal or approved equal, matching Chemical Building roof type and color per NSA permit requirements)

5) Side wall panel (pre-finished metal wall or approved equal, matching Chemical Building wall type and color per NSA permit requirements)

6) Roof flashing, gutters, and downspouts

7) Connections to Chemical Building exterior wall (coordinate with Architect; do not penetrate roofing membrane)

8) Perimeter fascia and trim

9) LED lighting fixtures integrated into canopy structure (qty: TBD by Contractor based on lighting design; minimum 10 FC average maintained illumination at grade)

10) Electrical conduit, wiring, and connections to lighting panel in Chemical Building

11) Refer to Drawings: 20A-101 (Canopy Plan), 20A-201 (Canopy Elevations/Sections) and Specification Section 13 34 19 Metal Building Systems,

b. SCOPE EXCLUDED FROM ALTERNATE NO. 1 (INCLUDED IN BASE BID REGARDLESS OF ALTERNATE ACCEPTANCE):

1) Concrete walkway paving between Chemical Building and membrane units (Base Bid – see Civil Drawings)

2) Drainage provisions for walkway area (Base Bid – see Civil Drawings)

3) Chemical Building exterior wall finishes and entry doors (Base Bid – see Architectural Drawings)

2. Standby power generator and automatic transfer switch. Provide and install the concrete equipment slab and electrical conduit to the edge of the switchboard concrete slab for the standby power generator and load bank ~~automatic transfer switch~~ as part of this Contract, irrespective of the Owner's acceptance of the associated additive bid item.

   a. SCOPE INCLUDED IN ALTERNATE NO. 2:

      1) Outdoor diesel standby generator, sound-attenuated weather-resistant enclosure

      2) Sub-base fuel tank (minimum 24-hour full-load operation) integrated with generator base

      3) Load bank

      4) Generator power and control conduits and conductors to ATS

      5) SCADA/PLC integration: conduits and conductors to plant PLC (coordinate with Section 40 90 10 Control Strategies)

      6) Commissioning, testing, and operator training for the generator and load bank

      7) Diesel fuel

      8) As-built drawings and O&M manuals

      9) Refer to Drawings: E-101, E-601, E-602 (Electrical One-Line Diagrams and Site Plan), Specification Section 26 32 13 (Standby Power Generation)

   b. SCOPE EXCLUDED FROM ALTERNATE NO. 2 (INCLUDED IN BASE BID REGARDLESS OF ALTERNATE ACCEPTANCE):

      1) Concrete equipment pad for generator (as required by generator manufacturer; see Structural Drawings or Civil Drawings)

      2) Underground conduit stub-outs from main switchboard to generator pad location (conduits only; no conductors) – Base Bid (see Electrical Drawings)

      3) Grounding grid and ground rods at generator pad location – Base Bid (see Electrical Drawings)

      4) Space reservation in main switchboard or electrical room for future Automatic Transfer Switch (if ATS is to be installed indoors) – Base Bid (Contractor: verify ATS location with Owner during submittal phase)

3. IMPORTANT NOTES FOR ADDITIVE ALTERNATES:

a. ENABLING WORK IN BASE BID: Certain preparatory work for Additive Alternates is included in the Base Bid to allow future installation even if Alternates are not accepted at bid award. This includes concrete pads, conduit stub-outs, and space reservations as noted above. Bidders shall include full cost of this enabling work in Base Bid, and include only the incremental cost of the alternate scope (equipment, installation, wiring, commissioning) in the Alternate prices.

b. ACCEPTANCE PROCEDURE: Owner will evaluate Alternates after bid opening based on available budget. If an Alternate is not accepted, Contractor shall complete the enabling work included in Base Bid (pads, stub-outs, etc.) to allow Owner to add the equipment in the future under separate contract.

c. DESIGN RESPONSIBILITY: If an Alternate is accepted, Contractor is responsible for all engineering design, stamped drawings, and equipment submittals for that Alternate. Design must be signed and sealed by Washington-licensed PE (Structural for canopy; Electrical for generator/ATS).

d. PERMITTING: All work under accepted Alternates must comply with Skamania County building permit, NSA permit conditions (colors, materials, setbacks), and Washington Department of Health requirements. Contractor responsible for permit modifications if Alternate work triggers review (coordinate with Engineer).

C. The Work is located at the Owner's water filtration plant, approximately 1/4-mile south of the intersection of Kid Ln. and Old Detour Rd. in the town of Carson, Washington.

1.04 CONTRACT METHOD

A. The Work hereunder will be constructed under a single lump sum contract.

1.05 WORK BY OTHERS

A. Where 2 or more contracts are being performed at one time on the same Site or adjacent land in such manner that work under one contract may interfere with work under another, the Owner will determine the sequence and order of the Work in either or both contracts. When the Site of one contract is the necessary or convenient means of access for performance of work under another, the Owner may grant privilege of access or other reasonable privilege to the contractor so desiring, to the extent, amount , and in manner and at time that the Owner may determine. No Owner determination of method or time or sequence or order of the work or access privilege shall be the basis for a claim for delay or damage except under provisions of the General Conditions for temporary suspensions of the work. The Contractor shall conduct its operations so as to cause a minimum of interference with the work of such other contractors and shall cooperate fully with such contractors to allow continued safe access to their respective portions of the Site, as required to perform work under their respective contracts.

B. Interference With Work On Utilities**:** The Contractor shall cooperate fully with all utility forces of the Owner or forces of other public or private agencies engaged in the relocation, altering, or otherwise rearranging of any facilities which interfere with the progress of the Work, and shall schedule the Work so as to minimize interference with said relocation, altering, or other rearranging of facilities.

1.06 WORK SEQUENCE

A. The Contractor's attention is directed to the fact that no interruption in the flow can be accommodated during high water demand, typically July 15 through August 15. The Contractor shall so schedule its construction operations that no interference with the operation of the plant will occur during this critical period.

B. Access to the site is limited to the hours of 7:00 am to 5:00 pm.

1.07 CONTRACTOR USE OF SITE

A. The Contractor's use of the Site shall be limited to its construction operations, including on-Site storage of materials, on-Site fabrication facilities, and field offices.

1.08 OUTAGE PLAN AND REQUESTS

A. Unless the Contract Documents indicate otherwise, the Contractor shall not remove from service, de-energize, or modify settings for any existing operating tank, pipeline, valve, channel, equipment, structure, road, or any other facility without permission from the Engineer.

B. Where the Work requires modifications to existing facilities or construction of new facilities and connection of new facilities to existing facilities, the Contractor shall submit a detailed outage plan and schedule for the Engineer’s approval a minimum of 2 weeks in advance of the time that such outage is planned.

C. A completed System Outage Request form (blank furnished by the Engineer) shall accompany each outage plan. The outage plans shall be coordinated with the construction schedule and shall meet the restrictions and conditions of the Contract Documents.

D. The Engineer shall be notified in writing at least one week in advance of the required outage if the schedule for performing the work has changed or if revisions to the outage plan are required.

E. The Contractor shall provide written confirmation of the shutdown date and time 2 working days prior to the actual shutdown.

F. Reference Section 01 14 00 – Construction Constraints for allowable outage durations

1.09 OWNER USE OF THE SITE

A. The Owner may utilize all or part of the existing facilities during the entire period of construction for the conduct of the Owner's normal operations. The Contractor shall cooperate and coordinate with the Owner to facilitate the Owner's operations and to minimize interference with the Contractor's operations at the same time. In any event, the Owner shall be allowed access to the Site during the period of construction.

1.10 PROJECT MEETINGS

A. Preconstruction Conference

1. Prior to the commencement of Work at the Site, a preconstruction conference will be held at a mutually agreed time and place. The conference shall be attended by the Contractor's Project Manager, its superintendent, and its subcontractors as the Contractor deems appropriate. Other attendees will be:

    a. Engineer and the Resident Project Representative.

    b. Representatives of Owner.

    c. Governmental representatives as appropriate.

    d. Others as requested by Contractor, Owner, or Engineer.

    e. The Contractor shall bring the preconstruction conference submittals in accordance with Section 01 33 00 – Submittal Procedures.

2. The purpose of the conference is to designate responsible personnel and establish a working relationship. Matters requiring coordination will be discussed and procedures for handling such matters established. The complete agenda will be furnished to the Contractor prior to the meeting date. However, the Contractor should be prepared to discuss all of the items listed below.

    a. Status of Contractor's insurance and bonds.

    b. Contractor's tentative schedules.

    c. Transmittal, review, and distribution of Contractor's submittals.

    d. Processing applications for payment.

    e. Maintaining record documents.

    f. Critical work sequencing.

    g. Field decisions and Change Orders.

    h. Use of Site, office and storage areas, security, housekeeping, and Owner's needs.

    i. Major equipment deliveries and priorities.

    j. Contractor's assignments for safety and first aid.

    k. Daily Report Form which the Engineer will furnish.

    l. Submittal Transmittal Form which the Engineer will furnish.

    m. Tracking of long lead equipment and materials

3. The Engineer will preside at the preconstruction conference and will arrange for keeping and distributing the minutes to all persons in attendance.

4. The Contractor and its subcontractors should plan on the conference taking no less than 0.5 a working day. The preconstruction conference will cover the items listed in paragraphs 2 and 3, and a review of the Drawings and Specifications, in extensive detail, with the Engineer and the Owner.

B. Progress Meetings

1. The Engineer will schedule and hold regular on-Site progress meetings at least weekly and at other times as requested by Contractor or as required by progress of the Work. The Contractor, Engineer, and all subcontractors active on the Site shall attend each meeting. Contractor may at its discretion request attendance by representatives of its suppliers, manufacturers, and other subcontractors.

2. The Engineer will preside at the progress meetings and will arrange for keeping and distributing the minutes. The purpose of the meetings is to review the progress of the Work, maintain coordination of efforts, discuss changes in scheduling, and resolve other problems which may develop. During each meeting, the Contractor shall present any issues that may impact its progress with a view to resolve these issues expeditiously.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01 14 00– CONSTRUCTION CONSTRAINTS

PART 1 -- GENERAL

1.01 THE SUMMARY

A. Work shall be scheduled, sequenced, and performed in a manner which minimizes disruption to the public and to the operation and maintenance of existing facilities.

B. The Contractor shall incorporate the construction and schedule constraints of this Section in preparing the construction schedules required under Section 01 32 14 – Barchart Construction Schedule.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Reference Specifications

01 32 14	Barchart Construction Schedule
01 50 10	Protection of Existing Facilities

1.03 EXISTING PLANT

A. The Work shall be executed while the existing water treatment plant is in operation. Operation of the existing plant shall not be jeopardized nor shall the efficiency of water treatment be reduced as a result of the execution of the Work.

B. Unless indicated otherwise, temporary pumping, piping, power, lighting, controls, instrumentation, alarms, security devices, and safety devices shall be provided by the Contractor whenever its activity or interruption due to its activity affects the existing facility.

C. The construction constraints in this Section do not include every item affecting the completion of the Work but are intended to describe the sequence of critical events necessary to minimize disruption to the ongoing treatment plant processes and to ensure compliance with Permit requirements. It shall be understood and agreed by the Contractor that the critical events described are not inclusive and that additional items of Work not included may be required to minimize disruption and ensure compliance. Deviation from or modification of these suggested sequences is permitted if techniques and methods known to the Contractor will result in reducing disruption to the facility operation and maintaining treatment efficiency, and if deviation is approved in advance by the Engineer.

1.04 OPERATION OF PLANT EQUIPMENT

A. Operational functions or shutdown of the existing plant required to facilitate Contractor's operation will be done by the Owner's personnel only.

B. The plant operation and maintenance personnel will cooperate in every way that is practical in order to facilitate Contractor's operation. However, certain shutdown and connections may only be permissible at times other than normal working hours such as nights or weekends. No additional payment will be made to the Contractor for any night, weekend, or holiday premium or overtime payments.

C. If it becomes necessary for the proper operation or maintenance of portions of the plant, the Owner may require the Contractor to reschedule an approved shutdown. The Contractor shall then reschedule its operations so there shall be no conflict with necessary operations or maintenance of the plant. The Contractor shall, within 2 Days, furnish the Engineer a revised outage request and a plan for rescheduling the shutdown in accordance with the requirements of the construction schedule.

1.05 OUTAGE REQUESTS

A. Modifications to existing facilities, the construction of new facilities, and the connection of new to existing facilities may require the temporary outage or bypass of existing treatment processes or facilities. In such cases, the Contractor shall coordinate Work with the Engineer as described below. The Contractor shall submit a detailed outage plan and time schedule for construction activities which will make it necessary to remove a tank, pipeline, channel, electrical circuit, equipment, structure, road, or other facilities from service.

B. The outage plans shall be submitted to the Engineer for acceptance a minimum of 2 weeks in advance of the time that such outages are required. The outage plans shall be coordinated with the construction schedule and shall meet the restrictions and conditions of this Section. The outage plan shall describe the Contractor's method for preventing bypassing of other treatment systems; the length of time required to complete the operation; any necessary temporary power, controls, instrumentation, or alarms required to maintain control, monitoring, and alarms for the treatment plant processes; and the manpower, plant, and equipment which the Contractor shall provide in order to ensure proper operation of associated treatment units. Costs for preparing and implementing the outage plans shall be the responsibility of the Contractor as part of the Work.

C. The Contractor shall not begin an alteration affecting existing facilities until specific written approval has been granted by the Engineer in each case.

D. The Engineer will coordinate the Contractor's planned procedure with the treatment facility personnel. The Engineer has the authority to modify any proposed shutdown procedures if such procedures would adversely impact the plant operations.

E. Reference Section 01 10 00 – Summary of Work for outage instructions.

F. The contractor shall also account for plant recovery time between interruptions. The acceptable duration of seasonal interruptions and minimum recovery time are summarized below:

Schedule	**Maximum Allowable Interruption**	**Minimum Recovery Between Interruptions**
June 15 – July 14	24 hours	48 hours
July 15 – August 15	prohibited	
August 16 – September 15	24 hours	48 hours
September 16 – November 15	48 hours	24 hours
November 16 – March 15	3 days	24 hours
March 16 – June 14	48 hours	24 hours

1.06 TEMPORARY CONNECTIONS

A. Making connections to existing facilities or other operations that interfere with the operation of the existing equipment shall be thoroughly planned in advance, and required equipment, materials, and labor shall be on hand at the time of undertaking the connections. Work shall be completed as quickly as possible and with as little delay as possible and shall proceed continuously (24 hours a day and seven days a week) if necessary to complete modifications and/or connections in the minimum time.

B. The cost of any temporary facilities and night, weekend, or holiday activity and overtime payments required during process interruptions shall be included in the Work.

C. Temporary facilities and piping shall be located to minimize interference with Contractor's construction facilities and Owner's operation and maintenance of the wastewater treatment plant. Unless otherwise indicated, each temporary pipeline shall be of the same size as its connection to the existing or permanent facility at the downstream end of the pipeline. Piping materials shall be suitable for the material being conveyed and be as required in the Contract Specifications.

D. When temporary electrical power, controls, instrumentation, or alarms are required for routine continuous operations of existing or new equipment, the Contractor shall provide the necessary equipment and appurtenances. Prior to installing said equipment and appurtenances, Contractor shall furnish a submittal on the proposed components and installation for Engineer's review and approval.

E. A plan showing the size and location of the temporary facilities and piping shall be submitted to the Engineer at the same time as the outage plan required under this Section. Costs for design, provision, operation, and removal of temporary facilities and piping shall be part of the Work.

1.07 CONSTRUCTION SEQUENCING

A. General: It is the Contractor's responsibility to coordinate and plan the construction activities to integrate each schedule constraint into performance of the overall Work.

B. Construction activities shall be scheduled and sequenced to ensure continuous operation of the existing treatment facilities. The Contractor's scheduling shall develop construction sequencing so that the Work will not adversely impact treatment. The Contractor shall be responsible for development of the construction sequencing. In implementing the construction sequencing, the Contractor shall maintain the existing facilities in service until new facilities are constructed and are operational to supplement the existing capacity. When new facilities are operational, the existing facilities may be taken out of service. The following general guidelines shall be used by the Contractor in planning the sequence of construction.

1. Safe working conditions for personnel shall be maintained during rehabilitation, modification, and demolition Work. The foregoing includes at least proper trench excavation, the provision of temporary equipment guards, supports, warning signs, walkways, covers over openings, handrailing, and protection of electrical equipment and power supply.

2. Temporary facilities shall be constructed in accordance with applicable codes and regulations to operate safely and properly.

3. Valves to be temporarily shut off during the Work shall be tagged as such and shall be wired shut with a crimped lead seal and padlocked. Shut off shall be supervised by facility staff.

4. Electrical and mechanical equipment shall be similarly shut down and locked out, tagged out.

C. CONSTRUCTION PHASING

1. GENERAL PHASING REQUIREMENTS

a. Construction shall be phased to maintain continuous water service to the Carson water system throughout the project. The existing water treatment plant shall remain operational until the new membrane filtration system is fully commissioned, tested, and approved by Washington Department of Health (DOH).

b. Two construction phases are defined:

1) PHASE I: Install new treatment systems while existing plant operates

2) PHASE 2: Decommission or repurpose old facilities after new system online

c. Contractor shall submit a detailed Construction Phasing Plan within 14 days of Notice to Proceed, including:

1) Sequence of work for Phase I and Phase 2

2) Temporary piping, valves, and connections required to maintain service

3) Outage schedule (must comply with restrictions in Part 1.08 below)

4) Coordination procedures with PUD operations staff

5) Contingency plans for equipment failures or construction delays

d. Phasing Plan shall be reviewed and approved by Engineer and Owner before proceeding with Phase I work.

2. Phase 1 – NEW SYSTEM INSTALLATION (EXISTING PLANT OPERATIONAL)

a. PHASE I SCOPE (work performed while existing WTP remains in service):

1) Site Work:

a) Clearing, grubbing, and rough grading

b) Stormwater erosion control measures (TESC per approved plan)

c) Temporary construction fencing and access roads

2) New Facilities Construction:

a) Containerized membrane filtration system (foundation, setting, utility connections). Membrane container startup, acceptance testing, Owner approval, and Department of Health approvals must be achieved before proceeding to Phase 2.

b) Chemical Building (foundations, structure, finishes, HVAC, electrical)

c) Chemical storage tanks and feed systems (coagulant, disinfection, pH adjustment)

d) Chlorine Contact Tank (structure, baffles, piping connections)

e) CIP Waste Storage Tank (tank, pumps, controls)

f) Solids Handling Basin (partial construction; see Phase I limits on Drawings

g) Stormwater detention pond and flow spreader

~~h) Membrane container startup, acceptance testing, Owner approval, and Department of Health approvals must be achieved before proceeding to Phase 2.~~

3) The Phase 1 piping arrangement is indicated on the drawings and includes:

a) Installation of a coagulant dosing system in the existing raw water meter vault

b) A connection to the existing raw water pipeline which will route flow to the membrane system using gravity flow from Bear Creek, i.e, bypassing the Raw Water Pump Station.

c) Two vertically oriented blind flanges can be used to route filtered water back to the raw water pipeline during commissioning to recirculate during testing. The Contractor shall provide a tee, valve, and piping to route filtered water to the solids handling basin.

d) Reverse Flow piping shall be installed to send backwash waste to the existing Solids Handling Basin if the Contractor deems it constructible. If one or both Solids Handling Basin's cannot be constructed, the Contractor will be required to pump and treat backwash water which can be discharged to the stormwater flow spreader.

4) Temporary Connections (Phase I only – removed in Phase II):

a) Temporary raw water piping from Bear Creek intake to new membrane system (gravity flow; bypasses existing sedimentation basins and filters)

b) Temporary coagulant injection point in raw water line upstream of membrane system

c) Temporary backwash waste piping from membrane system to existing lagoon (until new Solids Handling Basin is operational)

d) Temporary air gap or physical separation between new membrane filtrate and existing filtered water system (required by DOH until new system approved)

e) Valving arrangement to isolate new system from existing system (double block-and-bleed or physical disconnect)

b. Phase 1 constraints include:

1) The Contractor cannot make a direct connection to the existing Filtered Water Pump Station (new Raw Water Pump Station) during Phase 1.

2) The Contractor cannot make a connection to the existing filtered water pipeline during Phase 1 unless an air-gap is provided.

3) The CIP Waste Storage Tank should be constructed, as well as the septic/drainfield, so that Clean-In-Place waste can be discharged properly.

4) The stormwater system flow spreader shall be installed.

5) The existing water treatment plant filters will need to be backwashed during construction; the Solids Handling Basin, or a portion thereof will need to remain in service. Alternatively, the Contractor can pump and treat backwash water and discharge it to the stormwater flow spreader.

6) Existing WTP must remain operational at all times (no interruptions to water production except during approved outage windows per Part 1.08)

7) Existing filters, clearwell, and high-service pumps continue to serve distribution system

8) Existing backwash system remains operational (backwash waste to lagoon)

9) Coordinate with PUD operators for any work near existing facilities (daily coordination meetings required)

c. Phase I Completion Criteria:

1) New membrane filtration system installed and ready for startup

2) Chemical feed systems installed and calibrated

3) Chlorine Contact Tank complete and filled with Geomembrane baffles installed

4) Control system (SCADA/PLC) programmed and tested

5) Startup testing per Section 01 66 00 or 46 61 34 (pressure decay tests, turbidity monitoring, etc.)

6) Washington Department of Health review and approval of startup test results

7) Operator training completed (minimum 40 hours per Section 01 79 00 or O&M Manual requirements)

8) New system placed into service and successfully operated for minimum 30 days (demonstration period)

d. NO PHASE II WORK SHALL BEGIN UNTIL:

1) New membrane filtration system is fully operational and approved by DOH

2) Owner issues written authorization to proceed to Phase 2

3) 30-day demonstration period successfully completed

3. Once Phase 1 is complete, the Contractor shall place the membrane system into full service so that:

a. Demolition of the existing filtration systems can be completed to accommodate conversion to backwash clarification.

b. The existing filtered water tank and pump station can be converted to the new Raw Water Pump Station.

4. PHASE 2 – SWITCHOVER AND DECOMMISSIONING (NEW PLANT OPERATIONAL)

a. PHASE II SCOPE (work performed after new membrane WTP approved and operational):

1) Permanent Tie-Ins and Piping Modifications:

a) Remove temporary raw water piping installed in Phase I

b) Install permanent raw water piping from Bear Creek intake to existing Filtered Water Pump Station (which will be converted to Membrane Feed Pump Station per Drawings)

c) Connect new membrane system filtrate to Chlorine Contact Tank and existing clearwell/distribution system (remove air gap or physical separation after DOH approval)

d) Tie CIP waste system to septic system or arrange for periodic pump-out (coordinate with Skamania County septic permit OSD-COM-25-001)

2) Demolition and Repurposing:

a) Decommission existing sedimentation basins and filters (drain, clean, remove equipment, or repurpose per Drawings)

b) Modify existing sedimentation basin into new Solids Handling Basin/Clarifier (install geomembrane baffles, underdrains, sludge removal system per Section 13 38 00 and Drawings)

c) Remove or abandon old chemical feed equipment (coordinate with Owner; some equipment may be salvaged)

d) Cap or remove old filtered water piping no longer in use

e) Demolish or repurpose old pump stations not required for new system

3) Site Completion:

a) Final grading and paving (access roads, parking areas, equipment pads)

b) Landscaping and erosion control (permanent seeding, mulch, plantings per NSA permit and Drawings

c) Final stormwater controls (remove TESC; install permanent stormwater features)

d) Fencing, signage, and security lighting

4) Commissioning and Closeout:

a) Final system testing (entire WTP operating in permanent configuration)

b) Tracer study for Chlorine Contact Tank (per DOH conditional approval; submit plan before final closeout)

c) As-built drawings and O&M manuals

d) Training (supplemental training on Phase II changes if required)

e) Final inspection by Engineer, Owner, DOH, and Skamania County Building Official

5) Phase II Completion Criteria:

a) All permanent piping and equipment operational

b) Old facilities decommissioned or repurposed as shown on Drawings

c) Site restoration complete

d) All permits closed out (building, septic, environmental)

e) Final payment application submitted

5. PHASING SCHEDULE MILESTONES (Approximate; Contractor to confirm in CPM schedule)

a. Notice to Proceed: Day 0

b. Phase I Construction: Days 1 – 365 (12 months)

c. New Membrane System Startup Testing: Days 330 – 365

d. DOH Review and Approval: Days 365 – 395 (30 days)

e. 30-Day Demonstration Period: Days 395 – 425

f. Owner Authorization to Proceed to Phase II: Day 425

g. Phase II Construction: Days 426 – 545 (4 months)

h. Substantial Completion: Day 545 (18 months from NTP)

i. Final Completion: Day 575 (19 months from NTP)

6. REFER TO DRAWINGS:

a. Process Flow Diagrams: G-601 (Phase I), G-602 (Phase 2)

1.08 PERMITS

A. The Contractor shall abide by the conditions of permits and shall obtain proof of satisfaction of conditions from issuers of permits prior to acceptance of the Work by the Owner.

B. Conditions affecting the Contractor are found in the following permits.

1. Building Permit – by Owner.

2. Skamania County Septic and Drainfield Permit – Submitted by Owner, finalized by Contractor.

a. Design has been submitted to the County and permit is good for 2 years from February, 2026

3. National Scenic Area – Clear and Grade Permit – By Owner.

4. Electrical, plumbing, HVAC and other trade permits as required – by Contractor.

5. NPDES permits for discharges of water used for startup, disinfection, or cleaning – by Contractor.

6. Erosion Control – by Contractor.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01 32 14 – BARCHART CONSTRUCTION SCHEDULE

PART 1 -- GENERAL

1.01 THE SUMMARY

A. The Contractor shall schedule the Work in accordance with the Contract Documents.

B. Where submittals are indicated, submit a PDF document.

C. The Contractor is alerted to Section 01 14 00 – Construction Constraints.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. Reference Specifications

01 14 00	Construction Constraints
00 80 00	Supplementary Conditions of the Construction Contract

1.03 INITIAL SCHEDULE SUBMITTALS

A. The Contractor shall submit 2 schedule documents at the Preconstruction Conference that shall serve as the Contractor's Plan of Operation for the initial 60 Day period of the Contract Times and shall identify the manner in which the Contractor intends to complete Work within the Contract Time. The Contractor shall submit a 60 Day Plan of Operation Bar Chart Schedule and a Project Overview Bar Chart Schedule for Work as indicated below.

1. 60 Day Bar Chart Plan of Operation Schedule: The bar chart shall show the Contractor's early activities (mobilization, permits, submittals necessary for early material and equipment procurement, submittals necessary for long lead equipment procurement, scheduling submittals, initial site work, and other submittals) required in the first 60 Days).

2. Project Overview Bar Chart Schedule: The Bar Chart shall indicate the major components of the Work and the sequence relations between the major components and subdivisions of major components. The bar chart schedule shall indicate the relationships and time frames in which the various components of the Work will be made substantially complete and placed into service in order to meet the Contract Times. Sufficient detail shall be included for the identification of subdivisions of major components according to such activities as mobilization, site dewatering, excavation, demolition, yard piping installation, placement of structural backfill, final site grading, and other important Work for each major item within the overall project scope. Planned durations and start dates shall be indicated for each work item subdivision. Each major component and subdivision component shall be accurately plotted on time scale sheets not to exceed 36-inches by 60-inches in size. Not more than 4 sheets shall be employed to represent this overview information.

B. The Engineer and the Contractor shall meet to review and discuss the 60 Day Plan of Operations and Project Overview Schedules within 5 Days after submittal. The Engineer's review and comment on the schedules will be limited to conformance to the Contract Documents. The Contractor shall make corrections to the schedules necessary to comply with requirements and shall adjust the schedules to incorporate any missing information requested by the Engineer.

1.04 PHASING MILESTONES IN SCHEDULE

A. CPM schedule shall clearly delineate Phase I and Phase II activities per Section 01 14 00.

B. Include the following milestone activities (zero-duration events):

1. "PHASE I START" – Begin new system construction

2. "PHASE I NEW MEMBRANE SYSTEM STARTUP TESTING COMPLETE" – All startup tests passed (pressure decay, turbidity, controls verification)

3. "DOH APPROVAL RECEIVED – NEW SYSTEM OPERATIONAL" – DOH issues written approval

4. "30-DAY DEMONSTRATION PERIOD COMPLETE" – New system successfully operated for 30 days

5. "OWNER AUTHORIZATION TO PROCEED TO PHASE II" – Owner issues NTP for Phase II

6. "PHASE II START" – Begin decommissioning and permanent tie-ins

7. "PHASE II SUBSTANTIAL COMPLETION" – All permanent systems operational, site complete

C. Logic ties:

1. All Phase II activities must have predecessor constraint: "OWNER AUTHORIZATION TO PROCEED TO PHASE 2"

2. No Phase 2 work may be scheduled to start before this milestone

3. If Contractor proposes to accelerate schedule by overlapping Phase I and Phase 2, submit justification and contingency plan (subject to Owner approval; no overlap allowed if it risks water service interruption)

1.05 CHANGE ORDERS

A. Upon approval of a change order or upon receipt of authorization to proceed with additional Work, the change shall be depicted in the next submittal of the Project Overview Bar Chart Schedule.

1.06 STATUS REPORTING

A. The Contractor shall furnish monthly Project Overview Bar Chart Schedules and written narrative reports in the form indicated below.

B. The Project Overview Bar Chart Schedule shall be a summary of the current construction schedule for major project components (original and as updated and adjusted throughout the entire construction period). It shall be limited to not more than 4 pages and shall be a PDF document. The major project components shall be represented as time bars which shall be subdivided into various types of Work including dewatering, excavation, demolition, yard piping, placement of structural backfill, and final site grading.

C. Each major component and subdivision shall be plotted accurately on a time scale consistent with the early start and finish activity information contained in the latest update of the schedule. In addition, a percent completion shall be listed for each major component and subdivision. The Contractor shall amend the Project Overview Bar Chart Schedule as necessary to include any additional detail required by the Engineer. The Contractor shall include any additional information requested by the Engineer at any time during construction.

D. The Contractor shall prepare monthly written narrative reports of the status of the project for submission to the Engineer. Status reports shall include:

1. The status of major project components (percent complete and amount of time ahead or behind schedule) and an explanation of how the project will be brought back on schedule if delays have occurred.

2. The progress made on critical activities indicated on the construction schedule.

3. Explanations for any lack of Work on critical activities planned to be performed during the last month.

4. Explanations for any schedule changes, including changes to the logic or to activity durations.

5. A list of the critical activities scheduled for the next 2 months.

6. The status of major material and equipment procurements.

7. The value of materials and equipment properly stored at the Site but not yet incorporated into the Work.

8. Any delays encountered during the reporting period.

9. An assessment of inclement weather delays and impacts to the progress of the Work.

10. The Contractor may include any other information pertinent to the status of the project.

11. The Contractor shall include additional status information requested by the Engineer.

1.07 INCLEMENT WEATHER PROVISIONS OF THE SCHEDULE

A. The construction schedule shall include lost days on the construction schedule due to inclement weather. Inclement weather delays shall be determined in accordance with Section 00 80 00 - Supplementary Conditions of the Construction Contract.

1.08 LIQUIDATED DAMAGES

A. If any submittal required by this Section is determined by the Engineer to be incomplete or is submitted later than required, the Owner will suffer financial loss and, accordingly, liquidated damages may be assessed against the Contractor in accordance with the Agreement.

PART 2 -- PRODUCTS (NOT USED)

PART 3 -- EXECUTION (NOT USED)

END OF SECTION

SECTION 01 35 29 – INADVERTENT DISCOVERY OF CULTURAL RESOURCES

PART 1 -- GENERAL

1.01 SUMMARY

A. This Section establishes procedures for the inadvertent discovery of archaeological resources, historic artifacts, or human remains during construction.

B. Related Documents: Inadvertent Discovery Plan (IDP), Volume 3 Appendix, Attachment C.

1.02 REGULATORY REQUIREMENTS

A. Washington State Law:

1. RCW 27.53 (Archaeological Sites and Resources): Prohibits disturbing archaeological sites without permit from Department of Archaeology and Historic Preservation (DAHP). Violations punishable by fines up to $10,000 and/or imprisonment (RCW 27.53.090, 27.53.095).

2. RCW 68.60 (Abandoned and Historic Cemeteries): Protects historic graves and burial cairns.

B. Federal Law:

1. Archaeological Resources Protection Act (16 USC 470ee).

2. National Historic Preservation Act, Section 106 (54 USC 306108).

3. 36 CFR 800.13(b)(3) (post-review discoveries).

C. Cultural resources review completed per Executive Order 21-02 and NHPA Section 106. Tribal consultation letters issued [insert date]. This Section governs discoveries made AFTER initial review.

1.03 SUBMITTALS

A. Pre-Construction Meeting: Contractor shall review IDP with all personnel and subcontractors. Submit signed acknowledgment that workforce has been trained on inadvertent discovery protocols.

PART 2 -- PRODUCTS (Not Applicable)

PART 3 -- EXECUTION

3.01 DISCOVERY PROTOCOL

A. If Contractor encounters ANY of the following, IMMEDIATELY STOP WORK within the distances specified:

1. Cultural Resources (stop work within 50 feet):

a. Prehistoric artifacts: flaked stone tools, projectile points, ground stone, fire-cracked rock, charcoal lenses, shell middens.

b. Historic-era artifacts: glass bottles, ceramics, bricks, metal objects, building foundations, old farm equipment, railroad remnants.

2. Human Remains or Burial Sites (stop work within 100 feet):

a. Bones, teeth, burial cairns, grave markers, coffin wood.

B. IMMEDIATE ACTIONS:

1. Cease all ground-disturbing activity in buffer zone.

2. Protect discovery site:

a. Install temporary fencing or flagging.

b. Do NOT touch, move, photograph, or collect artifacts/remains.

c. Restrict access; maintain site confidentiality (no social media, no media contact).

3. NOTIFY (in order):

a. Stantec Project Engineer: Wes Silva, (360) 823-7020, Wes.Silva@stantec.com.

b. Stantec notifies USDA Rural Development Environmental Coordinator: Ian Sims, 509-415-3815.

c. For HUMAN REMAINS:

(1) Skamania County Coroner: Angie Hollis, 509-427-3718 (NOT 911)

(2) Skamania County Sheriff: 509-427-9490

(3) Coroner determines if remains are forensic (recent) or non-forensic (archaeological/historic).

(4) If non-forensic: DAHP and affected tribes notified per RCW 68.60.

C. INVESTIGATION:

1. DAHP or professional archaeologist (retained by Owner) will inspect site within [48-72] hours.

2. If archaeological resources confirmed, DAHP will:

a. Issue stop-work order.

b. Coordinate with affected tribes (Cowlitz Indian Tribe, Confederated Tribes and Bands of the Yakama Nation, others).

c. Determine if excavation permit required.

D. RESUMPTION OF WORK:

1. Work may resume only after written clearance from:

a. DAHP (for archaeological resources), AND

b. All affected tribes (for Native American human remains or cultural items), AND

c. USDA Rural Development Environmental Coordinator, AND

d. Owner (Skamania PUD).

2. If archaeological site requires data recovery, Owner and Contractor will negotiate schedule and cost impacts per Section 00 70 00 Article 11.02.

3.02 COMPENSATION

A. If work stoppage due to inadvertent discovery exceeds [5] calendar days, Contractor entitled to:

1. Time extension equal to stoppage duration.

2. Compensation for documented idle labor and equipment costs (at cost, no markup for overhead or profit).

3. No compensation for first [5] days (considered inherent project risk).

B. Contractor NOT entitled to compensation if:

1. Contractor disturbed known cultural resource area shown on Contract Drawings.

2. Contractor failed to follow IDP protocols.

3. Contractor caused damage to cultural resources through negligence.

3.03 PENALTIES

A. Willful or negligent disturbance of cultural resources may result in:

1. Criminal prosecution (RCW 27.53.090): Up to $10,000 fine and/or 364 days imprisonment.

2. Federal prosecution (16 USC 470ee): Up to $100,000 fine and/or 5 years imprisonment.

3. Contract termination for cause.

END OF SECTION

SECTION 01 42 18 – BUILD AMERICA, BUY AMERICA ACT COMPLIANCE

PART 1 -- GENERAL

1.01 SUMMARY

A. This Section establishes requirements for compliance with Build America, Buy America Act (BABAA), Pub. L. 117-58, Section 70901 et seq., enacted November 15, 2021.

B. BABAA requires that all iron, steel, manufactured products, and construction materials used in federally funded infrastructure projects be produced in the United States.

C. This Project is funded in part by USDA Rural Development and EPA grants, which mandate BABAA compliance.

D. Related Sections:

1. Section 01 33 00 – Submittal Procedures: BABAA certifications are submittals.

2. Section 01 60 00 – Product Requirements: BABAA compliance is mandatory product requirement.

3. Divisions 30-50 (Technical Specifications): Material and equipment specifications incorporate BABAA requirements by reference.

1.02 DEFINITIONS

A. BUILD AMERICA, BUY AMERICA ACT (BABAA): Federal statute requiring domestic sourcing of infrastructure project materials (Pub. L. 117-58, Section 70901).

B. IRON OR STEEL PRODUCTS: Construction materials in which iron or steel is the predominant material (by weight or cost). Includes:

1. Structural steel (beams, columns, joists, decking, plate)

2. Reinforcing steel (rebar, wire mesh, post-tensioning tendons)

3. Piping (ductile iron, steel, stainless steel)

4. Valves and fittings (gate valves, butterfly valves, ball valves, check valves, flanges, couplings – with iron/steel bodies)

5. Tanks (steel or iron pressure vessels, storage tanks)

6. Handrails, stairs, ladders, grating, platforms (steel or iron)

7. Fasteners (bolts, nuts, washers, anchors – if predominantly iron/steel)

8. Conduit, cable tray (steel or aluminum)

C. MANUFACTURED PRODUCTS: Products that are not predominantly iron/steel but are processed or assembled into final form. Includes:

1. Pumps (process water, chemical feed, wastewater)

2. Motors and variable frequency drives (VFDs)

3. Membrane filtration systems and modules

4. SCADA/PLC control panels and field instrumentation

5. HVAC equipment (air handlers, fans, heaters, chillers)

6. Electrical switchgear, panelboards, transformers

7. Doors, windows, roofing, siding

8. Geomembranes and geotextiles

9. PVC, HDPE, PE, or fiberglass piping (non-metallic)

D. CONSTRUCTION MATERIALS: Articles, materials, or supplies (other than iron/steel products or manufactured products) that are consumed or incorporated into the Project. Includes:

1. Non-ferrous metals (copper wire, aluminum sheet)

2. Lumber and engineered wood products

3. Aggregates (crushed rock, sand, gravel – subject to categorical waivers)

4. Concrete and cement

5. Glass

6. Drywall and insulation

7. Paint and coatings (subject to de minimis exception)

E. PRODUCED IN THE UNITED STATES:

1. For IRON AND STEEL PRODUCTS:

    a. ALL manufacturing processes (including melting, refining, casting, rolling, extruding, machining, coating, and galvanizing) must take place in the United States. Minimal exception: coating materials (paint, galvanizing chemicals) may contain some imported components if cost is de minimis (less than 5% of total product cost).

2. For MANUFACTURED PRODUCTS:

    a. Product is MANUFACTURED (assembled into final form) in the United States, AND

    b. Cost of U.S.-origin components exceeds 55% of total cost of all components. (Foreign components allowed up to 45% of cost, but final assembly must be in U.S.)

3. For CONSTRUCTION MATERIALS:

a. ALL manufacturing processes must occur in the United States.

F. WAIVER: Written determination by USDA or EPA that BABAA requirement is waived for specific product due to nonavailability, unreasonable cost, or public interest.

1.03 SUBMITTALS

A. BABAA COMPLIANCE CERTIFICATION (for each product/material):

1. Submit within 60 days of Notice to Proceed (or with shop drawings/product data, whichever is earlier).

2. Use BABAA Certification Form (format provided in Part 1.3.B below) for EACH distinct product or material category (e.g., one form for ductile iron pipe, separate form for membrane modules, separate form for chemical tanks, etc.).

3. Certification shall include:

a. Product description (name, model, manufacturer).

b. Product category (iron/steel, manufactured product, or construction material).

c. Manufacturer's name, address, and manufacturing location(s).

d. Statement of compliance with BABAA (produced in U.S. per applicable definition).

e. Manufacturer's BABAA certification letter or affidavit (on manufacturer's letterhead, signed by authorized representative).

f. If MANUFACTURED PRODUCT: Documentation showing >55% U.S. component cost (bill of materials with country of origin and cost for each major component).

g. If applicable: EPA or USDA waiver approval letter (if product is non-compliant but waiver obtained).

4. Contractor's authorized representative shall sign certification under penalty of perjury.

B. BABAA CERTIFICATION FORM (template):

BUILD AMERICA, BUY AMERICA ACT (BABAA) COMPLIANCE CERTIFICATION

PROJECT: Carson Water Treatment Plant Upgrade

CONTRACTOR: _____ DATE: _____

PRODUCT/MATERIAL INFORMATION:

Product Name:

_____

Specification Section: _____ Drawing Reference: _____

Manufacturer:

_____

Manufacturer Address:

_____

Manufacturing Location (City, State, Country): _____

PRODUCT CATEGORY (check one):

[ ] Iron or Steel Product (all mfg. processes in U.S.)

[ ] Manufactured Product (assembled in U.S., >55% U.S. component cost)

[ ] Construction Material (all mfg. processes in U.S.)

BABAA COMPLIANCE STATUS (check one):

[ ] COMPLIANT – Product produced in United States per BABAA definition.

Attach: Manufacturer's certification letter (required).

If Manufactured Product, attach: Bill of materials showing >55% U.S. component cost.

[ ] NON-COMPLIANT – Product NOT produced in U.S.; WAIVER REQUIRED.

Waiver Status:

[ ] Waiver approved by USDA/EPA (attach approval letter)

[ ] Waiver pending (Contractor requested Owner to seek waiver; product on hold until waiver decision)

[ ] Waiver denied or not pursued; Contractor will substitute compliant product (identify substitute):

CONTRACTOR CERTIFICATION:

I certify under penalty of perjury that the information provided above is true and accurate to the best of my knowledge based on manufacturer representations and documentation. I understand that false certification may result in contract termination, material rejection, federal funding clawback, and civil/criminal penalties.

Contractor's Authorized Representative: _____

Signature: _____ Date: _____

ENGINEER/OWNER REVIEW (for internal use):

[ ] Approved [ ] Rejected [ ] Revise and Resubmit

Reviewer: _____ Date: _____

Comments:_____

C. BABAA COMPLIANCE TRACKING LOG:

1. Contractor shall maintain master BABAA Compliance Tracking Log listing ALL products and materials subject to BABAA, with compliance status.

2. Submit initial log within 60 days of NTP; update monthly with progress payment applications.

3. Log format (Excel spreadsheet or equivalent):

a. Column A: Product/Material Description

b. Column B: Specification Section

c. Column C: Manufacturer

d. Column D: Country of Manufacture

e. Column E: BABAA Category (Iron/Steel, Mfg. Product, Const. Material)

f. Column F: Compliance Status (Compliant / Waiver Approved / Pending / Non-Compliant - Substitution Required)

g. Column G: Certification Submittal Date

h. Column H: Engineer Approval Date

i. Column I: Delivery Date

j. Column J: Installation Date

k. Column K: Notes

D. MANUFACTURER'S BABAA CERTIFICATION LETTER (required for each product):

1. Contractor shall obtain from each product manufacturer a signed letter on manufacturer's letterhead certifying BABAA compliance.

2. Letter must include:

a. Product name and model number.

b. Statement: "This product is produced in the United States in compliance with Build America, Buy America Act (BABAA) requirements."

c. For IRON/STEEL: "All manufacturing processes (melting, casting, rolling, forming, finishing) occur in the United States at the following location(s): [list plant address(es)]."

d. For MANUFACTURED PRODUCT: "This product is assembled in the United States at [plant address]. Components sourced from the United States account for more than 55% of total component cost."

e. Manufacturer's authorized representative name, title, signature, and date.

3. If manufacturer cannot or will not provide BABAA certification:

a. Product is presumed non-compliant.

b. Contractor shall notify Owner immediately and request Owner to pursue waiver, OR

c. Contractor shall substitute BABAA-compliant product from different manufacturer.

1.04 QUALITY ASSURANCE

A. VERIFICATION OF COMPLIANCE:

1. Owner and Engineer reserve right to verify BABAA compliance through:

a. Review of manufacturer certifications and supporting documentation.

b. Site visits to manufacturing plants (if necessary to confirm U.S. production).

c. Third-party audits (Contractor shall cooperate and provide access to records).

d. Review of shipping documents, bills of lading, customs declarations (if foreign shipment suspected).

2. If verification reveals non-compliance:

a. Contractor shall remove non-compliant product immediately.

b. Contractor shall replace with BABAA-compliant product at Contractor's expense.

c. Contractor responsible for schedule delays and costs resulting from replacement (no time extension or additional compensation).

B. FALSE CERTIFICATION:

1. False or fraudulent BABAA certification is a violation of federal law (18 USC 1001: False Statements; penalties up to $250,000 fine and 5 years imprisonment).

2. In addition to criminal penalties, Contractor may be subject to:

a. Contract termination for cause.

b. Debarment from federal contracts and federally funded projects.

c. Liability for repayment of federal grant funds if USDA/EPA demands clawback.

1.05 WAIVER PROCEDURES

A. GENERAL:

1. If Contractor proposes product that does NOT comply with BABAA, Contractor shall notify Owner in writing immediately (preferably before bid, or during submittal phase if discovered post-award).

2. Owner (not Contractor) submits waiver requests to USDA Rural Development and EPA.

3. Waiver approval is NOT guaranteed. Contractor proceeds at risk if ordering non-compliant product before waiver is approved.

B. WAIVER TYPES:

1. NONAVAILABILITY WAIVER:

a. Granted if product is not produced in U.S. in sufficient quantity or quality to meet Project requirements.

b. Contractor must provide:

1) Documentation that no U.S. manufacturer produces the product (web search results, industry association letters, etc.).

2) If similar products exist but do not meet specs: Explanation of why U.S. alternatives are inadequate (performance, compatibility, etc.).

2. UNREASONABLE COST WAIVER:

a. Granted if U.S.-produced product costs more than 25% higher than foreign alternative.

b. Contractor must provide:

1) Price quote for U.S.-produced product (or statement that no U.S. source exists).

2) Price quote for foreign-produced product.

3) Calculation showing cost increase >25%.

3. PUBLIC INTEREST WAIVER:

a. Discretionary waiver if BABAA compliance is inconsistent with public interest (rarely granted; typically for emergency or national security situations).

C. WAIVER REQUEST PROCESS:

1. Contractor submits waiver justification to Owner/Engineer (use format in Part 1.5.D below).

2. Owner reviews and determines whether to pursue waiver with USDA/EPA.

3. If Owner agrees to pursue waiver:

a. Owner submits formal waiver request to USDA and EPA (separate submissions required for each funder).

b. USDA/EPA reviews (typically 30-60 days; may be longer if additional information requested).

c. USDA/EPA issues decision (approval or denial).

4. If waiver APPROVED:

a. Contractor may proceed with non-compliant product.

b. Contractor shall attach waiver approval letter to BABAA Certification Form.

5. If waiver DENIED or Owner declines to pursue waiver:

a. Contractor shall provide BABAA-compliant substitute product.

b. No additional compensation or time extension (Contractor assumed this risk by proposing non-compliant product).

D. WAIVER REQUEST FORMAT (Contractor to Owner):

1. BABAA WAIVER REQUEST

a. TO: Skamania PUD / Stantec Engineer

b. FROM: [Contractor Name]

c. DATE: _____

d. SUBJECT: Request for Owner to Pursue BABAA Waiver

2. PRODUCT INFORMATION:

a. Product Name: _____

b. Manufacturer: _____

c. Country of Manufacture: _____

d. Specification Section: _____ Drawing Reference

3. REASON FOR NONCOMPLIANCE:

a. Product not manufactured in United States (nonavailability)

b. U.S.-produced alternative costs >25% more (unreasonable cost)

3. JUSTIFICATION:

a. (Attach supporting documentation: market research, price quotes, technical specifications showing why U.S. alternatives are inadequate, etc.) _____

E. REQUESTED ACTION:

a. Contractor requests Owner to submit waiver request to USDA and EPA.

b. Contractor's Representative: _____

c. Signature: _____ Date: _____

1.06 PRODUCTS AND MATERIALS SUBJECT TO BABAA (Project-Specific List)

A. The following products and materials are anticipated for use in the Carson WTP project and are subject to BABAA compliance. This list is not exhaustive; Contractor is responsible for identifying ALL products/materials used in the Work.

B. IRON AND STEEL PRODUCTS (ALL mfg. processes in U.S.):

1. Ductile iron pipe (raw water, filtered water, backwash, chemical) – Spec Section 33 11 00

2. Steel pipe (if used for process or utilities)

3. Reinforcing steel (rebar, wire mesh) – Spec Section 03 20 00

4. Structural steel (beams, columns, if used in Chemical Building or canopy) – Spec Section 05 12 00

5. Steel decking, joists, grating, stairs, handrails, ladders – Spec Section 05 50 00

6. Valves and fittings (butterfly, gate, check, ball valves – iron/steel bodies) – Spec Sections 33 11 00, 40 05 67

7. Chemical storage tanks (if steel construction) – Spec Section 43 40 04

8. Steel conduit, cable tray, junction boxes – Spec Section 26 05 33

9. Anchor bolts, threaded rod, fasteners (if predominantly steel/iron) – Spec Section 05 05 23

C. MANUFACTURED PRODUCTS (assembled in U.S., >55% U.S. component cost):

1. Containerized membrane filtration system (Aria Filtra T96 or approved equal) – **CRITICAL ITEM** – Spec Section 46 61 34

a. NOTE: Contractor shall verify:

1) Container, frame, and major components (pressure vessels, piping manifolds) assembled in U.S.

2) Membrane modules: Verify whether modules manufactured in U.S. or imported (common issue: hollow fiber membranes may be produced overseas even if system assembled in U.S.; if modules imported, request waiver or verify >55% U.S. content rule met overall)

2. Chemical metering pumps (ProMinent, LMI, or similar) – Spec Section 40 05 67

3. Process pumps (filtrate pumps, backwash pumps, chemical transfer pumps) – Spec Section 43 21 00

4. Motors and variable frequency drives (VFDs) – Spec Section 40 05 13

5. SCADA/PLC control panels and field instrumentation – Spec Section 40 90 10

a. NOTE: Verify panel assembly in U.S.; imported PLCs/HMIs may be allowed if >55% rule met

6. Electrical switchgear, panelboards, motor control centers – Spec Section 26 24 00

7. HVAC equipment (air handling units, exhaust fans, unit heaters) – Spec Section 23 00 00

8. Doors, windows, louvers (Chemical Building) – Spec Section 08 11 00, 08 52 00

9. Geomembrane baffles (Chlorine Contact Tank) – Spec Section 13 38 00

D. CONSTRUCTION MATERIALS (ALL mfg. processes in U.S.):

1. Concrete (cement, aggregates, admixtures) – Spec Section 03 30 00

a. NOTE: Aggregates likely covered by EPA categorical waiver if local sources insufficient; verify current waiver status

2. Lumber (formwork, framing) – Spec Section 06 10 00

3. Electrical wire and cable (copper/aluminum) – Spec Section 26 05 19

a. NOTE: Verify wire manufacturing (drawing, insulation) occurs in U.S.

4. PVC, HDPE, or PE pipe (chemical feed, stormwater, if used) – Spec Section 33 11 00 or 33 40 00

5. Paint and coatings – Spec Section 09 90 00

a. NOTE: Paint may be subject to de minimis exception (coating on iron/steel products allowed to have some imported components if <5% cost)

PART 2 -- PRODUCTS

(Not Applicable – BABAA compliance applies to products specified in technical sections)

PART 3 -- EXECUTION

3.01 COMPLIANCE DURING CONSTRUCTION

A. RECEIVING AND INSPECTION:

1. Before accepting delivery of any iron, steel, manufactured product, or construction material, Contractor shall verify:

a. Product matches approved BABAA Certification (manufacturer, model, origin).

b. Shipping documents or labels confirm U.S. origin (or waiver on file if foreign).

2. If product received does not match certification or is foreign-sourced without approved waiver:

a. REJECT delivery.

b. Notify Owner/Engineer immediately.

c. Return product to supplier at Contractor's expense.

d. Order BABAA-compliant replacement.

B. DOCUMENTATION AND RECORDKEEPING:

1. Maintain all BABAA certifications, manufacturer letters, waiver approvals, and shipping documents on-site and available for review by Owner, Engineer, USDA, or EPA inspectors.

2. Submit copies of all BABAA documentation with monthly progress payment applications.

3. Retain records for minimum SIX (6) YEARS after Project final completion (federal record retention requirement).

C. AUDITS AND INSPECTIONS:

1. USDA and EPA reserve right to audit Project for BABAA compliance during construction and for six years after completion.

2. Contractor shall cooperate with audits:

a. Provide access to records, certifications, and documentation.

b. Provide access to installed materials for inspection or sampling (if auditor questions country of origin).

c. Respond to auditor inquiries within timeframes specified.

3. If audit reveals noncompliance:

a. Contractor shall remove and replace non-compliant materials at Contractor's expense.

b. If Owner incurs penalties or is required to repay federal funds due to Contractor's noncompliance, Owner may seek reimbursement from Contractor (and/or Contractor's performance bond surety).

3.02 FINAL COMPLIANCE CERTIFICATION

A. Before requesting Substantial Completion, Contractor shall submit FINAL BABAA COMPLIANCE CERTIFICATION signed by Contractor's authorized representative and notarized, stating:

"I certify under penalty of perjury that all iron, steel, manufactured products, and construction materials incorporated into the Carson Water Treatment Plant Upgrade project comply with Build America, Buy America Act (BABAA) requirements as specified in Contract Documents, OR approved waivers have been obtained for non-compliant products. All required BABAA certifications, manufacturer letters, and supporting documentation have been submitted to Owner and are true and accurate to the best of my knowledge."

B. Final payment will be withheld until Final BABAA Compliance Certification is submitted and accepted by Owner.

END OF SECTION

SECTION 31 23 16.13 -- TRENCH EXCAVATION SAFETY SYSTEMS

PART 1 -- GENERAL

1.01 SUMMARY

A. This Section covers protective systems for trenches and excavations exceeding four (4) feet in depth, as required by:

1. RCW 39.04.180 (Washington Public Works – Separate Bid Item)

2. RCW 49.17 (Washington Industrial Safety and Health Act – WISHA)

3. WAC 296-155 Part N (Excavation, Trenching, and Shoring Standards)

B. Protective systems include:

1. Trench shoring (timber, steel, or aluminum shoring systems)

2. Trench shielding (trench boxes, shields)

3. Sloping or benching (cutting trench walls to safe angle per soil type)

4. Combination systems (e.g., shield with sloped ends)

C. Related Sections:

1. Section 31 30 00 – Earthwork. Trench safety costs NOT included in Section 31 30 00.

2. Section 31 23 33 – Trench Bedding and Backfill. Trench safety costs NOT included in Section 31 23 33.

1.02 REFERENCES

A. Regulatory Standards:

1. RCW 39.04.180 – Trench Excavation Safety Systems (Separate Bid Item).

2. RCW 49.17 – Washington Industrial Safety and Health Act (WISHA).

3. WAC 296-155-650 through 680 – Excavation, Trenching, and Shoring.

4. 29 CFR 1926 Subpart P – Excavations (Federal OSHA, adopted by reference in WAC 296-155).

B. Industry Standards:

1. ANSI/ASSE A10.12 – Safety Requirements for Excavation.

2. ASTM D2488 – Practice for Description and Identification of Soils (Visual-Manual Procedure).

1.03 SUBMITTALS

A. Protective System Design (submit within 14 days of Notice to Proceed, before excavation):

1. If using MANUFACTURED TRENCH SHIELD OR TRENCH BOX:

a. Manufacturer's name, model number, and rated capacity (depth and width).

b. Manufacturer's tabulated data showing allowable depths for soil types per WAC 296-155-66407.

c. Installation instructions and system limitations (maximum spacing, stacking requirements, etc.).

d. Certification that system meets OSHA/WISHA requirements.

2. If using ENGINEERED SHORING SYSTEM (timber, steel, or aluminum):

a. Design drawings and calculations.

b. Drawings SIGNED AND SEALED by Washington-licensed Professional Engineer (Civil or Structural).

c. Soil classification and design assumptions (soil type, surcharge loads, groundwater level).

d. Installation sequence and bracing details.

3. If using SLOPING OR BENCHING:

a. Soil classification report per WAC 296-155-652 definitions (Type A, B, or C soil).

b. Slope angle calculations showing compliance with maximum allowable slopes per WAC 296-155-66403 tables.

c. Drawings showing trench cross-section, slope angle, and bench dimensions (if benching used).

d. Certification by competent person that slopes meet WAC requirements.

B. Competent Person Designation:

1. Submit name and qualifications of "Competent Person" as defined in WAC 296-155-652 (person capable of identifying hazardous conditions and authorized to take corrective action).

2. Include:

a. Name, title, and employer.

b. Training certificates (OSHA 30-Hour Construction Safety or equivalent WISHA training including excavation safety module).

c. Experience summary (minimum two years excavation/trenching work).

C. Daily Inspection Logs:

1. Maintain daily excavation inspection logs per WAC 296-155-656.

2. Make logs available to Owner, Engineer, and Washington Department of Labor & Industries (L&I) inspectors upon request.

3. Logs shall document:

a. Date, time, and weather conditions.

b. Trench depth and width.

c. Soil classification.

d. Protective system type and condition (any damage, displacement, or deficiencies).

e. Groundwater or surface water presence.

f. Hazardous atmosphere testing results (if required).

g. Corrective actions taken (if deficiencies found).

h. Competent person signature.

1.04 QUALITY ASSURANCE

A. Competent Person Requirements (WAC 296-155-656):

1. Contractor shall designate competent person to inspect trenches daily before worker entry and after:

a. Rainstorms or snowmelt (soil saturation changes).

b. Ground vibrations (blasting, pile driving, heavy equipment operations nearby).

c. Any cave-in, soil movement, or displacement of protective system.

2. Competent person shall have authority to:

a. Stop work immediately if unsafe conditions exist.

b. Order additional shoring, shielding, or sloping.

c. Evacuate workers from trench.

d. Prohibit re-entry until hazards are corrected.

B. Protective System Inspection:

1. Before each work shift and after any occurrence that could affect trench stability (rain, vibration, etc.), competent person shall inspect:

a. Shoring/shielding systems for damage, displacement, or deterioration.

b. Soil conditions (cracking, sloughing, bulging, or raveling).

c. Water accumulation or seepage.

d. Adjacent loads (equipment, spoil piles, or materials stored within two feet of trench edge).

2. If deficiencies are found:

a. Remove all workers from trench immediately.

b. Correct deficiency (add bracing, install shield, slope walls, dewater, remove adjacent loads, etc.).

c. Competent person re-inspects and authorizes re-entry only after hazards eliminated.

C. Washington Department of Labor & Industries (L&I) Inspections:

1. L&I has statutory authority to inspect trenches at any time without advance notice.

2. If L&I issues citation or stop-work order:

a. Contractor shall immediately comply (evacuate workers, barricade trench).

b. Contractor shall correct violation and obtain L&I clearance before resuming work.

c. Contractor responsible for all costs, fines, and schedule delays resulting from citations. No time extension or additional compensation will be granted for delays caused by safety violations.

1.05 MEASUREMENT AND PAYMENT

A. Measurement:

1. Trench Excavation Safety Systems measured as LUMP SUM per Bid Item No.

B. Payment:

1. Payment at the contract lump sum price for "Trench Excavation Safety Systems" constitutes full compensation for furnishing, installing, maintaining, adjusting, and removing all protective systems required by RCW 39.04.180 and WAC 296-155 Part N.

2. Payment includes but is not limited to:

a. DESIGN AND ENGINEERING:

1) Soil classification and testing (visual-manual tests per ASTM D2488, or laboratory testing if required).

2) Engineering design (if manufactured systems with tabulated data are insufficient).

3) Preparation of submittals (drawings, calculations, certifications).

b. MATERIALS AND EQUIPMENT:

1) Shoring materials (timber, steel, aluminum, hydraulic struts, walers, uprights, sheeting, etc.).

2) Trench shields or trench boxes (rental or purchase).

3) Sloping or benching materials (geotextile, erosion control blankets, or stabilization measures if required).

4) Ladders and access/egress systems (required within 25 feet of workers in trenches exceeding four feet depth per WAC 296-155-655).

c. LABOR:

1) Competent person time (inspections, documentation, supervision, corrective actions).

2) Installation of protective systems (placing shields, driving sheeting, installing bracing, cutting slopes).

3) Maintenance and adjustment during construction (repositioning shields as work progresses, adding bracing if conditions change, pumping incidental seepage).

4) Removal of protective systems after backfill (extracting sheeting, removing shields, backfilling sloped areas).

d. EQUIPMENT:

1) Cranes, excavators, or forklifts to handle and position trench boxes or shields.

2) Hydraulic rams, jacks, or pile drivers for shoring installation.

3) Pumps for incidental dewatering of trench seepage (note: extensive dewatering for groundwater control is excluded; see Part 1.5.C below).

e. TESTING AND INSPECTIONS:

1) Daily competent person inspections and documentation.

2) Atmospheric testing (if required due to confined space conditions or potential presence of hazardous materials).

3) Third-party inspections (if required by Engineer or L&I).

f. SAFETY COMPLIANCE:

1) Training for workers (trench safety awareness, emergency egress procedures).

2) Barricades, warning signs, and flagging tape (to prevent unauthorized entry into excavations).

3) Emergency rescue equipment (if required for permit-required confined space entry).

C. Items NOT Included in Payment (paid under separate bid items or sections):

1. EXCAVATION: Trench excavation, soil removal, and hauling paid under Section 31 23 00 Excavation and Fill or utility-specific sections.

2. BACKFILL AND COMPACTION: Placing and compacting backfill material paid under Section 31 23 00 or utility sections.

3. EXTENSIVE DEWATERING: If wellpoint systems, deep sump pumping, or groundwater control beyond incidental seepage is required, costs paid under Section 31 23 19 Dewatering (if separate bid item exists) or by negotiated change order if unanticipated groundwater conditions constitute differing site conditions.

4. BEDDING, PIPE INSTALLATION, AND TESTING: Paid under utility-specific sections (e.g., Section 33 11 00 Water Utility Distribution Piping).

D. Prohibition on "Incidental To" Language:

1. RCW 39.04.180 requires trench safety costs to be included as a separate bid item. Costs SHALL NOT be claimed as incidental to excavation, utility installation, or any other bid item.

2. Contractor may NOT claim additional payment for trench safety beyond the lump sum bid item price, except as follows:

a. If Owner directs changes in trench depth, alignment, or length that significantly increase the length of trench exceeding four feet in depth (variance greater than 25 percent from estimated 600 linear feet), Contractor may request equitable adjustment through change order process per General Conditions.

b. If differing site conditions (Type II: unexpected rock requiring blasting, contaminated soil requiring special handling, or undocumented utilities requiring deeper excavation than shown on Drawings) cause substantial additional trench safety costs, Contractor may request change order per

General Conditions. Request must include documentation of unforeseen conditions and itemized cost breakdown.

E. Partial Payment Schedule:

1. Trench Excavation Safety Systems lump sum payment will be processed as follows:

a. Fifty percent (50%) upon Engineer's approval of submittals (protective system design, competent person designation, and inspection log format).

b. Twenty-five percent (25%) when trenching work is fifty percent (50%) complete (based on linear feet of trench completed as certified by Contractor and verified by Engineer).

c. Twenty-five percent (25%) upon completion of all trenching work and removal of all protective systems.

PART 2 -- PRODUCTS

2.01 MANUFACTURED TRENCH SHIELDS AND TRENCH BOXES

A. Acceptable Manufacturers:

1. Speed Shore (Efficiency Production, Inc.).

2. ShorXpress (United Rentals Trench Safety).

3. National Trench Safety, LLC (NTS).

4. Efficiency Production, Inc.

5. Or approved equal. Submit proposed alternate manufacturer for approval per Section 01 60 00 Substitution Procedures. Submittal shall include manufacturer's tabulated data, OSHA compliance certification, and product literature demonstrating equivalency.

B. Materials and Performance Requirements:

1. Steel construction with minimum one-quarter inch (1/4") wall thickness for side panels and structural steel meeting ASTM A36 or ASTM A572 for spreaders and struts.

2. Rated capacity suitable for soil type and trench depth per manufacturer's tabulated data and WAC 296-155-66407.

3. OSHA/WISHA compliant. Manufacturer's certification of compliance required with submittal.

4. Systems shall be in good condition, free from significant damage, corrosion, or deformation that could compromise structural integrity.

2.02 ENGINEERED SHORING SYSTEMS

A. Materials:

1. TIMBER (if timber shoring used):

a. Species: Douglas Fir or Southern Yellow Pine.

b. Grade: Minimum No. 2 structural grade per applicable grading rules.

c. Condition: Sound lumber, free from decay, splits, or checks that reduce structural capacity.

2. STEEL SHEETING (if steel shoring used):

a. Structural steel meeting ASTM A36 (yield strength 36 ksi minimum) or ASTM A572 Grade 50 (yield strength 50 ksi minimum).

b. Sheeting may be flat plates, H-piles, or interlocking sheet piles as appropriate for soil conditions and design.

3. ALUMINUM SHEETING (if aluminum shoring used):

a. Aluminum alloy 6061-T6 or 6063-T6.

b. Minimum thickness and section properties as specified in engineering design.

4. HYDRAULIC STRUTS AND WALERS (if hydraulic shoring system used):

a. Rated capacity equal to or exceeding design load with minimum two-to-one (2:1) safety factor.

b. Pressure gauges or load indicators to verify proper installation and loading.

B. Design Requirements:

1. All engineered shoring systems shall be designed by Washington-licensed Professional Engineer (Civil or Structural) per Part 1.3.A.2.

2. Design shall account for:

a. Soil type and properties (unit weight, angle of internal friction, cohesion).

b. Trench depth and width.

c. Surcharge loads (adjacent equipment, spoil piles, structures, traffic).

d. Groundwater level and hydrostatic pressure (if applicable).

e. Seismic loads (if required by local building code).

2.03 SLOPING AND BENCHING SYSTEMS

A. General:

1. Sloping and benching are permissible alternatives to shoring or shielding if sufficient horizontal space is available and soil conditions are suitable.

2. Maximum allowable slope angles determined by soil classification per WAC 296-155-66403.

B. Maximum Allowable Slopes (from WAC 296-155-66403 Table N-1):

1. Type A Soil (cohesive soil with unconfined compressive strength ≥ 1.5 tons per square foot):

a. Maximum slope: Three-quarters horizontal to one vertical (3/4H:1V), approximately 53 degrees from horizontal.

2. Type B Soil (cohesive soil with unconfined compressive strength 0.5 to 1.5 tsf, or granular cohesionless soil including angular gravel, silt, sandy loam):

a. Maximum slope: One horizontal to one vertical (1H:1V), 45 degrees from horizontal.

3. Type C Soil (cohesive soil with unconfined compressive strength less than 0.5 tsf, or granular cohesionless soil including gravel, sand, loamy sand, or submerged soil):

a. Maximum slope: One and one-half horizontal to one vertical (1.5H:1V), approximately 34 degrees from horizontal.

C. Slope Stabilization Materials (if required):

1. If sloped excavation will be exposed for more than 24 hours or if erosion risk exists:

a. Geotextile fabric (temporary soil stabilization).

b. Erosion control blanket or mat (temporary or permanent).

c. Plastic sheeting (rain protection for short-term exposure).

2. Materials shall be secured to prevent displacement by wind or runoff.

PART 3 -- EXECUTION

3.01 SOIL CLASSIFICATION

A. Before excavation begins, competent person shall classify soil types per WAC 296-155-652 definitions.

B. Soil Classification Methods:

1. Visual-Manual Testing per ASTM D2488:

a. Visual examination (color, grain size, moisture content).

b. Manual tests:

1) Ribbon test (roll soil into ribbon; measure length before breaking).

2) Dry strength test (crush dry soil sample; assess resistance).

3) Pocket penetrometer or hand-held shear vane (measure unconfined compressive strength).

2. Laboratory Testing (if visual-manual testing is inconclusive or if soil conditions are highly variable):

a. Unconfined compression test (ASTM D2166).

b. Grain size analysis (ASTM D6913).

c. Atterberg limits (ASTM D4318).

C. Soil Type Determination:

1. If soil type is uncertain, layered, or conditions vary within excavation, competent person shall classify soil as most restrictive type (Type C) and design protective systems accordingly.

2. Soil classification shall be documented in daily inspection logs.

3.02 INSTALLATION OF PROTECTIVE SYSTEMS

A. General Requirements:

1. Install protective system BEFORE any worker enters trench or excavation exceeding four (4) feet in depth. Entry into unprotected trench greater than four feet is a serious violation of WAC 296-155-654 and subject to immediate stop-work order and citation.

2. Protective system shall extend from bottom of trench to minimum eighteen (18) inches above top of trench, or to point where cave-in hazard is eliminated.

3. Materials, equipment, or excavated soil (spoil) shall NOT be stored within two (2) feet of trench edge (per WAC 296-155-655). Spoil piles shall be placed to direct runoff away from trench.

B. Installation of Trench Shields or Trench Boxes:

1. Position and set trench shield using excavator, crane, or other suitable equipment. Do not drop shield or allow uncontrolled impact (may damage shield or create ground shock affecting trench stability).

2. Shield shall be level (check with spirit level) and properly aligned with trench axis.

3. Workers shall remain INSIDE the shield at all times (not in unprotected soil outside shield perimeter).

4. If trench length exceeds shield length:

a. Use multiple shields placed end-to-end with minimal gap (maximum two feet between shields).

b. Workers shall NOT work in gaps between shields.

c. Alternative: excavate ahead of shield, reposition shield forward as work progresses (leap-frog method).

5. Shield Stacking (if trench depth exceeds single shield height):

a. Stack shields per manufacturer's instructions and tabulated data.

b. Use interlocking connectors or pins (if provided by manufacturer).

c. Verify stacked system rated capacity is adequate for trench depth and soil type.

C. Installation of Engineered Shoring Systems:

1. Install shoring in accordance with engineered design drawings and calculations.

2. Timber Shoring:

a. Drive or place uprights (vertical sheeting) tight against trench walls to minimize gaps.

b. Install walers (horizontal beams) at elevations specified in design.

c. Install struts (cross braces) between walers. Tighten struts by driving hardwood wedges or using screw jacks until snug bearing is achieved. Do not over-tighten (may induce excessive stress in members).

3. Steel or Aluminum Shoring:

a. Drive sheeting to depth specified in design using vibratory hammer or impact hammer (if soil conditions permit driving).

b. Install walers and struts at specified spacing.

c. Weld or bolt connections as shown on design drawings.

4. Hydraulic Shoring:

a. Position hydraulic struts (speed shores) between trench walls or walers.

b. Extend struts to manufacturer's recommended pressure (verify with pressure gauge).

c. Do not over-extend struts (may cause buckling or failure). Do not under-extend (inadequate soil support).

d. Check strut pressure daily (hydraulic fluid may leak or temperature changes may affect pressure). Adjust as needed.

D. Installation of Sloping or Benching Systems:

1. Excavate trench to slope angle meeting or exceeding (flatter than) maximum allowable slope for soil type (per WAC 296-155-66403 and Part 2.3.B above).

2. Slope Measurement:

a. Measure slope angle using inclinometer, slope gauge, or geometric calculation (vertical rise divided by horizontal run).

b. Document slope angle in daily inspection log.

3. Slope Maintenance:

a. Remove loose soil, rocks, or debris from slope face (scaling).

b. If slope shows signs of instability (cracking, bulging, sloughing):

1) Flatten slope to next more conservative angle, OR

2) Install shoring or shielding.

4. Slope Protection:

a. If sloped excavation will remain open more than 24 hours, protect slope from erosion:

1) Cover with plastic sheeting, geotextile fabric, or erosion control blanket.

2) Secure covering to prevent wind displacement.

b. Divert surface water runoff away from trench (use berms, swales, or pumps).

3.03 MAINTENANCE AND ADJUSTMENT OF PROTECTIVE SYSTEMS

A. Daily Inspection (before each work shift and after weather events or ground disturbances):

1. Competent person shall inspect protective system per Part 1.4.B.

2. Inspection checklist shall include:

a. Trench shield or trench box: Check for damage (dents, cracks, bent spreaders), displacement (settling, tilting), or separation (gaps between shield and soil).

b. Shoring system: Check timber for splitting or crushing; check steel/aluminum for bending or corrosion; check hydraulic struts for pressure loss, leaks, or buckling.

c. Sloped excavation: Check for cracks parallel to trench edge, bulges, or soil movement (sloughing, raveling).

d. Water accumulation: Check for seepage, pooling, or rising groundwater level.

e. Adjacent loads: Verify equipment, materials, and spoil piles remain minimum two feet from trench edge.

B. Corrective Actions (if deficiencies found):

1. Evacuate workers from trench immediately.

2. Implement corrective measures:

a. Trench shield displaced: Reposition shield using excavator or crane.

b. Shoring loosened: Re-tighten struts, add additional bracing, or replace damaged members.

c. Slope instability: Flatten slope, install shoring/shielding, or dewater.

d. Water accumulation: Pump water from trench, install dewatering system, or slope trench walls to prevent further seepage.

3. Competent person re-inspects after corrections and authorizes worker re-entry only when trench is safe.

C. Adjustment During Construction:

1. As excavation deepens or work progresses along trench length, adjust protective systems:

a. Reposition trench shields (move forward or add additional shields).

b. Install additional levels of shoring (walers and struts at deeper elevations).

c. Extend sloped areas or add benches at intermediate depths.

2. Do NOT remove or loosen protective systems while workers are in trench.

3.04 REMOVAL OF PROTECTIVE SYSTEMS

A. General:

1. Remove protective systems only after backfill is placed and compacted to elevation where cave-in risk is eliminated. Typically, protective systems remain in place until backfill reaches within two (2) feet of original ground surface.

B. Removal of Trench Shields:

1. As backfill is placed and compacted, lift trench shields vertically using excavator or crane.

2. Do NOT drag shields horizontally through backfill (may damage shield or disturb compacted backfill).

3. Inspect shields after removal. Repair or replace damaged components before reuse.

C. Removal of Shoring Systems:

1. Remove struts and walers progressively as backfill rises.

2. Extract sheeting (if timber or steel driven vertically):

a. Use vibratory hammer, crane with extraction clamps, or oscillating extraction equipment.

b. If sheeting cannot be extracted without risk of trench collapse or damage to adjacent utilities/structures:

1) Cut sheeting flush with final grade and abandon in place (coordinate with Owner; additional payment may be required if abandonment was not anticipated in bid price).

2) Fill voids left by extracted sheeting with flowable fill or sand slurry to prevent settlement.

D. Removal of Sloping or Benching Systems:

1. Backfill sloped areas and compact to match surrounding grade per Section 31 23 00 requirements.

2. Remove temporary slope protection materials (geotextile, plastic sheeting) unless Engineer directs otherwise.

3.05 ACCESS AND EGRESS

A. Ladders or Ramps Required (WAC 296-155-655):

1. Provide safe means of access and egress for trenches four (4) feet or deeper.

2. Ladders, steps, ramps, or other access shall be located within twenty-five (25) feet of lateral travel for workers in the trench.

B. Ladder Requirements:

1. Ladders shall:

a. Extend minimum three (3) feet above trench edge.

b. Be secured to prevent displacement.

c. Meet ANSI A14 standards for portable ladders.

2. If trench length exceeds 25 feet, provide multiple ladders spaced no more than 50 feet apart.

3.06 EMERGENCY PROCEDURES

A. Cave-In or Soil Collapse:

1. Evacuate all workers from trench immediately.

2. If worker is trapped or buried:

a. Call 911 immediately (fire department rescue team).

b. Do NOT attempt rescue unless trained and equipped (secondary collapse may trap rescuers).

c. If safe to do so, provide oxygen or air supply to trapped worker and maintain verbal communication.

d. Keep non-essential personnel away from trench (establish perimeter and crowd control).

e. Provide information to rescue team: trench depth, soil type, protective system in use, location of trapped worker.

3. Notify Owner, Engineer, and Washington Department of Labor & Industries immediately.

4. Preserve accident scene (do not disturb evidence). L&I will investigate.

5. Do NOT resume excavation work until L&I completes investigation and issues authorization.

B. Hazardous Atmosphere (if applicable):

1. If trench depth exceeds four (4) feet AND any of the following conditions exist or are suspected, treat as permit-required confined space per WAC 296-809:

a. Oxygen deficiency (atmospheric oxygen concentration less than 19.5 percent).

b. Presence of toxic gases (hydrogen sulfide, carbon monoxide, methane, or other contaminants).

c. Flammable or explosive atmosphere (greater than 10 percent of Lower Explosive Limit).

2. Requirements for Permit-Required Confined Space Entry:

a. Atmospheric testing (oxygen, combustible gas, toxic gas) before entry and continuously during occupancy.

b. Continuous forced-air ventilation.

c. Rescue equipment and trained rescue personnel on standby.

d. Entry permit system and attendant stationed at trench edge.

3. If hazardous atmosphere detected:

a. Evacuate workers immediately.

b. Ventilate trench until atmosphere tests safe.

c. Identify and eliminate source of contamination (e.g., leaking sewer line, decaying organic matter, fuel spill).

END OF SECTION

SECTION 46 61 34 – CONTAINERIZED MEMBRANE FILTRATION SYSTEM

PART 1 -- GENERAL

1.01 DESCRIPTION

A. Description of Work:

1. General: The Contractor shall design and provide a containerized membrane filtration system, complete and operable, in accordance with Contract Documents.

2. The product shall meet American Iron and Steel and BABA requirements. Reference Section 01 33 00 – Submittal Procedures for submittal requirements and BABA compliance.

3. The system shall be automated and perform filtration using qualified hollow fiber membrane modules intended to remove particulate matter, Giardia and Cryptosporidium cysts and oocysts. Included with the system should be all hardware, controls, and piping to allow for trouble-free operation of the hollow fiber membranes, with only occasional operator intervention.

4. Provide warranties described in Section 01 74 00 - Membrane System and Module Warranty

5. Provide services as described in Part 3 – Execution.

6. BUILD AMERICA, BUY AMERICA ACT (BABAA) COMPLIANCE

a. The containerized membrane filtration system (including container, membrane modules, pressure vessels, filtrate tank, filtrate pumps, backwash system, clean-in-place system, piping, valves, instrumentation, and control panel) is a MANUFACTURED PRODUCT subject to BABAA.

b. System shall be MANUFACTURED (assembled) in the United States, AND cost of U.S.-origin components shall exceed 55% of total component cost.

c. CRITICAL VERIFICATION REQUIRED:

1) Container fabrication and system assembly location (must be in U.S.).

2) Membrane modules: Verify country of manufacture. Hollow fiber membrane production must occur in U.S., OR if modules imported, verify that overall system meets >55% U.S. component cost rule.

3) Major components (pressure vessels, pumps, valves, PLC): Verify origin and cost allocation to demonstrate >55% U.S. content.

d. If Aria Filtra T96 (basis of design) or proposed alternate system does NOT meet BABAA requirements, Contractor shall immediately notify Owner. Do NOT order system until BABAA compliance verified.

e. Submit BABAA Compliance Certification per Section 01 42 18 with shop drawings (within 60 days of NTP).

B. Acceptable SUPPLIERS:

1. SUPPLIER of the automated water hollow fiber membrane filter system shall have at least 10 years of experience supplying separation systems and demonstrate the resources and ability to fully support the mobile system during deployment of the equipment. This includes the ability to offer the following services: Telephone support during normal business hours; Start-up/commissioning assistance – Installation oversight, commissioning, and Operator Training; On-demand process/equipment troubleshooting and repair services; Service Contracts - 24-hour telephone support, Maintenance Contracts (Equipment and CIP procedures), Remote or on-site occasional system status monitoring, Operations contracts, On-site service for equipment/process troubleshooting and repair; Extended warranty coverage

2. The acceptable SUPPLIER shall be currently certified to meet quality standards as defined by International Standards Organization (ISO) standard 9001.

3. The acceptable SUPPLIER shall provide references for similar systems operating in similar applications using hollow fiber filtration modules.

4. Aria Filtra (Trojan Technologies), or H2O Innovation, ~~or approved equal~~ no others will be considered.

5. ~~The Basis of the design is the Aria Filtra "Aria FAST T96" Containerized Membrane Filtration System. If Contractor selects a different Containerized Mobile Filtration System, Contractor shall provide an alternative design to accommodate the alternate system at no additional cost to Owner. This includes providing any additional equipment or design modifications that the alternate system requires to meet the performance and layout of the basis of design system. For example, if an alternate membrane system does not include an integrated filtrate storage tank and filtrate pumps equivalent to those in the Aria Filtra T96 trailer, the Contractor shall design, furnish, and install a suitable filtrate pump station (and any related piping, controls, or structural modifications) at no additional cost to Owner. The Contractor's design shall be signed and sealed by engineers of the appropriate disciplines and shall be submitted for review and approval by Owner, Engineer, and Authorities having jurisdiction. Contractor shall assume all risks associated with an alternate design.~~ BASIS OF DESIGN AND ALTERNATE SYSTEMS

   a. The basis of design for the containerized membrane filtration system is the Aria Filtra "Aria FAST T96" mobile membrane filtration trailer, which is a self-contained unit including:

      1) Membrane filtration modules and racks

      2) Integrated filtrate storage tank (minimum 1,700 gallons) and filtrate forwarding pumps (two vertical multistage pumps, 1,400 GPM @ 75 ft TDH each) – see Part 2.06 of this Section

      3) Clean-in-place (CIP) system with chemical storage and dosing

      4) Backwash and waste handling systems

      5) SCADA/PLC control panel and operator interface

6) All internal pumping, piping, valves, instrumentation, and electrical connections required for a complete, operational filtration system

b. ALTERNATE SYSTEMS – CONTRACTOR RESPONSIBILITY:

1) If Contractor proposes a different containerized membrane filtration system (from an approved equal manufacturer per Part 1.01.B.4), Contractor shall provide ALL necessary design modifications, engineering, equipment, and integration work to achieve equivalent performance and functionality as the Aria Filtra T96 basis-of-design system, AT NO ADDITIONAL COST TO OWNER.

2) This explicitly includes, but is not limited to:

a) If the alternate membrane system does NOT include an integrated filtrate storage tank and high-service filtrate pumps equivalent to those described in Part 2.06, Contractor shall design, furnish, install, and commission a separate FILTRATE PUMP STATION with: - Filtrate storage tank (minimum 1,700-gallon capacity); - Two filtrate pumps (minimum 1,400 GPM @ 75 ft TDH each, or as required to meet hydraulic profile), - Controls integration with membrane system and plant SCADA, - All structural foundations, piping, valving, electrical, and instrumentation required for a complete installation

b) Any modifications to electrical service, control panels, or SCADA integration required by the alternate system.

c) Any modifications to site layout, foundation design, piping routings, or clearances required to accommodate different dimensions or configurations of the alternate system.

d) Any additional permitting, hydraulic analysis, or regulatory submissions46 required due to changes in system configuration (e.g., if external filtrate pumps require Washington DOH plan review updates).

3) Contractor's alternate design shall be signed and sealed by Washington-licensed Professional Engineers of the appropriate disciplines (Civil, Structural, Mechanical, Electrical as applicable) and submitted to Engineer, Owner, and Authorities Having Jurisdiction (including Washington Department of Health) for review and approval PRIOR TO FABRICATION OR PROCUREMENT.

4) Contractor assumes ALL RISKS associated with an alternate design, including: - Design adequacy and constructability; - Equipment performance and warranty; - Schedule delays due to submittal review or redesign iterations; - Regulatory approval delays; - Cost impacts from design changes

5) No change orders, time extensions, or additional compensation will be granted to Contractor for work, equipment, or design services required to implement an approved alternate system.

c. APPROVED EQUAL MANUFACTURERS:

1) Alternate membrane system suppliers (Part 1.01.B.4) may be proposed only if Contractor fully complies with the requirements of this Article. Owner reserves the right to reject any proposed alternate that, in the Engineer's judgment, does not provide equivalent functionality, reliability, or integration as the basis-of-design system.

C. Definitions

1. Air Scour (AS): Air Scour is a process in which continuous introduction of air to the bottom of the vertically-oriented membrane modules to shake particles loose while simultaneously flowing filtrate through the membrane module from the filtrate side to flush the particles away from the membrane surface. No chemicals shall be added.

2. Backwash / Reverse Filtration (RF): Reverse Filtration is a process in which filtrate is directed through the module from the filtrate side to the feed side of the membrane for the purpose of flushing particles out of the module. System shall have ability to add chemical(s) as required to this process.

3. Container: The structure that houses the containerized membrane system shall be a shipping container or shipping trailer able to be placed by crane or truck, and contain all system components integral to the containerized unit described in this specification.

4. Maintenance Clean / Enhance Flux Maintenance (EFM): Typically involves a short-duration circulation of a chemical solution through the Filter Assembly. This process reduces the trans-membrane pressure (TMP), increases permeability (specific flux,) and inhibits biological growth on the membrane surface.

5. Clean-In-Place (CIP): A multi-step process whereby chemicals are circulated through the membrane system to remove foulants from the membrane fibers. Chemical steps may include solutions that are high pH with oxidants, low pH, or reducing agents. This process chemically removes the membrane foulants that Backwash and Maintenance Clean do not, and is customized to fit the specified feed water characteristics.

6. Crossflow Recirculation / Excess Recirculation (XR): A fraction of the feed flow enters the membrane modules but bypasses the fibers. XR flow leaves the modules, unfiltered, through a separate port in the membrane module housing.

7. Design Conditions: The specified process requirements, the specified feed water characteristics, and the specified operating conditions for the hollow fiber membrane filtration system such as air temperature, humidity, site elevation, and elevation changes between equipment.

8. Feed Flush (FL): Feed Flush is a process in which feed water is directed through the feed side of the module to drain for the purpose of flushing particles out of the module. No chemicals shall be added.

9. Feed Water: Water as it enters the Filter Assembly.

10. Filter Assembly: Shall consist of a feed/strainer system, module rack assembly, and process tanks. Process piping/valves/instruments/controls shall be skid mounted within the mobile system.

11. Filtrate: Water that has passed through the membrane pores from the feed side to the filtered side.

12. GFD: Gallons of Filtrate produced per square Foot [of membrane area] per Day.

13. Hollow Fiber Membrane: An engineered self-supporting non-woven porous media of polymeric material with an outside diameter of 0.2 to 2.0 mm and an absolute pore size of less than 0.2 micron. Absolute pore size is defined as obtaining greater than 6-log removal (99.9999 percent) of particles or microorganisms of a known size.

14. Interconnect Piping: Piping which connects the SUPPLIER furnished mobile system to ancillary equipment/components supplied by Purchaser / Renter. SUPPLIER Process & Instrumentation Diagram (P&ID) shall clearly delineate what piping is considered Interconnect Piping and not in SUPPLIER scope. Specification, design, supply, and installation of the Interconnect Piping shall be the responsibility of the Purchaser / Renter.

15. Instantaneous Flux: The filtrate flowrate of a Filter Assembly measured at any given time that the Filter Assembly is in production divided by the active membrane surface area (feed side) of the Filter Assembly. Instantaneous Flux is expressed as GFD.

16. Integrity Test: A method of verifying the integrity of the module

17. Membrane Module (Element) - A membrane module is a complete unit composed of thousands of hollow fibers enclosed in a housing, feed inlet, and filtrate outlet.

18. Membrane System Recovery: Shall equal the net volume of membrane-filtered water available for disinfection and distribution divided by the total volume of feed water, less the excess recirculation, if used, entering the membrane train(s) from the prefilter system, expressed as a percentage.

19. Module Rack: Shall consist of parallel rows of manifold-connected hollow fiber membrane modules and all associated piping supported by a steel frame.

20. SUPPLIER or SELLER: The entity that shall specify and supply the major hollow fiber membrane filter system components in accordance with this specification.

21. Train: A group of membrane modules arranged together and that share common feed and filtrate piping. Modules arranged such that the following are performed on all modules in a Train (Backwash, Clean In Place Chemical washing / Maintenance Clean)

22. Unit: The water production entity of a membrane system. A unit consists of a number of membrane modules that share feed and filtrate valving, and the units can usually be isolated from the rest of the system for testing, cleaning, or repair. Also called racks, trains (in conflict with the above definition), or skids

D. SCOPE OF SUPPLY – Mobile Filtration System

1. The SUPPLIER shall specify and supply all major hollow fiber membrane treatment system sub-assemblies, equipment, and components (see Section 5 for detailed equipment requirements) within the mobile system as specified herein, including:

2. FEED / STRAINER SYSTEM

   a. Arranged in two (2) parallel flow trains with associated piping, valves, instruments, and controls. Each train shall have a pneumatically operated flow control valve.

   b. Mounted on welded steel support frame.

   c. Pumps controlled by Variable Frequency Drives (VFDs). Capable of operating with minimum 0.5 psi suction pressure.

   d. Automatic backwashing strainer for pre-filtering.

   e. Provisions for Excess Recirculation flow. Operator adjustable up to 3 gpm per membrane module.

   f. Capable of providing 1500 GPM (total, maximum) of water to the Module Rack Assemblies

   g. Low suction pressure (0.5 psi minimum) pump cutoff instrumentation and controls

3. MODULE RACK ASSEMBLY

   a. Arranged in two (2) parallel flow trains with manifolded connections for Feed, Filtrate, Air Scour, and Excess Recirculation. Manifolds shall be constructed of NSF61 certified HDPE material

   b. Mounted on welded steel support frame.

   c. Factory installed membrane modules and all associated components/hardware for installation.

   d. Each flow train shall provide a minimum of 25,000 square feet of membrane area with the entire container providing a minimum of 50,000 square feet of membrane area.

4. REVERSE FILTRATION (RF) SYSTEM

   a. Capable of providing up to 500 GPM of water to the Module Rack Assembly

   b. Pumps controlled by Variable Frequency Drives (VFDs)

   c. Mounted on welded steel support frame.

   d. Associated piping, valves, instruments, and controls

5. COMPRESSED AIR SYSTEM

    a. Air compressor capable of 200 psig discharge pressure.

    b. Air quality entering air receiver must meet or exceed ISO 8573-1 Class 1.5.1 (dirt: 0.1 µ and 1 mg/m3, water: 3˚C - 7˚C pdp, oil: 0.01 mg/m3) and be less than 40˚C (104˚F)

    c. Associated filters, piping, valves, instruments, and controls

6. CLEAN-IN-PLACE (CIP) / ENHANCED FLUX MAINTENANCE (EFM) SYSTEM

    a. Hot Water tank constructed from HDPE material.

    b. Chemically resistant immersion heater

    c. Pneumatically operated chemical transfer pumps

    d. Associated piping, valves, instruments, and controls

7. FILTRATE FORWARDING SYSTEM

    a. 1,700 gallon (minimum) filtrate storage tank with level indicating transmitter

    b. Two (2) vertical, multi-stage, centrifugal type filtrate pump(s) acting in parallel with common outlet

    c. Capable of providing up to 1,400 GPM of filtrate

    d. Mounted on welded steel support frame

    e. Associated piping, valves, instruments, and controls

8. ANCILLARY EQUIPMENT

    a. Valves POV-0110 and POV-0111 shown on drawing 20I-601. External valves required to divert chemical waste from AS / RF drain waste. Connect with ¼-inch air tubing back to solenoid bank. Support valve properly in piping.

    b. Valve POV-0112 shown on drawing 20I-601. Requires installation between two flanges in the filtrate piping. Connect with ¼-inch air tubing back to solenoid bank within the trailer. Support valve properly in piping.

9. PLC BASED CONTROL SYSTEM

    a. One PLC system with distributed I/O, including software

    b. Operator interface is a PC based system running a SCADA software. Communication between SCADA with the PLC shall be Ethernet using the Ethernet/IP communication protocol.

        1) Section 40 95 10 - PLC-Based Control System Hardware

10. NEUTRALIZATION SKID AND TANK

a. Provide neutralization tank shown on drawing 30I-601.

b. The neutralization tank shall be a horizontally mounted, white translucent HDPE or FRP tank of minimum 5,000 gallons to contain the chemical waste from any chemically enhanced backwashes, maintenance cleans, or clean-in-place cycles, with sufficient volume to capture and neutralize all chemical waste. The tank shall be supplied with inlet, outlet, and overflow connections. Tank shall have level transmitter and drain connections.

c. Provide neutralization pump skid shown on drawing 30I-601. One neutralization system shall be provided that is sufficiently sized for neutralization of chemicals used in the maintenance clean and clean-in-place processes. The neutralization system shall be located inside the chemical building.

d. Include neutralization pump (120 gpm at 95 feet; 5 HP, 3500 rpm), valves, piping, instruments and transmitter, and valve solenoid bank in skidded arrangement

e. PH and ORP instruments ship loose for field installation. Sensors shall remain wet at all times. Do not install until skid / project is ready for commissioning.

f. Piping connections include compressed air connection to solenoid bank, tank inlet, skid discharge, recirculation discharge, and drain from containerized membrane filtration system.

g. Provide off skid valves POV-1070 and POV-1080 shown on drawing 30I-601 with controls.

E. Coordination

1. The SUPPLIER shall provide engineering and technical support to the Purchaser / Renter related to the membrane equipment, and participate in the commissioning, startup, testing, and training of the personnel in operation of the membrane treatment system as specified herein.

2. Contractor to:

a. Supply and installation of all interconnect piping (raw, potable, residual, etc.) and associated valves/instruments.

b. Installation of mobile system, including but not limited to:

1) Receiving and placement of equipment furnished by SUPPLIER

2) Civil works and housekeeping pads

3) Leveling, alignment, and securing of equipment furnished by SUPPLIER

4) Supply, installation, support, and verification of field wiring and conduit.

F. Reference Specifications

1. Section 01 33 17 - Structural Design, Support and Anchorage
2. Section 01 33 00 - Submittal Procedures
3. Section 01 62 00 - Installation of Membrane Equipment
4. Section 01 66 00 - Commissioning of Membrane Equipment
5. Section 01 67 00 - Acceptance Testing of Membrane Equipment
6. Section 01 73 00 - Installation, Operation and Maintenance Manuals
7. Section 01 73 10 - Training of Operations and Maintenance Personnel
8. Section 01 74 00 - Membrane System and Module Warranty
9. Section 40 05 02 - Piping Identification
10. Section 40 95 10 - PLC-Based Control System Hardware
11. Section 40 95 20 - PLC-Based Control Systems Software

G. Reference Standards and Codes

1. ISO Standard 9001
2. ANSI/NSF Standard 61: Drinking Water System Components – Health Effects
3. NFPA 70 – National Fire Protection Association
4. National Electrical Code (NEC)
5. ISA – The Instrumentation, Systems, and Automation Society
6. NEMA – National Electrical Manufacturers Association
7. IEEE – The Institute of Electrical and Electronics Engineers
8. ASME B&PV Code VIII-1
9. UL 508A
10. Washington Administrative Code (WAC)
11. Water System Design Manual (WSDM), Washington State Department of Health (DOH), DOH Pub 331-123, Revised June 2020.
12. Membrane Filtration Guidance Manual (MFGM), EPA 815-R-009, United States Environmental Protection Agency (EPA) Office of Water, November 2005.

H. SYSTEM DESCRIPTION

1. The mobile filter system shall be composed of two (2) Filter Assemblies working in parallel, along with the Reverse Filtration, Compressed Air, Filtrate, and CIP/EFM systems as applicable. The Filter Assemblies shall independently alternate between producing filtrate and short cleaning phases to remove the particles that collect on the membrane surface during filtrate production.

2. The mobile membrane treatment system shall have the ability to perform the following processes in a fully automated manner:

    a. Pre-filter Backwashing: System shall have the ability to automatically initiate a backwash on feed water strainers based on earliest of differential pressure set-point or elapsed time.

    b. Forward Filtration: The filtration mode shall allow the operator to preset the desired flow rate for clean water production, and the system will automatically adjust the pump speed or flow control valve setting (as applicable) to deliver this rate of water from the system. The system control shall also be configured to vary production rate based on the availability of raw water upstream of the system, or run to maintain a level in a collection clear well downstream of the system. If the system is empty, the system shall perform an automated fill/vent procedure. The SUPPLIER control system shall monitor (via instrumentation and SUPPLIER PLC programming) the entire process and alert OPERATOR to anomalies.

    c. Excess Recirculation: Filter Assembly shall include provisions to permit a percentage of feed flow to enter the membrane module but bypass the fibers. This flow shall leave the membrane module through a separate port and return to the suction side of the feed pump(s).

    d. Flux Maintenance: System shall have the ability to take individual Filter Assemblies off-line to perform a flux maintenance cleaning. System shall initiate flux maintenance based upon flow volume set-point or elapsed time (earliest). Flux maintenance shall include an Air Scour followed by either a Feed Flush or Reverse Filtration, and then returning the Filter Assembly to Filtration mode. The SUPPLIER control system shall monitor (via instrumentation and SUPPLIER PLC programming) the entire process and alert OPERATOR to anomalies.

e. Integrity Testing: System shall monitor the filtrate quality to detect a performance change at the system level and provide the ability to identify a questionable module. System shall include an automated air pressure hold test feature for individual Filter Assemblies. Test pressure shall be 25-30 psig. Test interval shall be determined by OPERATOR and SUPPLIER in accordance with applicable regulations. If rate of pressure decay is too high, the control system shall alarm the OPERATOR and take the Filter Assembly offline. Filter Assembly shall be constructed such that individual membrane modules with broken fibers can be determined by applying air to the feed side and visually or acoustically observing air bubbles on the filtrate side. Individual Filter Assemblies shall also monitor turbidity of the filtrate as an indirect method of continuously assessing the membrane integrity by using effluent turbidity as an indicator of system performance. The SUPPLIER control system shall monitor (via instrumentation and SUPPLIER PLC programming) the entire process and alert OPERATOR to anomalies. Membrane integrity test shall be performed in accordance with USEPA's Membrane Filtration Guidance Manual (2005).

1) SELLER shall program a high filtrate turbidity alarm with a setpoint of 0.05 NTU, to notify operators and remove the membrane rack from service, if exceeded for more than 15 minutes. A successful PDT will be required to place the membrane rack back into service.

f. Compressed Air Supply: System shall provide both high pressure (90 psig) and low pressure (30 psig) continuously on-demand. System shall have the ability to measure and control the air flow used in the Flux Maintenance mode. Air system shall be sized for worst case usage rate. The SUPPLIER control system shall monitor (via instrumentation and SUPPLIER PLC programming) the entire process and alert OPERATOR to anomalies

g. Enhanced Flux Maintenance (EFM): System shall have the ability to take individual Filter Assemblies off-line to perform an Enhanced Flux Maintenance (EFM) cleaning. EFM process shall circulate a chlorine (or other chemical) solution through the Filter Assembly, then rinse. This process reduces the trans-membrane pressure (TMP) and inhibits biological growth on the membrane surface, resulting in a significant extension of the interval between Clean-In-Place (CIP) events. The SUPPLIER control system shall prompt the OPERATOR, monitor (via instrumentation and SUPPLIER PLC programming) the entire process, and alert OPERATOR to anomalies

3. The membrane treatment system shall have the ability to perform the following processes in a semi- automated manner:

a. Clean-In-Place (CIP): System shall have the ability to take individual Filter Assemblies off-line to perform a thorough Clean-In-Place (CIP). The CIP mode shall circulate multiple chemical solutions (with intermediate rinses) through the Filter Assemblies. This process chemically removes membrane foulants that Reverse Filtration and EFM cannot. System equipment and controls shall allow for varying chemical solutions/concentrations to be implemented, based on SUPPLIER specifying an appropriate cleaning regimen to maintain the performance and longevity of the membrane modules. The SUPPLIER control system shall prompt the OPERATOR, monitor (via instrumentation and SUPPLIER PLC programming) the entire process, and alert OPERATOR to anomalies.

b. Chemical Transfer: System shall have the ability to automatically transfer chemicals to the RF, EFM and/or CIP, and/or Neutralization processes. The SUPPLIER control system shall prompt the OPERATOR, monitor (via instrumentation) the entire process, and alert OPERATOR to anomalies.

1.02 REFERENCE SPECIFICATIONS, CODES, AND STANDARDS

A. This project is subject to the Build America, Buy America (BABA) provisions under the Infrastructure Investment and Jobs Act (IIJA). See Section 01 33 00 for submittal requirements pertaining to BABA compliance.

1.03 SUBMITTALS

A. Shop Drawings

1. Coordination Meetings

a. Within fourteen 14 days after execution of the Agreement, the SELLER shall meet with the Engineer at the Engineer's location to address any issues related to the project. The SELLER shall prepare and submit a project specific process and instrumentation diagram (P&ID) of the proposed containerized membrane systems, and neutralization system for discussion.

2. Drawings and Samples:

a. The SELLER shall submit for review and approval in accordance with the Shop Drawing Procedures the following First Shop Drawing Submittals in accordance with Section 01 33 00 - Submittal Procedures. All drawings shall be submitted electronically in pdf format. Electronic drawings shall also be submitted in 3-D format compatible with the Revit design model. The SELLER shall submit the following information:

1) Schematics Drawings:

a) P&IDs of the System, including hydraulic and pneumatic schematics detailing the equipment supplied by the SELLER and showing equipment provided by others that will interface with the System.

b) The Engineer, Buyer and SELLER are responsible for establishing the P&ID tag numbering for the units and the system. The identification and tag numbering shall be in accordance with Section 40 05 02 - Piping Identification and Contract Drawings.

c) Electrical schematic diagrams including motor horsepower and other electrical load information and identification of external wiring (panel) connections and for coordination with the Contractor.

2) Containerized System Drawings: The SELLER shall coordinate production and submit each of the following Arrangement drawings for approval:

a) Provide plan and elevation views of containerized membrane system and all equipment to be included in container.

b) Clearly identify the termination points and physical location for hydraulic, pneumatic and electrical connections where interfacing of the SELLER supplied equipment and equipment to be installed by the Contractor exists

c) Once submitted and approved the “physical envelope” of the SELLER supplied equipment or termination points shall not change without approval of the Engineer

d) A bill of materials for all tagged devices and components supplied with the Unit including component original part numbers identifying each furnished component

3) Neutralization System Drawings: The SELLER shall coordinate production and submit each of the following Arrangement drawings for approval:

a) Provide plan and elevation views of skid mounted neutralization system. The neutralization tank does not need to be mounted on the skid, it will be shipped loose for installation.

b) Clearly identify the termination points and physical location for hydraulic, pneumatic and electrical connections where interfacing of the SELLER supplied equipment and equipment to be installed by the Contractor exists

c) Once submitted and approved the “physical envelope” of the SELLER supplied equipment or termination points shall not change without approval of the Engineer

d) A bill of materials for all tagged devices and components supplied with the Unit including component original part numbers identifying each furnished component

4) The SELLER shall attend a meeting with the Buyer within 10 days after the submittal of the first shop drawing for coordination and review.

b. The SELLER shall submit for review and approval in accordance with Section 01 33 00 - Submittal Procedures.

1) Containerized membrane system:

   a) A bill of materials for all tagged devices and components supplied with the containerized membrane system including component original part numbers identifying each furnished component. For all tagged devices supplied, the SELLER shall develop a “Cross Reference Schedule” that matches the Tag to the appropriate equipment manual. The equipment schedule shall include the pertinent information associated with the equipment including tag number, description, functional name location, component equipment model, part number, size, materials, accessories and range. The Cross-Reference Schedule shall be provided in the form of a Microsoft Excel (.XLS) spreadsheet.

2) Design Calculation:

   a) Design calculations related to sizing of key components, including the overall System, pumps, valves, Units, process air system, backwash system, CIP system, chemical transfer pumps, CIP pumps, and electrical controls and instrumentation supplied by the SELLER Calculations for the piping system shall be sufficient to demonstrate that the system is hydraulically stable (balanced) under normal and backwash operation within the SELLER’s and/or good engineering practice limits. Submittals for pump(s) and throttling and modulating valve(s) shall also include calculations to show that cavitation does not occur over the intended minimum and maximum operating range.

   b) Other submittals and/or shop drawings as required under the Contract Documents

   c) Submit data as required by the applicable components of Section 46 10 00, Equipment General Provisions.

   d) LRV calculation based on the proposed excess recirculation rate. The system volume (Vsys) must be calculated for this specific installation. A site-specific upper control limit based on the design parameters and water quality of this source should be proposed and will be approved by the Engineer which complies with Washington DOH guidelines. Comply with referenced Water System Design Manual and Membrane Filtration Guidance Manual. Plan on three revisions and three virtual meetings to develop this and achieve approval from Washington DOH.

3) Information as specifically requested by the Engineer or Buyer in support of this Project.

4) The SELLER shall attend a meeting with the Buyer within 10 days after the submittal of the second shop drawing for coordination and review.

B. Factory Test Reports

   1. Quality Control Reports

a. Factory Test and SELLER Quality Control Reports for all equipment provided including the Factory Test Report for the PLC/HMI system functional performance test reports

b. Factory Test Reports for all Control Panels

c. Factory Test Report for containerized system

C. Installation Instructions: Refer to Section 01 62 00 - Installation of Membrane Equipment.

D. Commissioning Plan: Refer to Section 01 66 00 - Commissioning of Membrane Equipment.

E. Operation and Maintenance Manuals: Refer to Section 01 73 00 - Installation, Operation and Maintenance Manuals.

F. Training Manuals: Refer to Section 01 73 10 - Training of Operations and Maintenance Personnel.

G. Record Drawings: In accordance with Section 01 73 00 - Installation, Operation and Maintenance Manuals, after completion of Acceptance Testing the SELLER shall revise and submit to the Buyer revised O&M Manuals using As Installed information.

H. Certificates, Warranties and Guarantees

1. Refer to Section 01 74 00 - Membrane System and Module Warranty.

2. SELLER “Acceptance of Installation” following equipment installation.

PART 2 -- PRODUCTS

2.01 MEMBRANE MODULES

A. Based on the Owner’s review and prequalification process, the following membrane modules and membrane elements / manufacturers are pre-qualified, no others will be considered:

1. Aria Filtra (ASAHI) UNA-620A Microfiltration Membrane Module

2. Toray HFUG2020AN Ultrafiltration Membrane Module

B. Membrane modules shall be of hollow fiber construction and configured for a normal filtration flow direction from outside the fiber through to the inside (lumen) of the fiber. They shall be 0.1 micron rated, homogenous, high-crystalline PVDF (Polyvinylidenefluoride) that support high and stable flux rates and constructed with advanced bonding techniques for an exceptionally strong module design. Filtrate shall be allowed to exit the module through only one end of the lumen.

C. Hollow fiber membrane provided shall have demonstrated at least 6.0-log10 reduction of Cryptosporidium oocysts in direct challenge testing by a third party agency.

D. The equipment provided shall be capable of achieving filtrate turbidity values of 0.1 Nephelometric Turbidity Units (NTU) or less at the specified maximum flow rate under normal circumstances.

E. Membrane Hollow fibers manufactured by a Non-Solvent Induced Phase Separation (NIPS) process or by a hybrid process (NIPS and TIPS) shall not be considered.

F. The membrane structure must be of a homogeneous network type, ensuring a uniform pore structure throughout. Spherulite or point contact structure, and asymmetric or composite structure will not be considered.

G. The membrane must demonstrate no discoloration when subjected to an accelerated chemical immersion test in 5000ppm NaOCl+ 2% NaOH for 168 hr. (A brown color in this test is indicative of broken polymer bonds and results in a degradation of the physical properties of the membrane.)

H. The membrane fibers shall be encased in an ABS (Acrylonitrile-Butadiene-Styrene copolymer) housing that is suitable for operating pressures up to 60 psig and up to 104F. The membrane fibers together with the housing shall be referred to as a membrane module.

I. The modules shall be constructed as an integral unit, without mechanical seals such as O-rings and gaskets, to eliminate the risk of raw water bypass to the filtrate side of the membrane.

J. The modules shall not require special lifting mechanisms for handling and must be able to be individually removed from the membrane rack.

K. Membranes and module shall be compatible with the following cleaning and treatment chemicals at the levels indicated:

1.	NaOCl	< 5,000 ppm
2.	NaOH	< 4%
3.	HNO_3, HCl, H_2SO_4	< 10%
4.	Citric Acid	< 10%
5.	Oxalic Acid	< 2%
6.	EDTA	< 0.4%
7.	Hydrogen Peroxide	< 2%
8.	$Na/KMnO_4$	< 5,000 ppm
9.	Chlorine Dioxide	< 0.2 ppm (5 yr), < 0.1 ppm (10 yr)

L. Membrane and module shall be compatible with the following coagulants:

1. Alum (Aluminum Sulfate)

2. PACl (Polyaluminum Chloride)

3. ACH (Aluminum Chlorohydrate)

4. $FeCl_3$ (Ferric Chloride)

5. $Fe_2(SO_4)_3$ (Ferric Sulfate)

2.02 TRAILERS

A. Mobile filtration system shall be installed in a trailer with the following requirements:

1. Licensed/registered, capable of being transported by a standard 'semi type' tractor

2. Adjustable wheel locations

3. Installed HVAC system with 5 ton capacity (minimum) for control of internal ambient temperature. Insulated walls and ceiling.

4. Side egress door with portable stairways for access. Door hinges are to be located on the rear side of trailer door opening.

5. Interior lighting

6. Externally mounted enclosure for chemical pumps

2.03 VALVES

A. Process Valves (2" NPS and larger) – Manually Operated

1. Shall be butterfly type with ANSI B16.5 150# bolt pattern, epoxy coated, cast or ductile iron body, stainless steel disc, EPDM seat, Lug style (Wafer style for < 2 inch) and have NSF 61 Drinking Water Certification.

2. Shall have a dead-end shutoff differential pressure rating equal to or greater than 50 psig (with flanges installed on each valve face).

3. Manual valve operator shall be lever handle or gear operator, based on manufacturer's standard recommendation.

B. Process Valves (2" NPS and larger) – Pneumatically Operated

1. Shall be butterfly type with ANSI B16.5 150# bolt pattern, epoxy coated, cast or ductile iron body, stainless steel disc, EPDM seat, Lug style (Wafer style for < 2 inch) and have NSF 61 Drinking Water Certification.

2. Shall have a dead-end shutoff differential pressure rating equal to or greater than 50 psig (with flanges installed on each valve face)

3. Actuator shall be pneumatic, rack & pinion actuator (double acting or spring-return) with permanently lubricated bearings/guides and mounted to valve body. Pneumatic tubing shall be routed to a solenoid valve manifold.

4. Air supply to pneumatic actuator shall be from a manifold mounted solenoid valve with integral speed control. Pneumatic actuators shall be sized for service air pressure of 80 psig. Plastic tubing shall be used to supply air to actuators.

5. Valve positioners (if applicable) shall be electro-pneumatic type, integrally mounted to valve assembly. Valve positioners shall have a digital 'valve closed' signal and pressure gauges for each inlet port. Air consumption shall be less than 0.001 scfm when positioner is not operating the valve.

6. Actuated valve assemblies shall be designed for one million (1,000,000) cycles.

C. Ball Valves

1. Ball valves for air service shall have stainless steel body and ball, with PTFE seat.

2. Ball valves for fluid service shall be true union type with PVC body and ball. When required, actuators shall be pneumatic.

2.04 INSTRUMENTS

A. Analytic (PH/ORP)

1. PH/ORP sensors shall have a range of 0 to 14 (pH) and -1500 to 1500 mV (ORP).

2. PH/ORP sensors shall have a detachable probe for servicing.

3. PH/ORP transmitter shall have a local LCD display and 4-20mA output signal.

B. Turbidity Sensors/Transmitters

1. Turbidity sensors for individual filter effluent shall be HACH TU5400sc Ultra-High Precision Low Range Laser Turbidimeter with Flow Sensor and Automatic Cleaning Module.

2. Turbidity sensors shall have a sample flow less than 1000 ml/min.

3. Turbidity transmitter HACH SC4500 shall have a local LCD display and 4-20mA output signal.

C. Flow Sensors/Transmitters – Filtrate

1. Flow sensors shall be magnetic flowmeter type and be a wafer body (8" NPS and smaller) to install between ANSI B16.5 150# flanges.

2. Flow sensors 8" NPS and larger shall have a PTFE liner and two (2) electrodes and grounding rings of appropriate material. Flow sensors 6" NPS and smaller shall have a PTFE liner and two (2) measurement electrodes and one (1) reference electrode of appropriate material.

3. Flow sensor shall have NSF 61 Drinking Water Certification.

4. Flow transmitter shall be integrally mounted, 4-20mA (HART protocol), and include both a local operator interface and two (2) discrete signals.

D. Flow Sensors/Transmitters – Excess Recirculation

1. Flow sensors shall paddlewheel insertion type.

2. Flow sensor shall have NSF 61 Drinking Water Certification.

3. Flow transmitter shall have a local LCD display and 4-20 mA output signal.

E. Liquid Level Sensor/Transmitters

1. Level sensor/transmitters shall be pressure type (measuring liquid head in the tank), locally mounted, and have stainless steel construction with silicone fill fluid.

2. Level transmitters shall be 4-20mA, Digital HART protocol, and have a local LCD display.

3. Level transmitters shall have NSF 61 Drinking Water Certification and a factory calibration certificate.

F. Pressure Transmitters

1. Pressure transmitters shall be in-line (locally mounted) with stainless steel construction and silicone fill fluid.

2. Pressure transmitters shall be 4-20mA, Digital HART protocol, and have a local LCD display.

3. Pressure transmitters shall have NSF 61 Drinking Water Certification and a factory calibration certificate.

4. Provide two shelf spare pressure sensors. Shelf spare shall be installed when duty sensor is taken out of service and sent to manufacturer for annual verifications/calibration.

G. Temperature Transmitters

1. Temperature transmitters shall be platinum RTD type and have a head mounted transmitter.

2.05 STRAINERS

A. Feed Water Strainer(s)

1. Feed water strainer shall be fully automatic with integral backwashing features. Waste flow shall be automatically discharged via an actuated valve controlled by the control system. Backwash shall be initiated by differential pressure and/or elapsed time.

2. Strainer body shall be constructed of carbon steel with NSF 61 approved internal liner and appropriate external coating.

3. Strainer screen shall be rated for 300 microns and be stainless steel.

2.06 HEATERS

A. Immersion Heaters

1. Immersion heaters shall be flange mounted (ANSI B16.5 150#) for mounting on vertical tanks.

2. Heaters shall have controls system with integral thermocouple and high limit temperature switch.

3. Heater coils shall have appropriate sheathing material based on tank fluid contents and have sufficient non-heated length to prevent tank wall overheating.

4. Filter system controls shall monitor tank level and keep heater immersed at a minimum level while in operation.

2.07 TANKS

A. Hot Water Tank (CIP/EFM)

1. Tank shall be rectangular, vertically oriented, and have appropriate overflow outlet

2. Tank shall have a steel frame to support tank walls

3. Tank shall be constructed from NSF 61 certified HDPE material and have a manway with cover

4. Tank shall have connection for installing an immersion heater

5. Tank level shall be monitored and controlled by the Control System

B. Filtrate Tank

1. Tank shall be rectangular, vertically oriented, and have appropriate overflow outlet

2. Tank shall have a steel frame to support tank walls

3. Tank shall be constructed from NSF 61 certified HDPE materials and have a manway with cover

4. Tank shall have connections for supplying filtrate to the Reverse Filtration and Filtrate systems

5. Tank level shall be monitored and controlled by the Control System

2.08 COMPRESSED AIR EQUIPMENT

A. Compressors / Receiver

1. Compressor motors shall be TEFC.

2. Compressors shall have the ability to run in Load/No Load capacity control mode.

3. Compressed Air Receiver shall have ASME VIII-1 Code stamp and CRN registration

2.09 SOLENOID VALVE MANIFOLD BANK WITH I/O

A. Solenoid valve manifold (pneumatic valve operation) shall be 2 position 4-way double acting solenoids rated for 24VDC

2.10 PIPE AND PIPE FITTINGS

A. Stainless Steel Piping (Compressed Air only)

1. Stainless steel pipe shall conform to ANSI B36.19 and be ANSI A312 type 304, 304L, 316, or 316L.

B. PVC Piping

1. PVC pipe and fittings shall be NSF 61 approved Type 1 Grade 1 gray with compounds conforming to ASTM D-1784. Pipe and fitting wall thickness shall be Schedule 40 or 80. Socket welded fittings shall be used whenever possible, using solvent bonding techniques (with NSF 61 bonding materials).

2. Flanges shall be equivalent to ANSI B16.5 150#.

C. HDPE Piping

1. All materials of construction that will come in contact with the process fluids media shall be certified in conformance to ANSI / NSF-61.

2. Flanges shall be equivalent to ANSI B16.5 150#.

2.11 SUPPORT STEEL FRAMES

A. Internal to Trailer

1. Frames and/or supports internal to the trailer enclosure shall be constructed of carbon steel and be of primarily welded construction. Frames shall be fabricated per AWS D1.1 or CSA W47.1 / W59 (latest editions). Frame materials shall be seal welded to prevent moisture ingress to welded joint or interior of closed structural member. Frames shall be suitably coated for corrosion protection.

B. External to Trailer

1. Frames and/or supports external to the trailer enclosure shall be constructed of stainless steel and be of primarily welded construction. Fabrications shall be per AWS D1.1 or CSA W47.1 / W59 (latest editions). Frame materials shall be seal welded to prevent moisture ingress to welded joint or interior of closed structural member.

2. The Contractor shall coordinate with the membrane system supplier to develop and fully structural and seismic anchoring system to attached the trailer to the concrete piers in accordance with Section 01 33 17 – Structural Design, Support and Anchorage. The Contractor shall submit a plan and calculations for Engineer review. The container anchorage shall be designed in conformance with the latest edition of the International Building Code (IBC) design criteria per Section 01 33 17, Structural Design, Support, and Anchorage, and signed by a Registered Professional Structural Engineer currently licensed in the State of Washington.

2.12 PUMPS

A. Feed Pumps

1. Pumps shall be rated for continuous duty, be driven by individual Variable Frequency Drives (VFDs) and be controlled from the system SUPPLIER PLC

2. Pumps shall be horizontal end suction centrifugal type with stainless steel casings and close-coupled motors. Suction and discharge flanges shall have bolting equivalent to ANSI B16.5 150 lb. bolt pattern.

3. Pumps shall have mechanical seals that do not require auxiliary air or liquid cooling.

4. Pump motors shall be heavy-duty, inverter-duty, TEFC, Class F insulation, with appropriate voltage/phase.

5. Pumps shall have NSF 61 Drinking Water Certification

6. Pressure control valve on pump suction header is not required.

B. RF Pumps

1. Pumps shall be rated for continuous duty, be driven by individual Variable Frequency Drives (VFDs) and be controlled from the system SUPPLIER PLC

2. Pumps shall be horizontal end suction centrifugal type with stainless steel casings and close-coupled motors. Suction and discharge flanges shall have bolting equivalent to ANSI B16.5 150 lb. bolt pattern

3. Pumps shall have mechanical seals that do not require auxiliary air or liquid cooling.

4. Pump motors shall be heavy-duty, inverter-duty, TEFC, Class F insulation, with appropriate voltage/phase.

5. Pumps shall have NSF 61 Drinking Water Certification

C. Filtrate Out Pump(s)

1. Pumps shall be rated for continuous duty, be driven by individual Variable Frequency Drives (VFDs) and be controlled from the system SUPPLIER PLC

2. Pumps shall be vertical, multistage centrifugal type with stainless steel casings and close-coupled motors. Suction and discharge flanges shall have bolting equivalent to ANSI B16.5 150 lb. bolt pattern.

3. Pumps shall have mechanical seals that do not require auxiliary air or liquid cooling.

4. Pump motors shall be close-coupled, heavy-duty, TEFC, Class F insulation, with appropriate voltage/phase.

5. Pumps shall have NSF 61 Drinking Water Certification

2.13 CHEMICAL TRANSFER PUMPS

A. Pumps shall be positive displacement, air-operated, double diaphragm, self-priming type. Pumps shall be shipped loose and located in the Owner's chemical building.

B. Pump wetted housings (water chambers and manifolds) shall be fabricated out of Teflon, PVDF or polypropylene. The non-wetted housings (center section and air valve) shall be fabricated out of polypropylene. Diaphragm material and other elastomers shall be as recommended by the pump manufacturer for the specific chemical service application.

C. The pumps shall utilize compressed air from the compressed air system. The air supply pressure and flowrate to the pump shall be controlled by a manifold mounted solenoid valve, which is controlled by the SUPPLIER control system.

D. Chemical transfer pumps to include:

1. 30-P-0430 0.8% Sodium Hypochlorite Transfer Pump shown on drawing 30I-604

2. 30-P-0530 25% Sodium Hydroxide Transfer Pump shown on drawing 30I-605

3. 30-P-0540 25% Sodium Hydroxide Transfer Pump shown on drawing 30I-605

4. 30-P-0610 50% Citric Acid Transfer Pump shown on drawing 30I-606

5. 30-P-0620 50% Citric Acid Transfer Pump shown on drawing 30I-606

6. 30-P-0710 38% Calcium Thiosulfate Transfer Pump shown on drawing 30I-607

2.14 NEUTRALIZATION TANK AND PUMP SKID

A. Provide neutralization tank shown on drawing 30I-601.

B. The neutralization tank shall be a horizontally mounted, white translucent HDPE or FRP tank of minimum 5,000 gallons to contain the chemical waste from any chemically enhanced backwashes, maintenance cleans, or clean-in-place cycles, with sufficient volume to capture and neutralize all chemical waste. The tank shall be supplied with inlet, outlet, and overflow connections. Tank shall have level transmitter and drain connections.

C. Tank dimensions:

1. Volume: 5,000 gal (minimum)

2. Diameter: 90” (maximum)

3. Length: 202” (maximum)

D. Provide neutralization pump skid shown on drawing 30I-601. One neutralization system shall be provided that is sufficiently sized for neutralization of chemicals used in the maintenance clean and clean-in-place processes. The neutralization system shall be located inside the chemical building.

1. Include neutralization pump (120 gpm at 95 feet; 5 HP, 3500 rpm), valves, piping, instruments and transmitter, and valve solenoid bank in skidded arrangement

2. PH and ORP instruments ship loose for field installation. Sensors shall remain wet at all times. Do not install until skid / project is ready for commissioning.

3. Piping connections include compressed air connection to solenoid bank, tank inlet, skid discharge, recirculation discharge, and drain from containerized membrane filtration system.

4. Provide off skid valves POV-1070 and POV-1080 shown on drawing 30I-601 with controls

5. Materials of construction:

a. Structural frame: carbon steel, painted

b. Bolting: stainless steel

c. Piping: PVC, EPDM, Stainless Steel

2.15 CONTROLS

A. CONTROLS HARDWARE OVERVIEW

1. Filter control system shall be based on a master PLC with integrated I/O. The master PLC shall control all aspects of system operation including VFDs, and other ancillary equipment as specified above and as required to provide a functioning system.

a. A single PLC is required with the system and communications between the master PLC and the solenoid valve manifolds shall be via Ethernet/IP.

b. System shall be controlled over Ethernet/IP by an industrial computer mounted on the main control panel. The most current, appropriate PC hardware shall be provided.

c. Reference specification sections:

1) Section 40 95 10 - PLC-Based Control System Hardware

2) Section 40 95 20 - PLC-Based Control Systems Software

B. PLC and Panel Mounted I/O

1. Requirements

   a. Manufacturer: Allen-Bradley CompactLogix 5069 series

   b. Programming software: Rockwell Automation Studio 5000

   c. Certifications: UL, CSA (or cUL), CE

   d. A minimum of 10% user memory shall be available after completion of programming

   e. Ethernet/IP Communications or provide a protocol converter to communicate with the SUPPLIER control system. The protocol converter shall be programmed by the SUPPLIER.

2. Discrete Input modules

   a. Max inputs per module: 16

   b. Input type: NPN (Sinking)

   c. Voltage: 24VDC

   d. Removable terminal block (Local I/O)

3. Discrete Output modules

   a. Max Outputs per module: 16

   b. Output type: PNP (Sourcing)

   c. Voltage: 24VDC

   d. Removable terminal block (Local I/O)

   e. Ability to hold last state on fault

4. Analog Input modules

   a. Max Inputs per module: 8

   b. Input range: 0-20mA, 4-20mA configurable

   c. Resolution: 15 bit + sign

   d. Open circuit detection

   e. Calibrated accuracy: 0.15% at 25C

   f. Removable terminal block (Local I/O)

5. Analog Output modules

    a. Max Outputs per module: 4

    b. Output range: 0-21mA

    c. Resolution: 15 bit

    d. Open circuit detection

    e. Calibrated accuracy: 0.05% at 25C

    f. Removable terminal block (Local I/O)

C. Distributed On Machine Mounted I/O

1. Requirements

    a. Manufacturer: Numatics or Approved Equal

    b. Ethernet/IP Communications

    c. IP65/ NEMA4

    d. M12 Connection

    e. LED indication and/or local display

D. Networking Hardware

1. Overview

    a. The networking for the filter systems shall utilize Ethernet as the network physical layer, comprising the switches, interface devices and cabling. The protocols used shall be IP (industrial protocol) and TCP/IP (transmission control protocol and internet protocol).

    b. Managed Ethernet switches shall be used to provide the communication path between devices. Each device shall contain an Ethernet communications module to allow connectivity to the network.

    c. A star topology is preferred. A ring topology can be implemented if redundancy is required.

2. Ethernet switch

    a. Managed

    b. Connection ports: RJ45 – quantity determined by application

    c. LED communication indicating light for each port

    d. Auto negotiation

e. Communication rate: 10/100 MBits/s or higher

f. VLAN capability

g. Port mirroring capability

h. IGMP snooping capable

i. 24VDC supply voltage

j. Stratix 5200 series, or approved equal

3. PLC Ethernet module

a. Communication rate: 10/100 MBits/s or higher

b. Connection port: RJ45

c. Status indication via LEDs and/or display

4. On Machine Solenoid Manifold module

a. Communication rate: 10/100 MBits/s

b. Power: 24VDC

c. Power connector: 4 pin MINI

d. Communications connector: 4 pin M12

e. Environmental rating: IP65/NEMA 4

f. LED and/or display for status indication

g. Manufacturer and Model: Numatics or approved equal

E. Operator Interface Hardware

1. Overview

a. The PC based systems shall be capable of providing the graphical interface for operation of the system as well as the ability to log data, provide historical trending and reporting. The PC based operator interface comprises an industrial PC mounted on the main control panel.

2. PC Based Operator Interface

a. Display size: 15” minimum, 1024 x 768 minimum resolution

b. Display type: TFT

c. Touch Screen: Resistive film

d. Processor: Core Duo, 1.2 GHz minimum

e. RAM: 8GB minimum

f. Hard Drive: 128 GB minimum

g. I/O: 10/100 MBits/s Ethernet, 2 x USB 2.0 minimum

h. Operating system: Microsoft Windows® 10

i. Power: 120VAC or 24VDC

j. USB ports: Two (2) minimum

k. Certifications: cUL, CE

F. Miscellaneous Hardware

1. Uninterruptible Power supply

a. An Uninterruptible Power Supply (UPS) shall be supplied to maintain 120VAC power to the PLC and Operator Interface in the event of a short power loss. The UPS size will provide full load for a minimum of 10 minutes at full load.

2.16 SYSTEM DESIGN AND PERFORMANCE REQUIREMENTS

A. Service Conditions

1. Ambient Environment. The equipment furnished under this section will be installed at the locations shown on the Drawings. The site conditions are expected to be as follows:

a. Ambient Air Temperatures: 20°F to 105°F

b. Relative Humidity: 0 to 100 percent noncondensing

c. Altitude: 621.5 feet above Mean Sea Level

d. Environment: Rural area northwest of the City of Carson, annual rainfall approximately 74 inches and winds up to 42 mph.

2. Feedwater Quality from Bear Creek:

a. Turbidity: 100 NTU maximum

b. Total organic carbon: 4 mg/L maximum

c. Raw water temperature: 2.5 deg C to 21.1 deg C

d. ACH coagulant dose: maximum 12 mg/L as product; typical 3 mg/L as product

3. Estimated design elevations:

a. See design drawings

B. Process Design Requirements

a. Minimum Recovery for Membrane System 95%

b. Minimum Chemical In Place Interval: 30 days

c. Minimum maintenance cleaning interval: 24 hrs frequency

d. Filtered Water Quality Requirements:

1) Turbidity

a) Maximum filtered water turbidity (ntu): 0.15

b) Maximum filtered water turbidity 95% of time (ntu): 0.10

2) Microbiological Removal

a) Minimum *Giardia* Removal: >4-log (99.99 percent)

b) Minimum *Cryptosporidium* Removal: >4-log (99.99 percent)

2.17 EQUIPMENT DESIGN AND FABRICATION REQUIREMENTS

A. General System Requirements

1. Cross Connection Control

a. The SELLER shall design the membrane process with cross-connection control to assure that chemical solutions used as part of a Chemical Maintenance Clean or Clean in Place process do not come in contract with raw or filtered water. Meet requirements of DOH WSDM section 10.7.2 item 8 and EPA MFGM Section 7.3.4, whichever is most stringent.

b. Any cleaning process, other than backwashing, must use a cross connection control strategy. Cross connection control shall be automated.

c. The cross-connection control strategy shall segregate the supply of the cleaning solution (chemical maintenance clean or Clean In Place solution) from the backwash solution.

d. The cross-connection control strategy shall isolate the individual membrane unit from the membrane train during the chemical maintenance clean or Clean in Place process. The cleaning solution shall be adequately rinsed from the membrane unit using raw or filtered water. Analytical instrumentation shall be used to confirm that the cleaning solution has been adequately rinsed.

e. The cross-connection control strategy shall be structured and interlocked such that the supply or discharge of cleaning chemicals remain segregated from the backwash.

f. If a common manifold is used for the delivery or discharge of two or more cleaning solutions, the common manifold shall be flushed and drained before a change in chemicals is made.

g. Double block and bleed valve arrangements for cross connection control shall be provided in the following pipelines:

1) CIP Supply & Drain

2) Feed Water

3) Excess Recirculation

4) Filtrate

B. System Design Requirements

1. The P&IDs show the process design intent for the project.

a. The proprietary control is not shown on the drawings and is to be developed by the SELLER in accordance with the Contract Requirements. The SELLER is solely responsible for establishing the control of the MF System and for interfacing with the plant control system.

b. The SELLER shall develop P&IDs and identifying all I/O (analog discrete and digital) at the PLC and HMI levels. PLC and HMI operations shall be provided by the SELLER and include ranges, alarms, set-points, control, primary interlocks and trending functions to describe system operation.

2.18 SPARE PARTS

A. The SELLER shall provide the following critical spare parts:

P&ID tag	Part Description
LIT-1	PRESS TRANS,RSMT,0-30PSI,SS,CSA,CAL,DW
PIT-1A	PRESS TRANS,RSMT,0-150PSI,SS,CSA,CAL,DW
CV-2	VALVE,CHECK,BALL,0.5,SPR,220#,THD,KY/VIT
FE-1A	FLOW SENSOR,6"WAFER,316L/PTFE,RSMT 8711
FE-2A	TURB,HACH,TU5300/TU5400 FLOW SENSOR
FIT-1A	FLOW TRAN,ROSEMOUNT,24VDC,8732E,NO TUBE
FIT-2	FLOW TRANS,IFM EFECTOR,24V,2.0",0-412CFM
FIT-3A	FLOW SENSOR,PADDLEWHEEL,SIGNET 2537
P-9	PUMP,DIAPH,0-15 GPM,WILDEN,P1,PP
PHC-1/PI-1/F-1	ASSY,REGULATOR, 1/2 NPT,2 STAT,FILT,ASCO
PHC-2/PI-2	REG,AIR PRESS,1.5IN,FNPT,40 PSIG,W/GAGE
PSH-1	PRESSURE SWITCH,BARKSDALE,3.90-80PSI

P&ID tag	Part Description
SV-14A	VALVE,SOLEN,.75IN,ASCO8212,120VAC,2WAYNC
TE-1A	TEMP,SENSOR,6"RTD,4-WIRE,ROSEMOUNT 214C
VFD-1A	VFD,DANFOSS,30HP(22KW),460V,3P,N4X,ENET
VFD-2	VFD,DANFOSS,11KW,3X380-480V,ETHERNET
VFD-7A	VFD,DANFOSS,25HP(18KW),460V,3P,N4X,ENET
MODPART	ASSY,HOSE,XR,T96,8IN
MODPART	ASSY,HOSE,XR,LONG,PAMTMF,R2.0
F-2	FILTER,OIL-SEP,DF170,PAMTMF,R2.1
F3	DRYER, AIR, MEMBRANE, 2.28 - 9.55 CFM
Air System	FILTER,AIR,ELEMENT,UNIGY,IR,PAM
Air System	FILTER,ELEMENT,OIL-SEP,DF170,PAMTMF,R2.1
Air System	FILTER,OIL,4IN,ELEMENT,IR,39329602
Air System	KIT,SERVICE,THERMAL VALVE,IR,47518605001
Air System	OIL,ULTRA FOOD GRADE,INGERSOLL RAND,5L
Air System	PRE-FILTER,PAD,R5,5 1,IR,PAM,24286676
Air System	SEPARATOR,ELEMENT,IR,PAM,24121212
Compressor	V-BELT,COMP,IR,PAM,47501875001
ARV-15A	VALVE,RELIEF,1",VAC/AIR BRKR,NPT,NYLON
Seal Kit	SEAL,PUMP,CNTRF,10K65,GOULDS,23SH,SD
Seal Kit	SEAL,PUMP,CNTRF,10K64,GOULDS,5SH/6SH,SD
Seal Kit	KIT,PUMP,SEAL,REBUILD,SSH/ESH,FKM,10K45
Control Panel	FUSE,LITTELFUSE,10AMP,TYPE T,5x20mm
Control Panel	FUSE,LITTELFUSE,1AMP,TYPE T,5x20mm
Control Panel	FUSE,LITTELFUSE,2AMP,TYPE T,5x20mm
Control Panel	FUSE,LITTELFUSE,5AMP,TYPE T,5x20mm
Control Panel	PLC COMP,AB,FLEX I/O,ETHERNET ADAPTER
Control Panel	RELAY,CONTRL,AB,6A,120VAC,SLIMLINE,SPDT
Control Panel	RELAY,CONTROL,AB,6A,24VDC,SLIMLINE,SPDT
N/A	MANIFOLD,NUMATICS,12VALVE,580,ENET,501
Strainer	REPAIR,AMIAD,SAF3000,SPLIT PIN
Strainer	PIN,CONNECT,AMIAD,SAF
Strainer	SEAL,O-RING,TIGHT NUT,24X3,EPDM
Strainer	Slotted pin 3 x 30 (St.St.)
Strainer	Slotted pin 5 x 50 (St.St.)
Strainer	SEAL,O-RING,INTERNAL NUT,14X3,EPDM
V-40	COMP AIR DRAIN,CAD250, 1/2",250PSI,180F
VFD	CARD, CONTROL, MCA 121 ETHERNET
Flow Switch	FLOW SWITCH,IFM EFFECTOR,7.5",ALL

2.19 SPECIAL TOOLS

A. The SELLER shall provide special tools required for disassembly and reassembly or analysis of membrane modules.

B. The SELLER shall provide all lifting assemblies, hooks, straps, cables and accessories for removing the membrane modules from the rack assemblies.

2.20 LUBRICANTS

A. Refer to Section 01 73 00 - Installation, Operation and Maintenance Manuals for Safety Data Sheet submittal requirements.

PART 3 -- EXECUTION

3.01 INSTALLATION

A. Refer to Section 01 62 00 - Installation of Membrane Equipment.

3.02 COMMISSIONING

A. The SELLER is responsible for the complete commissioning of the MF system after the Notice of Completed Installation.

B. Refer to Section 01 66 00 - Commissioning of Membrane Equipment.

3.03 TRAINING

A. Refer to Section 01 73 10 - Training of Operations and Maintenance Personnel.

3.04 ACCEPTANCE TESTING

A. Refer to Section 01 67 00 - Acceptance Testing of Membrane Equipment.

END OF SECTION

Pre-Bid Conference Sign-In Sheet

Project: Skamania PUD No. 1 – Carson Water Treatment Plant Upgrade

Date: June 15, 2026 @ 1:00PM

Location: 1492 Wind River Highway, Carson, Washington 98610

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