



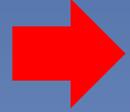
Going Green Living Shorelines Maine

Using a Instability Rating and Decision Tree
For Living Shoreline & Stabilization Alternatives

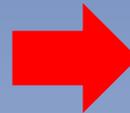
- Reconnaissance Level Assessment (RLA)



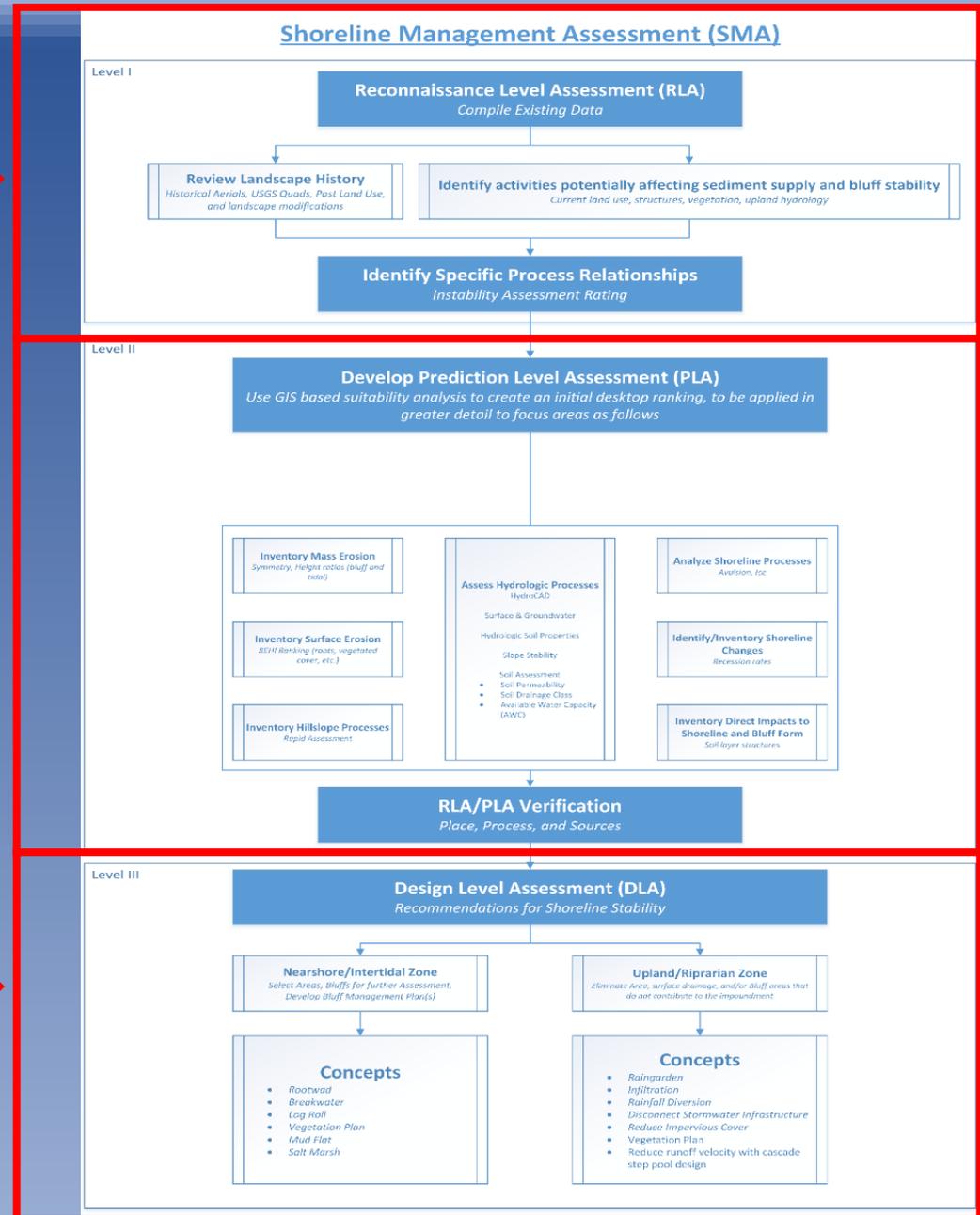
- Prediction Level Assessment (PLA)



- Design Level Assessment (DLA)



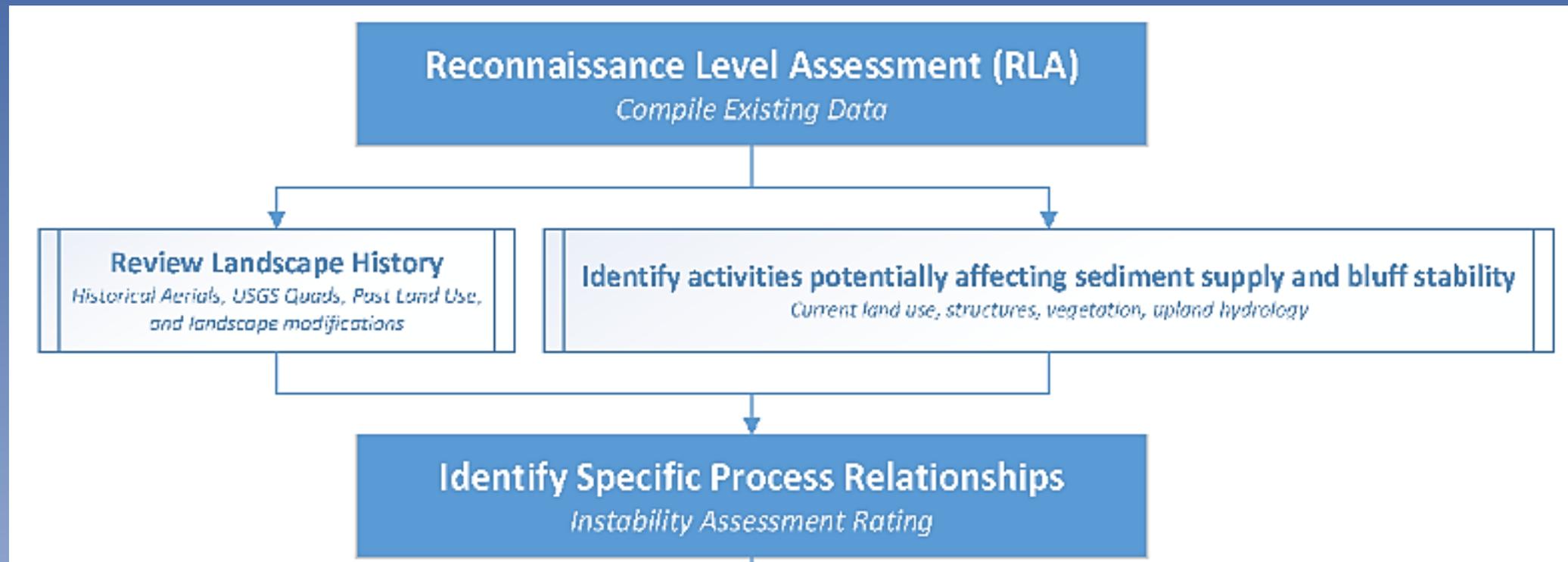
Shoreline Management Assessment (SMA)



Developed by Troy Barry



Reconnaissance Level Assessment (RLA)



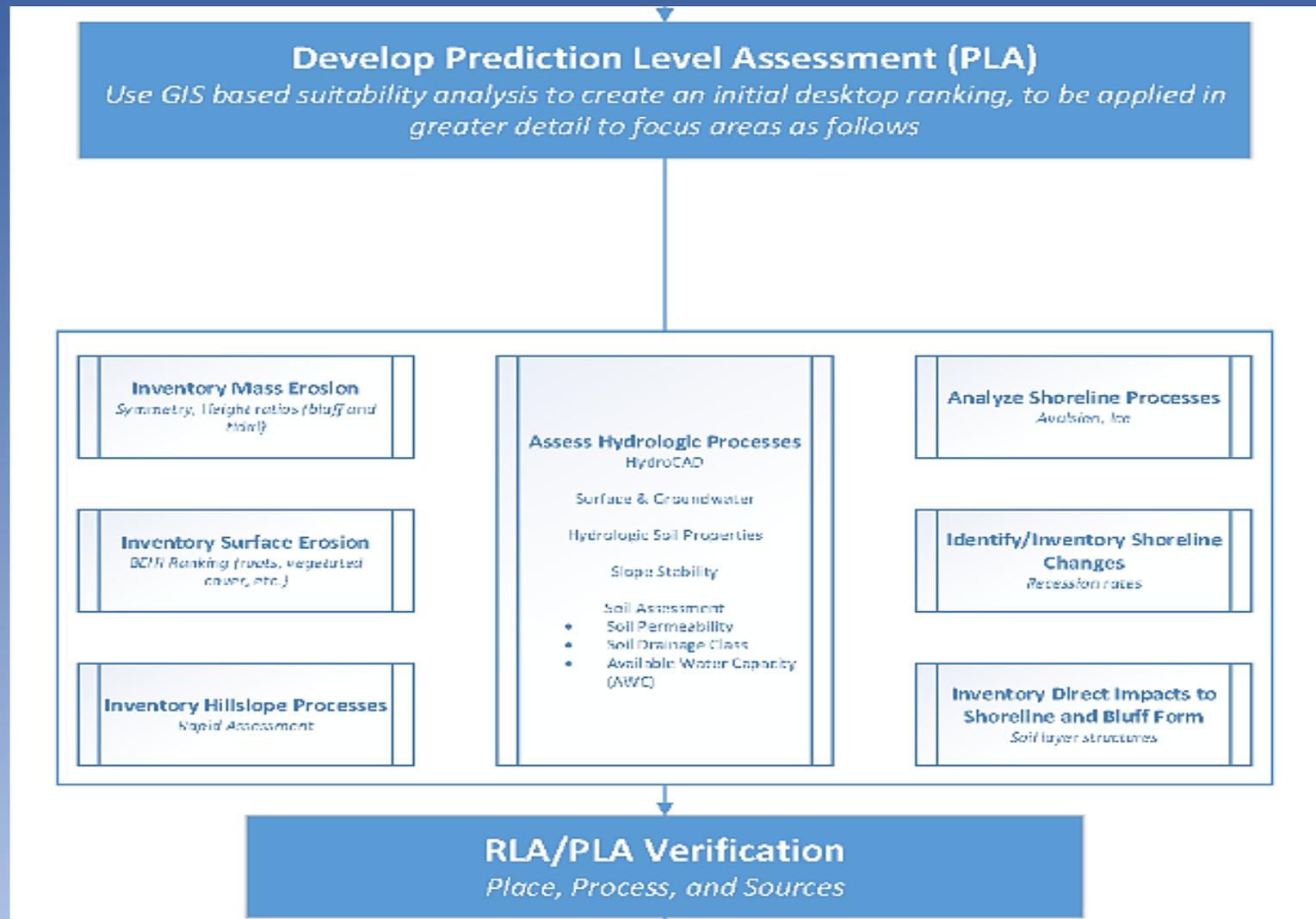
Instability Assessment Rating (Step 2 of RLA)

- 12 Parameters
- Good (1): 1-15
- Fair (2): 16-27
- Poor (3): 28-36

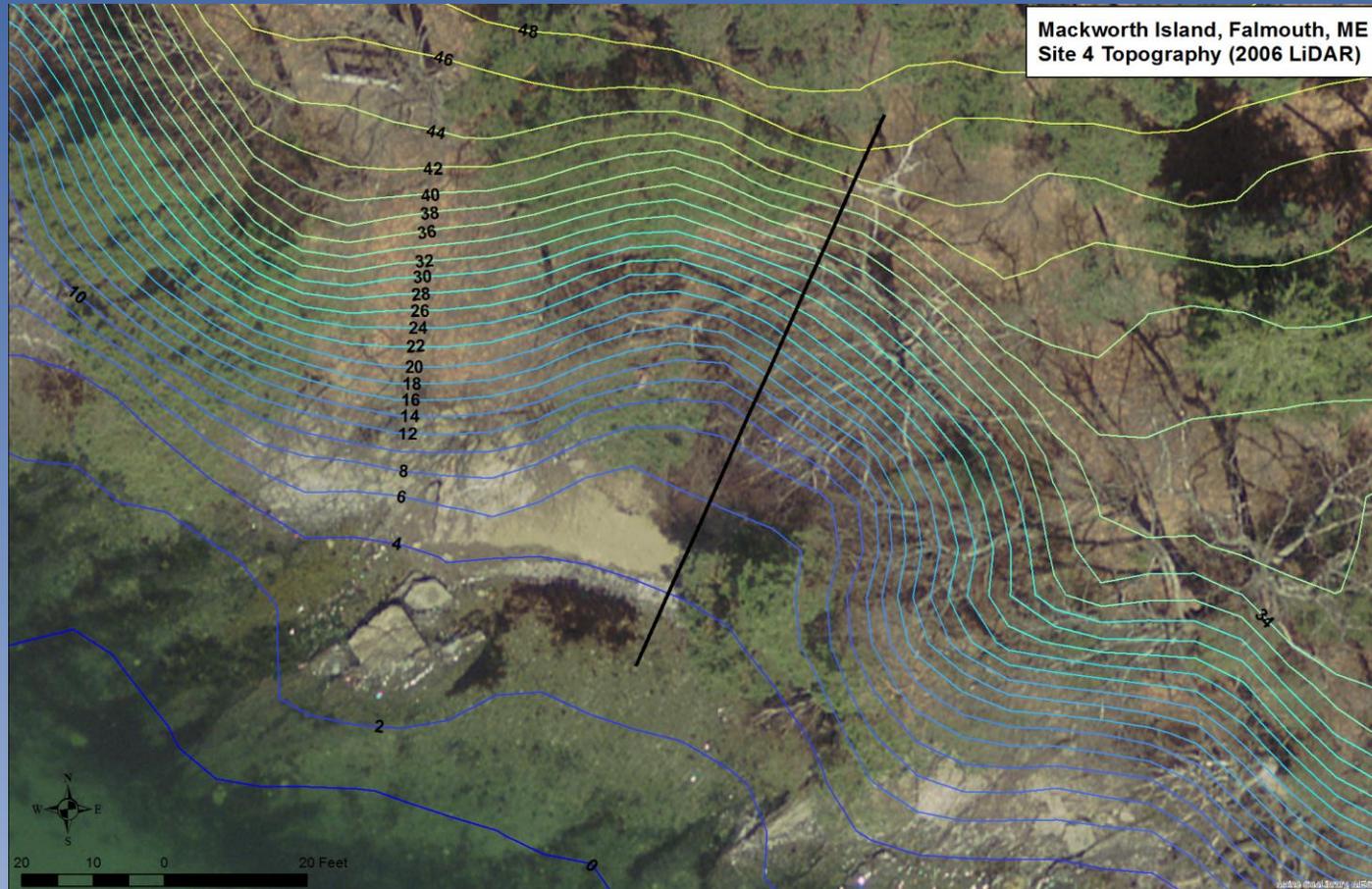
INSTABILITY ASSESSMENT RATING DATA SHEET				
Shoreline: _____		Rater(s): _____		
Bluff/Tidal Marsh/Mud Flat/Low Bank: _____		Date: _____		
Photo(s): _____				
Overall Bluff Condition		Good	Fair	Poor
BLUFF ASSESSMENT				
Category / Parameter / Measurement Method	Description of Bluff Condition			Rating (1/2/3)
	Good (1)	Fair (2)	Poor (3)	
1 Hydrology / Runoff / Ponding	No alteration of upland drainage draining to project area. Drainage of bank has not been modified.	Minimal overland drainage changes above shoreline site. Does not adversely affect hydrology or result in concentrated flow (point discharge).	Surface drainage is reporting to the study site and has an adverse effect on bank site. Water is ponded above the bank. Seepage may be present.	
2 Hydrology / Runoff / Concentrated Flow	No apparent concentrated flow or channelized flow from adjacent land use.	Some concentrated flow/channelizing directed to site however, measures are in place to protect resources.	Concentrated flow/channelization to bank site and no treatments are in place.	
3 Hydrology / Runoff / Land Use Change	Upland area is primarily native vegetation (70% mix of shrubbery and trees) trees are greater than 12" diameter and a minimum of 20' from top of bank.	Land development occurring or active agricultural practices occurring in upland area, vegetation area 20-70% 12" diameter trees 5-20' from top of bank.	Land use is urban or primarily active agricultural practices (>70%), vegetated area <20% 12" diameter trees 5' or less to top of bank, roots may be exposed.	
4 Hydrology / Runoff / Distance to Roads	No roads in or adjacent to site (20' or closer). No proposed roads in or adjacent to site in 10 year plan.	No roads in or adjacent to site (20' or closer). No more than one major road proposed in 10 year plan.	Roads located in or adjacent to site boundary (5-20') and/or roads proposed.	
5 Hydrology / Runoff / Seepage	Upland runoff as a result of rainfall patterns, geology, and soils does not result in seepage in bank.	Upland runoff as a result of rainfall patterns, geology, and soils is resulting in seepage in < 10% of the bank.	Upland runoff as a result of rainfall patterns, geology, and soils is resulting in seepage from > 10% of the bank.	
6 Geomorphology / Riparian Vegetation	>50% of contributing shoreline length has >25 ft. corridor width - dense vegetation.	30 - 60% of contributing shoreline length has >25 ft. corridor width - average vegetation.	<50% of contributing shoreline length has >25 ft. corridor width - low density vegetation.	
7 Geomorphology / Sediment Supply	Low soil erosion - bank erodes or shows no recent change or loss. There are few or no gullies present on the bank face.	Moderate soil erosion - bank erosion is occurring, visual change is noticeable. There are several runnel/gullies on the bank face < 0.5' deep.	High soil erosion - bank erosion is occurring, change is measurable. There are numerous runnel/gullies > 0.5' deep.	
8 Bank Slopes	Slopes range from 3 to 9%.	Slopes 9 to 20%.	Slopes 20% and greater or undercut.	
9 Bank Height vs. High Tide Elevation	High Tide Elevation is 1 ft or lower Top of Bank.	High Tide Elevation is 1 to 3 ft above Top of Bank.	High Tide Elevation > 3 ft above Top of Bank.	
10 Soil Properties: Particle Size / Stratification	Bedrock and boulders make up the bank or cohesive soil types (sand/gravel mix) mixed evenly.	No bedrock or boulders, cohesive soils (silt/clay/gravel mix) are dominant and mixed equally. Clay to very stony sandy loam.	Soils are non-cohesive and/or highly stratified. Silt/clay/gravel mix with larger percentage of sand, sandy loam, silt.	
11 Density of Roots / Bank Surface Protection / % of Total Bank Height with Roots	Surface Protection = 80-100%; Root Density in Bank = 80-100%; Root depth/Bank Height = 1.0-0.9	Surface Protection = 65-79%; Root Density = 65-79%; Root depth/Bank Height = 0.5-0.86	Surface Protection < 50%; Root Density < 55%; Root depth/Bank Height < 0.5	
12 Biology / Landscape Connectivity	Shoreline of project and adjacent area to project area has native bank and vegetation materials. No rip-rap or hardened structures installed.	Shoreline of project and adjacent area has native vegetation and bank materials but is impaired by invasives and/or rip-rap and/or hardened structures installed.	Shoreline of project and/or adjacent area is hardened by a concrete headwall, or rip-rap or other structure. Limited vegetation present.	
<p>This Instability Rating Form was developed for the Maine Coastal Program/Maine Department of Agriculture, Conservation and Forestry by the Cumberland County Soil and Water Conservation District. This work was supported by the National Ocean and Atmospheric Administration (NOAA) Coastal Zone Management Cooperative Agreement #NA14N054180C47 pursuant to the Coastal Zone Management Act of 1972 as amended. For more information about the Maine Geological Survey, contact mgsl@maine.gov or 207-267-2801. For more information about the MCP, visit www.maine.gov/coastal/mcp or contact: 207-267-2251.</p>				Total Rating:

Refer to your handout

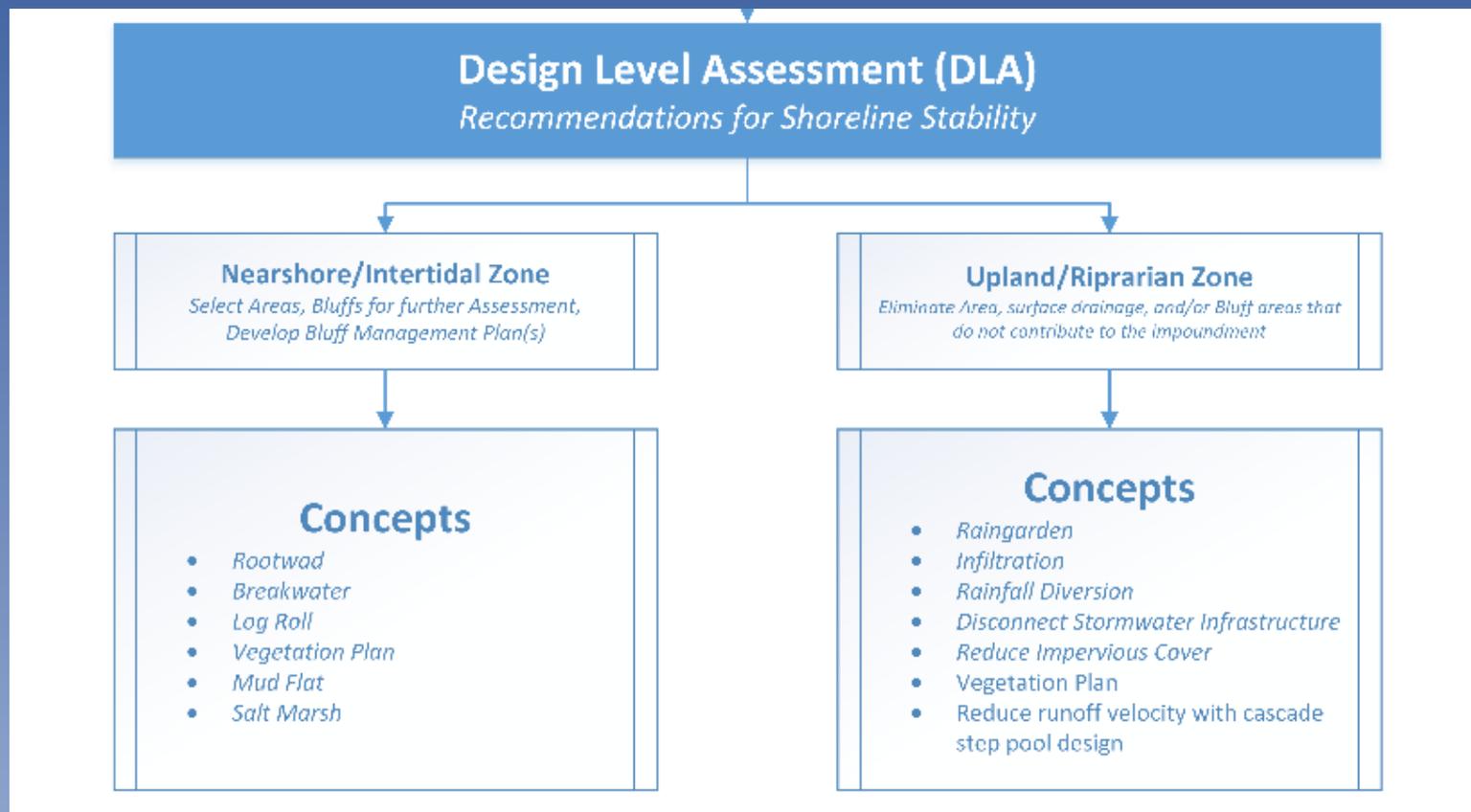
Prediction Level Assessment (PLA)



Mackworth Island Site #4 (RLA)

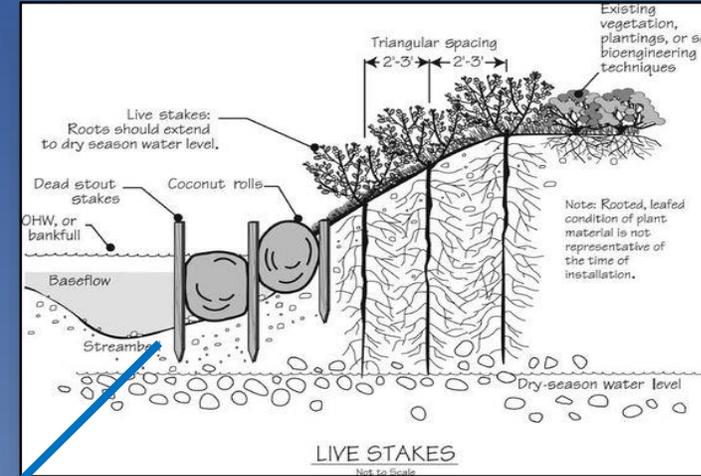


Design Level Assessment (DLA)

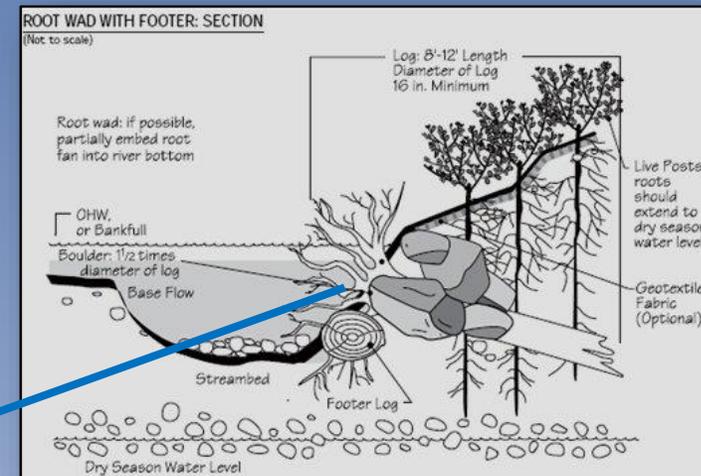


Living Shoreline Concepts

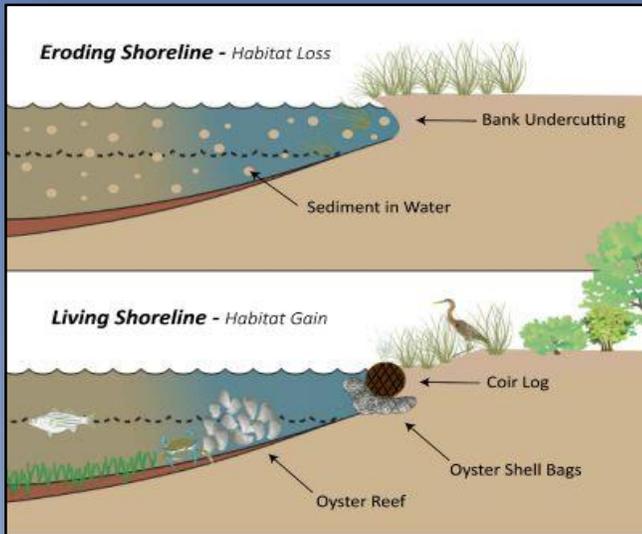
- Coir Roll & Live Staking
- Rootwads & Woody Planting
- Vegetation Dissipation
- Oyster Shell Bags



COIR ROLL & LIVE STAKING



ROOT WAD – WOODY DEBRIS

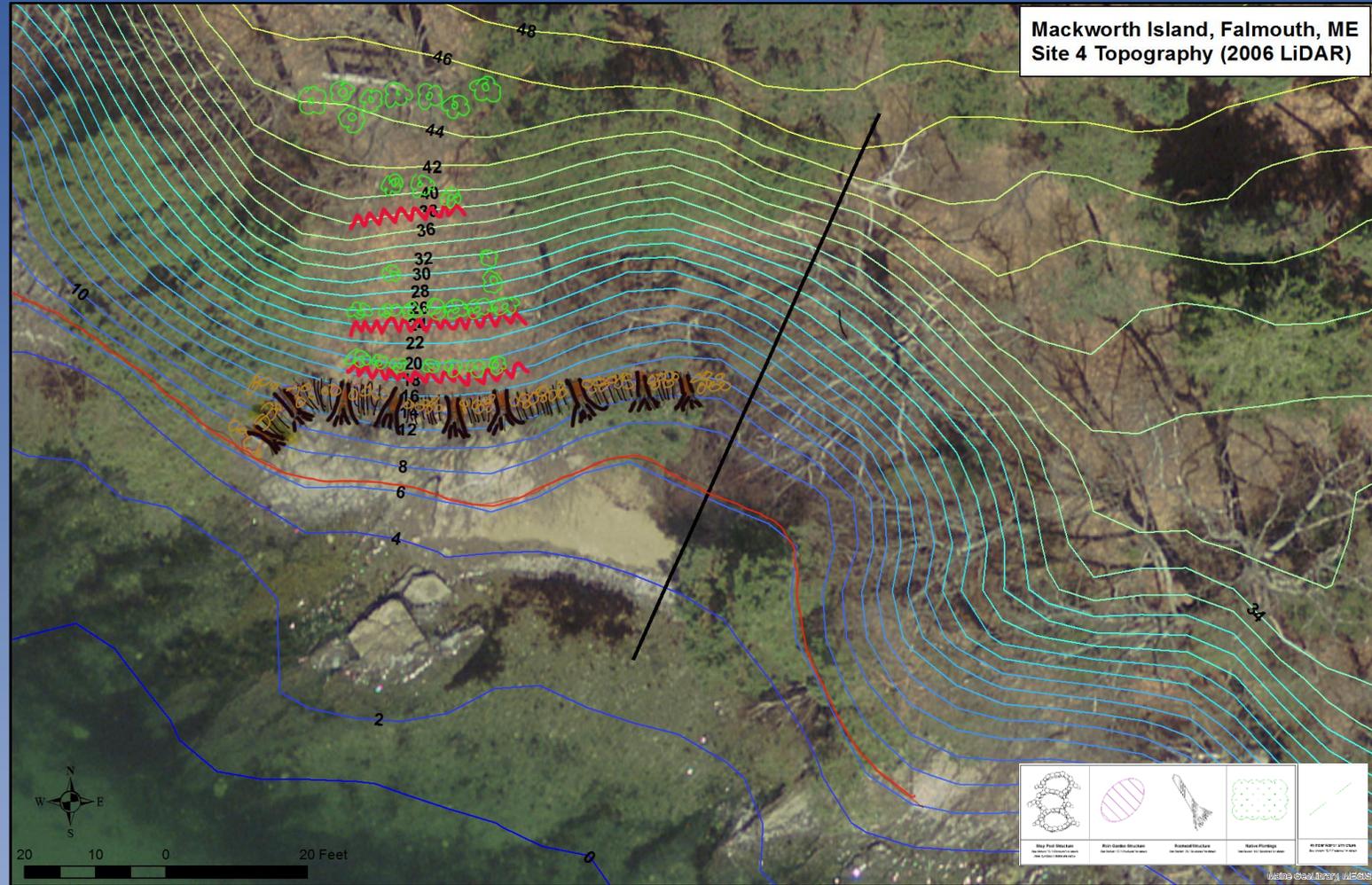


COIR ROLL & OYSTER BAG

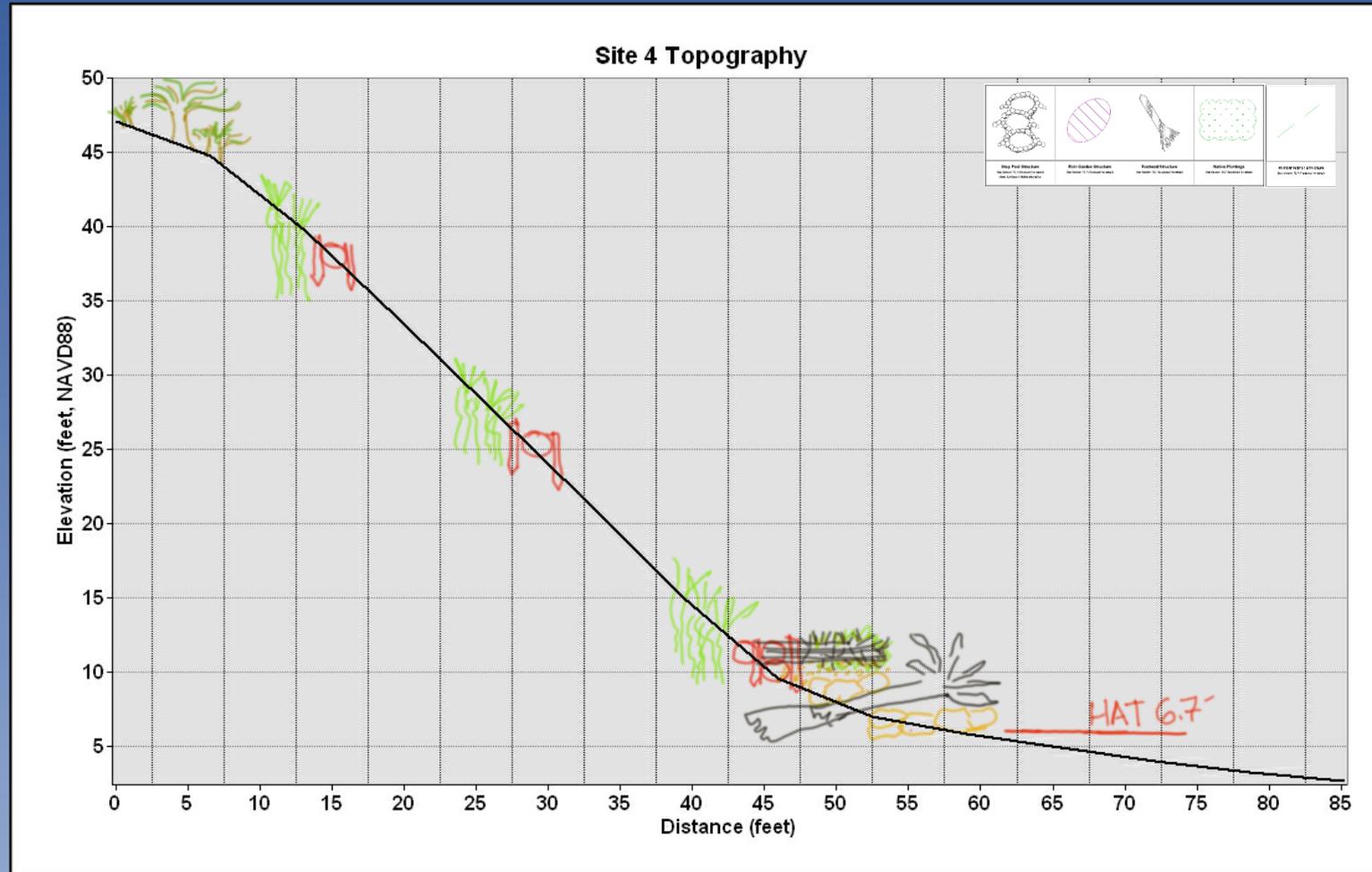
Image source: Delaware



Conceptual DLA on Mackworth Island



Conceptual DLA on Mackworth Island



Conceptual DLA on Mackworth Island

