

CITY OF LAKE FOREST PARK

# Beach Drive Lift Station

September 13, 2024

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Katie Phillips, Project Manager  
City of Lake Forest Park  
17425 Ballinger Way NE  
Lake Forest Park, WA 98155

**RE: City of Lake Forest Park Beach Drive**

Dear Ms. Phillips and Selection Committee Members:

Having successfully completed the Options Analysis Memorandum for the Beach Drive Lift Station earlier this year, we are excited to continue our partnership with the City of Lake Forest Park (City) for the preliminary design portion of the project. The same team of Adam Schuyler and Jake Colberg, with the addition of Peter Cunningham for technical expertise and quality management, are ready to jump into the next phase while looking out for the City's preferences expressed during conceptual alternative analysis. Selecting our team benefits the City for the following reasons.

**TECHNICAL EXPERTISE ADAPTED TO CITY NEEDS:** We will hit the ground running and use our experience working with you on the options analysis memorandum for the Beach Drive Lift Station to streamline the 30% design process. Both Adam Schuyler (Project Manager, Principal-in-Charge) and Jake Colberg (Project Engineer) provided engineering services during the options analysis portion of the project, and their knowledge of the City's preferences for lift station design as well as the challenges posed by the project area will allow for a smooth continuation into preliminary design. Peter Cunningham brings years of valuable lift station design experience to benefit the team as Technical Advisor/Quality Manager, a role he recently filled for the preliminary design for the Ruby Creek Lift Station that Jake and Adam delivered for the City of Port Orchard.

We've bolstered our team by partnering with CG Engineering for structural engineering services, Ciani and Hatch for geotechnical services, Cultural Resource Consultants for cultural resources services, Herrera Environmental Consultants for environmental services, and R&W Engineering for electrical engineering services.

**OUR TEAM SUCCESSFULLY DELIVERS LIFT STATIONS:** Adam and Peter have worked on over 10 lift station design projects together, for the City of Lacey, City of Port Orchard, and Silver Lake Water and Sewer District. Through this experience, Adam and Peter have developed an effective approach to delivering lift station designs that is directly applicable to the Beach Drive Lift Station Project. The approach includes frequent communication with the City and project team, operations staff engagement and input from kickoff through project completion, and clear and concise contract documents.

**CONSOR AVAILABILITY AND RESOURCES:** As important as it is to offer a highly qualified team that will listen to you, it is equally important to know that the team members will be available to you to complete your projects. Adam and Jake have engaged in frequent communication with the City during the options analysis phase of the project and during the creation of the scope and fee estimate for this project through continued discussion of critical area and geotechnical requirements.

We look forward to working with the City on this important project. We are confident that our experience-backed approach will lead to the efficient 30% design of the Beach Drive Lift Station and the development of a high-value, constructible design that minimizes O&M needs. As Principal-in-Charge, Adam Schuyler commits Jake, Peter, and himself through the life of the project. The team is also supported by 40 staff throughout our Tacoma, Seattle, and Bellevue offices.

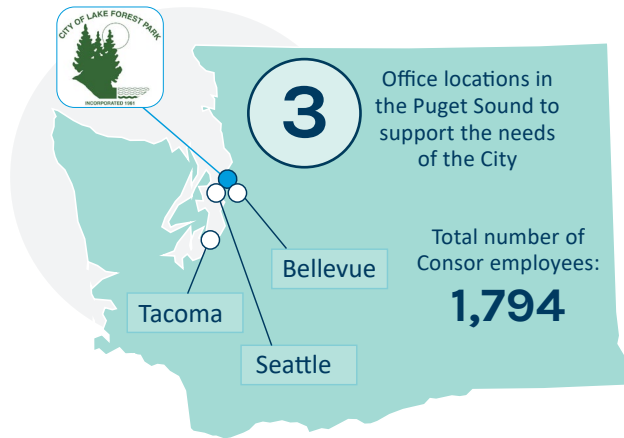
Please do not hesitate to email or call if you should need additional information or have any questions regarding our proposal.

Sincerely,  
Conсор



Adam Schuyler, PE, PMP | *Project Manager, Principal-in-Charge*  
206.462.7042 | adam.schuyler@consoreng.com

# Key Personnel Qualifications with Relevant Project Experience



*Adam and his team have demonstrated effectiveness and a City focus through successful delivery of On-Call Work Assignments, and the Beach Drive Lift Station Options Analysis.*



## FAMILIAR TEAM WITH EXPERIENCE

Consor and specialty subconsultant CG Engineering (CG) offer the City of Lake Forest Park a group of experienced, dedicated, and capable individuals that have worked together on several recent projects with great success, including the **Beach Drive Lift Station Options Analysis**.

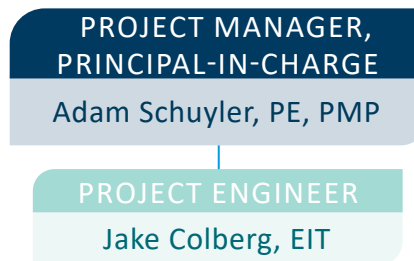
The Consor and CG staff listed to the right were instrumental parts of the Beach Drive Lift Station Options Analysis. These team members remain unchanged from that early phase of the project, benefiting the City with continuity through 30% design.

We have also bolstered our team with staff that will assist the project. Consor has worked with Ciani & Hatch, Cultural Resource Consultants, Herrera Environmental Consultants, and R&W Engineering on many projects in the greater Seattle area. **This provides a benefit to the project as the understanding of local stakeholders, permits, and field conditions helps the team hit the ground running on 30% design components.**

The role of each key team member on this project and recent projects illustrating their experience are described on the following pages.

## Organizational Chart

Consor is excited to continue to provide responsive and high-quality consulting services to the City with the following team:



### SUBCONSULTANT KEY

- 1 CG Engineering
- 2 Ciani & Hatch Engineering
- 3 Cultural Resource Consultants
- 4 Herrera Environmental Consultants
- 5 R&W

**Technical Advisor/  
Quality Manager**  
Peter Cunningham, PE

KEY TEAM MEMBERS	
Cost Estimating Bob Griesinger, CPE	Geotech Whitney Ciani <sup>2</sup>
Constructability Review/ Construction Management Drew Randolph, CCM	Cultural Resources Margaret Berger <sup>3</sup>
Structural Lead Joe Galusha, PE, SE <sup>1</sup>	Environmental Liliana Hansen <sup>4</sup>
	Electrical Lead Jeff Howard, PE <sup>5</sup>



## Subconsultant Firms



### **CIANI & HATCH ENGINEERING** *Geotechnical Engineering*

Ciani & Hatch Engineering PLLC (CHE) is a woman-owned, woman-led geotechnical engineering firm consisting of three engineering staff located in Idaho and Washington. CHE was founded in May 2023 to create a space where women and minorities can thrive while expanding the definition of success within the A/E industry. The founders, Whitney Ciani and Mikayla Hatch have over 24 years of experience working with local municipalities on utility pipeline, retaining wall, multi-use pathway, flexible and rigid pavement, road widening/improvement, stormwater detention and retention facilities, infiltration facilities, fish passage/fish barrier removal, and bridge replacement projects. They are passionate engineers committed to improving our communities and local infrastructure. CHE has significant experience working with Consor on projects for local agencies throughout Puget Sound. Regardless of project size, CHE delivers quality geotechnical design and practical, cost-effective solutions for their clients. CHE is a certified SBE (Certification No. 21346634), a Federal DBE (Certification No. D2F0028657), and a Washington State WBE (Certification No. W2F0028657).



### **CG ENGINEERING** *Structural Engineering*

Founded in 1997, CG Engineering (CG) offers almost three decades of experience working with municipalities, public agencies, architects, and engineers on structural engineering projects throughout Western Washington. They employ an experienced team of engineers, as well as AutoCAD technicians and administrative staff. Their team of 29 individuals efficiently handles complex projects from early pre-design through development and construction. They emphasize outstanding customer service that builds lasting relationships within our industry and beyond. CG has a great working relationship as a structural subconsultant to Consor, and has teamed with Consor on 43 projects over the last 15 years, including the design of pump stations, treatment facilities, and related infrastructure for public agencies throughout the Pacific Northwest region.



### **CULTURAL RESOURCES CONSULTANTS** *Cultural Resources*

Cultural Resource Consultants (CRC) is a Washington State certified woman-owned small business (#W2F0024849) offering professional services related to the identification, evaluation, and management of heritage resources. CRC was established in January 2001 and has a single office in Seattle. CRC has prior experience working on public utility projects including drinking water, wastewater, and low impact development stormwater improvements in compliance with local, state, and federal regulations. CRC has completed over 150 projects in King County and has served as a sub-consultant on several on-call contracts in Seattle and King County, including as a sub-consultant to Consor on SPU's Drainage and Wastewater On-Call (Category A). A CRC hallmark has been developing pragmatic project solutions that address the spirit and letter of cultural resource regulations and best management practices.



### **HERRERA ENVIRONMENTAL CONSULTANTS** *Environmental*

Founded in 1980, Herrera is an employee-owned business with over 100 employees in four offices in the Pacific Northwest: Portland, Seattle, Bellingham, and Missoula. Herrera provides a full range of civil and environmental engineering, landscape architecture, and natural resource services to public and private sector clients. Staff from multiple disciplines work closely together to understand project constraints and opportunities and to develop cost-effective solutions, enabling clients to obtain permits and build successful projects. Herrera's staff is experienced in comprehensive stormwater planning and management, including assessment of upland and instream water quality, habitat, and flooding conditions; identification and prioritization of problem areas; prioritization of capital and programmatic basin recommendations; cost estimation and design. Stormwater planning is a crucial step in laying plans for protecting and restoring water resources, as jurisdictions identify measures to both mitigate for past damage to aquatic systems, as well as plan for future protection of aquatic resources as development pressures continue. Herrera's diverse experience allows them to anticipate and address the wide range of issues that often arise in stormwater planning and management efforts, and their reputation for producing clear, high-quality products allows their plans to be quickly and easily adopted and implemented by their clients. Because of their robust experience with National Pollutant Discharge Elimination System (NPDES) and Environmental Science Associates (ESA) requirements, Herrera understands how to provide stormwater planning and management that will support applicable regulatory requirements.



### **R&W ENGINEERING** *Electrical*

R&W Engineering provides electrical, mechanical, and automation engineering services for municipal, industrial, commercial, institutional, and governmental clients. R&W has been involved in the design of water and wastewater applications and analysis. This includes plant projects designs, construction observation, start-up, and programming. Their engineering staff is very familiar with the electrical requirements for water pumping and control.

# Qualifications / Expertise of Firm

Our philosophy at Consor is to provide robust, well-thought-out designs that are easy to maintain over the life of the lift station. Because every utility is unique, operations and maintenance staff input is critical so that the completed project meets City standards and includes features that reduce or simplify maintenance. We'll also discuss new ideas with your staff based on what has worked well for other utilities. Our work on the Beach Drive Lift Station Options Analysis will give us a good start, as we understand City preferences on the configuration and location of the proposed lift station, as well as the difficulties that may be presented by the critical areas surrounding the project site.

With over 750 water/wastewater projects completed in Washington, Consor staff has developed a comprehensive understanding of laws and regulations for public utility systems, including regulations of the Washington State Department of Ecology (Ecology).

We are actively involved in associations such as the Hydraulic Institute (HI), American Water Works Association (AWWA), Pacific Northwest Clean Water Association (PNCWA), American Public Works Association (APWA), and other industry groups that provide our staff with the tools and training to stay abreast of the latest industry news and technology.

## PROJECT UNDERSTANDING

The City of Lake Forest Park owns and operates two lift stations, both located in Beach Drive NE along the northern shore of Lake Washington. The two lift stations are functioning adequately, but are well past their service life and the City would like to consolidate to a single lift station. The new lift station is to have a wet well/dry well configuration and will be located within the City right-of-way in Beach Drive to minimize any potential impact to an upcoming waterfront park project. The City has a number of additional project goals they would like to achieve:

- Install pumps which address the ragging issues that the current lift stations are facing.
- Install a new standby power generator to allow lift station operation during power outages.
- Abandon the 8-inch diameter gravity sewer lake line and replace it with a gravity sewer line in Beach Drive.
- Replace the shared side sewers served by the lake line with individual side sewers that drain to a new gravity sewer line in Beach Drive.

This project will implement Alternative 1A from the Consor-authored "Options Analysis Memorandum" dated April 26, 2024. Major design elements will include:

- A wet well/dry well lift station containing two solids handling pumps that address ragging issues.
- A new standby power generator.
- New telemetry, instrumentation, and controls.
- A new gravity sewer line within Beach Drive to replace the existing lake line.



### Memorandum

Date: April 26, 2024  
Project: Beach Drive Lift Station  
To: Katie Phillips  
City of Lake Forest Park  
From: Jake Colberg  
Consor  
Reviewed By: Adam Schuyler, PE  
Consor  
Re: Options Analysis Memorandum

#### Introduction

##### Background and Goals

The City of Lake Forest Park (City) owns and operates two lift stations, both located in Beach Drive NE along the northern shore of Lake Washington. The two lift stations are functioning adequately but are well past their service life and the City would like to consolidate to a single lift station.

The project goals include:

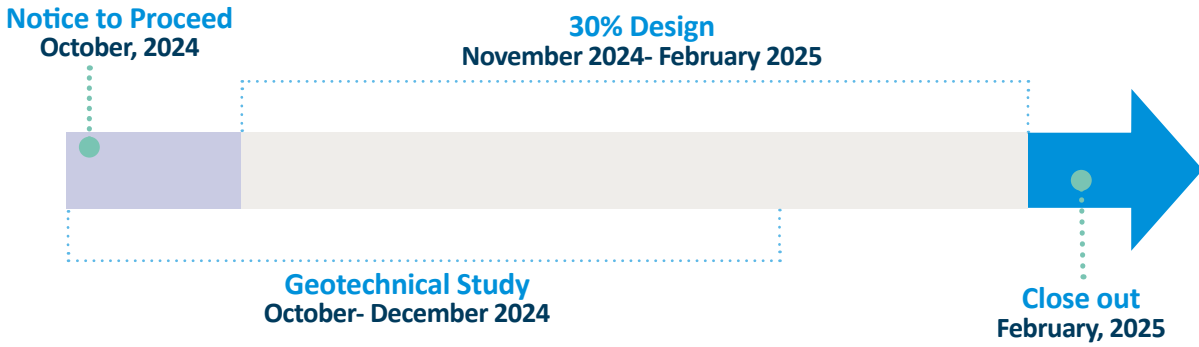
- Single wet well/dry well lift station that includes:
  - New concrete sub-structures.
  - Pumps that address issues with ragging.
  - New power supply.
  - Emergency power generation.
  - New telemetry, instrumentation, and controls.
- Abandon the 8-inch diameter gravity sewer lake line and replace it with a gravity sewer line in Beach Drive.
- Replace the shared side sewers served by the lake line with individual side sewers that drain to a new gravity sewer line in Beach Drive.

## Beach Drive Lift Station Options Analysis Memorandum

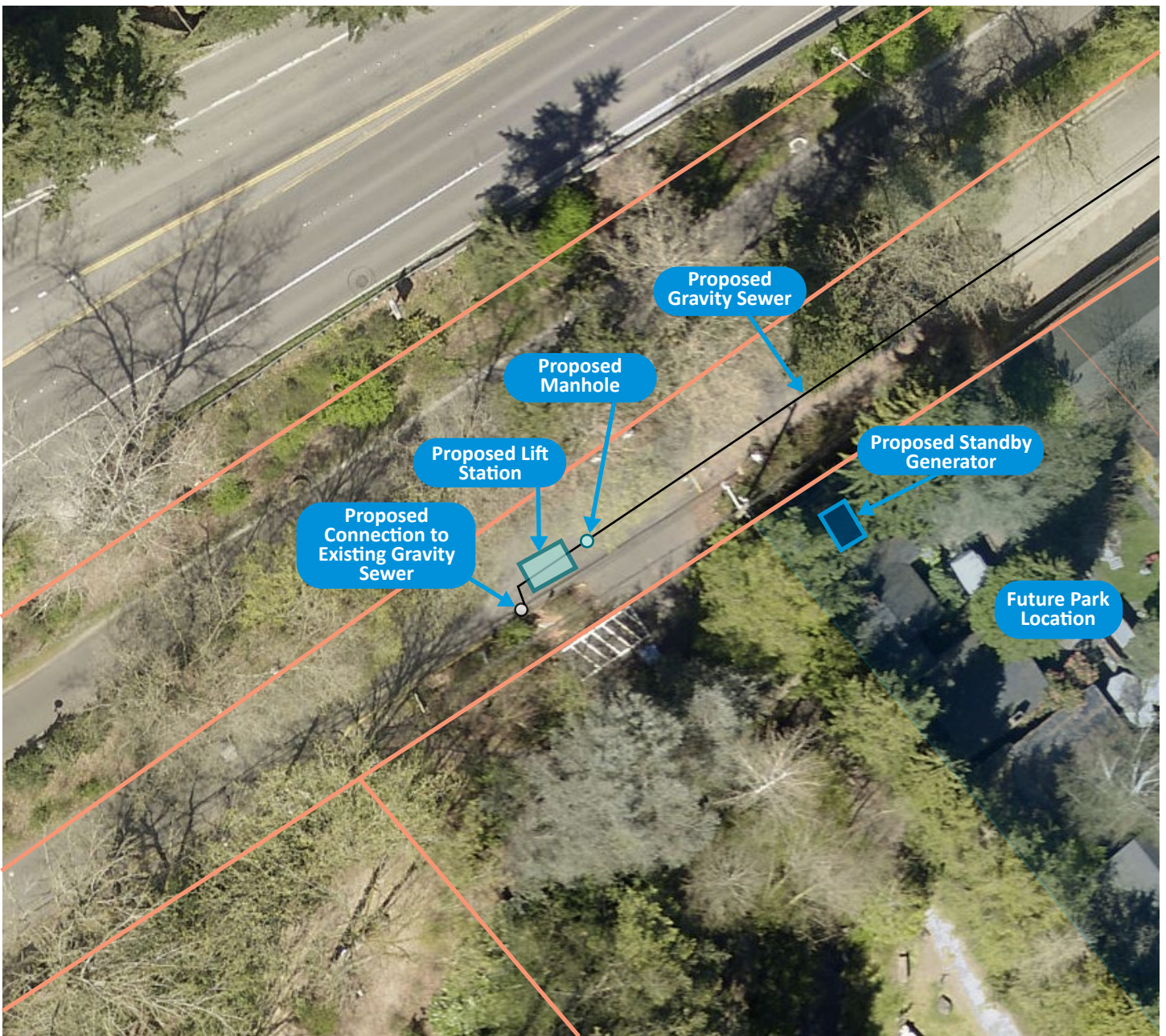
Consor provided an Options Analysis memorandum for the lift station, which presented three alternatives with varying configurations for a new lift station in Beach Drive. The City indicated they are interested in moving forward with Option 1A from the memorandum, which includes a new wet well/dry well lift station and approximately 410 feet of new gravity sewer.



PROPOSED BEACH DRIVE LIFT STATION 30% DESIGN SCHEDULE



Conceptual Beach Drive Lift Station Site Plan



## EXAMPLE OF CONSOR LIFT STATION DESIGN APPROACH

### Alternatives Analysis/Pre-Design

- Complete field evaluations- structural, mechanical, electrical/instrumentation, hydraulic, etc.
- Confirm/project design flows and confirm available downstream capacity, as appropriate
- Initiate utility coordination
- Initiate permit log/risk register
- Review lift station configuration and confirm duplex wet well/dry station
- Develop preliminary design report, plans, and cost estimate for District review.
- Complete SEPA and any preliminary land use permits
- Confirm preferred site location and begin property acquisition discussions if applicable

### Construction

- Support project through construction management and inspection
- Complete submittal reviews and respond to requests for clarification/information; review contractor pay request applications; review contractor schedules, and proactively identify potential challenges

### Project Initiation

- Collect and review additional data, including City preferences/standards
- Develop draft project plan that outlines communication, schedules, QA/QC procedures, etc.
- Workshop with City to kickoff project and customize evaluation template

### Detailed Design

- Develop detailed design, progressing design elements to an appropriate level for each intermediate deliverable to allow for efficient review by City staff
- Update cost estimate(s) and complete constructibility reviews
- Submit for appropriate development/building permits

### Bid Period

- Coordinate publication of bid advertisement, log and respond to questions, issue addenda (if necessary), review bids, and recommend award

## EXPERIENCE WORKING WITH PUBLIC AGENCIES IN A SIMILAR DESIGN ROLE

In the past six years, Consor has worked on over 20 lift station projects within the Puget Sound region, providing support on design contracts for clients like the City. Many of our existing clients are of similar size to the City and have comparable goals regarding their infrastructure.

**RESPONSIVENESS:** To serve as an extension of City staff, our team must coordinate closely with City staff and be familiar with the City's current standards and expectations. Our lift station experience for many similar public agencies throughout the Puget Sound, combined with our strong history of long-term client relationships, demonstrates our ability to communicate well and successfully deliver projects of broad size and scope.

All projects are unique and require flexibility throughout the design and construction process. To meet your goals of a low maintenance facility—meeting capacity, operational, and regulatory requirements—requires collaboration and communication. Our team has been proud to work with you on the Beach Drive Options Analysis, and our number one concern is giving you a complete design and construction support services so you'll have a facility that you can be proud of. As your Project Manager and main point of contact, Adam will work with our team to stay on schedule and budget, and he will be readily accessible to City staff to resolve any issues that arise, so that we exceed your expectations.



# FULL-SERVICE DESIGN CAPABILITIES FOR UTILITY INFRASTRUCTURE AND SEWER LIFT STATIONS

Conсор has a full range of lift station and sewer design capabilities, including preliminary design, alternatives analysis, cost estimating, and final design. Our full time cost estimator helps us avoid surprises by providing accurate estimates and staying on top of expected changes in inflation and supply chain issues. We understand the importance of selecting the right equipment to optimize life cycle costs. Our team provides valuable expertise in surveying, geotechnical analysis, architectural and structural design, electrical design, and environmental/permitting support.

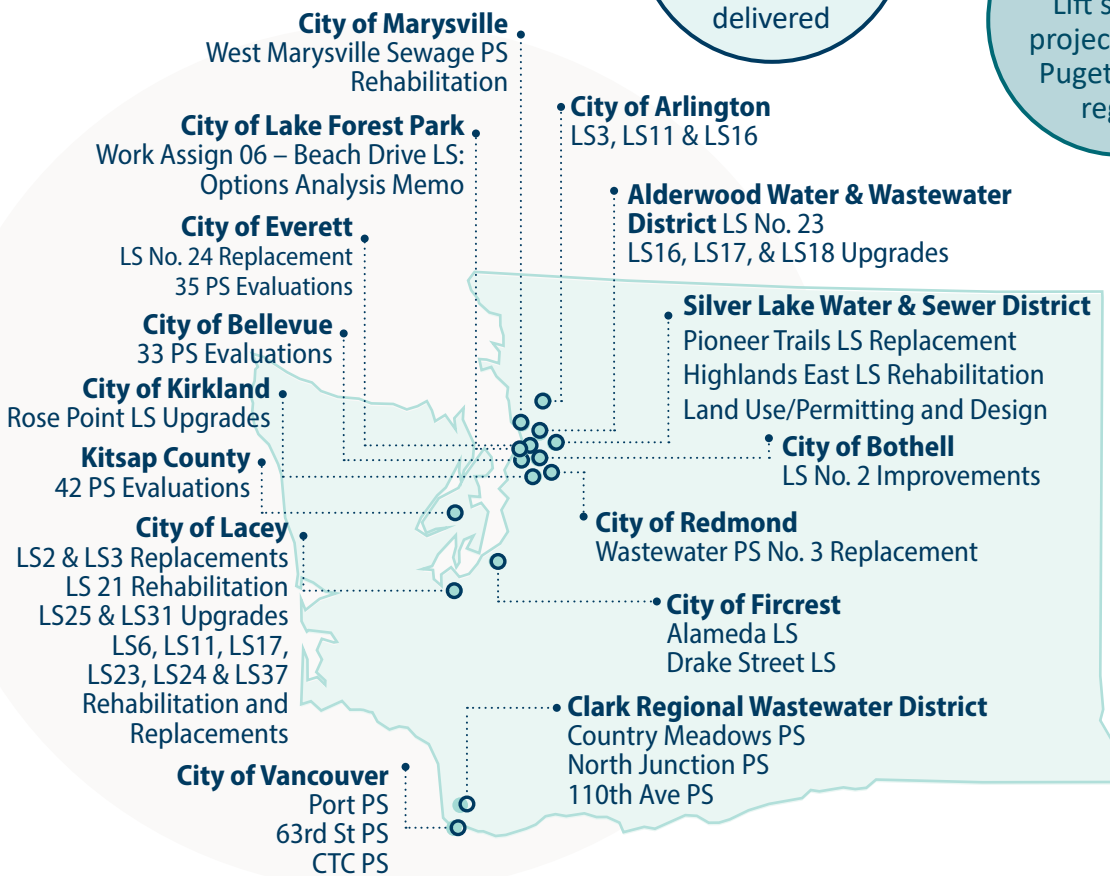
## Key Expertise

- Submersible Pumps
- Dry Pit Pumps
- Constant Speed Drives
- Variable Frequency Drives
- Pre-cast Structures
- Cast-In-Place Structures
- Caisson Installation
- Trenchless Pipe Installation
- Building and Canopy Design
- Hydraulic Modeling
- Manifold Force Main Analysis
- Basin Planning
- Emergency Storage Analysis
- Diesel Backup Pump Design
- Odor Control
- Surveying
- Geotechnical Services
- Electrical, Instrumentation, and Controls
- Environmental Permitting

## SEWER LIFT STATION PROJECTS IN WASHINGTON

**300+**  
Lift station projects successfully delivered

**85+**  
Lift station projects in the Puget Sound region





Our collective team of Adam, Jake, and Peter bring key lift station experience to this project. Our strong working relationship, coupled with Adam's and Peter's extensive experience in lift station design, provides a team that you can trust to get the job done.



CLIENT	LS/PS/FORCE MAIN	SERVICES			
		Condition Evaluation	Permitting	Design	Construction Support
◆ City of Lake Forest Park	Work Assignment 06 – Beach Drive LS: Options Analysis Memo	■	■	■	
	AWWD			■	■
◆ AWWD	LS Nos. 16, 17, & 18 Upgrades	■	■	■	■
	City of Arlington	■	■		
	City of Bellevue	■			
	City of Bothell	■	■	■	■
	City of Everett	■	■	■	■
	City of Everett	■			
	City of Fircrest	■	■	■	■
	City of Kirkland	■	■	■	■
	City of Lacey		■	■	
◆ City of Lacey	LS Nos. 6, 11, 17, 23, 34 & 37		■	■	■
	City of Lacey	■	■	■	
	City of Lacey	■		■	
	City of Marysville	■	■	■	
	City of Port Orchard			■	
	City of Port Orchard			■	
	City of Port Orchard		■	■	■
	City of Port Orchard			■	
	City of Port Orchard		■	■	■
	City of Redmond	■	■	■	■
	City of Vancouver		■	■	■
	Clark Regional Wastewater District		■	■	■
	Kitsap County	■	■	■	■
◆ Silver Lake Water & Sewer District	Pioneer Trails LS Replacement		■	■	■
◆ Silver Lake Water & Sewer District	Highlands East LS Rehab		■	■	■

Projects with a ◆ are shown in more detail, starting on the following page.

## Related Project Experience



### Work Assignment 06 – Beach Drive Lift Station: Options Analysis Memorandum, City of Lake Forest Park, WA

The City of Lake Forest Park owns and operates two lift stations, both located in Beach Drive NE along the northern shore of Lake Washington. The two lift stations are well past their service life and the City intends to consolidate to a single lift station. The project area presents a number of challenges, including its proximity to wetlands, shoreline, and its location in a landslide hazard area. Consor conducted an alternatives analysis with the aim to create an easily maintained lift station which didn't interfere with a future park project planned by the City. Preliminary layouts and cost opinions were presented to best inform the City's options for final design.

#### RELEVANCE TO THE PROJECT

- ✓ Report/Documentation
- ✓ Focus on long-term value
- ✓ Lift station design
- ✓ Extensive critical area considerations
- ✓ Continuity from conceptual to preliminary design



### Highlands East Lift Station Rehabilitation, Silver Lake Water & Sewer District, WA

The Highlands East Lift Station, has aging equipment and poorly designed suction lift pumps resulting in excessive maintenance. A steep slope on the east end of the site is at high risk of failure in the event of an earthquake, which limits the usable area on the site. As a result, Consor opted to reuse the existing wet well to reduce future risk. The design will require bypassing the existing station so it can be rehabilitated with new submersible pumps, a valve vault, controls building, and generator set. A construction sequence has been developed, requiring early submittals of long lead time items to reduce the length of the bypass. The project is currently progressing to final design.

#### RELEVANCE TO THE PROJECT

- ✓ Report/Documentation
- ✓ Engineering design
- ✓ Focus on long-term value
- ✓ Same structural subconsultant



### Lift Station No. 16, No. 17 and No. 18 Upgrades, Alderwood Water & Wastewater District (AWWD), WA

AWWD's existing Lift Stations (LS) 16, 17, and 18 are wet well mounted suction lift stations, originally constructed 40+ years ago. AWWD wanted to confirm that any condition or capacity issues were addressed before service was impacted. Phase 1 of this project evaluated the force main, wet well and structures, mechanical, and electrical/instrumentation components to determine any asset management needs. Following this assessment, AWWD approved replacing LS 16 and 18 with submersible stations and replacing LS 17 with a wet well/dry well configuration, as well as replacing its force main.

#### RELEVANCE TO THE PROJECT

- ✓ Report/Documentation
- ✓ Lift station design
- ✓ Focus on long-term value



## Lift Stations No. 25 & 31, No. 2, No. 21, No. 3, No. 6, No. 11, No. 17, No. 23, No. 34 and No. 37, City of Lacey, WA

Conсор has provided the City of Lacey with lift station design services on nine stations over the past nine years. The first project included upgrades to two lift stations (25 & 31) to bring them up to current City of Lacey standards and address odor and corrosion concerns. Our team worked well with the City of Lacey, particularly the O&M staff, because we listened to their requests and concerns.

Conсор was most recently selected for the City of Lacey Lift Station Consultant Project to provide engineering services for a total of six lift stations. Design for four of the lift stations require the new stations to be located at the existing sites, and generally consist of installing new wet wells, pumps, valve vaults, isolation pedestals, control panels, cabinet awnings, and site lighting. Design for the remaining two lift stations include increasing the design pumping capacity of the lift station in order to replace the pumps. Each lift station has unique challenges to address during design ranging from high groundwater, proximity to commercial and residential areas, and limited site areas. Conсор has formed a collaborative relationship with the City of Lacey to provide tailored solutions that work best for each lift station while still adhering to the City’s design standards. Four of the lift stations are currently in final design and two have been constructed.

### RELEVANCE TO THE PROJECT

- ✓ Report/Documentation
- ✓ Residential construction area
- ✓ Engineering design
- ✓ Focus on long-term value



## Pioneer Trails Lift Station Replacement, Silver Lake Water & Sewer District, WA

Pioneer Trails is one of the District’s largest lift stations—and its biggest headache, with frequent call outs and a design requiring the gravity system to surcharge. The existing pumps are undersized, and a spare pump is sometimes used to provide additional capacity and reliability. The preliminary design phase included an evaluation of build-out flows, which was complicated by the diversion of flows from an upstream station and the ability of another upstream station to send only a portion of flows to Pioneer Trails.

Peter Cunningham worked with the District to determine a design flow that would optimize the use of the various conveyance routes, allow for operational flexibility in the collection and conveyance system without overbuilding the lift station.

The station is on a small site, requiring an easement to construct the replacement lift station. Conсор’s surveying partner provided the documents needed for the District to obtain these easements. The site is also adjacent to a bog, requiring more work to obtain a permit from the County to replace this critical piece of infrastructure.

We are currently providing construction management services, working closely with District staff to manage submittal reviews, respond to RFIs, inspection services, change orders, negotiating pricing, and processing payments to the Contractor. We’ve been flexible in adjusting the design as needed to provide the best possible finished product.

### RELEVANCE TO THE PROJECT

- ✓ Report/Documentation
- ✓ Same electrical and structural subconsultants
- ✓ Dry pit to submersible configuration
- ✓ Engineering design
- ✓ Small site
- ✓ Focus on long-term value
- ✓ New lift station to replace existing





## Past Performance / References

The best value is often extracted through similar experiences. The Consor team has a strong history of successful lift station projects for similar cities and public agencies. Regardless of project size and complexity, we aim to provide excellent service. We encourage you to contact our references below.

### 1 Beach Drive Lift Station Alternatives Analysis

Katie Phillips, Project Manager, City of Lake Forest Park, WA

p: 206.957.2812

e: kphillips@cityofflp.com

### 2 Highlands East Lift Station Rehabilitation

Scott Smith, District Engineer, Silver Lake Water & Sewer District

p: 425.659.2302

e: ssmith@slwsd.com

### 3 Ruby Creek Lift Station Preliminary Design

Jacki Brown, Former Utility Manager (*retired*), City of Port Orchard, WA

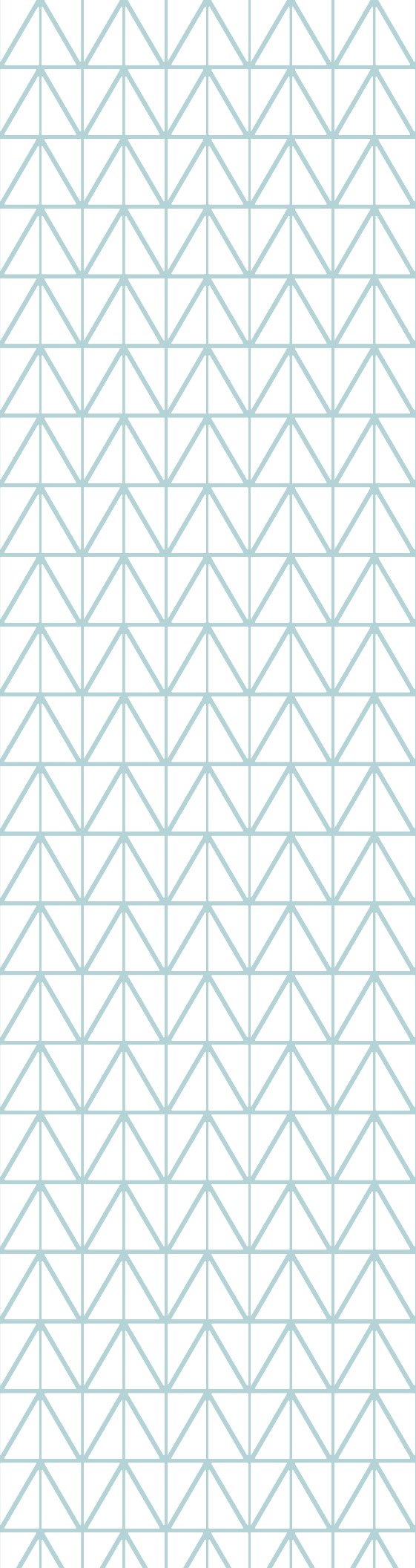
p: 360.876.4991

e: jbrown@portorchardwa.gov

“

The whole Consor team has been great to work with on two of our recent sewer lift station projects, and has become one of Silver Lake’s favorite consultants. The design group was very adaptable to our evolving standards and a challenging permitting process. The dedicated construction manager has been a huge benefit to administer the daily construction activities, as well as work through all the inevitable changes that happen on a complex project.”

— **Scott Smith, PE, District Engineer at Silver Lake Water & Sewer District**



**APPENDIX**

**Key Staff Resumes**



# Adam Schuyler, PE, PMP

Project Manager, Principal-in-Charge

**Years of Experience:** 23 years

**Education:** MS, Civil Engineering, Washington State University

BS, Civil Engineering, Washington State University

**Registration:** Prof. Engineer- WA, OR, CO, ID, TN, & MT

**Unique Qualifications:**

- Experience in all aspects of sewer collection and conveyance systems, from modeling and planning to design and construction of pump stations and pipelines

**Additional Experience:**

- Lift Station 3 Replacement, City of Lacey, WA
- Lift Station Nos. 16, 17 & 18 Upgrade, Alderwood Water and Wastewater District, WA
- Highlands East Lift Station Replacement, Silver Lake Water & Sewer District, WA
- Lift Station Consulting, City of Lacey, WA
- Pump Station 45, 46, 47, and 74, Kitsap County, WA
- Wastewater Pump Stations 2, 10, 12, 15, City of Redmond, WA
- 2023 Lift Stations Condition Assessments, City of Everett, WA
- 2015 Lift Stations Condition Assessments, City of Lacey, WA
- Pump Stations Condition Assessments, Kitsap County, WA
- White River Utilities Lift Station, City of Sumner, WA

Adam has designed and managed water and sewer projects throughout the Pacific Northwest, including comprehensive planning, civil and mechanical design, and construction services for water and sewer projects, with a passion for pump station and pipeline design. Adam’s pump station facilities have flows ranging from 15 gpm to 220 mgd. In his role as senior design engineer, Adam oversees all aspects of the project design, leading technical communications, and mentoring staff.

## Select Project Experience

**Beach Drive Lift Station, City of Lake Forest Park, WA; *Principal-in-Charge.*** Consor provided preliminary alternatives analysis services for this project, which involves the construction of a new lift station in Beach Drive, in Lake Forest Park, WA. The lift station will service a number of residences on the north shore of Lake Washington, and will allow the City of Lake Forest Park to decommission two existing lift stations in the area which were originally constructed in the 1960s. Adam assisted with the development of three conceptual alternatives and their associated opinions of probable project cost, and also wrote the “Options Analysis Memorandum” covering the elements of the three alternatives.

**Ruby Creek Lift Station Preliminary Design,, City of Port Orchard, WA; *Principal-in-Charge.*** Consor provided conceptual layout and 30-percent design services for the Ruby Creek Lift Station. The lift station will feature a duplex wet well with a 750 gpm pumping capacity, valve and meter vaults, a backup generator and backup diesel pump, and a control building housing electrical components. This lift station will provide capacity for further growth in southern Port Orchard and reduce dependency on the nearby Albertsons Lift Station, which is currently operating at capacity.

**Bay Street Pump Station McCormick Woods 2, City of Port Orchard, WA; *Project Manager.*** Adam served as project manager overseeing the alternatives analysis and preliminary design services for the Bay Street Pump Station. Preliminary evaluations were conducted for four Bay Street Pump Station rehabilitation alternatives based on the use of existing assets, capital costs, ease of operations and maintenance, and impacts to the public, traffic, and local businesses. In addition, an evaluation was performed to determine if it is feasible for the Bay Street Pump Station to discharge into the existing Marina Pump Station Force Main. Project responsibilities include technical lead, coordination with the City’s project manager, managing the project team, preparing monthly status reports, invoices, and budget tracking utilizing earned value management.

**Pioneer Trails Lift Station Replacement, Silver Lake Water and Sewer District, WA; *Principal-in-Charge.*** The Pioneer Trails Lift Station is at the end of its useful life and has insufficient capacity for projected growth. The station has experienced reliability issues. Consor assisted the District with preliminary design and final engineering services to replace the lift station. An options analysis determined the most practical option was to construct a new 3,100 gpm triplex submersible lift station with a new pre-cast wet well in order to maintain the operation of the existing lift station during construction. Pump runtimes and system hydraulics were evaluated to determine an optimum near- and long-term design capacity, including pump selection that would provide needed reliability and near-term capacity, as well as increased capacity after the installation of a new larger diameter force main without the need to replace the pumps.

**Lift Station Consulting; City of Lacey, WA; *Principal-in-Charge.*** As part of a continued effort to maintain reliability of wastewater lift stations, Lacey combined six lift stations (LS6, LS11, LS17, LS23, LS34, and LS3), into one capital project program. As a part of this project, Consor is responsible for guiding the design of all six lift station improvements, which individually range in scope from pump replacement to major rehabilitation to complete design of a new facility. Three of the lift stations discharge to shared force mains, which required a more detailed hydraulic analysis and consideration of potential capacity impacts on the lift stations not being modified.





# Jake Colberg, EIT

Project Engineer



**Years of Experience:** 4

**Education:** BS, Mechanical Engineering, Montana State University

**Registration:** Engineer-in-Training

Jake is an engineer-in-training with four years of experience in mechanical process design, and eight months of experience with Consor. He began his engineering career in 2020 as a mechanical design engineer for PPM Technologies, a food manufacturing equipment company. He then spent two years with Sedron Technologies, a waste treatment company based out of Sedro-Woolley, WA, focused on biosolids and organic fertilizer production. For Sedron, Jake worked in site development, commissioning, and mechanical process design for septage and manure treatment facilities. This experience sparked an interest in water and wastewater treatment, and in October of 2023 he joined Consor to pursue a career in the field.

## Select Project Experience

**Beach Drive Lift Station, City of Lake Forest Park, WA; *Engineering Designer.*** Consor provided preliminary alternatives analysis services for this project, which involves the construction of a new lift station in Beach Drive, in Lake Forest Park, WA. The lift station will service a number of residences on the north shore of Lake Washington, and will allow the City of Lake Forest Park to decommission two existing lift stations in the area which were originally constructed in the 1960s. Jake assisted with the development of three conceptual alternatives and their associated opinions of probable project cost, and also wrote the “Options Analysis Memorandum” covering the elements of the three alternatives.

**Ruby Creek Lift Station Preliminary Design, City of Port Orchard, WA; *Engineering Designer.*** Consor provided conceptual layout and 30-percent design services for the Ruby Creek Lift Station. Jake was responsible for assisting with design efforts for the lift station facility, along with coordinating with subconsultants on subcontracted design elements. He also wrote the “Ruby Creek Lift Station – Conceptual Layout” and “Pump Comparison” memorandum for the project, in addition to assisting with the writing of the “Ruby Creek Lift Station Preliminary Design Report.”

**Water Treatment Plant 1 Preliminary Design, Ferndale, WA; *Engineering Designer.*** Consor provided 30-percent design services for a new water treatment facility in Ferndale, WA for the Public Utility District No. 1 of Whatcom County. The project features a new water treatment plant with sand traps, five sedimentation basins, and plate settlers to treat water drawn from the Nooksack River to an acceptable level for the Public Utility District’s industrial customers. Jake assisted with preliminary design and the writing of the “Water Treatment Plant 1 Preliminary Design Report”.



# Peter Cunningham, PE

Technical Advisor/Quality Manager



**Years of Experience:** 19 years

**Education:** BS, Civil and Environmental Engineering, University of Washington

**Registration:** Prof. Engineer- WA

## Unique Qualifications:

- Currently updating the City's General Sewer Plan
- Experience in all aspects of sewer collection and conveyance systems, from modeling and planning to design and construction of pump stations and pipelines

## Additional Experience:

- 2024, General Sewer Plan Update, City of Port Orchard, WA
- General Sewer Plan Update, Midway Sewer District, WA
- Saltwater State Park Force Main Options Analysis, Midway, WA
- Wastewater Comprehensive Plan Update, City of Lacey, WA
- Sewer Plan, Lynden, WA
- CW-4 Lift Station Replacement, City of Bremerton, WA
- Bay Street Pump Station Pre-Design Report, City of Port Orchard, WA
- Marina Pump Station Pre-Design Report, City of Port Orchard, WA
- 2016 General Sewer Plan Update, City of Port Orchard, WA
- LS-3 Replacement, City of Lacey, WA
- Cove II Pump Station, Olympic Water and Sewer, Jefferson County, WA
- Highlands East Lift Station Rehabilitation, Silver Lake Water and Sewer District, Snohomish County, WA

Peter is a senior engineer who provides civil engineering expertise on water, wastewater, and stormwater projects. His experience includes comprehensive plan development for sewer and water systems, hydraulic and hydrologic modeling, sewer design, pump station design, stormwater facility design, sediment and erosion control plans, and preparation of plans, specifications, and cost estimates.

## Select Project Experience

**McCormick Woods Well No. 11, City of Port Orchard, WA; Project Engineer.** The western half of Port Orchard's water service area, known as McCormick Woods, comprises the City's existing 580 and proposed 660 water pressure zones. Continual growth over the next few years will necessitate extensive improvements to the City's water supply system to meet the growing water demand. The City drilled Well 11 in the McCormick Woods Development in 2011 and now wants to increase pumping capacity from 750 gpm to 1,150 gpm, relocate the existing booster pump station, and improve the site. Project components include redeveloping Well 11, a new building that will house the relocated booster pump station, a packaged treatment system, a sodium hypochlorite generation system, fluoride and sodium hypochlorite feed pumps, and emergency power generation. The pump station relocation will improve site and operator access and safety.

**McCormick Woods Lift Station No. 2, City of Port Orchard, WA; Project Manager.** Due to an upstream STEP system with high levels of hydrogen sulfide and an abandoned chlorine injection system, the previous lift station was badly corroded. Located in a neighborhood experiencing high levels of growth, it was also undersized. The replacement station was a dry well/wet well configuration, with triplex pumps and variable frequency drives. This project also included a hydraulic analysis to determine the increase in flows to the lift station after power outages in the upstream STEP system to ensure sufficient capacity in all conditions. Due to the criticality of the station, additional standby storage and a diesel backup pump were also included.

**Pioneer Trails Lift Station Replacement, Silver Lake Water and Sewer District, WA; Project Engineer/Deputy Project Manager.** The Pioneer Trails Lift Station is at the end of its useful life and has insufficient capacity for projected growth. The station has experienced reliability issues. Consor assisted the District with preliminary design and final engineering services to replace the lift station. An options analysis determined the most practical option was to construct a new 3,100 gpm triplex submersible lift station with a new precast wet well in order to maintain the operation of the existing lift station during construction. Pump runtimes and system hydraulics were evaluated to determine an optimum near- and long-term design capacity, including pump selection that would provide needed reliability and near-term capacity, as well as increased capacity after the installation of a new larger diameter force main without the need to replace the pumps.

**CE-1 Lift Station Replacement, City of Bremerton, WA; Project Engineer.** Peter was the project engineer on this upgrade to the City's largest lift station. This project included the replacement of two pumps with new 385 HP, 6,000 gpm dry pit pumps, rehabilitation of the wet well, replacement of all piping within the lift station, and new electrical equipment. The station had to be fully bypassed during construction. The wet well was taken offline and a bypass pumping system with a capacity of 12,000 gpm was constructed. A 6-foot diameter wet well was used as the temporary wet well, which required a robust system of testing prior to bypassing.

**CW-4 Lift Station Replacement, City of Bremerton, WA; Project Manager.** CW-4 was located down a steep slope and was inaccessible to the City's trucks. The valves were located within the wet well, and it was difficult to replace equipment. The replacement station was located uphill within a roadway, and replaced the gravity sewer beach line with grinder pumps. The resulting station was more reliable, easier to maintain, and abandoned difficult to access gravity and force mains in the beach.



# Robert Griesinger, CPE

Cost Estimator

**Years of Experience:** 40 years

**Education:** BS, Business Management, University of Phoenix

**Registration:** Certified Professional Estimator (CPE), American Society of Professional Estimators

## Unique Qualifications:

- Cost Estimating Concrete Structures, Tunneling, Trenchless Technologies, Pipelines (Open Cute) Demolition, Dewatering, Heavy Civil Construction

## Additional Experience:

- Cascade Groundwater Alliance Package 4; Rockwood PUD, OR, Pump Station Design Lead.
- Johnson to Norum Pipeline Upgrade Phase 1 and Phase 2, City of Poulsbo, WA; Construction Manager.
- Well No. 11 Phase 1- Site Improvement Project, Port Orchard, WA

Bob has 40 years of construction experience focused on civil engineering and construction management across seven states and five countries, including 30 years of experience working as cost estimator. He is actively engaged with the construction market to proactively address material and labor cost changes. His capabilities include negotiating prices, organizing bids, preparing cost reports, coordinating design-build projects, and developing schedules and cash flow forecasts.

## Select Project Experience

### **Rockwood- Groundwater Development Package 4, Rockwood Water PUD, OR; *Cost Estimator.***

This project includes the design of the water treatment plant and a new booster pump station. The total capacity will depend on the final well capacities as they are developed, but the design can accommodate a range of 28 to 32 MGD at full capacity. The treatment plant includes multiple vessel vertical skids with pyrolox advantage media, which was pilot tested at flow rates of 12 gpm/sq ft. Chlorine will be generated on site and the treatment facility includes offices, locker rooms, restrooms, a control room, server room, conference or training room and a laboratory space. The facility has room for future backwash recycling facilities as well. Backwashing will be completed using pressurized water from the booster pumping station and a surge tank will allow the backwash to enter the sewer system as a reduced flow rate. The project included land use permitting, SCADA, a new equipment storage facility and the Well 4 wellhouse design.

**Bangor- Keyport Force Main Replacement, Kitsap County, WA; *Cost Estimator.*** The existing 18- to 24-inch diameter ductile iron pipe is approximately 40 years old and has a history of corrosion issues. Flows are collected at Bangor Naval Base (Bangor)/ Pump Station 17 and then pumped approximately four miles to Pump Station 24. The County's project focused on this six-mile-long section between Bangor and the Central Kitsap Treatment Plant and included four pump stations, individual pump stations, and numerous air/vac stations. Consor performed a Triple Bottom Line Analysis to review alternatives for replacement of the existing force main, ultimately helping the County select a preferred pipeline alignment. Consor recently completed the final design of the force main and appurtenances, which includes approximately five miles of 20- to 30-inch HDPE pipe, CIPP of the SR-3 20-inch crossing, HDD of Clear Creek, bypass pumping, pump station improvements, connections to existing pump stations and IPS, trenchless installation, odor control improvements, and coordination with WSDOT, Kitsap County roads, and local utilities.

**Groundwater Development Project Package No. 6, Cascade Well No.9 and Raw Water Transmission Main, City of Gresham, OR; *Cost Estimator.*** Package 6 includes the construction of a new groundwater production well facility in Kirk Park, Cascade Well No. 9 (CW9), and an 18-inch / 30-inch diameter, approximately 3,600-foot-long raw water transmission pipeline that will deliver untreated groundwater to the RWPUD headquarters site. Key features of the well include a 1,000 kW standby power generator and a 900 HP vertical turbine pump. The pipeline work required detailed integration with various other raw water infrastructure (some existing, some in real time for other GDP Package work), and repurposing an existing RWPUD transmission main as a distribution main. The project required right-of-way and building permitting through the City of Gresham, OHA Plan Review for the new well house, and DEQ 1200-C permitting for all aspects.



