

# A Slough of Challenges: Permitting and Activated Carbon Placement in the Lower Columbia Slough

*Lower Columbia Slough, Portland, Oregon*



# Project Credits

## A Slough of Challenges: Permitting and Activated Carbon Placement in the Lower Columbia Slough

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State of Oregon  
Department of  
Environmental  
Quality

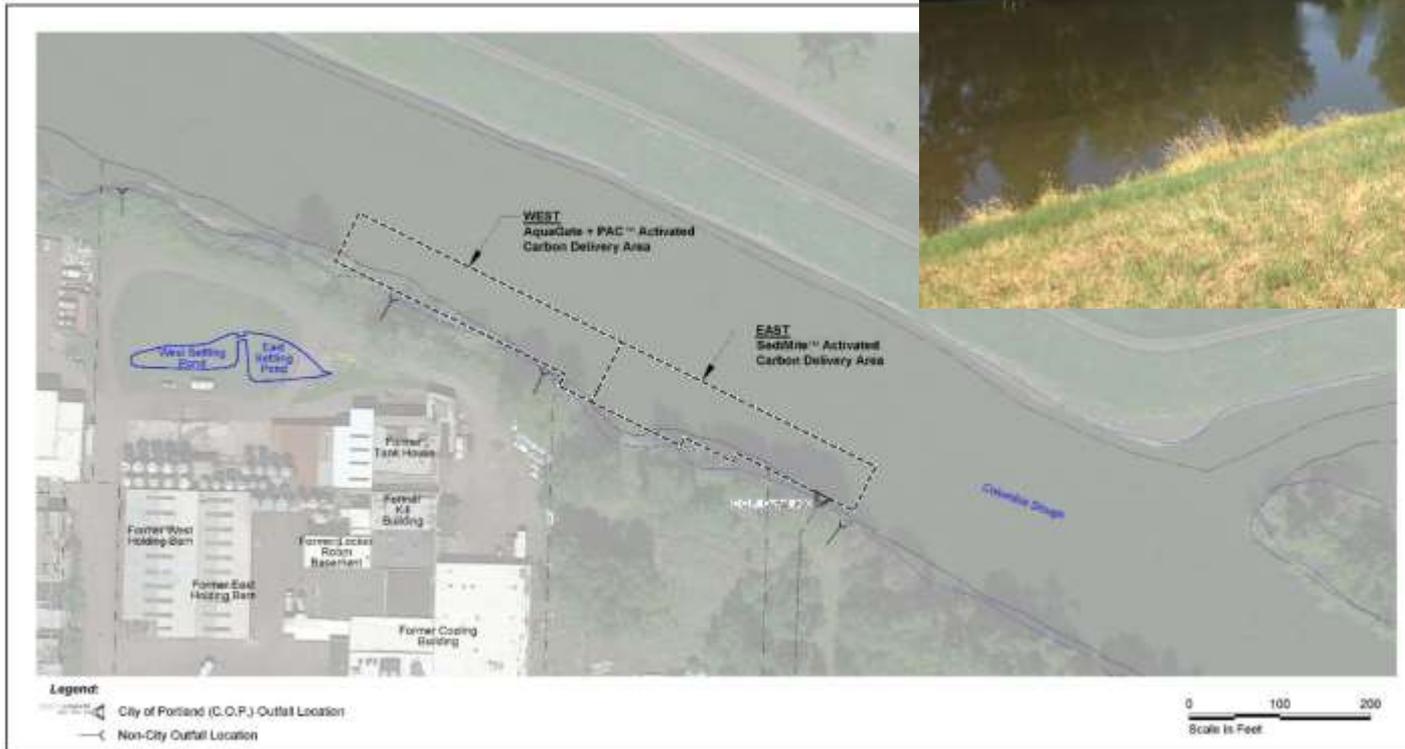


# Columbia Slough Background



# Lower Slough Projects Background

- Pacific Meats – History
- Pacific Meats - Contaminants



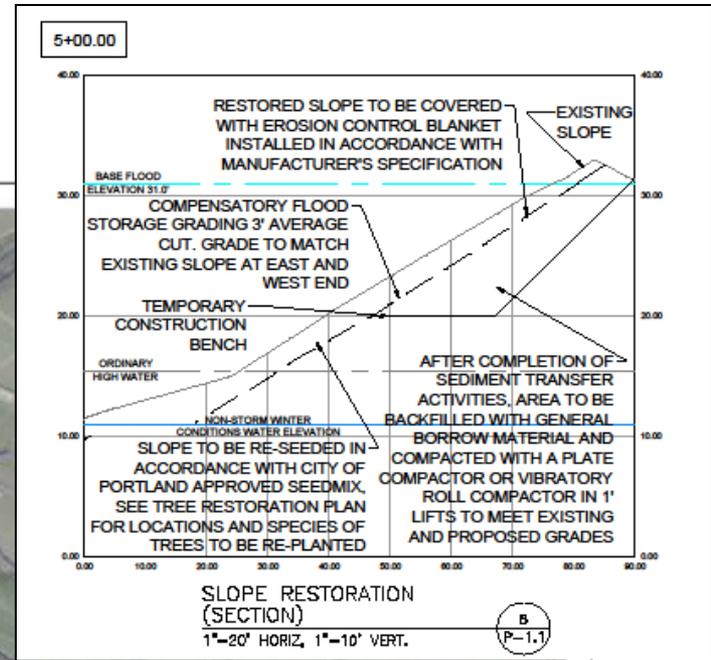
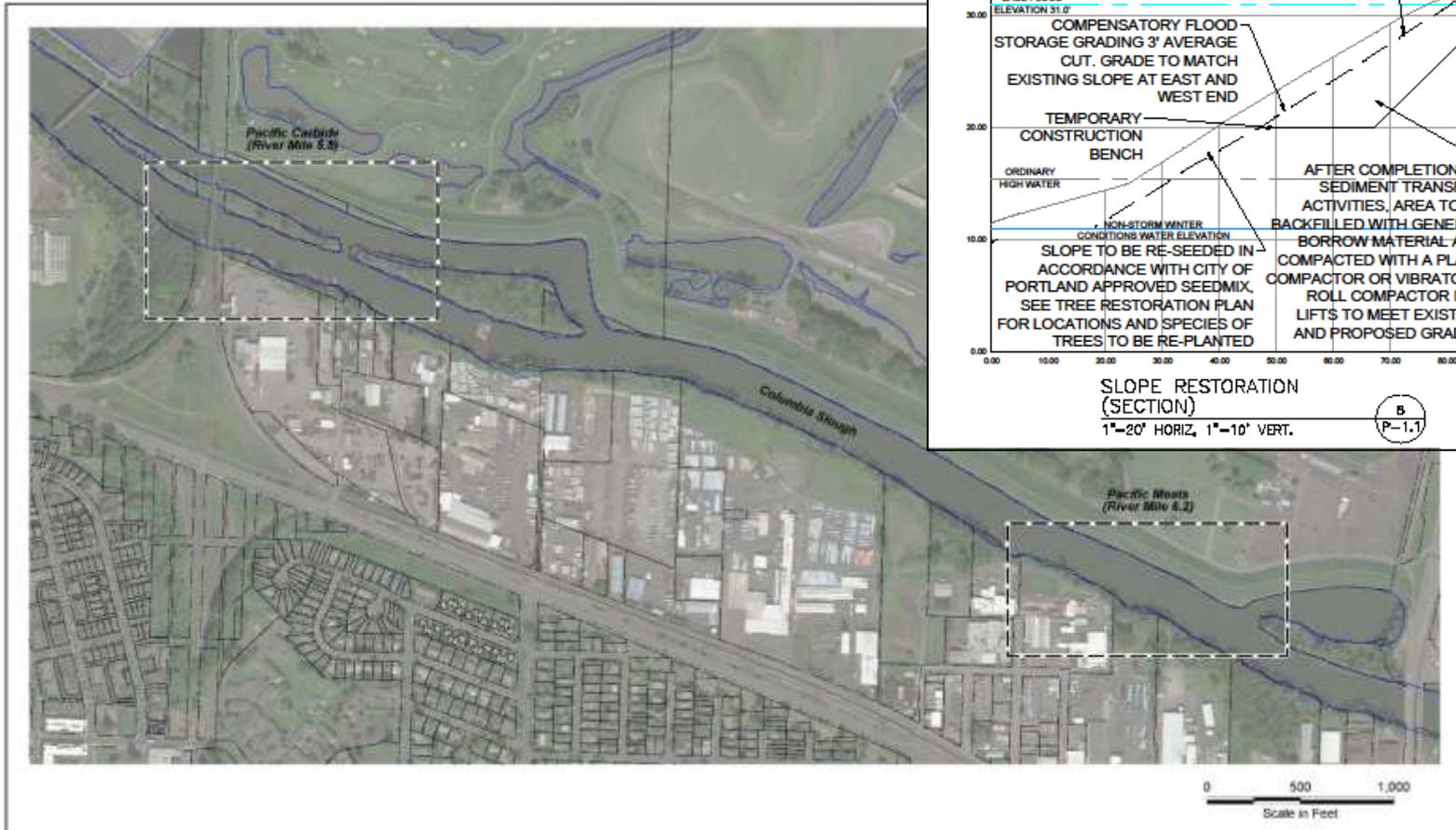
# Permits and Access Agreements

- Joint Permit for Removal Fill
  - *US Army Corps of Engineers Nationwide 38*
  - *Oregon Dept. of State Lands Removal Fill Permit*
- City of Portland Environmental Exempt Review
- Access Agreements
  - *Oregon DSL*
  - *Adjacent Property Owners Access Agreement*
  - *Portland Parks/MCDD*
- Scientific Taking Permits (Freshwater Mussels, Turtles)
- In-Water Work Period Variance Request - ALMOST



# Lower Slough Projects Background

- Pacific Carbide Cleanup



# Permits and Access Agreements

## Pacific Carbide

- Joint Permit for Removal Fill
  - *US Army Corps of Engineers Nationwide 38*
  - *Oregon Dept. of State Lands Removal Fill Permit*
- City of Portland Environmental Exempt Review
- Access Agreements
  - *Oregon DSL*
  - *Adjacent Property Owners Access Agreement*
  - *Portland Parks/MCDD*
- COP Parks and Recreation Non-Park Use Permit
- Scientific Taking Permits (Freshwater Mussels, Turtles)



# Pilot Study Implementation

## Unique Site Challenges

- Water Levels
- Access Limitations
- Thin Carbon Layer

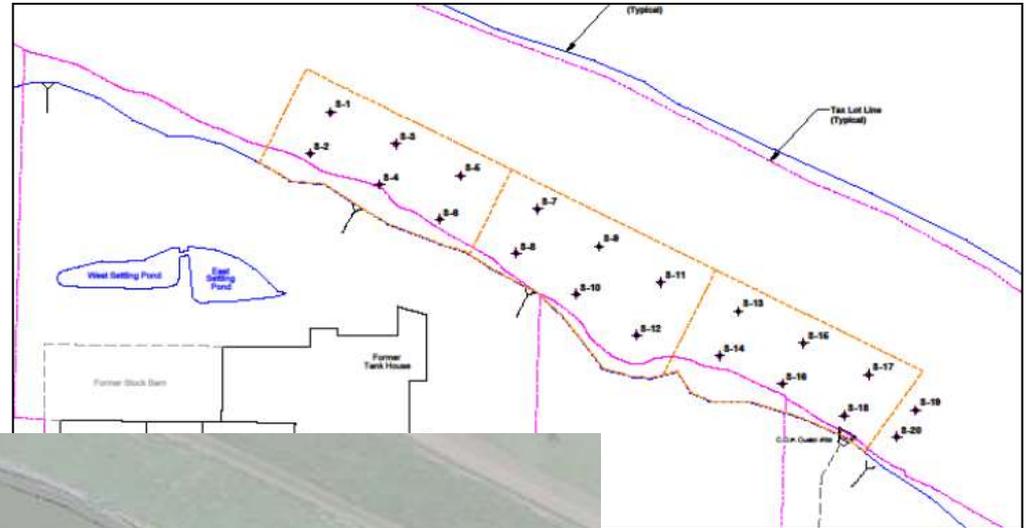


## Baseline Sampling

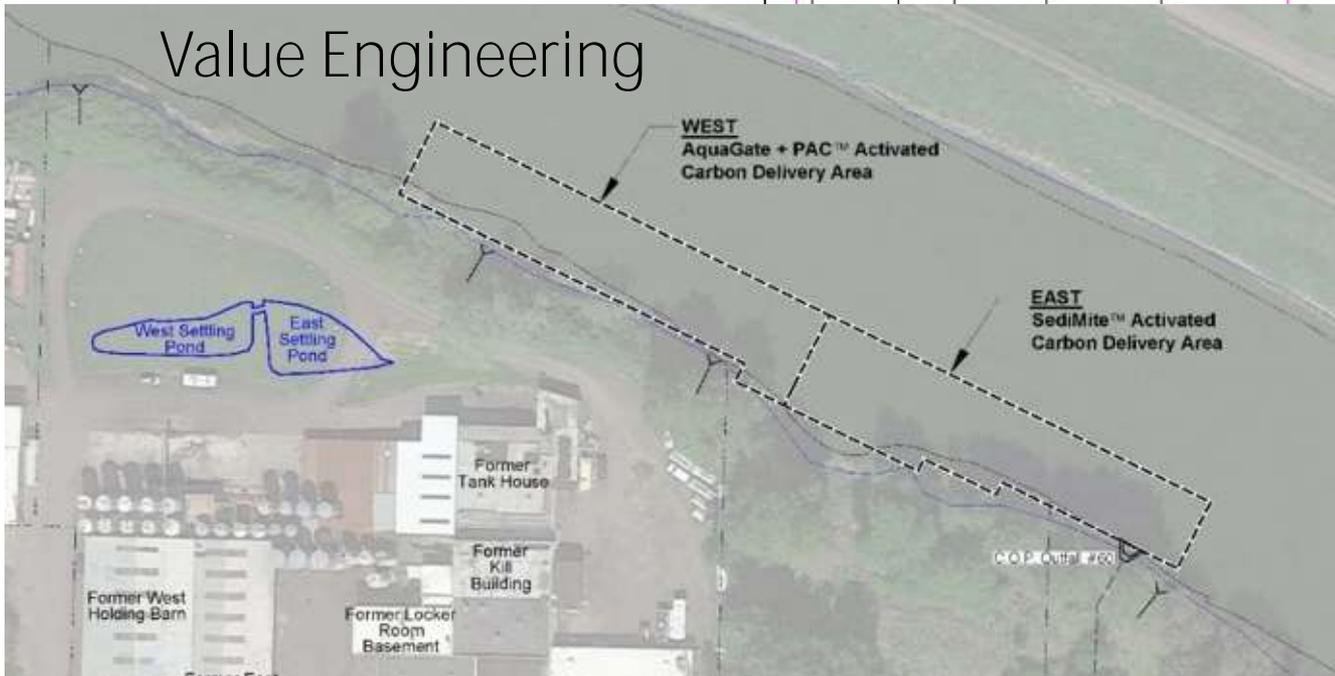
- Sediment
- Porewater



# Contractor Procurement



## Value Engineering



**Dixon  
Marine  
Services,  
Inc.**



# Pre-Pilot Test

## Tested Technologies

- Bark blower truck
- In-line vacuum pump

## Selected methods

- Sedimite™ – Bark blower truck
- AquaGate+PACTM – Telebelt



# Carbon Application

## Challenge Encountered

- Differing Sedimite™ Sizes and Densities



# Future Plans

- Continue Annual Performance Monitoring
- Remediation at Pacific Carbide



# Questions?



Thank you!

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