Improving the City of Bellingham Waterfront by Integrating Cleanup, Habitat Restoration, and Public Access

Presented by:

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City of Bellingham

Nearshore Restoration

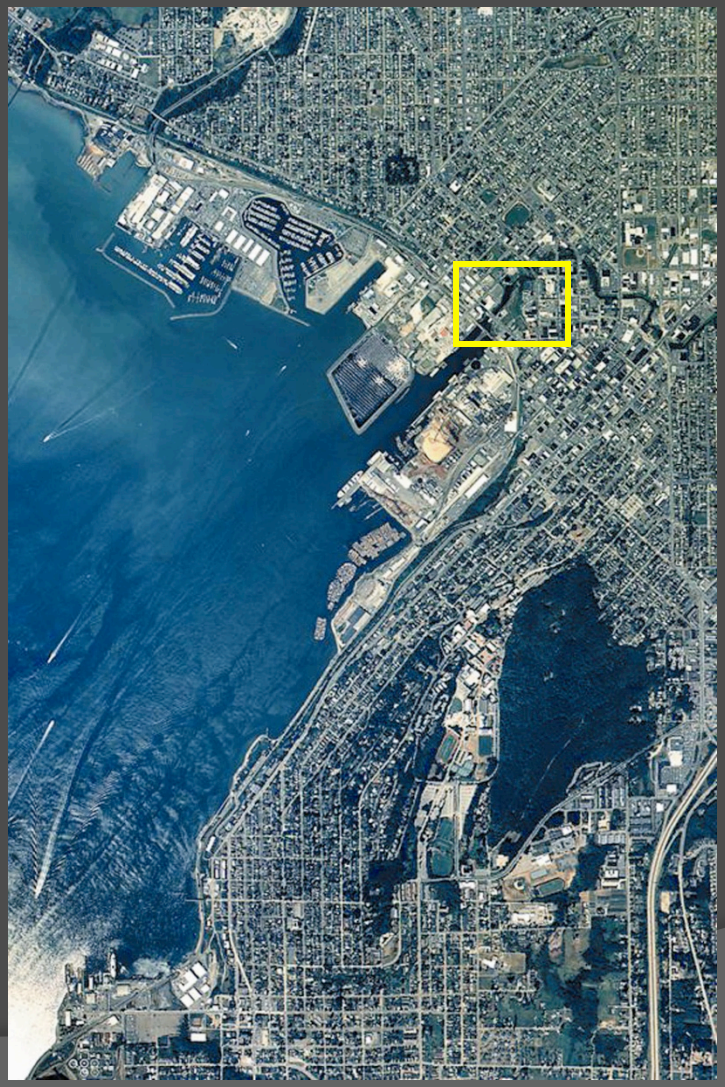
- Restoration efforts include improving the shoreline riparian corridor, upper inter-tidal salt marsh, intertidal mud flat, and eelgrass so they combine to form a complex interacting mosaic of marine habitats that provide critical rearing and refuge functions for migrating juvenile fish and wildlife.

Bellingham Shoreline Sites:

- Completed Projects:
  - Holly Street Landfill
  - Post Point Lagoon
- Upcoming Projects:
  - Little Squalicum Creek Estuary Creation
  - Chuckanut Village Marsh Restoration

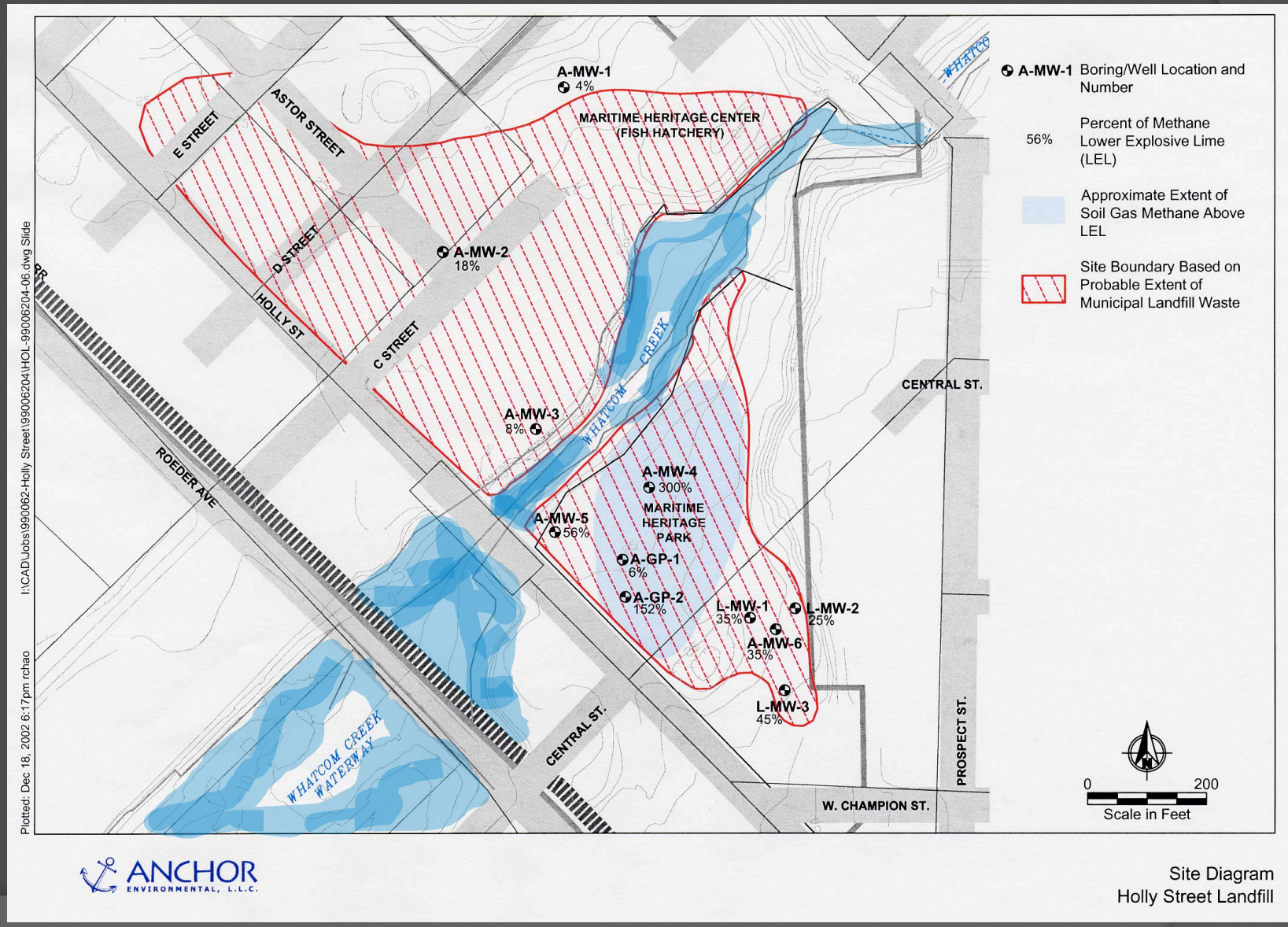
Holly Street Landfill Site Location:

Downtown Bellingham Central Business District



Extent of Historic Landfill

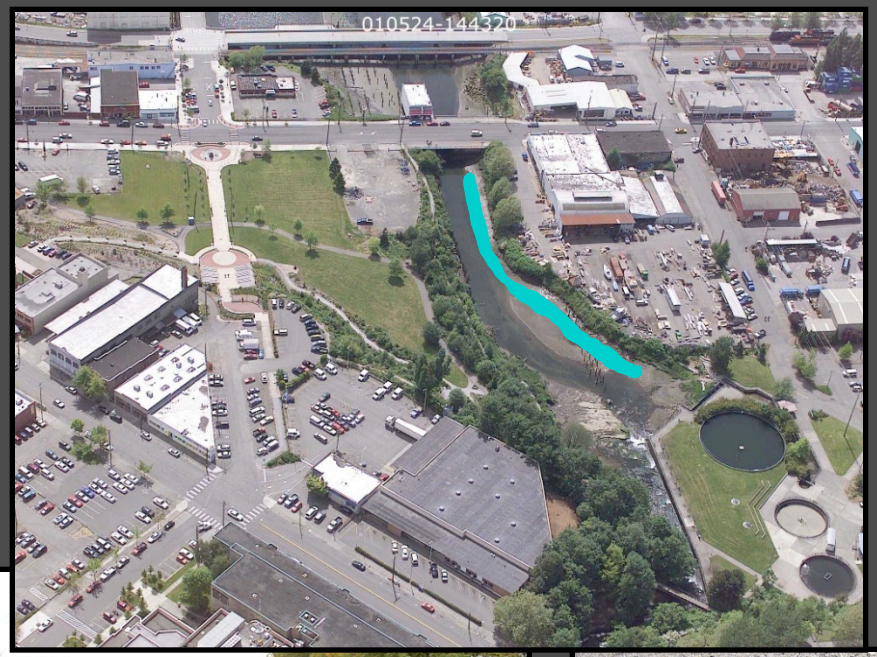
(1937 to 1953)



Project Cleanup Requirements

- Metals seepage from North Bank
- Required by EPA and Washington State Dept of Ecology (MTCA)
- Minimum required cleanup: upland and shoreline cap
- No habitat restoration required

Pre-Construction Conditions



Extent of Seepage Exceeding Toxicity Criteria

Failing bulkhead along south bank of creek estuary

Broken glass and chemical sheen in intertidal zone

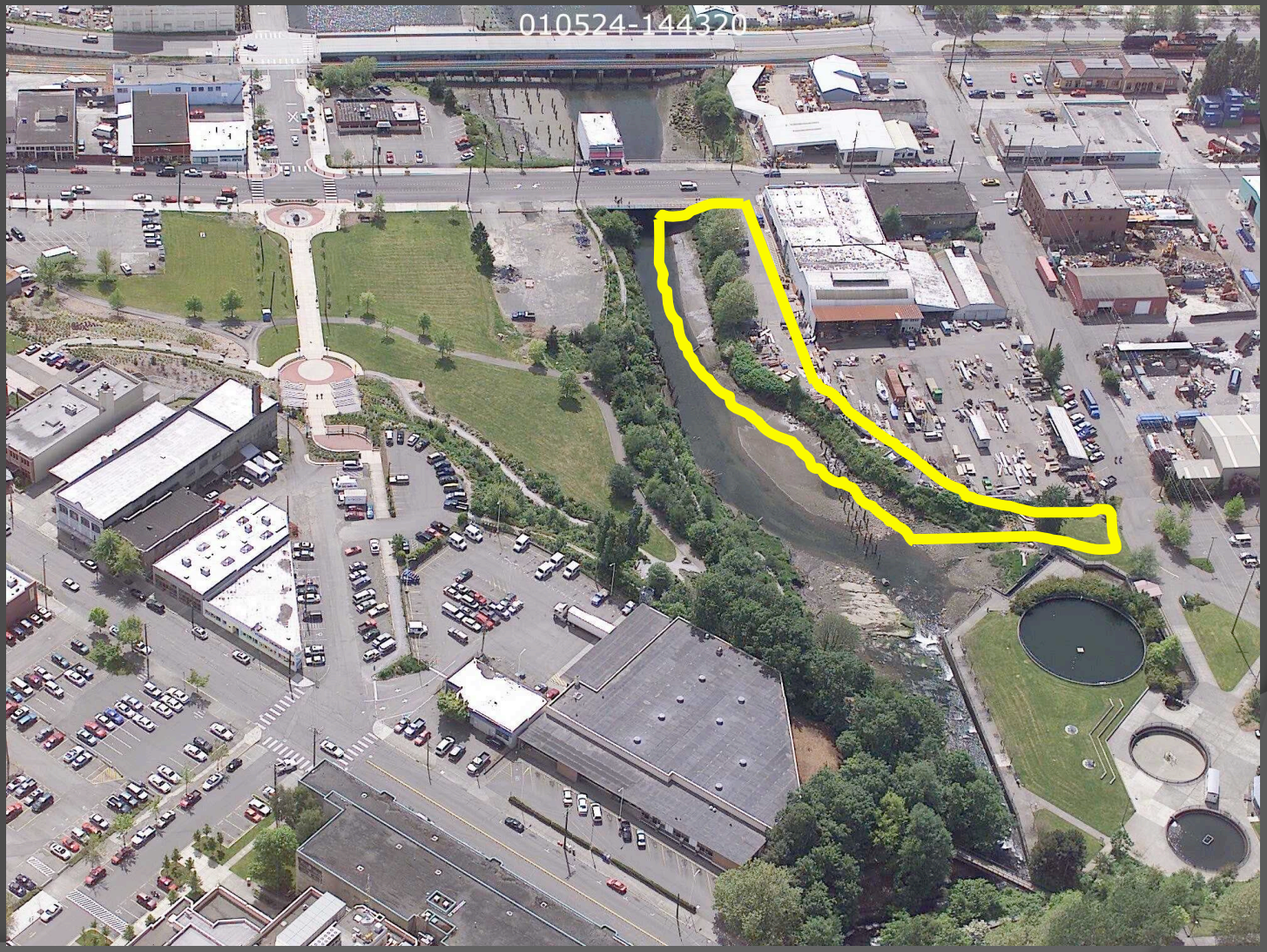
Incorporating Habitat Restoration

- City initiative to pursue integrated approach
- Consistent with Bellingham Bay Comprehensive Strategy

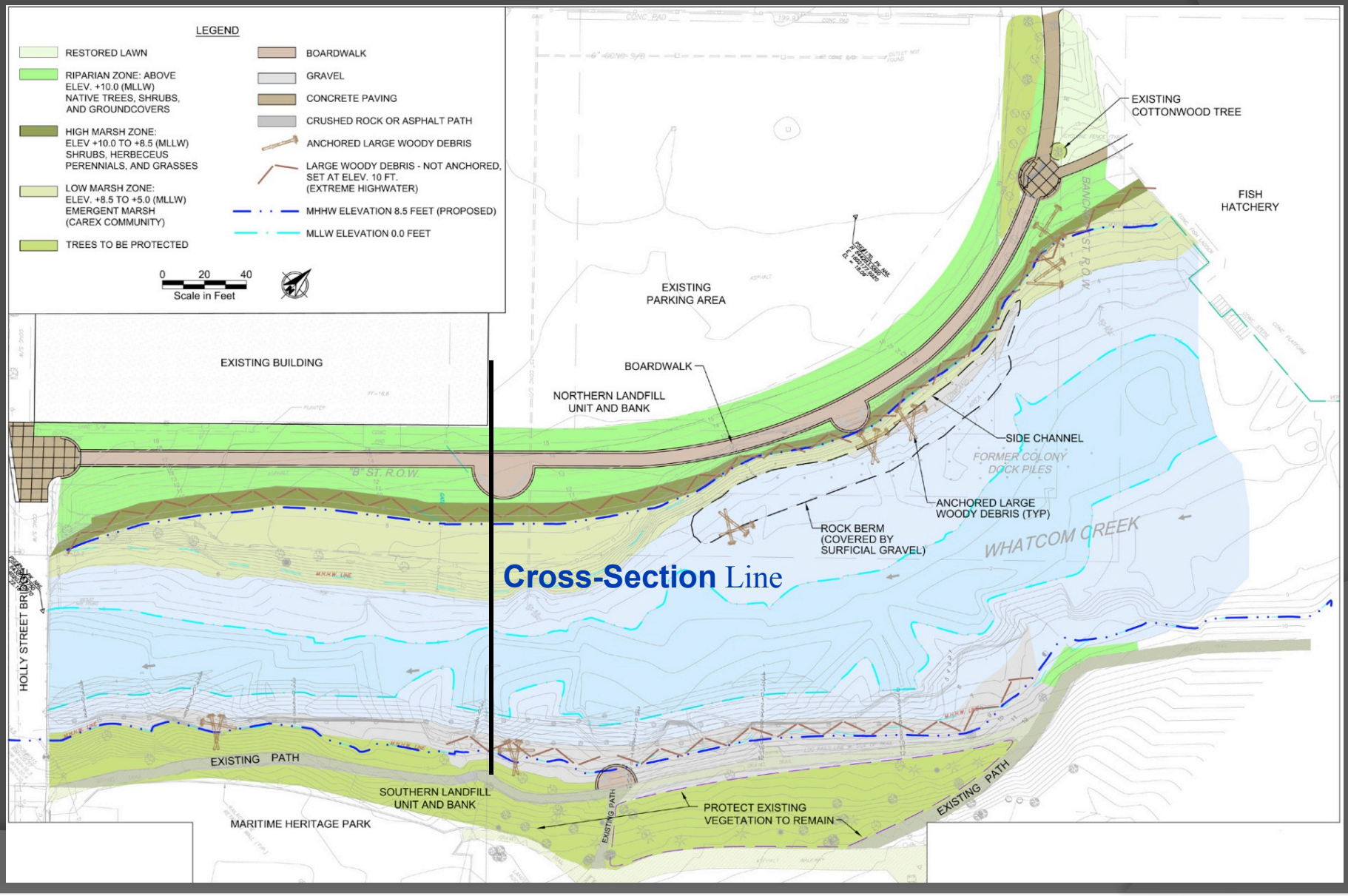
Key habitat restoration elements

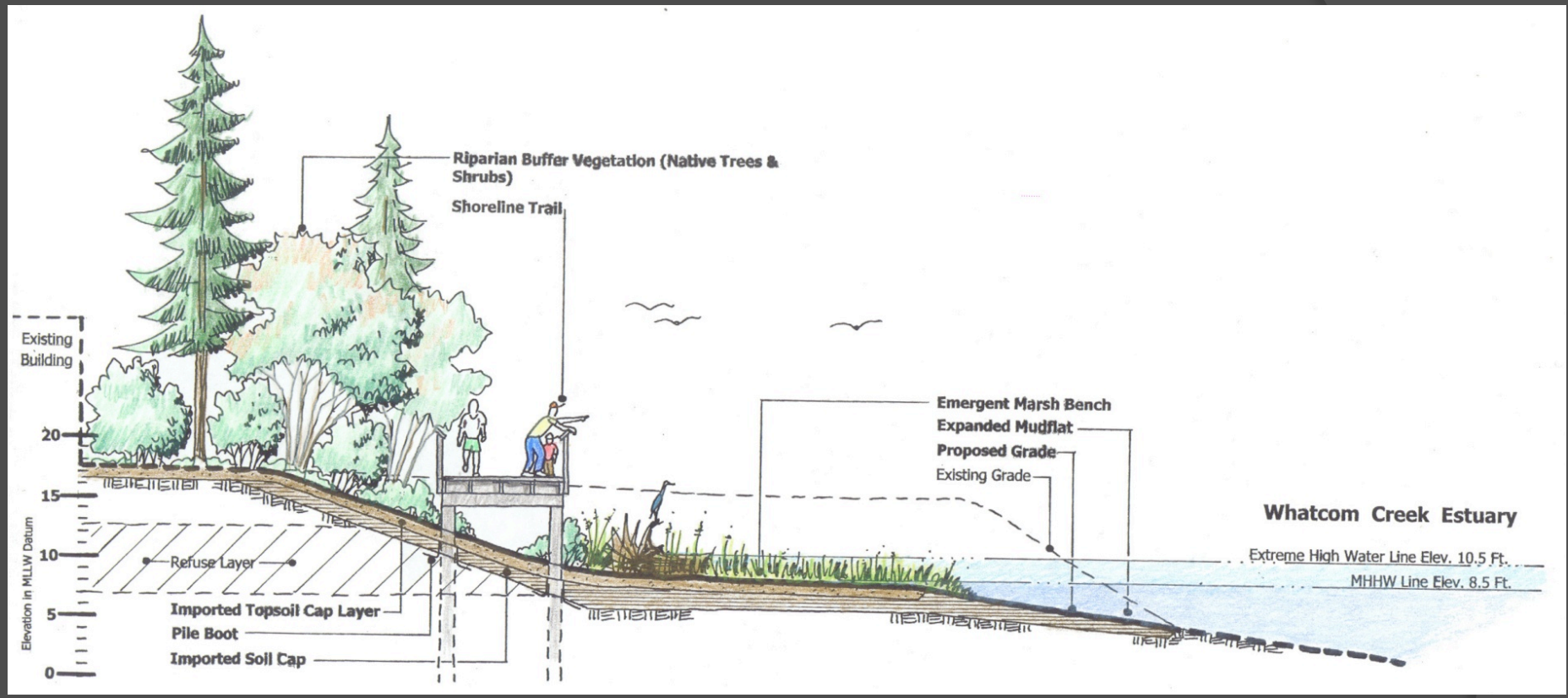
- Excavate refuse to convert 1/3 acre of uplands to aquatic habitat area
- Place soil cap and suitable topsoil
- Plant native vegetation
- Install wood debris
- Create side channel
- Stabilize south bank

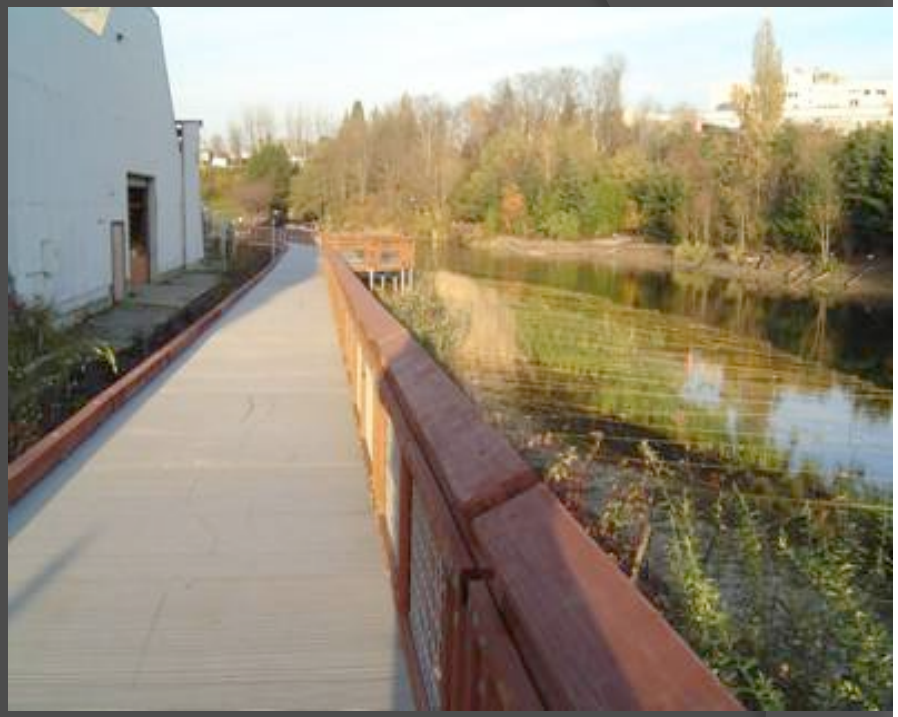
Excavation of North Bank



Integrated Cleanup/Restoration Plan



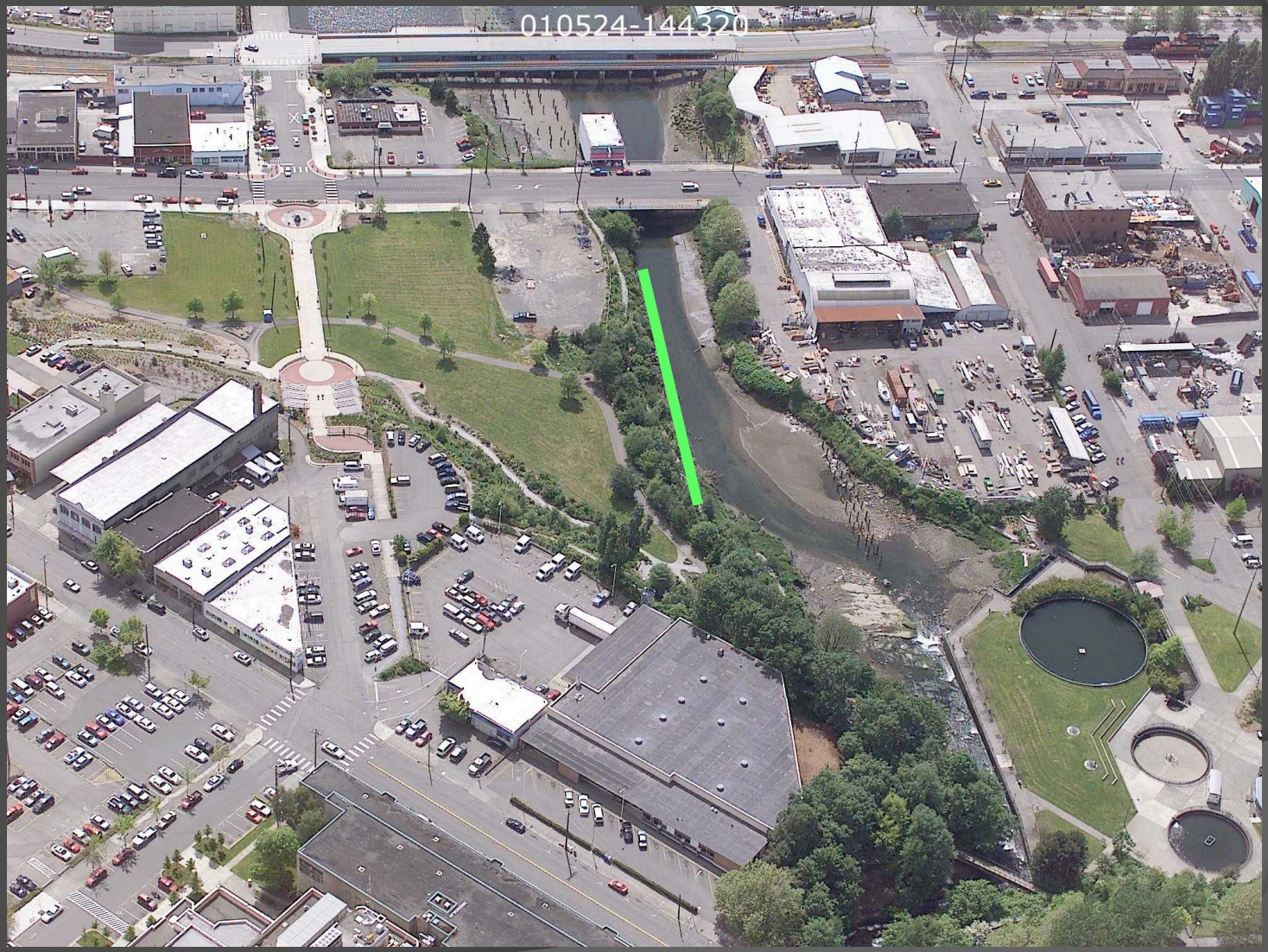

Riparian Buffer Vegetation (Native Trees & Shrubs)
Shoreline Trail
Existing Building
Emergent Marsh Bench
Expanded Mudflat
Proposed Grade
Existing Grade
Whatcom Creek Estuary
Extreme High Water Line Elev. 10.5 Ft.
MHHW Line Elev. 8.5 Ft.
Elevation in MLLW Datum
20
15
10
5
0
Refuse Layer
Imported Topsoil Cap Layer
Pile Boot
Imported Soil Cap



North Bank - before

North Bank – after

Stabilization of South Bank Bulkhead



Failing bulkhead on South Bank

South Bank bulkhead - after

South Bank refuse - before

South Bank refuse - after

Habitat Opportunities Achieved

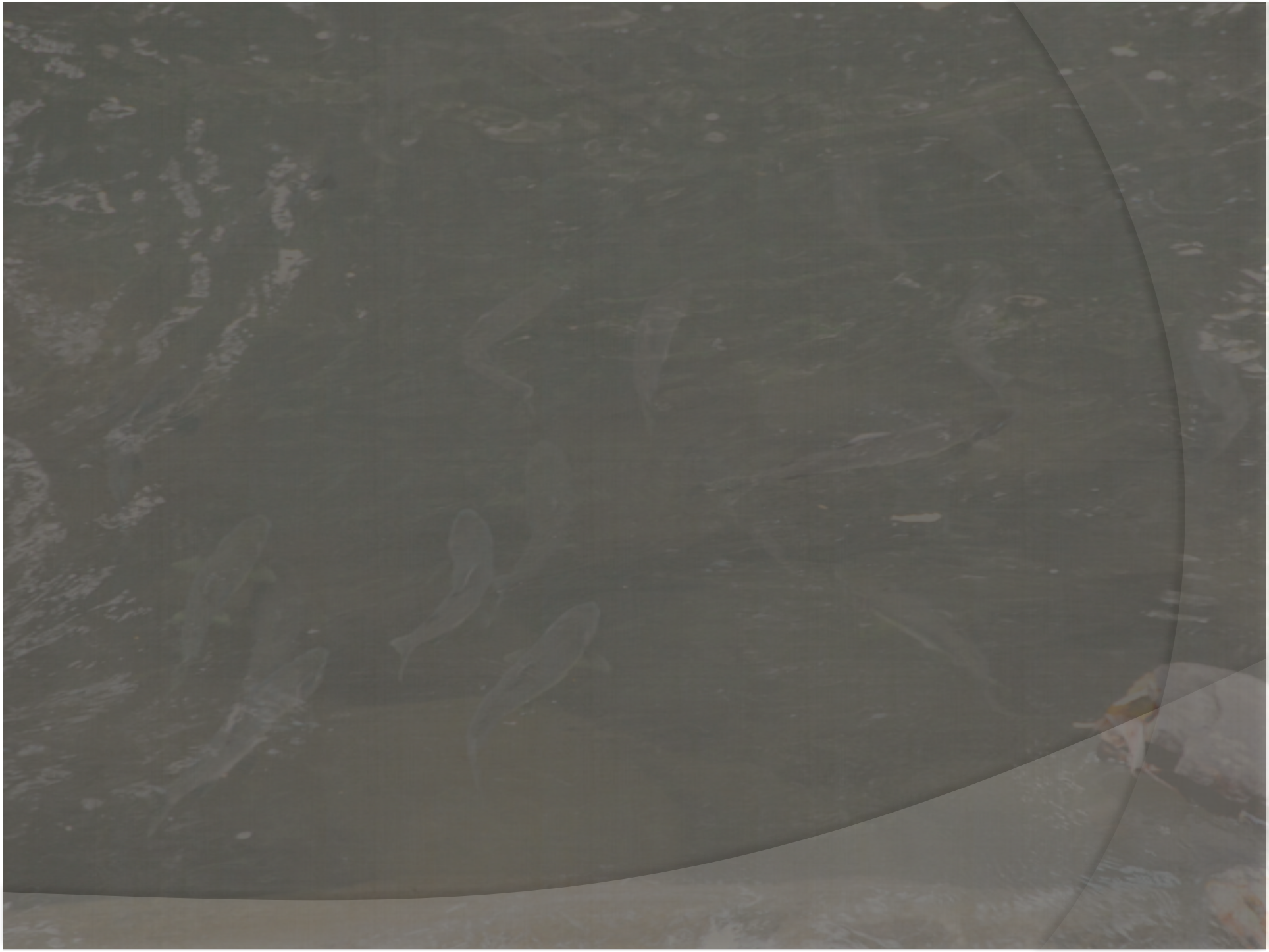
- Implements Bellingham Bay Comprehensive Strategy and controls a former pollution source
- Adds structure to provide low energy refugee
- Restores mudflat/salt marsh habitat restoration at key location
- Brings public closer to the environment (hopefully this translates into more interest in habitat restoration)

Habitat Constraints Navigated

- Adjacent contamination source meant significantly greater costs with widening creek
- Land use zoning limits
- Funding – no salmon habitat restoration funding awarded to project

Technical design challenges

- Cap material selection: Resistance vs. habitat suitability
- Habitat vs. public access
- Woody debris vs. currents
- Projecting creek behavior and flow
- Fall/winter construction in tidally influenced creek



Post Point Lagoon Restoration

- Placed pieces of Large Woody Debris (LWD) within and around the SE portion of the lagoon;
- Removed 2,000 cy of fill from the shoreline which increased shoreline length by 18%; and increased saltmarsh area by 70%;
- Re-established a native marine riparian buffer around the lagoon shoreline;
- Protected native vegetation and habitat elements by restricting access to sections of the upland, shoreline and intertidal zones;
- Installed signs to educate visitors about the value of nearshore ecosystem functions and the cost effectiveness of the project.

Post Point Lagoon –before-

Post Point Lagoon -after-

Post Point Lagoon –before-

Post Point Lagoon –after-

Post Point Lagoon –before-


JUN 4 2008


JUN 4 2008

Eelgrass transplant.....

- City installed a new secondary outfall for the Post Point Pollution Control Plant off of Marine Park to allow proper plant operation during high flows.
- The new outfall pipe impacted a healthy, well-established bed of eelgrass that provides habitat for many species of marine fish, crustaceans, and invertebrates.
- To mitigate this impact 1,100 sq ft of eelgrass was transplanted to the Post Point Lagoon using TERFS method.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AT SF
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Little Squalicum Park MASTER PLAN

Chuckanut Village Marsh Restoration Project

Conclusions……

- Cleanup projects CAN provide an excellent opportunity for habitat creation & public access improvement
- HOWEVER: Balancing the three is a complex process – design issues can be ‘at odds’
- Collaborate with all stakeholders early- even if they don’t support the project…. Yet.

Dare to Vision:

- How do you want your shoreline to function for wildlife and people in 100 years? 200 years?
- Don’t be limited by what exists now or what existed historically.