
Brightwater Project Progress

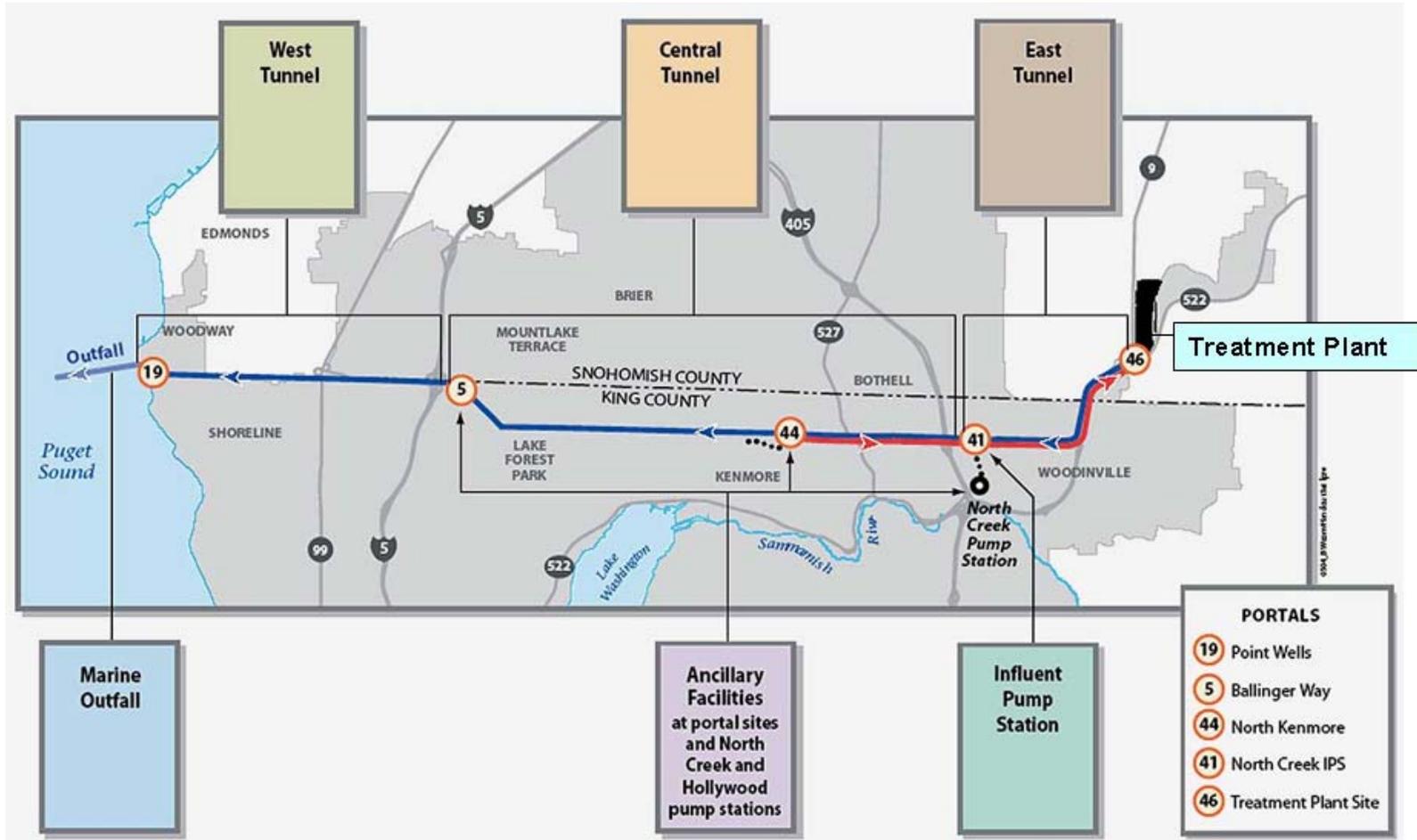


MWPAAC

December 5, 2007

Gunars Sreibers, Brightwater Project Manager
King County Wastewater Treatment Division

Brightwater Treatment Plant and Conveyance System



Brightwater Treatment Plant

- Hoffman - North Mitigation, Earthwork and Liquids
 - GCCM - \$320 million
- Kiewit Pacific – Solids, Odor Control and Energy
 - Design/Bid/ Build - \$167 million



Treatment plant construction

Major grading and earthwork



Excavation & concrete pour of foundations



Excavation & concrete pour of foundations



Treatment plant construction

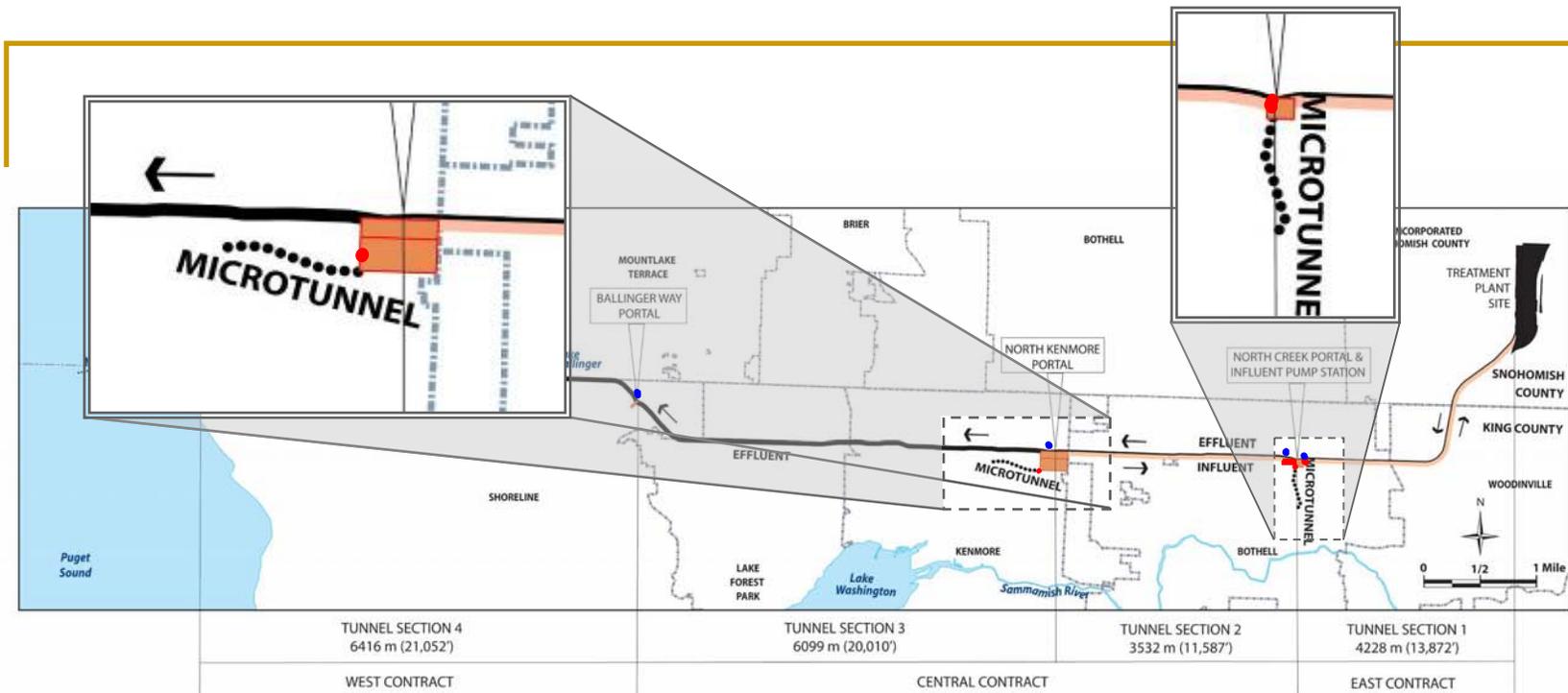
**Volunteers planting in North Mitigation Area
October 2007**



Treatment Plant Construction Schedule

- **2007** – Complete north mitigation area; complete site earthwork; begin excavation for major structures and start for pipes, tanks & building foundations
- **2008** - Continue construction of tanks, buildings, & major pipes; demolish office building and continue land shaping.
- **2009** - Continue buildings, digesters, install mechanical and electrical systems (pumps, piping, ducts), begin landscaping
- **2010** - Complete buildings, grading, equipment installation, and landscaping
- **Late 2010 - early 2011** – system testing and start-up

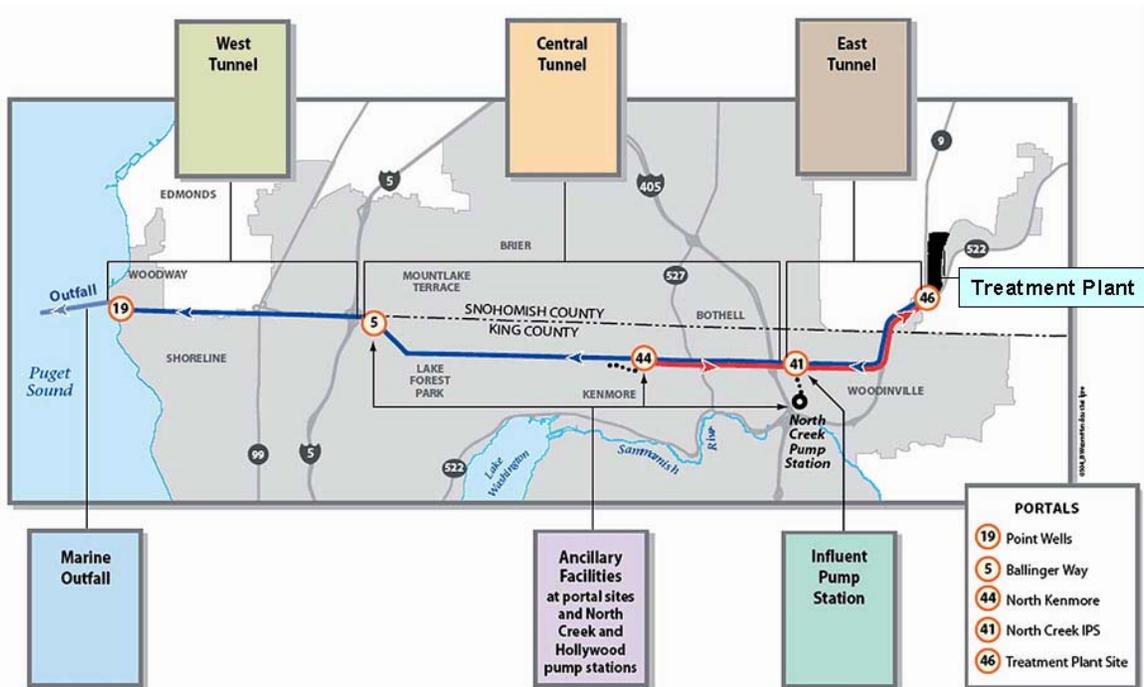
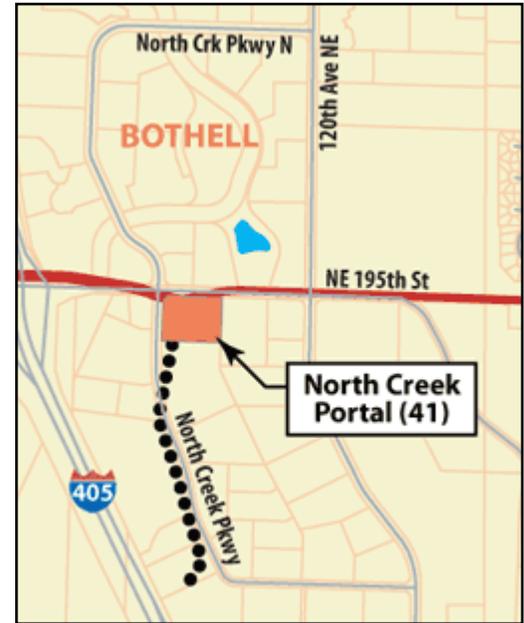
Flow Through Conveyance System



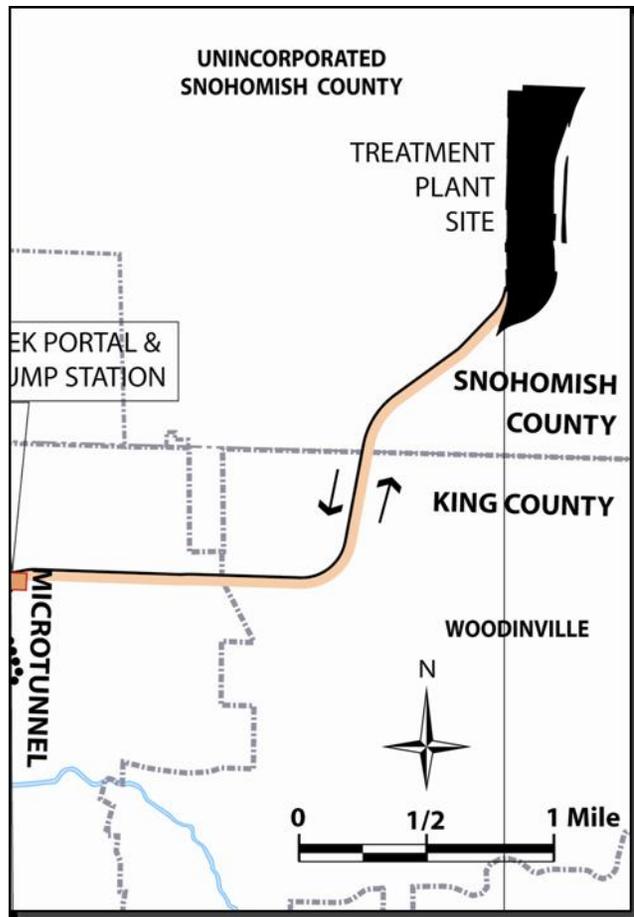
Swamp Creek Connector (SCC): Approx 1/3 of the BW Flow entering @ the North Kenmore Portal, Central Contract
North Creek Connector (NCC): Approx 2/3 of the BW Flow entering @ the North Creek Portal, East Contract

East Tunnel Contract - North Creek Portal

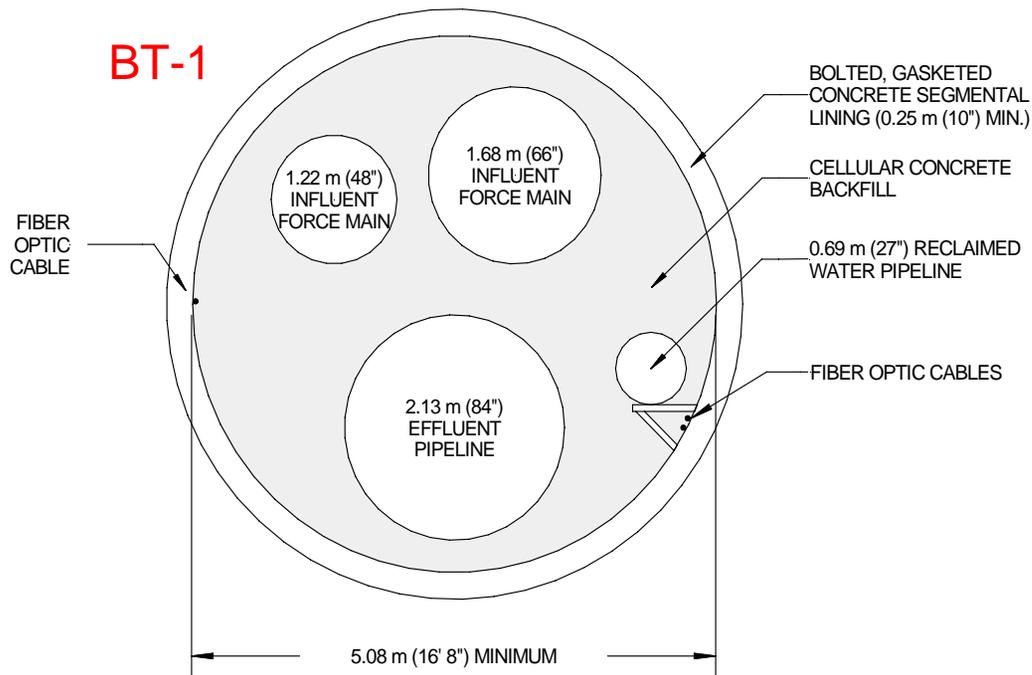
- Tunneling, TBM shaft & IPS excavation done under this contract
- Contractor is Kenny Shea Traylor JV
- Design/Bid/Build - \$138 million



East Tunnel Contract



BT-1



North Creek Portal

- Two large diameter 75-foot deep shafts, one to launch & receive TBMs, and a second to house underground part of IPS
- In September, 19-ft dia. TBM, “Luminita,” launched to mine over 2.5 miles to the treatment plant, expected to take about a year
- Microtunneling of the North Creek Connector continues, the 6-foot diameter pipeline is expected to be completed in early 2008

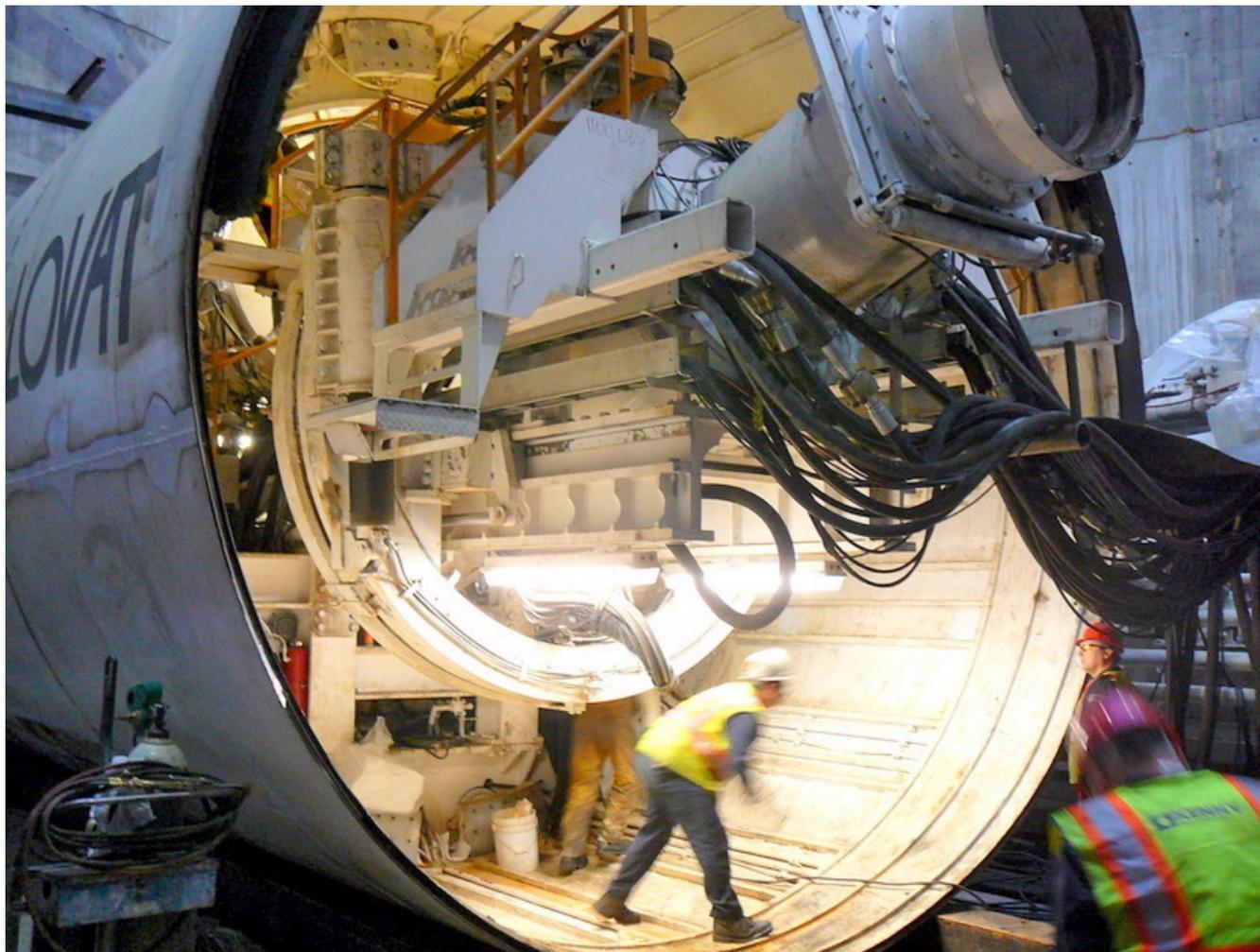
East Contract - Aerial View of North Creek Portal Site

Influent Shaft

Two Lobes of Influent Pump Station



A look inside the TBM

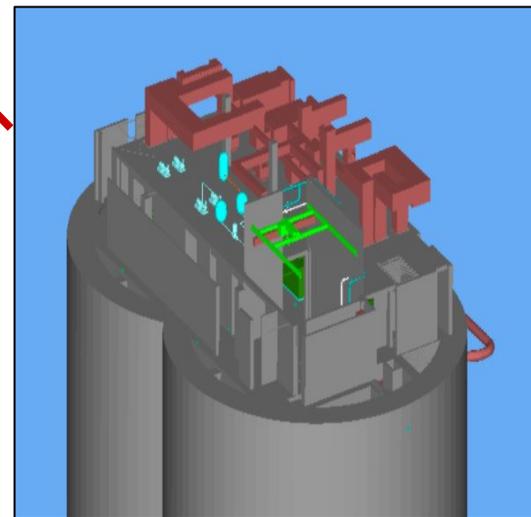
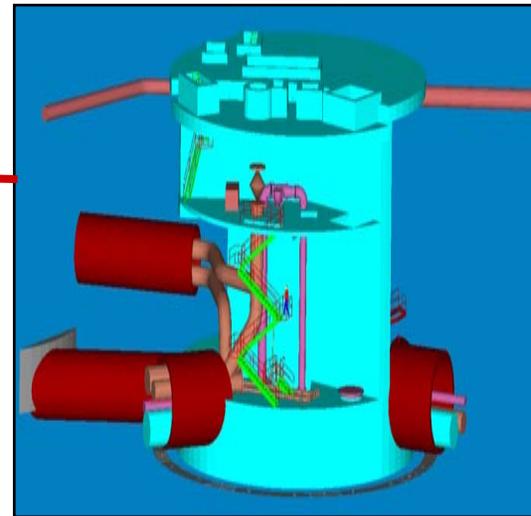
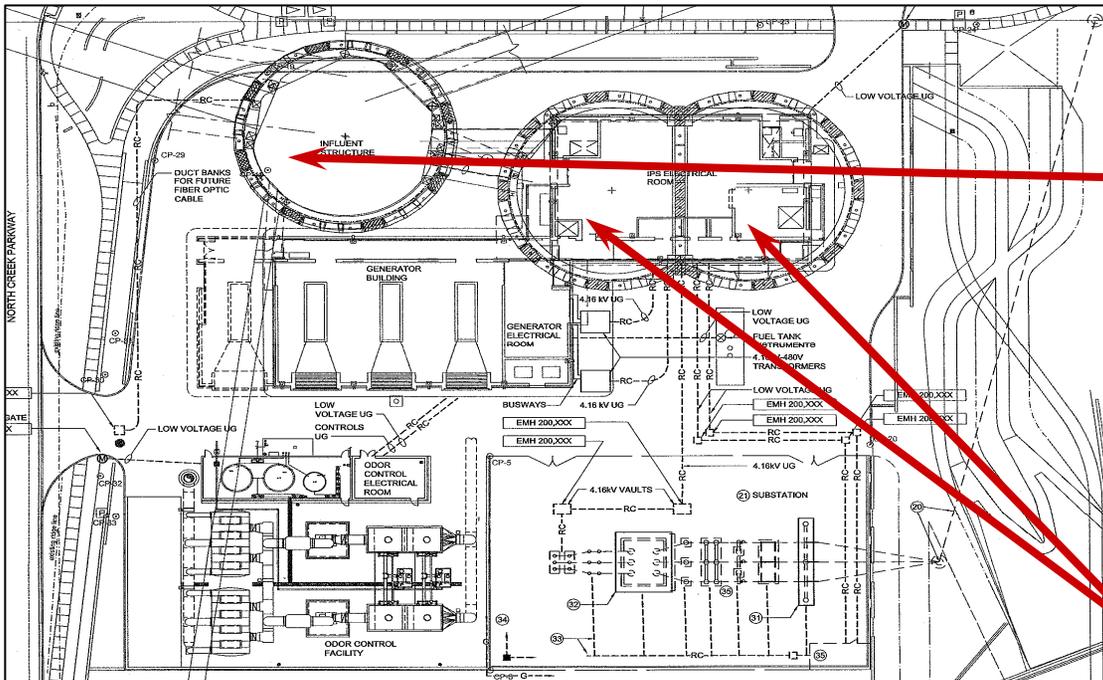


Influent Pumping Station (IPS) at North Creek Portal

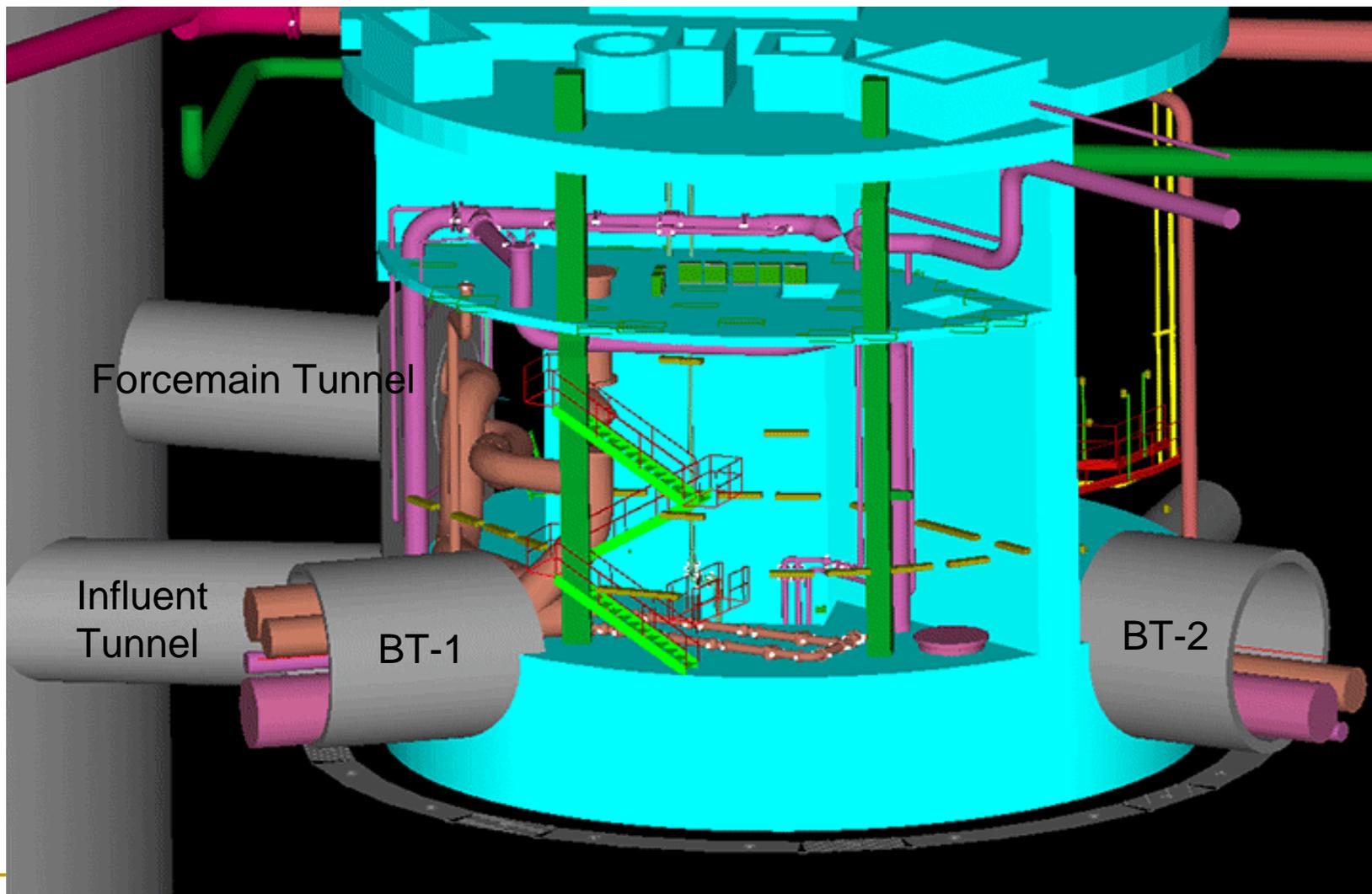
- Kiewit Pacific - \$92 million design/bid /build contract
- Contract includes:
 - 130-mgd pump station expandable to 170 mgd,
 - 10,000-sq. ft. above-grade influent structure, generator/chemical buildings, odor control, pumps, and related utilities
 - testing and start-up of IPS and off-site conveyance facilities.



Influent Pump Station Contract



North Creek Site - Below Grade Influent Structure
looking South

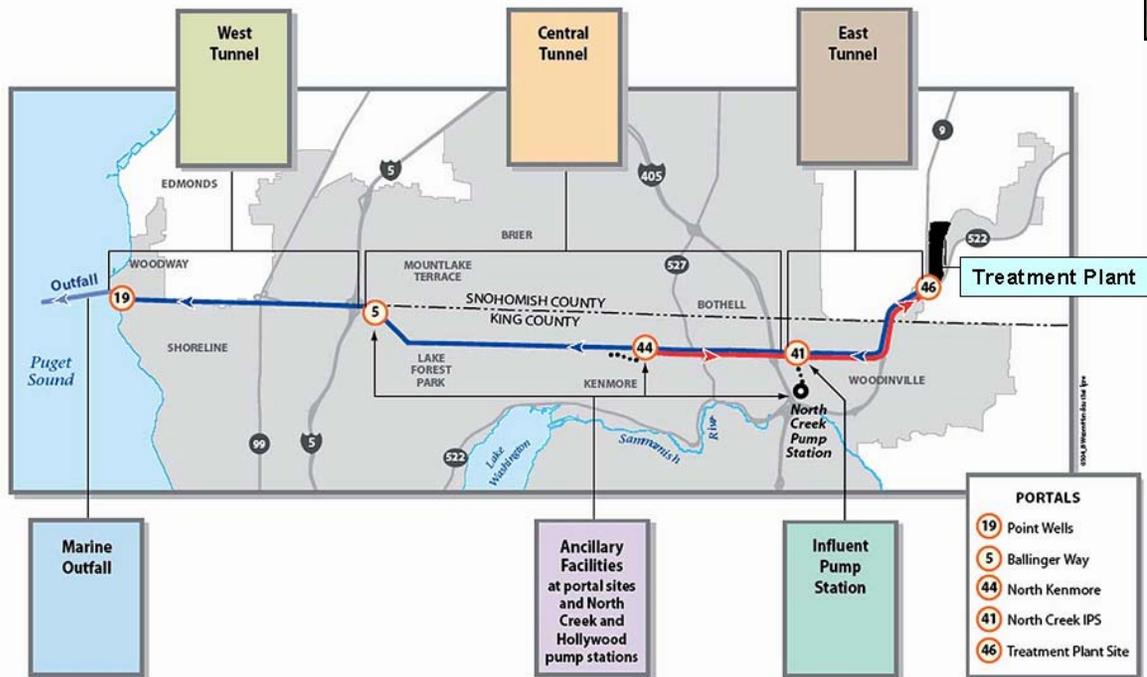


North Creek Portal & Influent Pump Station (IPS) Construction schedule

- **2007** – TBM delivered and assembled, conveyance tunnel and pipe construction begins, microtunneling to link IPS and North Creek Pump Station (NCPS) begins
- **2008** – Construction of the IPS and NCPS improvements begins
- **2009** - Tunneling and pipelines completed
- **2010** – IPS construction completed

Central Tunnel Contract North Kenmore Portal

- Tunneling with two TBMs
- Vinci Parsons FK, joint venture
- Design/Bid/Build - \$211 million



Central Tunnel Contract

- At North Kenmore 100-ft deep portal, launch two TBMs
- Also construct 200-foot deep receiving portal at Ballinger Way
- First TBM, "Helene," began tunneling 2-miles east to the North Creek Portal
- Early 2008 "Rainier" will begin tunneling west to the Ballinger Way Portal in Shoreline
- Completed 1-mile connection from Swamp Creek Interceptor using cut and cover/ microtunnel
- Construction completed late 2010

Central Contract - Aerial View of North Kenmore Portal

EXIT

Microtunnel Segment 1

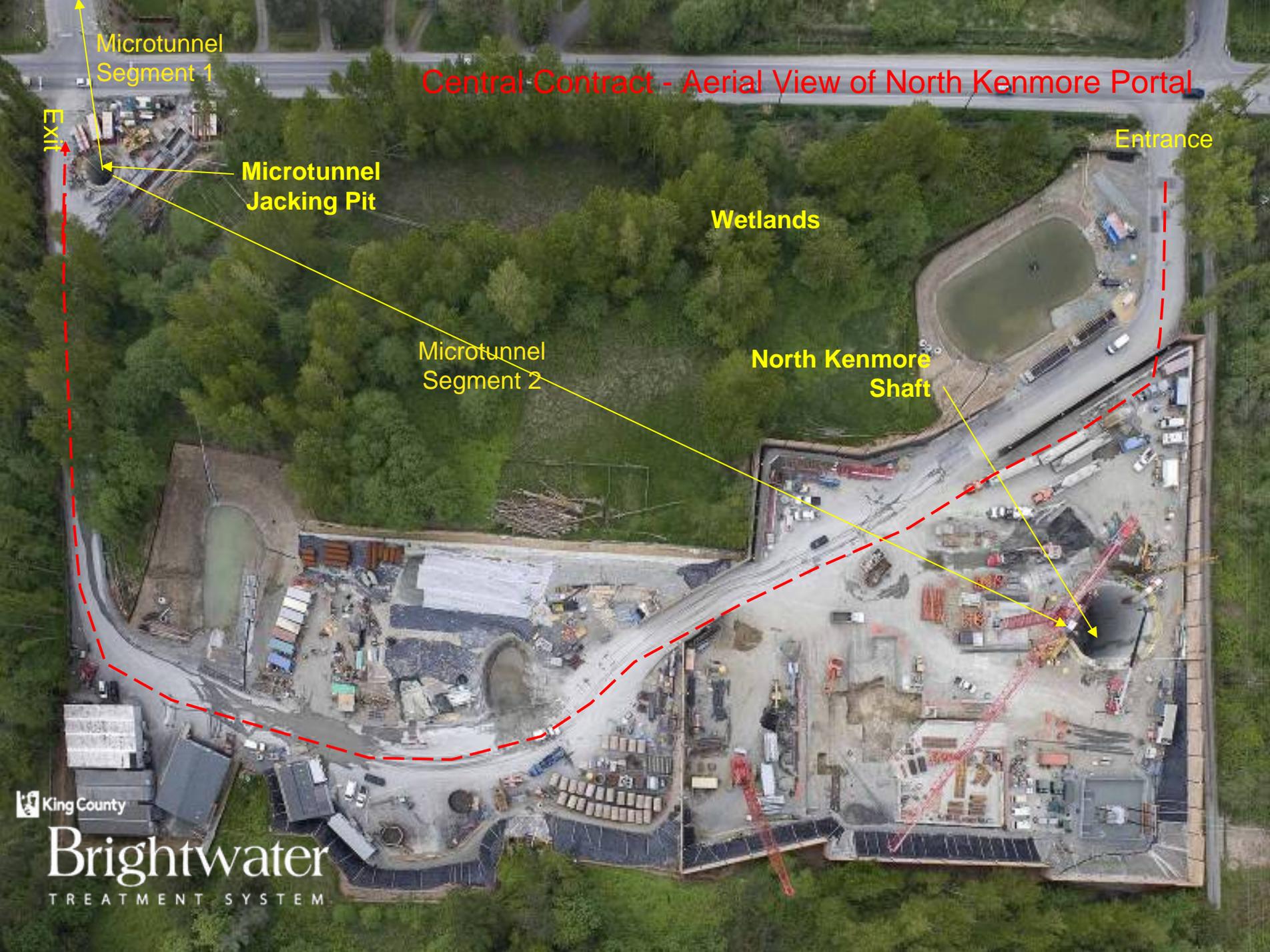
Microtunnel Jacking Pit

Microtunnel Segment 2

Wetlands

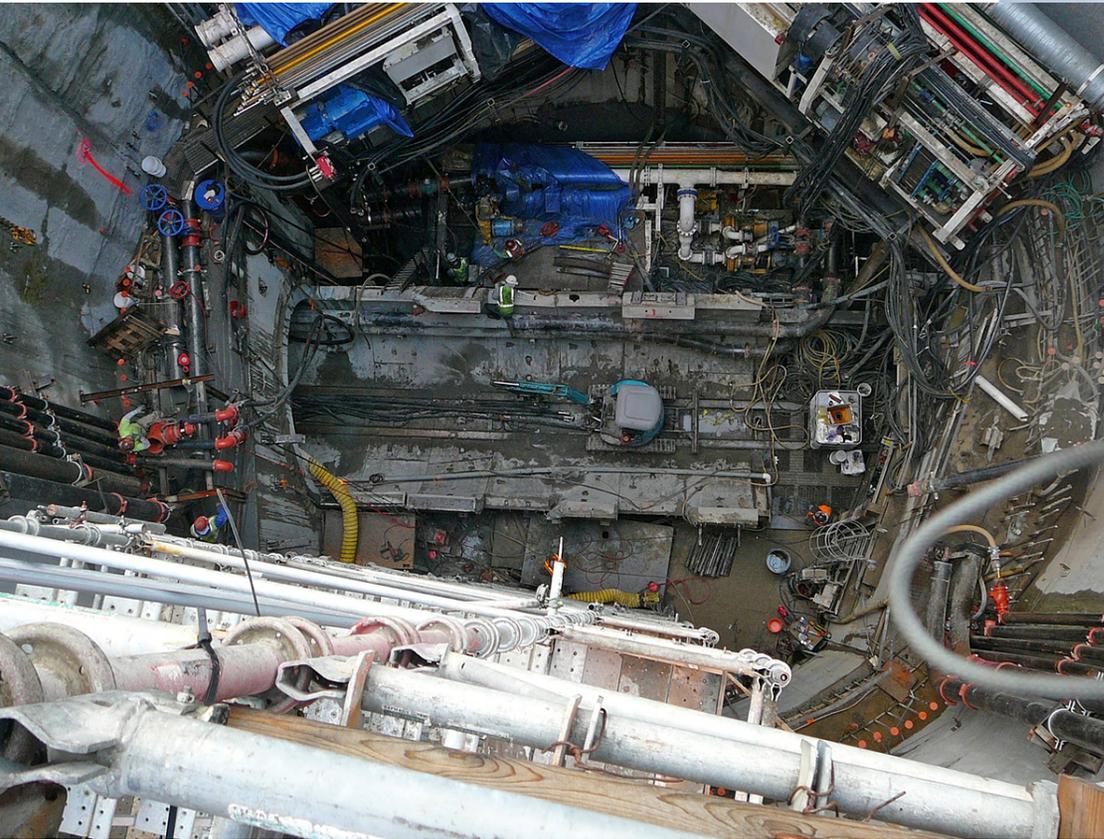
North Kenmore Shaft

Entrance



North Kenmore Construction

A look down the portal shaft



BT-3 being delivered

North Kenmore Construction

One of the tanks for recycling slurry mix back to TBM face

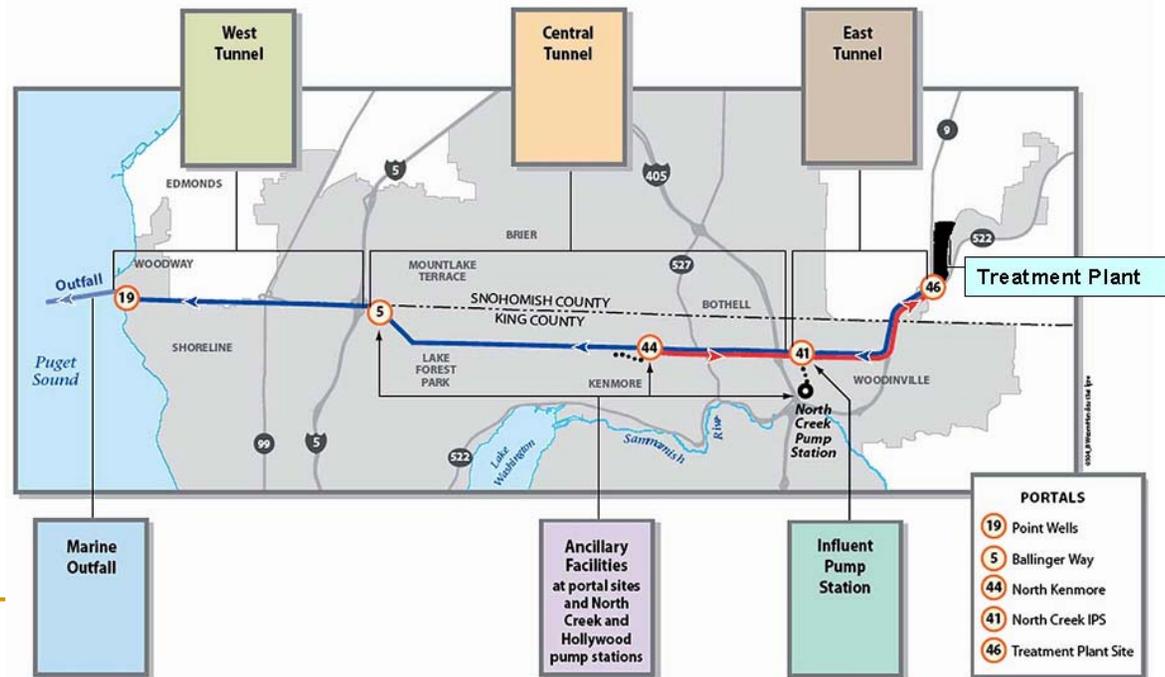


Manhole being installed



Ballinger Way Portal

- This portal (Portal 5) will be constructed under the Central Tunnel Contract
- The contractor is Vinci/Parsons RCI/Frontier-Kemper
- The Central Tunnel Contract includes construction of Kenmore Portal



Ballinger Way Portal Construction schedule

- Construction of a 25-foot diameter, 200-foot deep TBM retrieval shaft
- Using “ground freezing” - to create structural support for shaft excavation.
- Shaft construction completed in late 2008
- Two TBMs arrive from Kenmore & Point Wells in late 2009.

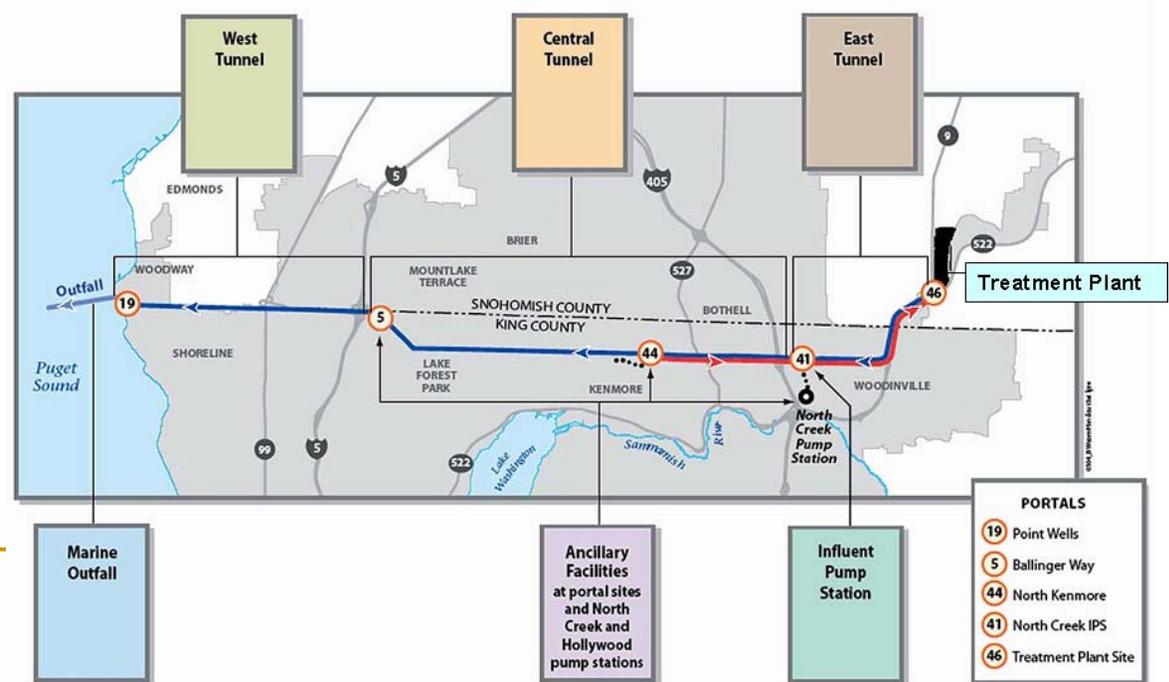
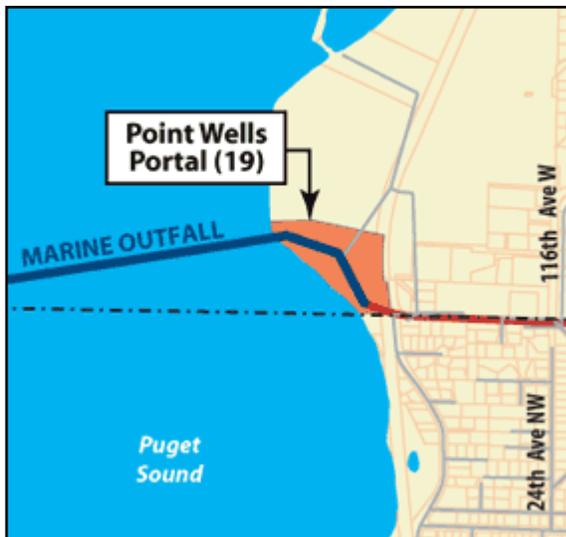


Ballinger Way Portal Construction schedule

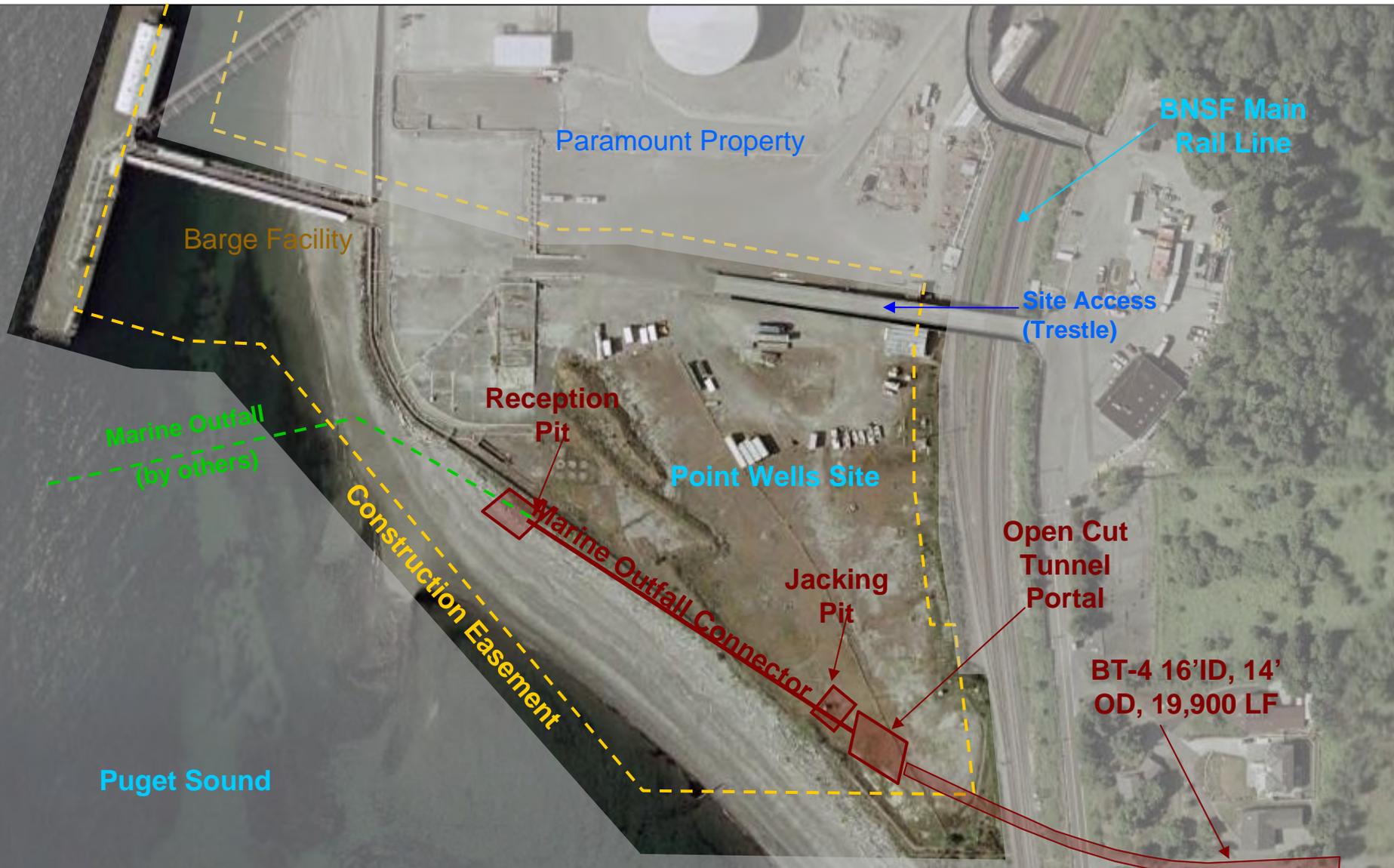
- Mid-2007 – Portal will be constructed
- 2009-2010 - TBMs retrieved, first TBM will arrive from Kenmore, followed by TBM from Point Wells.
- Early 2010 – Odor control facility built and landscaping installed

West Tunnel Contract at Point Wells.

- Tunneling 21,000 feet to Ballinger; 540 feet long microtunnel to connect with marine outfall
- Contractor is Jay Dee/Coluccio/Taisei
- Design/Bid/Build - \$102.45 million



West Contract – Work Overview



King County

Brightwater

TREATMENT SYSTEM



Construction progress at Point Wells

- Site prepared for construction
- Launch and reception shafts excavated to microtunnel the marine outfall connector
- Spoils holding facility established, working on conveyor system to transport spoils by barge
- TBM is under construction at Lovat in Toronto



Construction progress at Point Wells

Point Well site with crane and grout plants



Marine Outfall

- The marine outfall will include 4700 feet of pipe and a 500 foot diffuser at the terminus, 600 feet deep in Puget Sound.
- A team lead by Triton Marine Construction has been selected to design and build the marine outfall.
- Contract cost: \$29.1 million



Assembling outfall pipe - reducing construction impacts



Assembling the outfall pipe off-site will reduce impacts at Point Wells

Outfall pipe being towed to target site for installation.

Construction Schedule at Point Wells

- **2007-** Construction of marine outfall connector shafts and portal begins, microtunneling is completed for marine outfall connector
- **2008** – Tunneling to Ballinger Way begins, marine outfall construction begins with nearshore excavation in the spring and outfall installation in the fall
- **Early 2010** – Tunneling is completed

Brightwater Project Cost

- Brightwater January 2007 Cost Estimate - \$1.767 billion
- Last of 7 major construction contracts awarded in 2007
 - Influent Pump Station (IPS) contract, bid price of \$92 million (approx. \$19 million over eng. est.). NTP given 7/07
 - Treatment Plant Solids/Odor Control contract, bid price of \$168 million (approx. \$25 million below eng. est.). NTP will be given 1/08
 - Marine Outfall Design/Build contract, awarded to Triton Marine Construction, October 2007, \$29.1 million (approx. \$13 – 19 million below eng. est.)

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Questions?