

Shoreline and Bank Protection Options



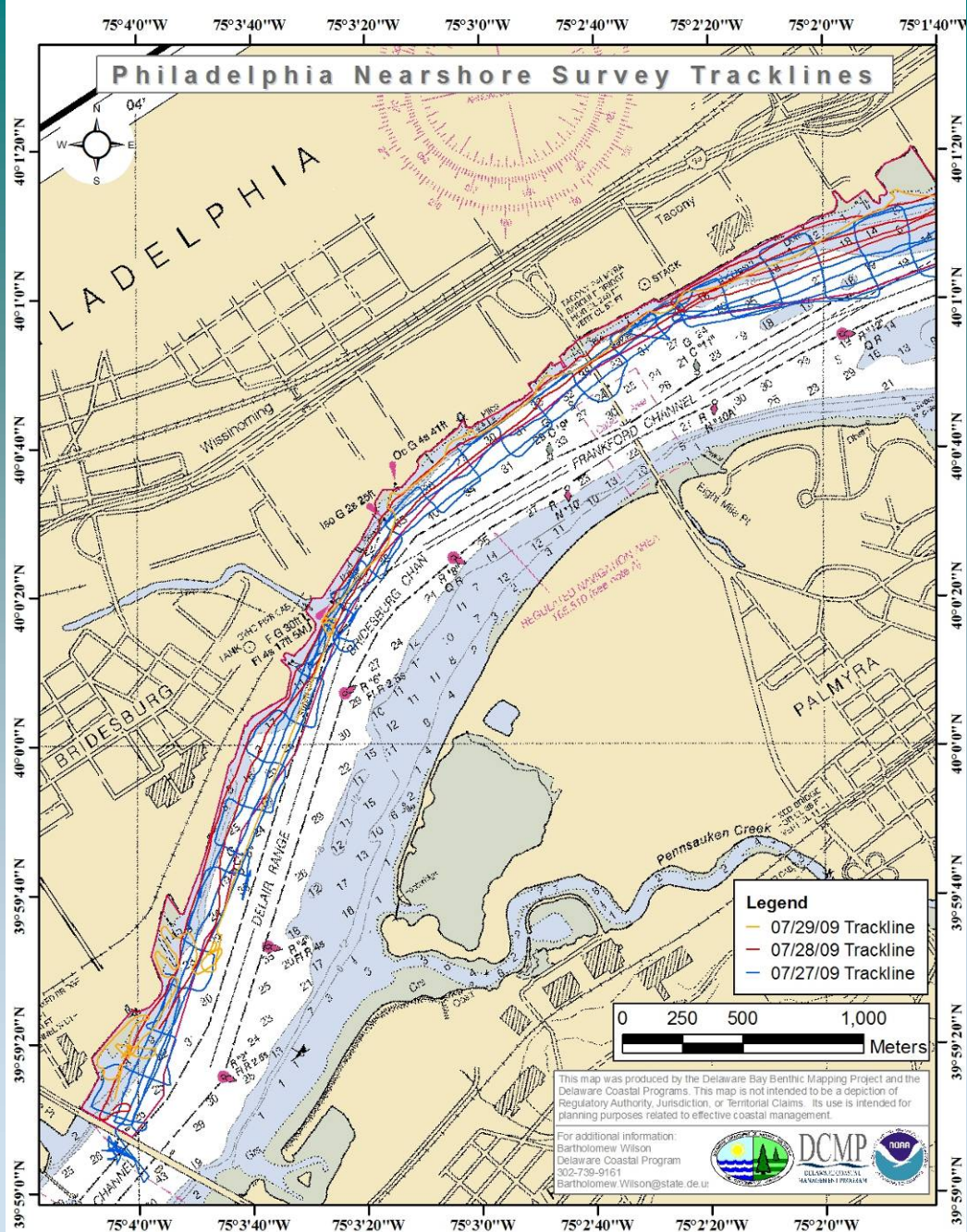
Breakwaters



Pocket Wetland

Basic Restoration Scoring Factors

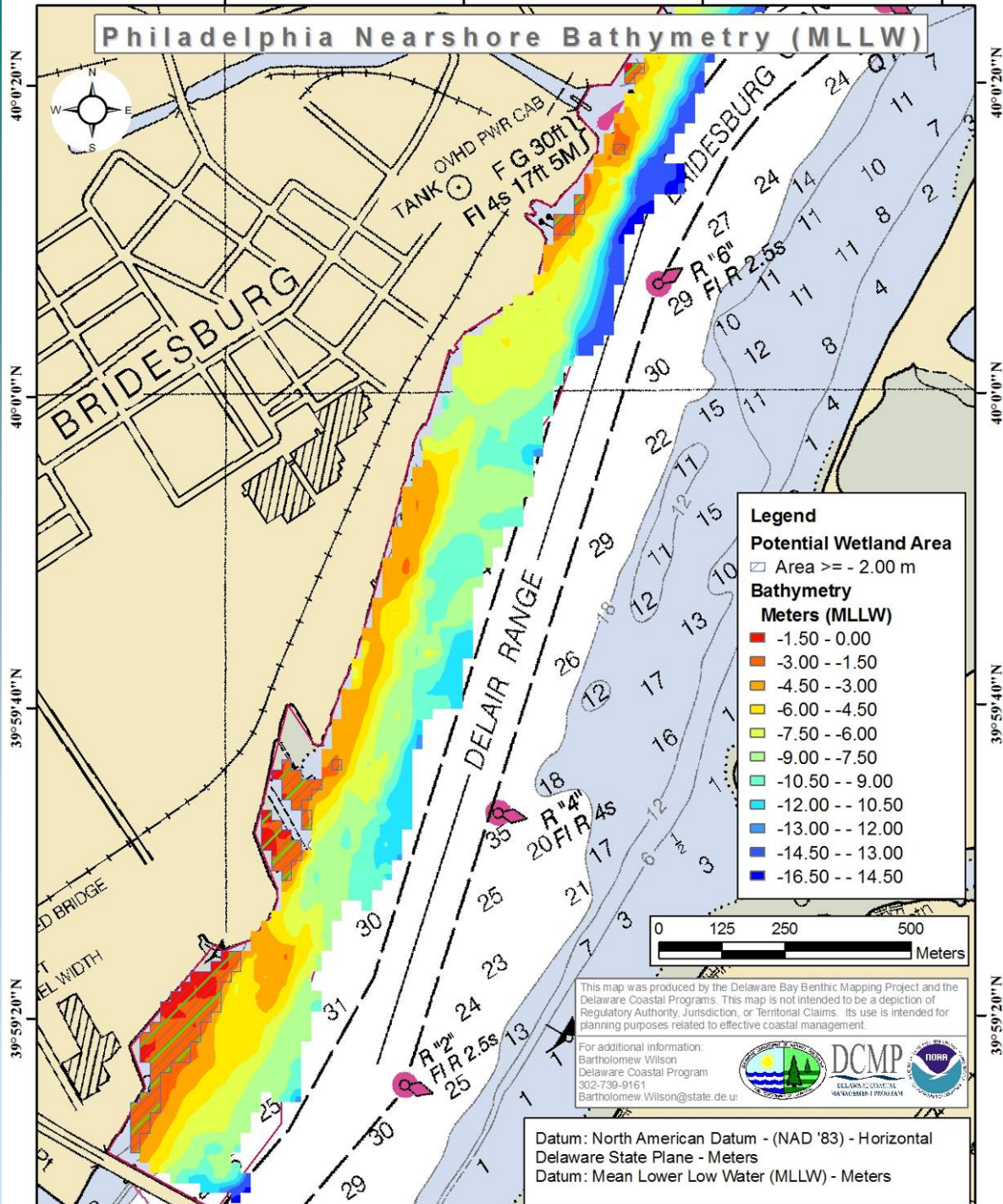
- Habitat Scoring Factors
 - Width of riparian and intertidal areas (<25', 25-60', >60')
 - Excavation required (to achieve 5 to 1 slope)
 - Protection from wakes/currents (exposed, moderate, protected)
 - Living versus hardened shoreline (% armoring)
- Site Wide Factors
 - Interest of landowner (low, medium, high)
 - Environmental (high, moderate, background)
 - Stewardship (little resources, private with O/M staff, public with staff/friends)
- Recreational Factors
 - Public access
 - Types of uses (walk by, passive park, high active/passive uses)



Roxann:
 bottom
 substrate and
 depth

Chirp: sub-
 bottom to
 detect
 substrate
 change

Philadelphia Nearshore Bathymetry (MLLW)



BRIDESBURG

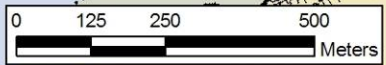
TANK QVHD PWR CAB
 FG 30ft 2
 Fl 4s 17ft 5M J

Legend

Potential Wetland Area
 Area \geq - 2.00 m

Bathymetry
Meters (MLLW)

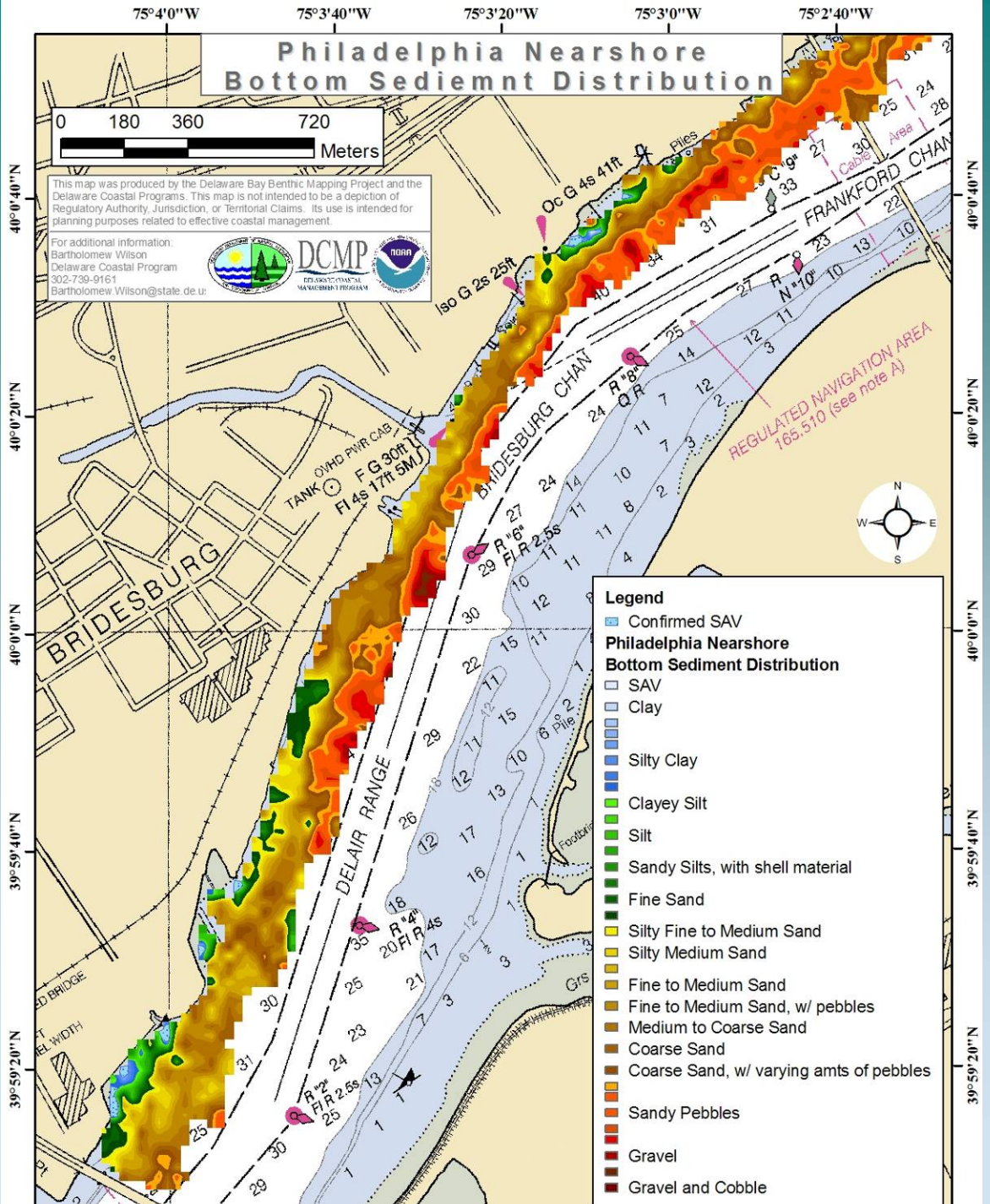
- 1.50 - 0.00
- 3.00 - -1.50
- 4.50 - -3.00
- 6.00 - -4.50
- 7.50 - -6.00
- 9.00 - -7.50
- 10.50 - -9.00
- 12.00 - -10.50
- 13.00 - -12.00
- 14.50 - -13.00
- 16.50 - -14.50



This map was produced by the Delaware Bay Benthic Mapping Project and the Delaware Coastal Programs. This map is not intended to be a depiction of Regulatory Authority, Jurisdiction, or Territorial Claims. Its use is intended for planning purposes related to effective coastal management.

For additional information:
 Bartholomew Wilson
 Delaware Coastal Program
 302-739-9161
 Bartholomew.Wilson@state.de.us

Datum: North American Datum - (NAD '83) - Horizontal
 Delaware State Plane - Meters
 Datum: Mean Lower Low Water (MLLW) - Meters





- K&T Trail
- 5-10 ft above ideal
- 0-5 ft above ideal
- >10 ft above ideal



Preliminary Shoreline Analysis Results

Sheet 4 of 17



- K&T Trail
- 5-10 ft above ideal
- 0-5 ft above ideal
- >10 ft above ideal



Preliminary Shoreline Analysis Results

Sheet 17 of 17

Examples of higher priority sites;

34 parcels along reach ranked

6975 and 7001 Wissinoming

Dodge Steel

PA F&BC

Pleasant Hill Park

Pennypack Park

Saint Vincent's

Lardner's Point and vicinity

K&T Trail N of Frankford Launch

Bridesburg

CONCEPTUAL MASTER PLAN

Back-channel aquatic habitats



PLEASANT HILL PARK MASTER PLAN
Temple University Department of Landscape Architecture and Horticulture
LA 312 Junior Design Studio Spring 2005 Instructor: Dr. Mary Myers



Pennypack Park on the Delaware

Back-channel aquatic habitats



Saint Vincent's



Saint Vincent's

Enhance-restore meadows and river bank forest.

Metal Bank

Metal Bank Superfund Clean-up
NRDA Assessment

Enhance existing wetland to
high/low marsh system.

Marsh sill or breakwater
to protect/build wetland

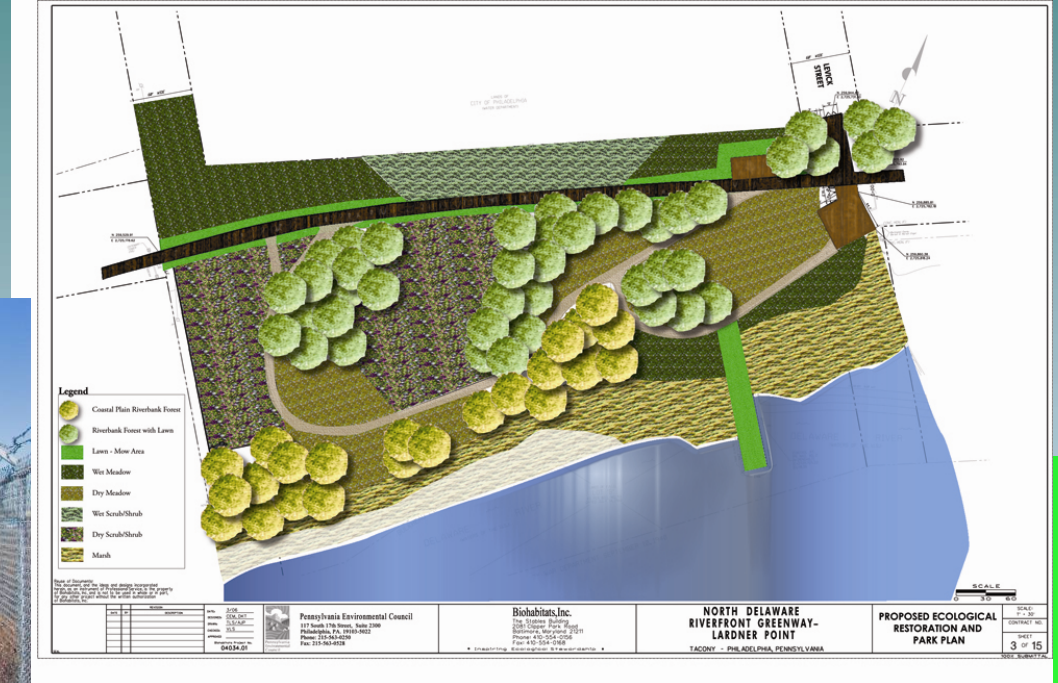
6975 and 7001 Wissinoming



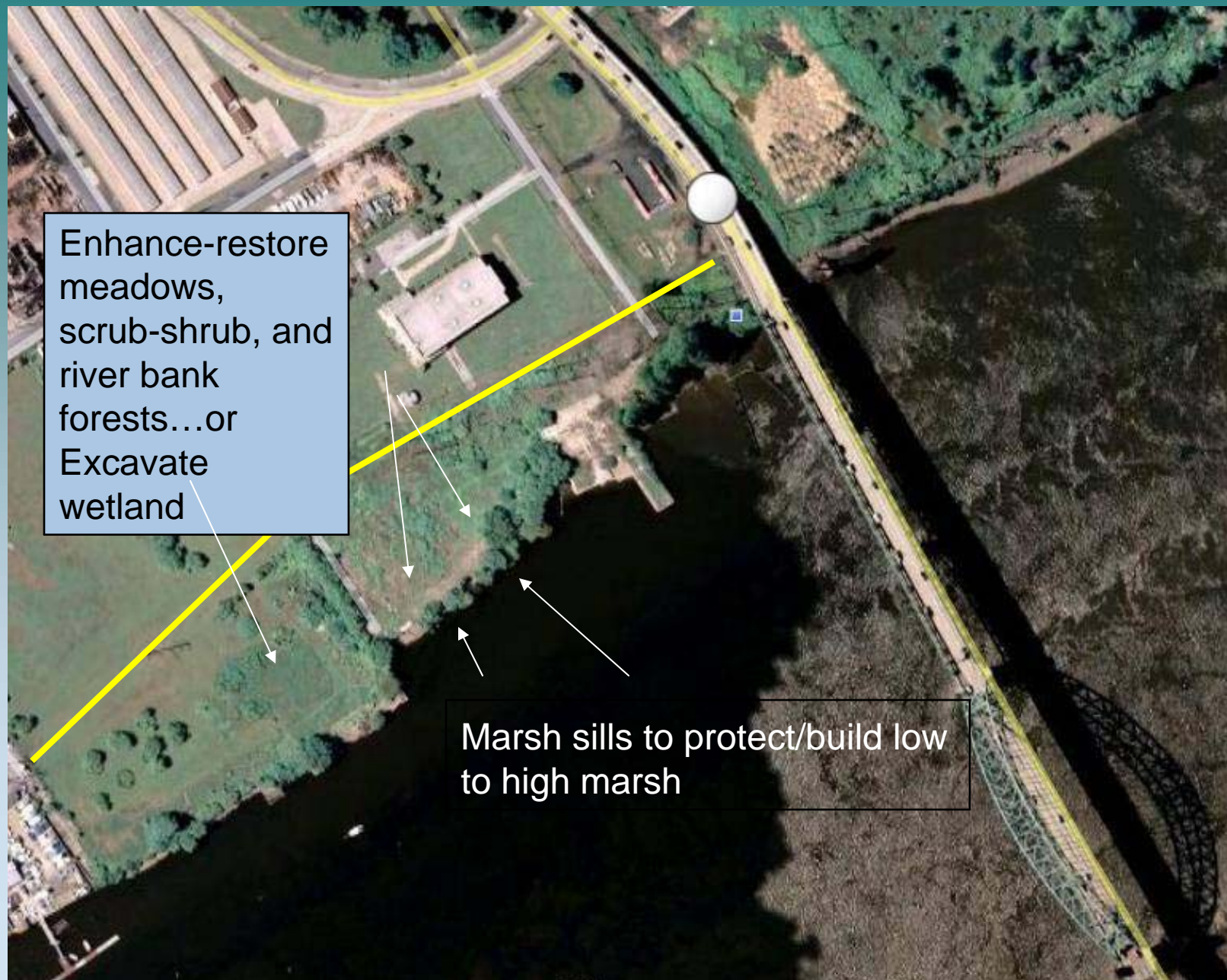
Consider excavated wetland behind bulkhead; with inlet/outlet.

Lardner's Point Park

Fringe intertidal wetland



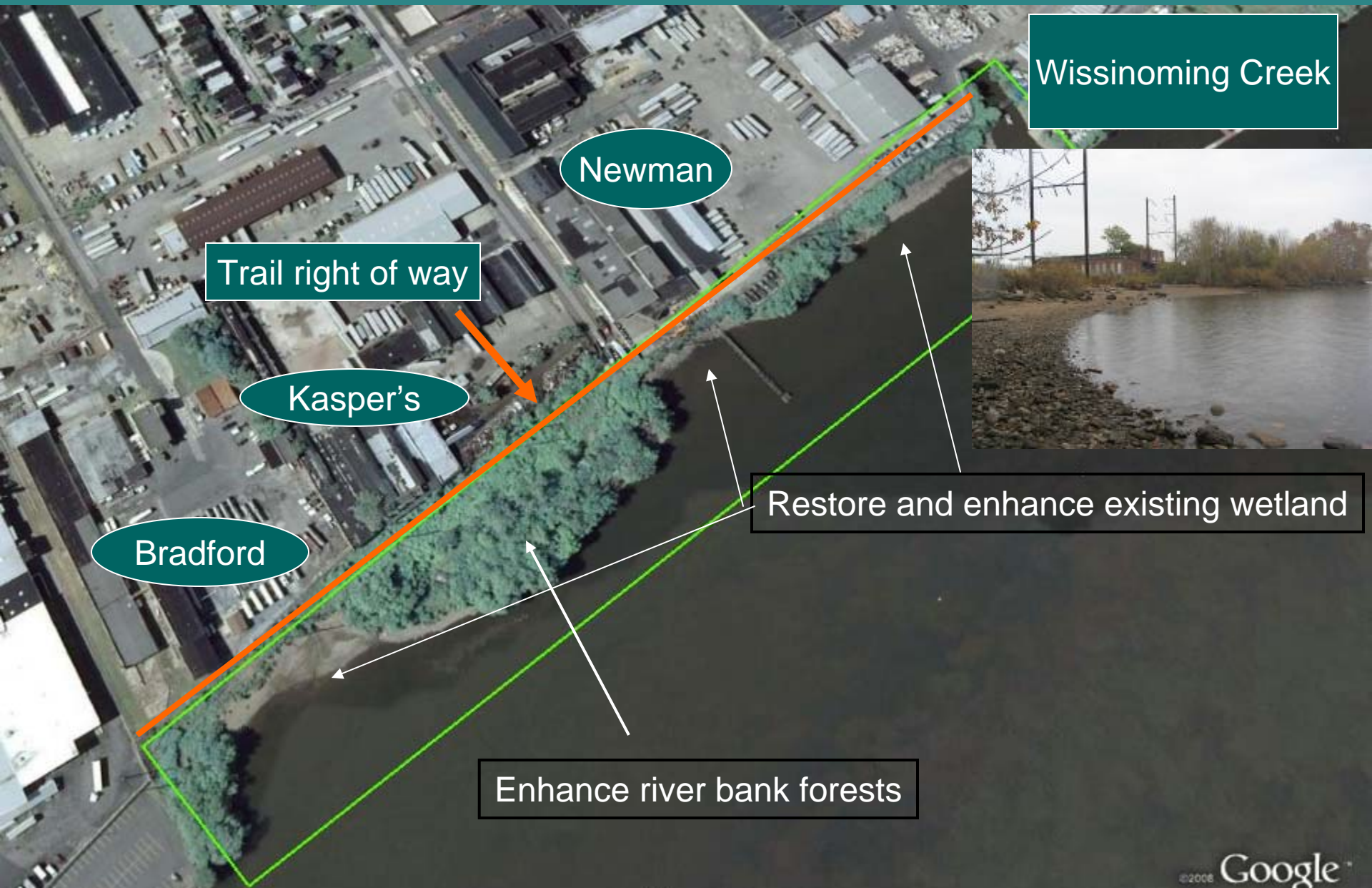
Lardner's Point and Vicinity



Enhance-restore meadows, scrub-shrub, and river bank forests...or Excavate wetland

Marsh sills to protect/build low to high marsh

K& T North of Frankford Boat Launch



Wissinoming Creek

Newman

Trail right of way

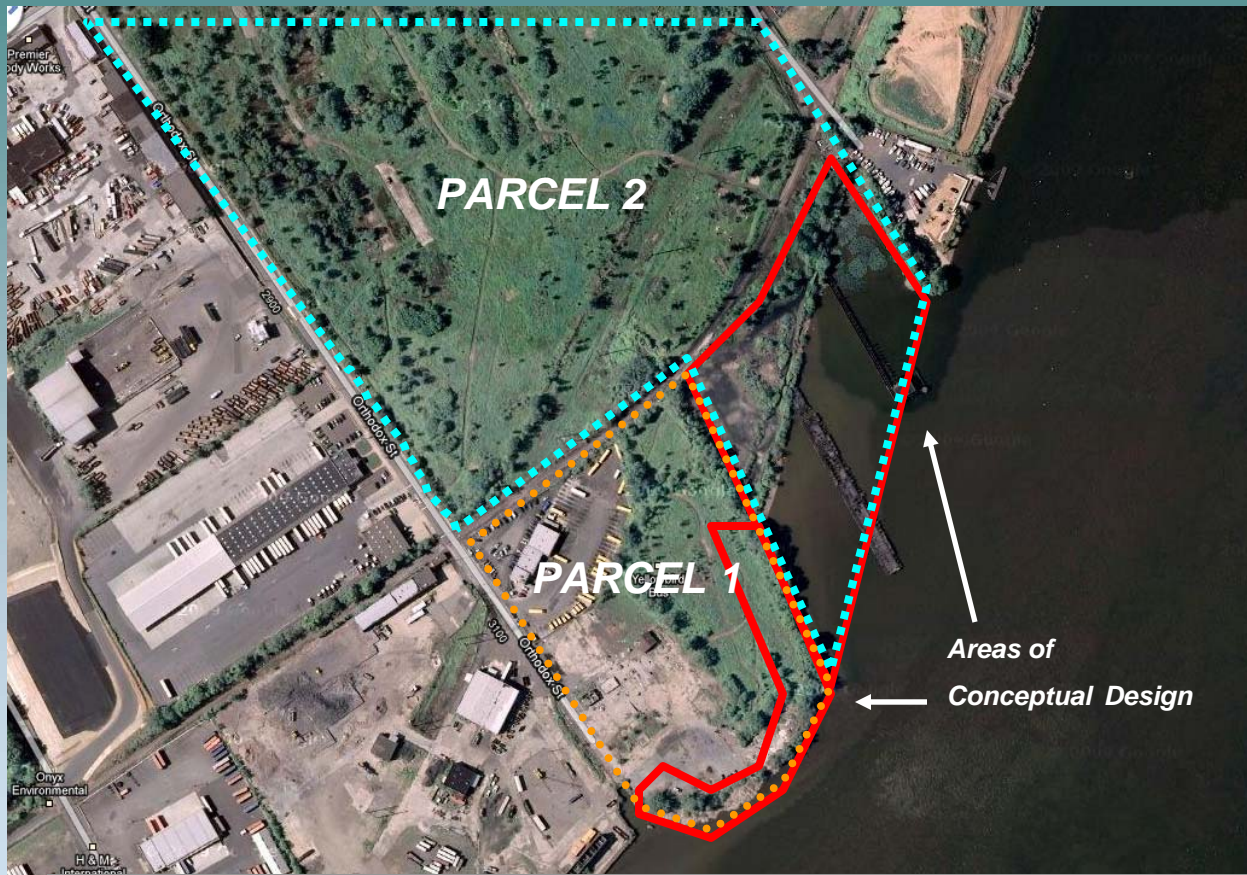
Kasper's

Bradford

Restore and enhance existing wetland

Enhance river bank forests

Bridesburg Ecological Restoration Project



Parcel 1: Philadelphia Authority for Industrial Development (PAID)
Parcel 2: National Grid

Ecosystem Services



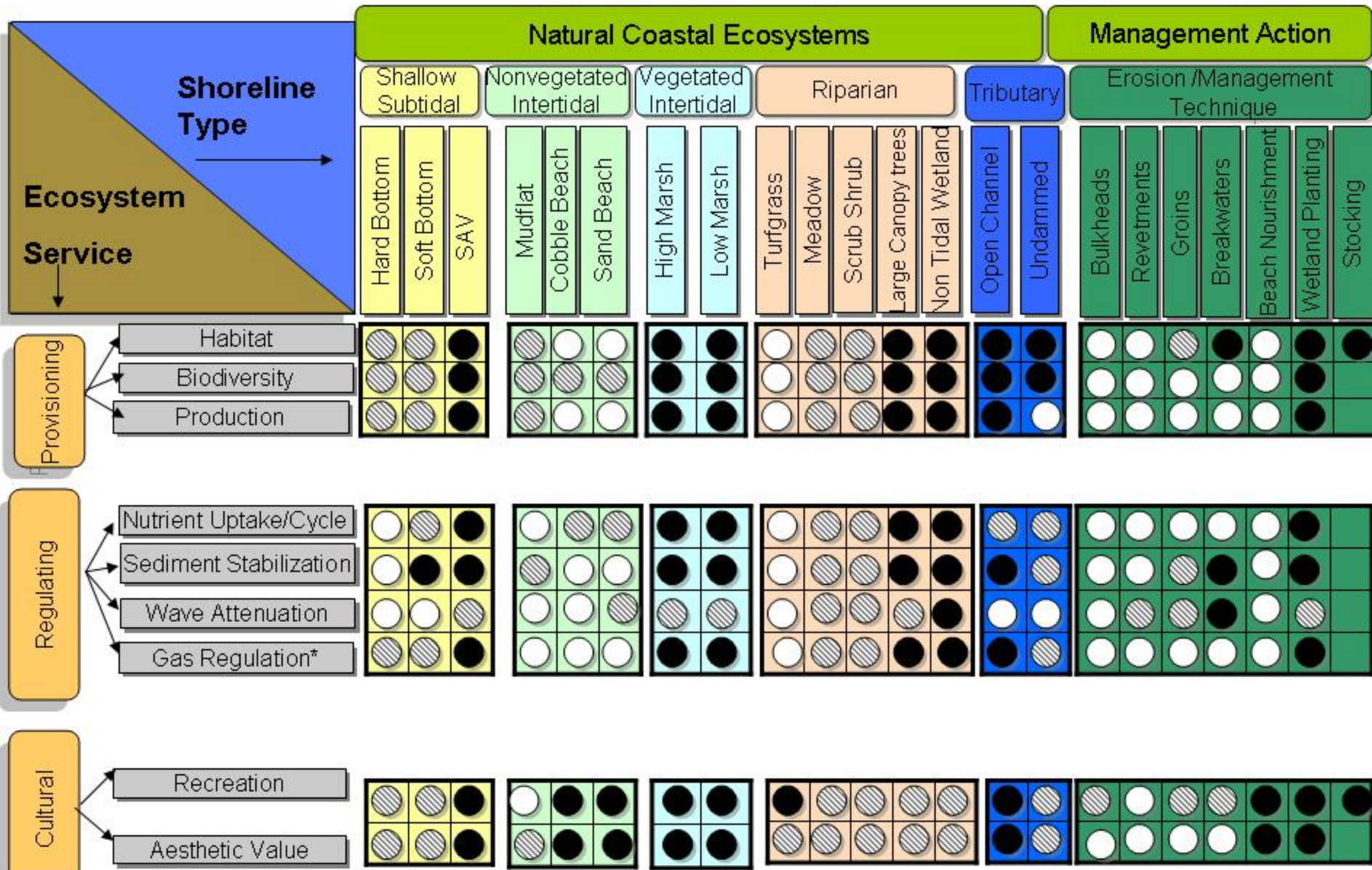
- Benefits people obtain from ecosystems
- Feasibility Assessment (DuPont Clear Into The Future funding)
- Determine economic and/or biophysical service values
 - Recreation (visitation income or visits/year)
 - Carbon sequestration (net present value of carbon credits or pounds/acre)
 - Flood mitigation (cost of flood damage or probability of flood)

Ecosystem Service Categories

- Production
- **Sediment stabilization**
- Flooding and storm surges
- **Stormwater and runoff improvements**
- Bio-geochemical process
- **Water quality maintenance**
- **Recreation, spiritual, inspirational, cultural**
- Educational
- **Living resources and their habitat**

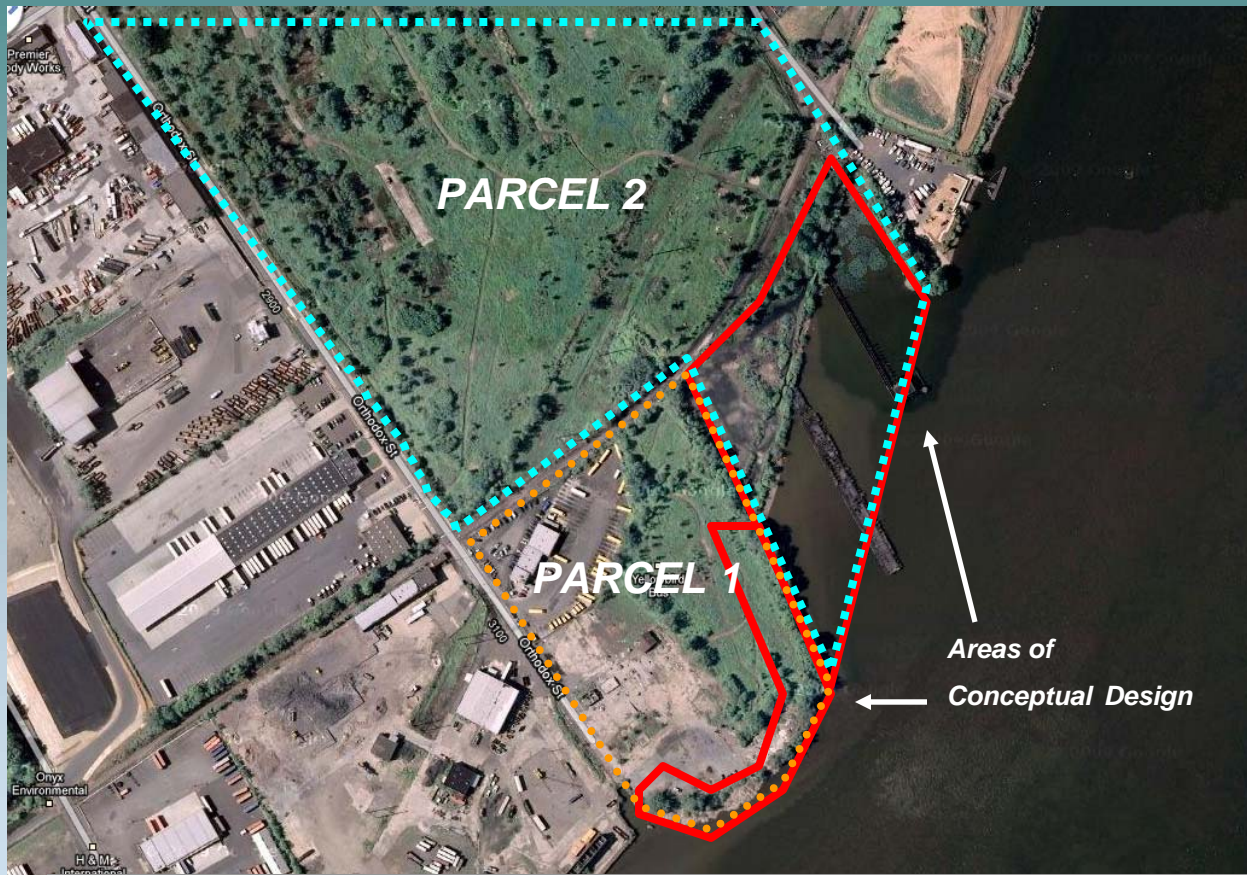
Value Added Restoration Matrix

Ecosystem Service vs Shoreline Type



*Gas regulation is carbon sequestration, carbon dioxide and oxygen production

Bridesburg Ecological Restoration Project



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Parcel 2: National Grid

