



King County

South Magnolia CSO Control Project



Elliott Bay Marina

Thursday, March 21, 2013

6:30-8:00 p.m.



**TETRA TECH
TEAM**

Meeting Purpose

- Provide a project overview and update
- Describe construction schedule and activities
- Hear feedback and obtain information about your activities and needs



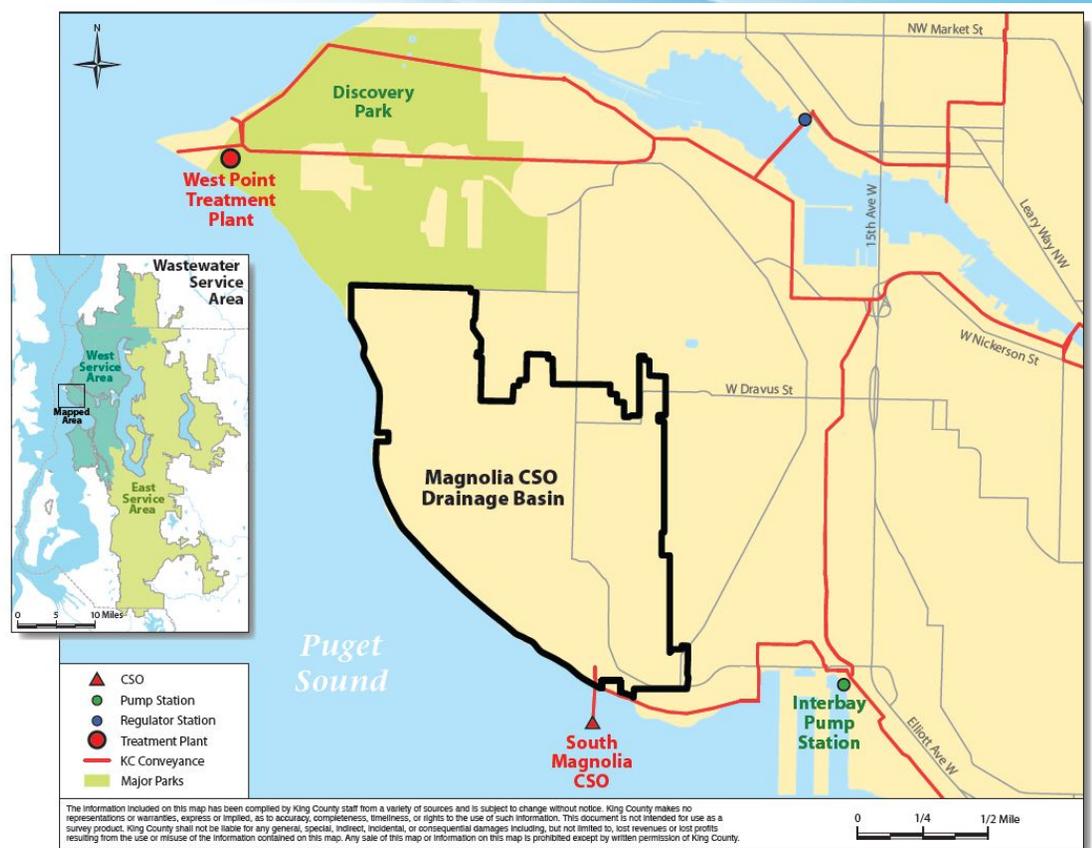
Agenda

- Why King County needs to do this project
- Storage Facility design and construction
- Conveyance system design and construction
- Next steps



South Magnolia CSO Control

- Department of Ecology requirements: no more than one untreated overflow per year on a long term average
- Compliance deadlines require construction to begin by end of 2013, and facility to be operational end of 2015.
- Untreated discharges from outfall extending off 32nd Avenue West occurred 38 times in 2012.





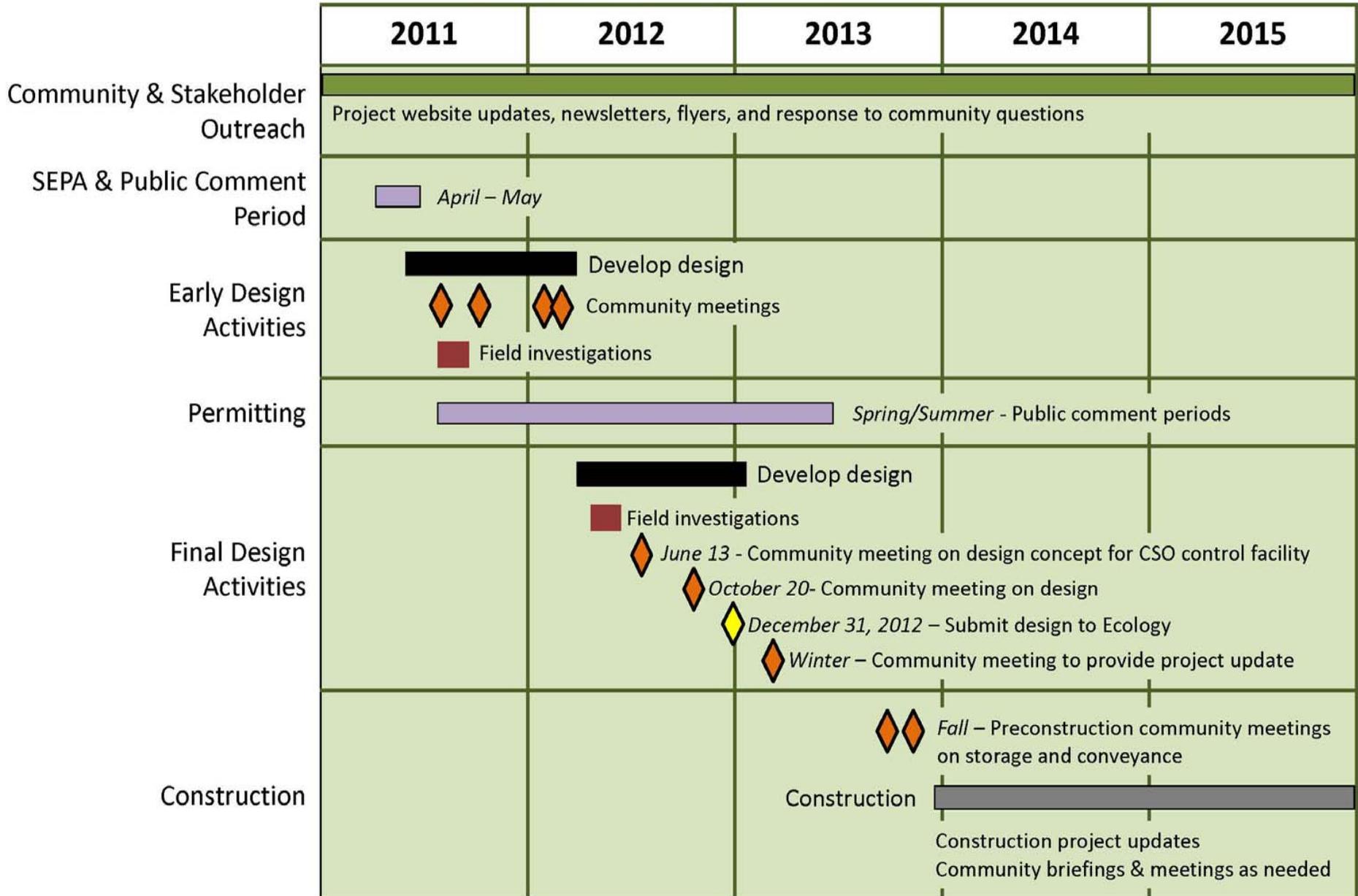
King County

Department of Natural Resources and Parks
Wastewater Treatment Division

SOUTH MAGNOLIA

CSO CONTROL PROJECT TIMELINE

OCTOBER 2012

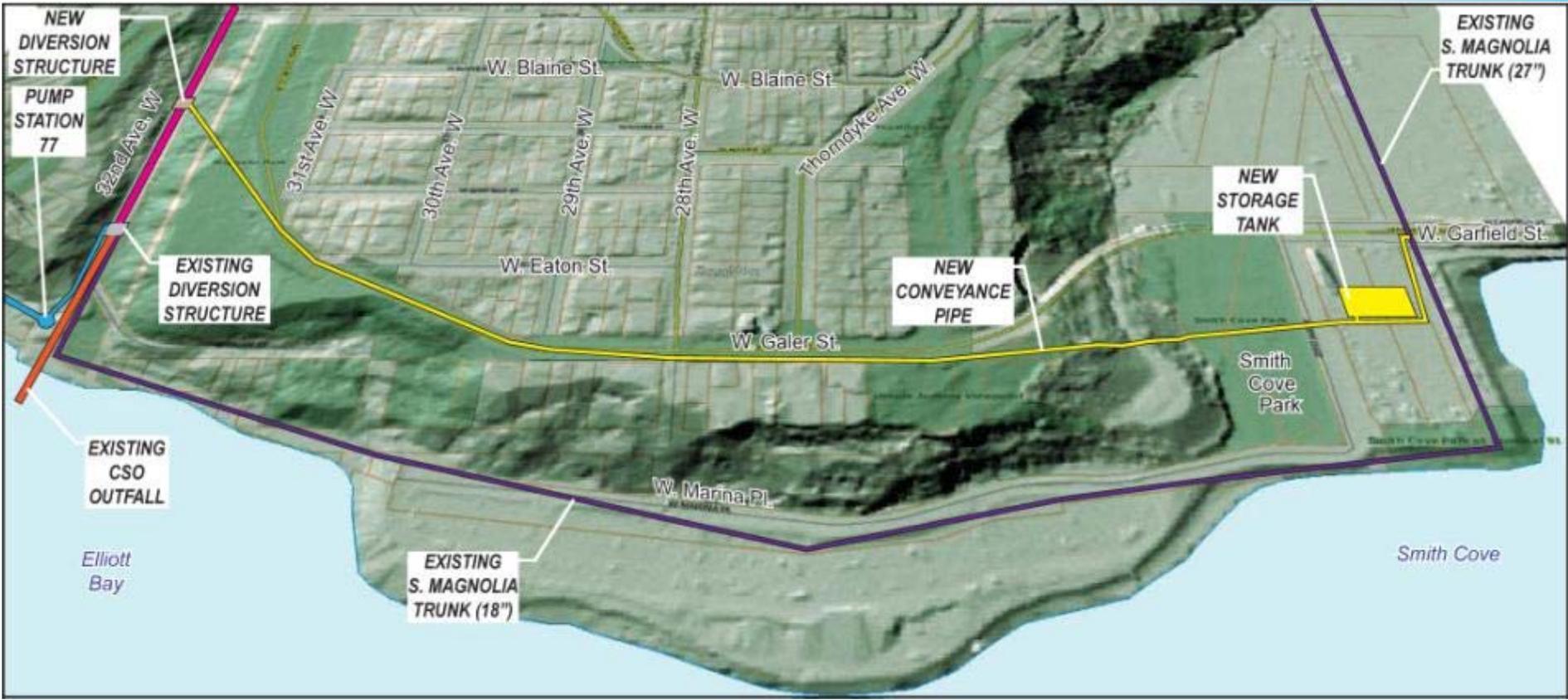


Overview of Design Elements

- Underground storage tank
- Gravity sewer pipeline
- Diversion structure



System Operation



Utility work

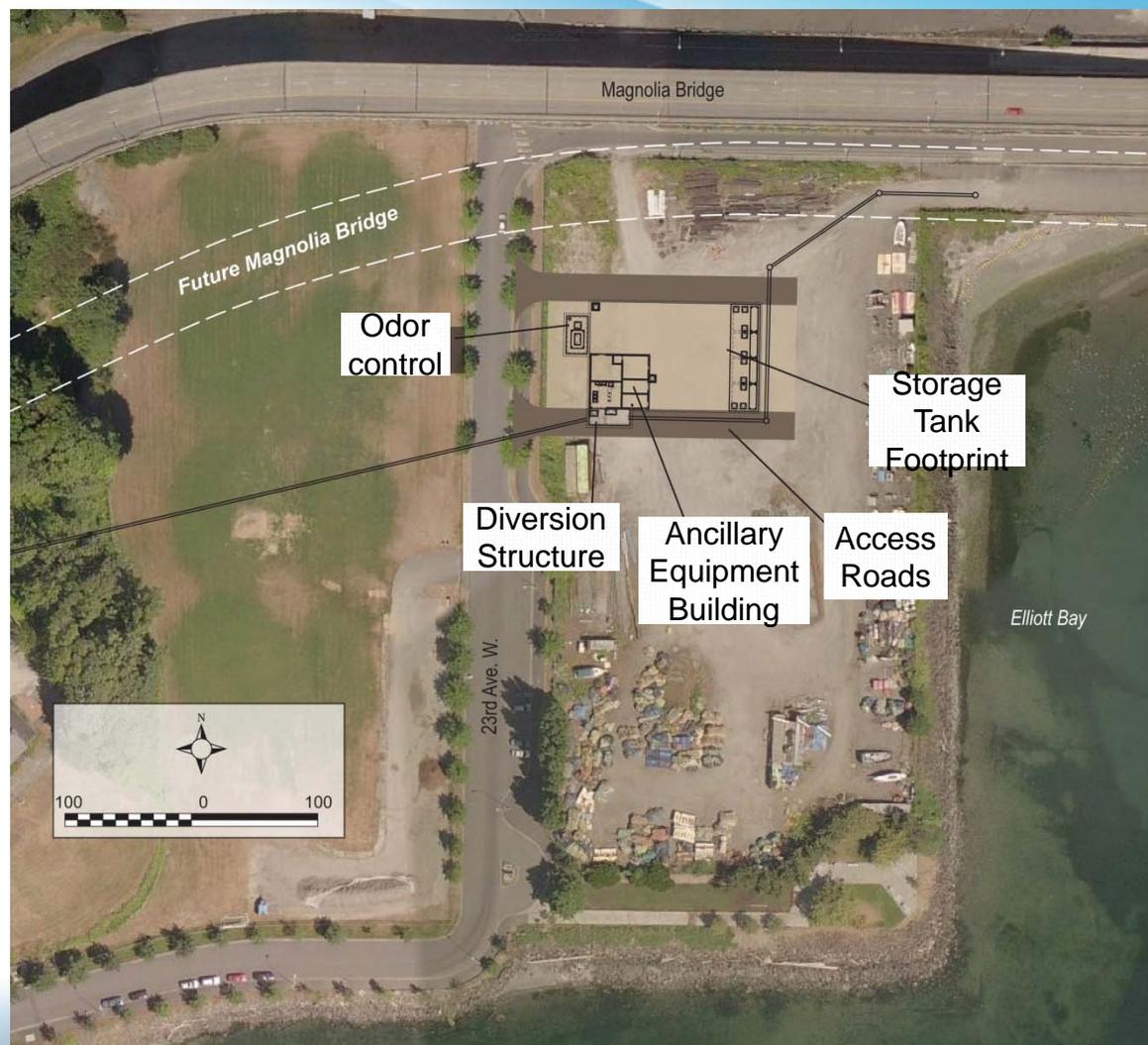
- Power- Seattle City Light feed needed for facility
- Water-need connection for storage facility
- Sewer- Connection to existing South Magnolia Trunk sewer pipeline



King County's Tank Location

Terminal 91 West Yard

- Facility sited to maximize future land use opportunities:
 - Shoreline access
 - Proximity to future bridge
 - Building to positioned to reduce footprint



Storage Facility Construction

- Notice to Proceed and initial submittals
- Mobilization of equipment and shoring



Storage Facility Construction

- Shoring is installed around the perimeter of the tank footprint prior to excavation



Storage Facility Construction

- Soils are excavated within the shoring to the bottom of the tank elevation



Storage Facility Construction

- Concrete slab poured
- Concrete pours will occur 24/7 for short periods
- Thick base slab avoids long period of pile driving



Storage Facility Construction

- Interior and exterior concrete walls are then formed and installed



Storage Facility Construction

- Top slab is installed
- After concrete has cured shoring is removed and backfill placed



Storage Facility Construction

- The ancillary building is then installed on top of the concrete tank
- Driveway, landscaping, and fencing is installed
- Contractor re-establishes existing condition of work area after construction is completed



Facility design

- Architectural and landscape design developed with community input
- On-site stormwater management to meet City of Seattle codes
- Fully fenced facility



Operations and Maintenance Activities at Storage Site

- 24/7- Response to alarm conditions
- Weekly- Inspection and testing
- Monthly- Testing standby generator, preventative maintenance
- Annually- Change carbon, preventative maintenance on tipping buckets, inspecting tank
- 5/10 years- Cleaning tank, structural inspection



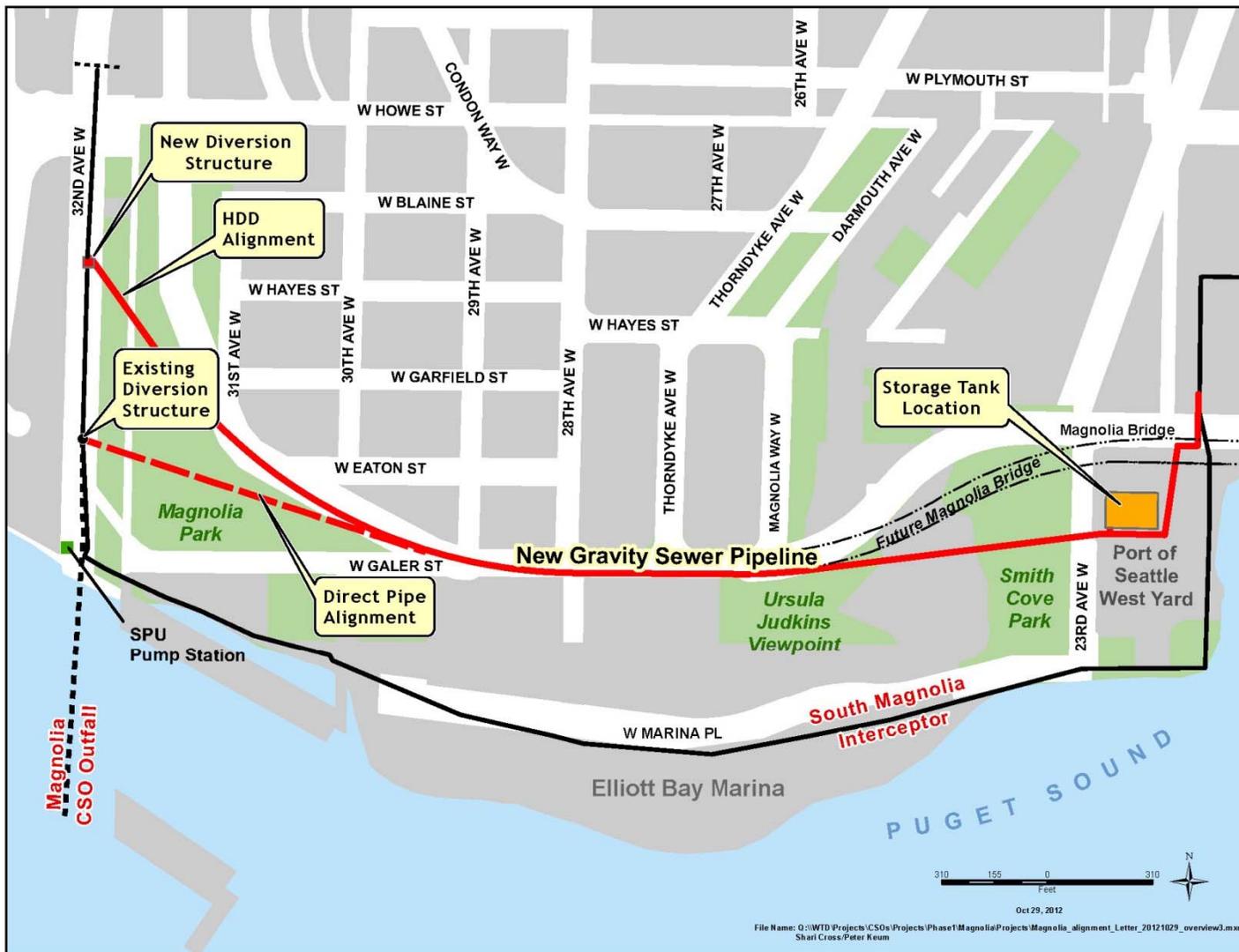
Conveyance Options

Two trenchless technology options will be included in contract to increase the potential pool of contractors:

- Horizontal Directional Drill (HDD)- technology used on several King County projects
- Direct Pipe®-emerging technology, used extensively in Europe

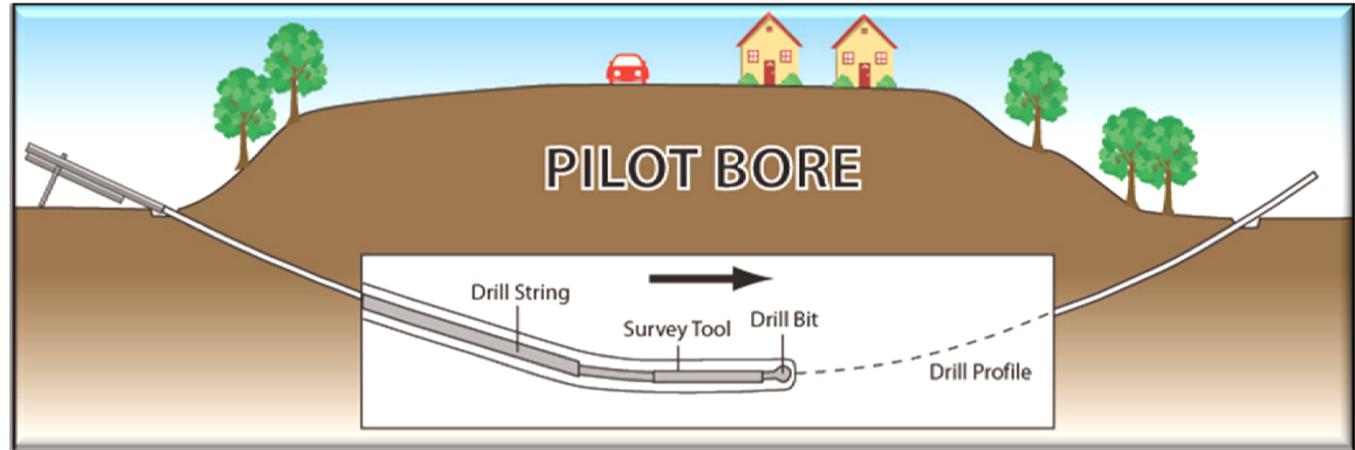


HDD and Direct Pipe® Alignments



HDD Step 1 - Drilling the Pilot Bore

An initial drilling step establishes a pilot hole. The surrounding soils are stabilized with drilling mud



A drilling engineer steers the drill bit using special survey tools



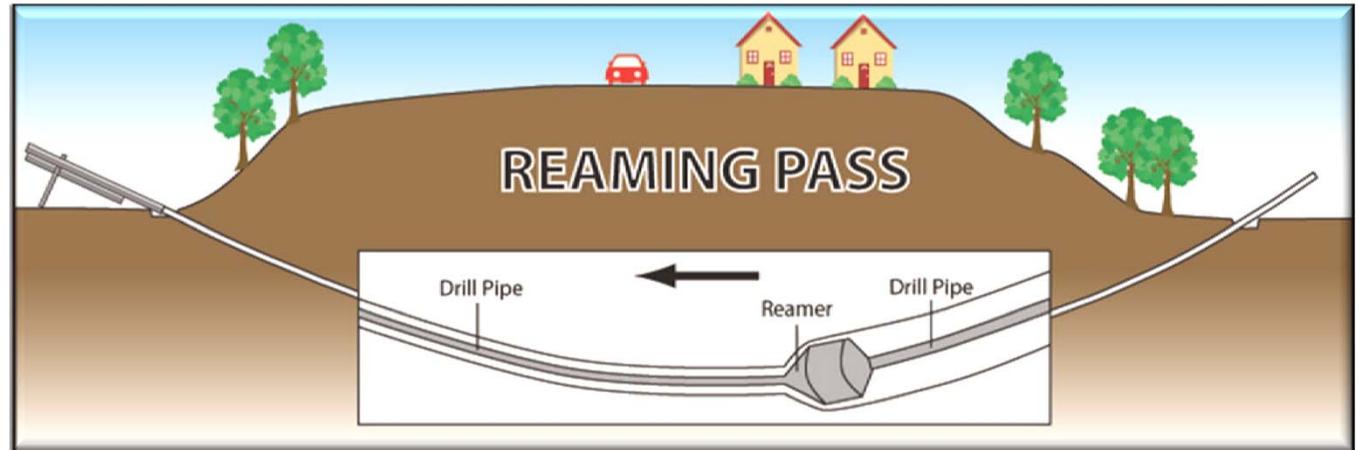
Horizontal Directional Drilling (HDD) Rig used for Drilling and Reaming



Tracking devices at the surface track the drill bit location during the initial bore

HDD Step 2 - Reaming Pass

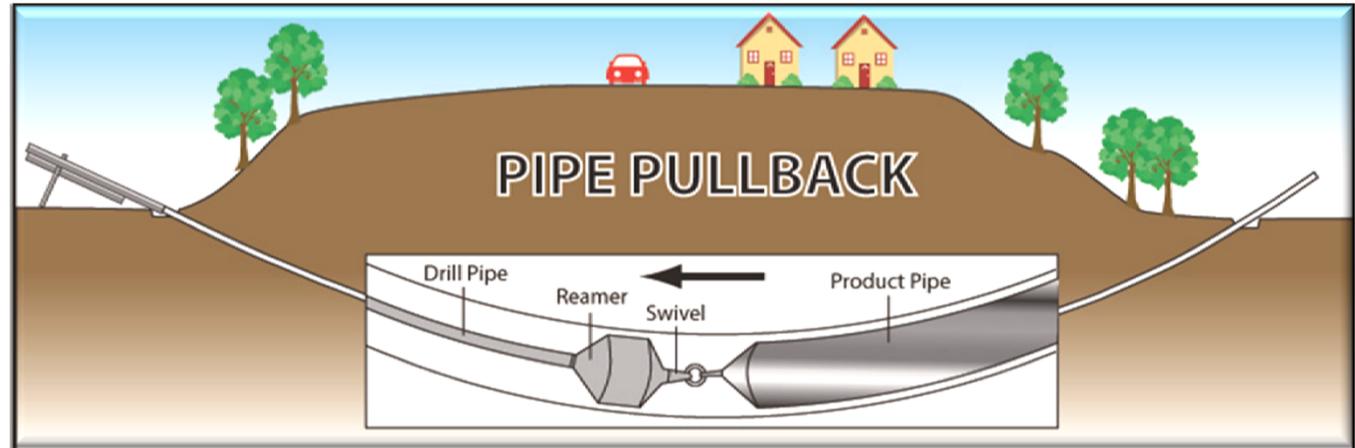
The pilot hole is then enlarged to the final pipe size using a reamer. The drilling mud excavated in this step is collected and recycled.



Specific equipment is used for drilling in different conditions. Both drill bits and reaming heads for the Magnolia Project will be selected based on the soil types found at the drill depth

HDD Step 3 - Pipe Pullback

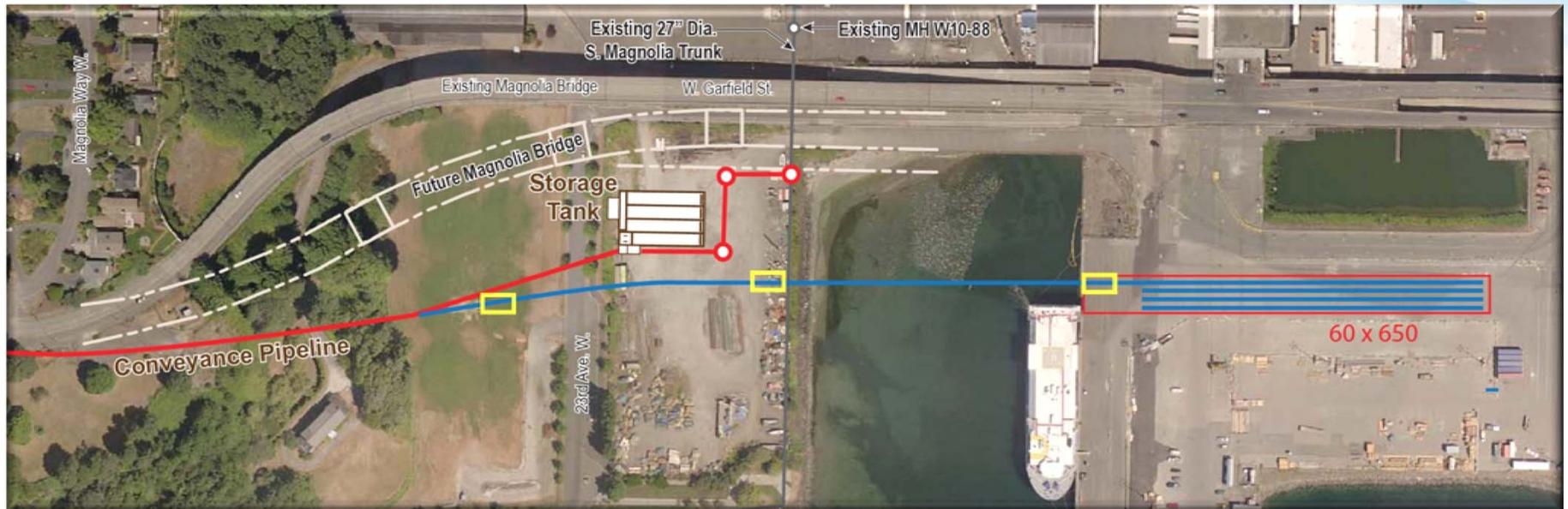
The final pipeline is then pulled back through the prepared bore hole



Heavy equipment is used to lift the pipe and pull it through the prepared bore hole



Potential Pipe Pullback from Port of Seattle



- Duration
 - Pipe delivery, assembly and testing – 2 months
 - Pipe pullback – Up to 1-2 days



Direct Pipe Alignment

- Connects at existing diversion structure
- Same alignment as HDD from Smith Cove Athletic Field to storage facility



Direct Pipe Work Locations

- Primary staging and tunneling from launch shaft in Smith Cove Athletic field
- Receiving shaft and addition to existing diversion structure on 32nd Ave W
- Contractor re-establishes existing condition of work areas after construction is completed



What You Can Expect

- Truck traffic for transport of equipment and materials
- Short periods of 24 hour work for concrete pours, timed to limit traffic impacts
- Noise, vibration, and dust controlled by contractors
- Traffic rerouting for utility work, access, other temporary needs



What You Can Expect

- Elliott Bay Marina access will be maintained
- Haul route will use Magnolia Bridge and 23rd Avenue West
- Traffic control will be in place during work on ramps -- nighttime and/or weekends
- Advance notice of activities and progress updates will be provided



Next steps

- Electric utility alignment finalized with Seattle City Light
- Definition of installation option for conveyance will come after bid opening
- Contractors will provide detail on work areas and timing as first step of construction
- King County and Contractors will meet with community to discuss details and timing



Keeping up to date

- Project Web site – www.kingcounty.gov/environmental/wtd/construction/Seattle/SMagnoliaCSOStorage
- Newsletters and fliers
- Briefings and meetings
- Contact us: **Monica Van der Vieren:**
 - Phone: 206-263-7301
 - Email: monica.vandervieren@kingcounty.gov



Questions?