Nature-Based Ecological Restoration: Adaptive Management

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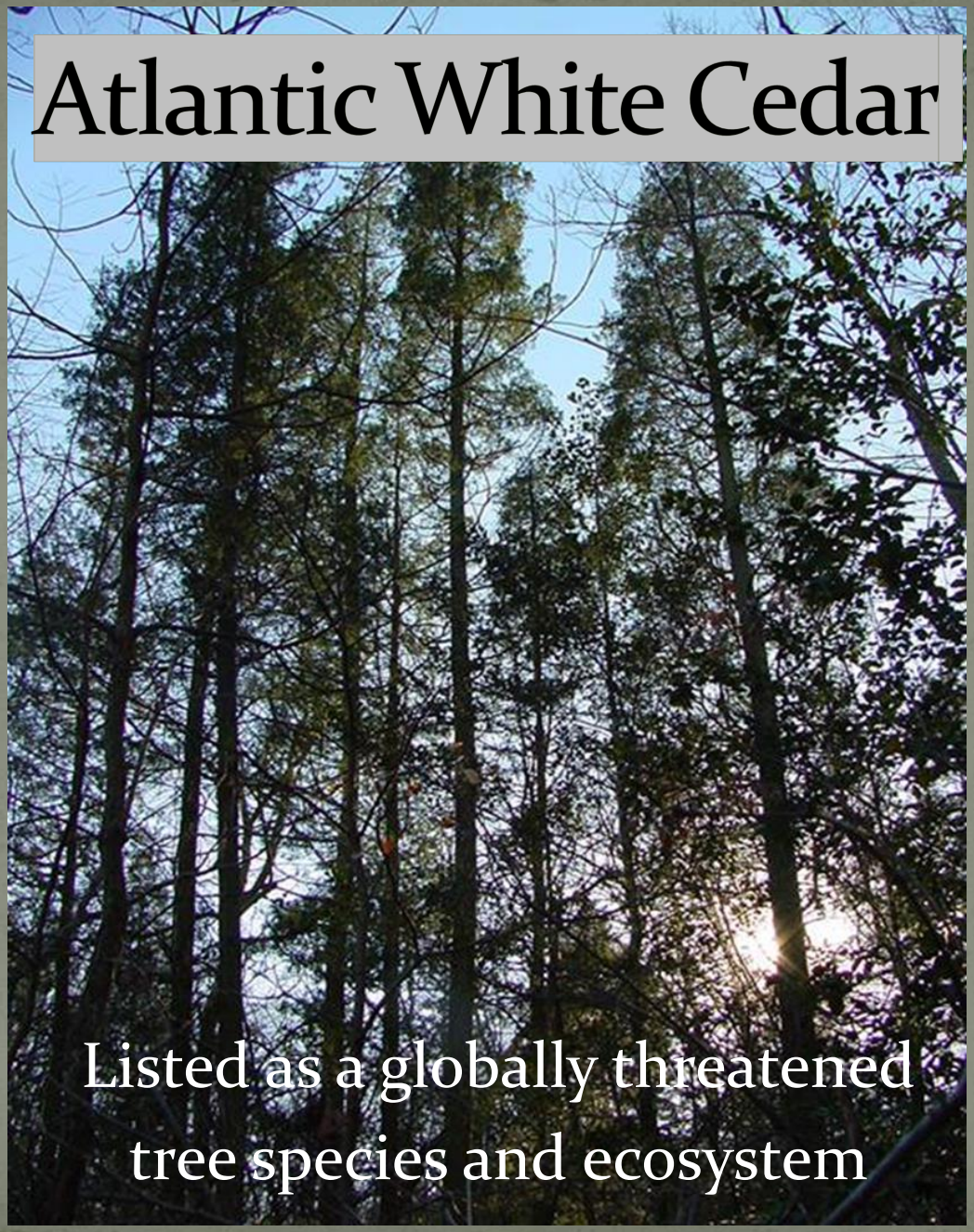
Regenerative Design & Construction (RSC)

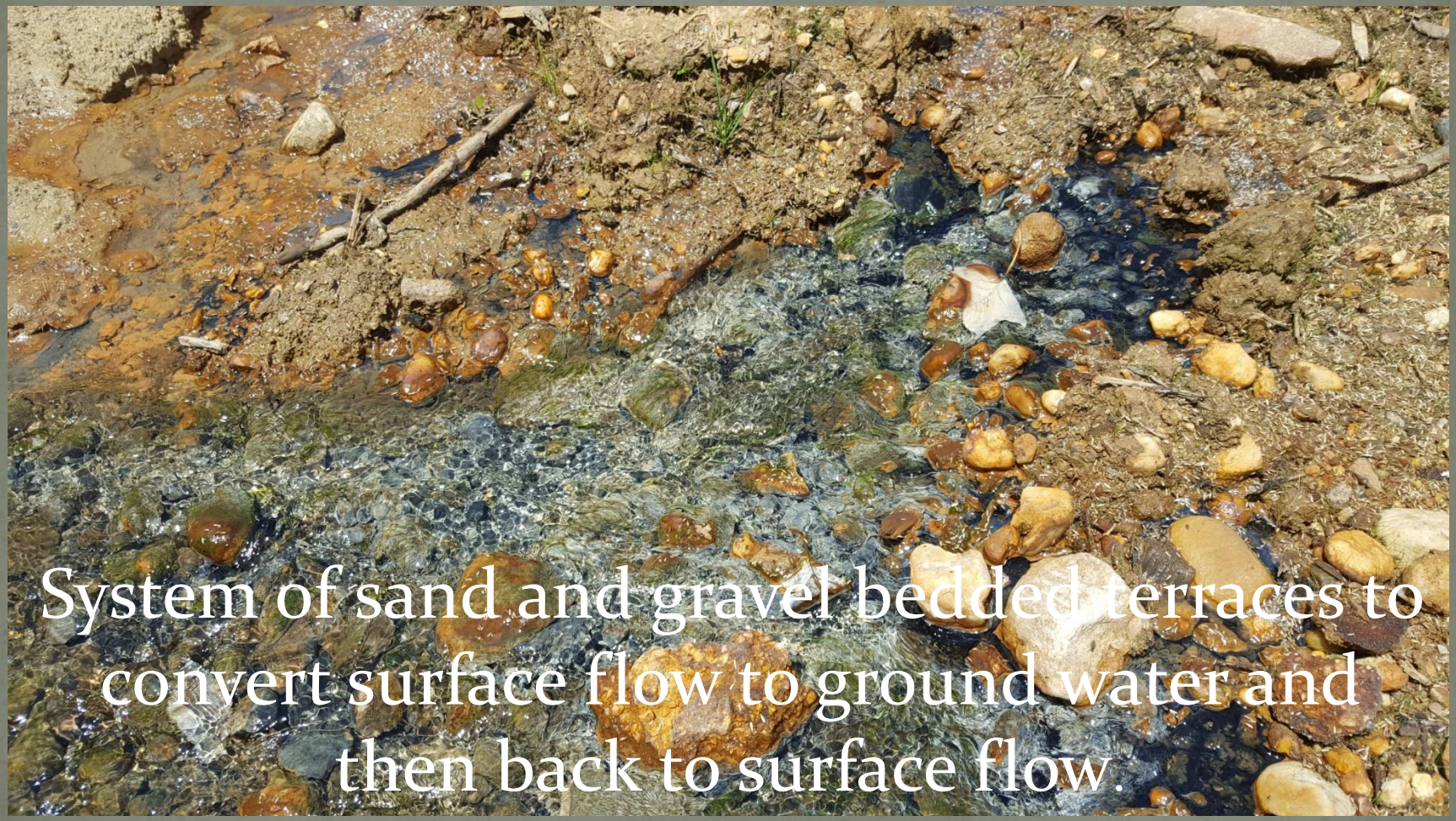
- What is RSC?
  - Ecological Restoration Technique
  - Highly integrated stream and wetland restoration developed in the 1990's;
  - The RSC process began with adaptive management of the ecological restoration literature of that time;
  - RSC *is* defined as the art of adaptive management to maximize the potential of ecological uplift from design through construction and after;
  - Motivation for developing RSC stemmed from the desire to restore conditions for now rare wetland organisms.

Purple Pitcher Plants (Carnivorous Plants)

Atlantic White Cedar



Spring House Run (National Arboretum)



Working With Nature

Time Lapse / Active Monitoring Examples:
https://vimeo.com/109494413
https://vimeo.com/100928979
https://vimeo.com/142916226

- Maintain gravel seeps after installing grade control structures
- Incorporate seeps into the project as added habitat for rare orchids and perennial wetland plants
- Look forward to rain events and actively monitor and photograph sites during storms with time lapse imagery
- Seek opportunities for adaptive management & project improvements during construction

What is Design/Build?

- Design/build *is* the art of adaptive management;
- Experience, confidence, and knowledge to capitalize on unforeseen opportunities to enhance ecological uplift;
- Same team planning, designing, and constructing the project;
- Reduces design costs (60% plans)
- Provides an integrated solution to restore process

Regenerative Step Pool Storm Conveyance (SPSC) – also known as Coastal Plain Outfalls

Home Port Farms - Immediately after

Home Port Farms - One year after construction

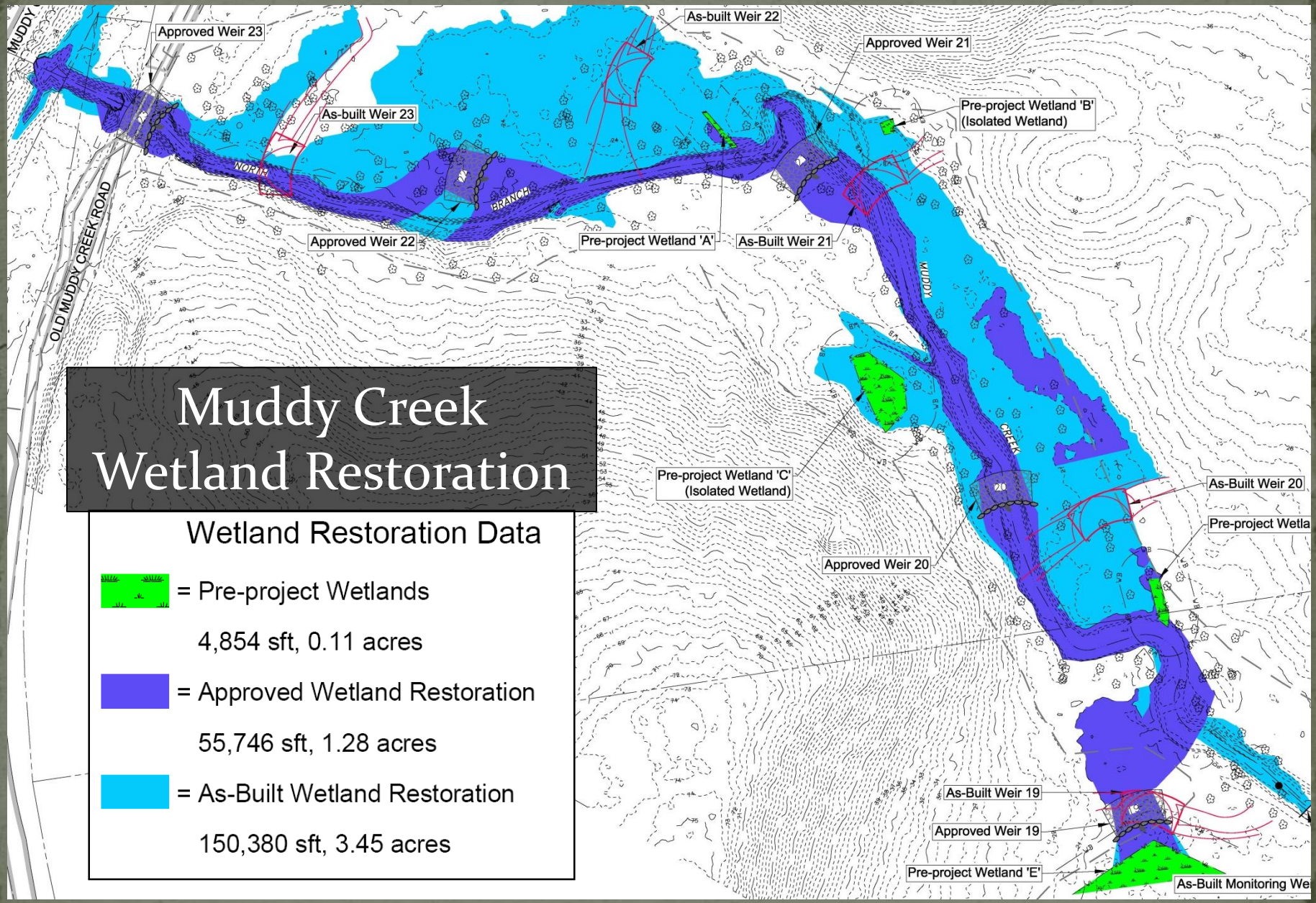
Homeport Farms - Six years after construction

Design Guidelines

ANNE ARUNDEL COUNTY MARYLAND

DPW

Original : June 2009
Revision 1: August 2010
Revision 2: November 2010
Revision 3: July 2011
Revision 4: November 2011
Revision 5: December 2012



Muddy Creek Wetland Restoration

Wetland Restoration Data

= Pre-project Wetlands

4,854 sft, 0.11 acres

= Approved Wetland Restoration

55,746 sft, 1.28 acres

= As-Built Wetland Restoration

150,380 sft, 3.45 acres