Keweenaw Stamp Sands Ecosystem Restoration

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Project Manager
June 2014

US Army Corps of Engineers
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Great Lakes Fisheries and Ecosystem Restoration (GLFER): Feasibility Phase

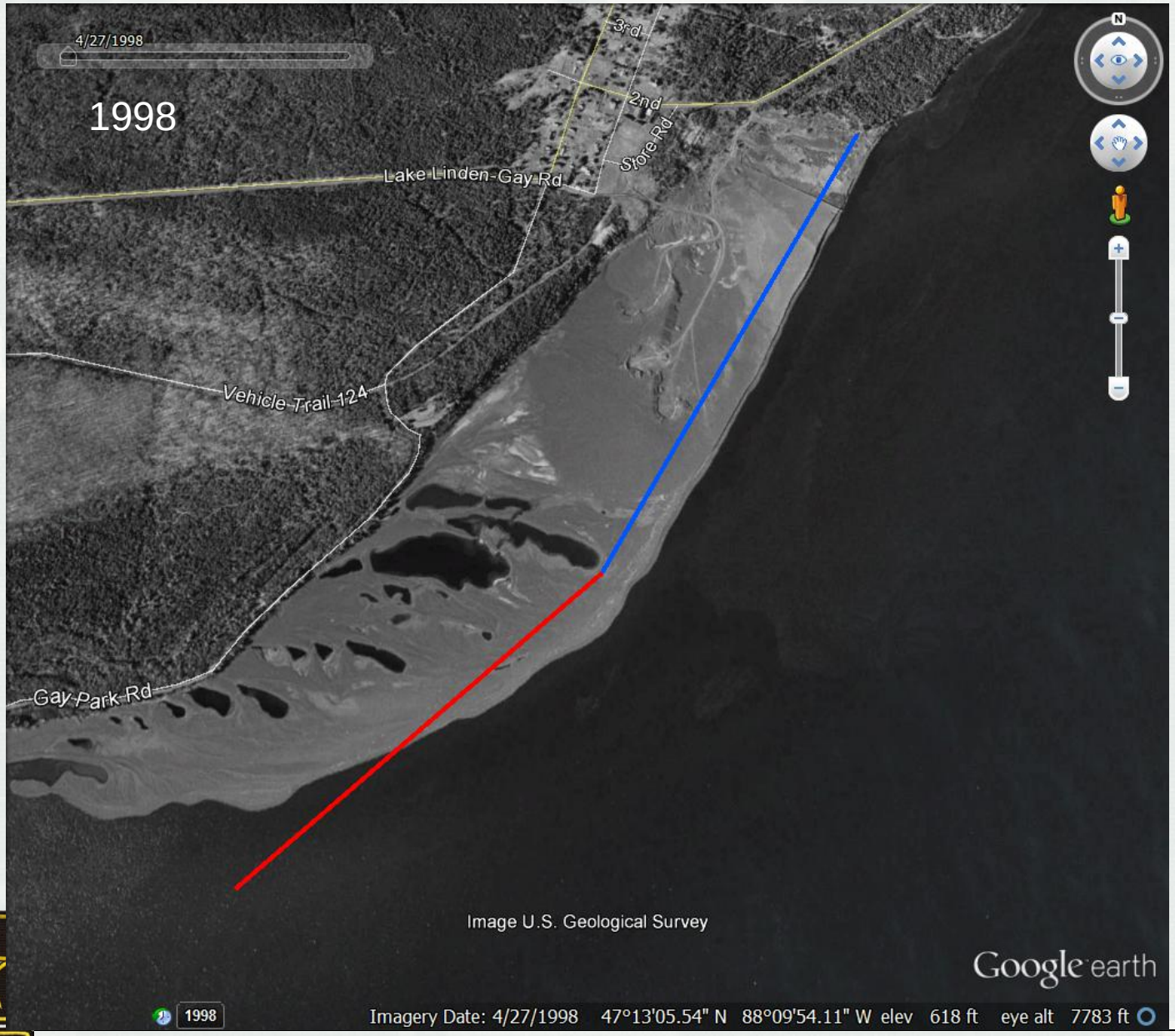
- Plans formulated, alternatives evaluated, plan recommended, cost and schedule in Detailed Project Report.
- Environmental Requirements Completed.
- Monitoring & Evaluation Plan Developed.
- Feasibility Costs are Initially Federally Funded but Subject to Cost-Sharing if the Project Goes to Construction.

June 2013 Meeting

- Continue Development of Hydraulic Models.
- Encourage Development of Alternatives to Beneficially Use the Stamp Sands.
- Continue Looking for Aspects of the Project that Could be Done by the Non-Federal Sponsor.
- Develop a More Comprehensive Plan that Provides Immediate Benefits.
- Quantify Benefits Associated with Buffalo Reef.

Proposed Revetment

- Source Control – Eliminates the source of the contamination.
- Prevents 67,000 cy/year of material from being discharged into Lake Superior.
- Allows initiation of restoration activities. Provides a protected placement site for dredged material.



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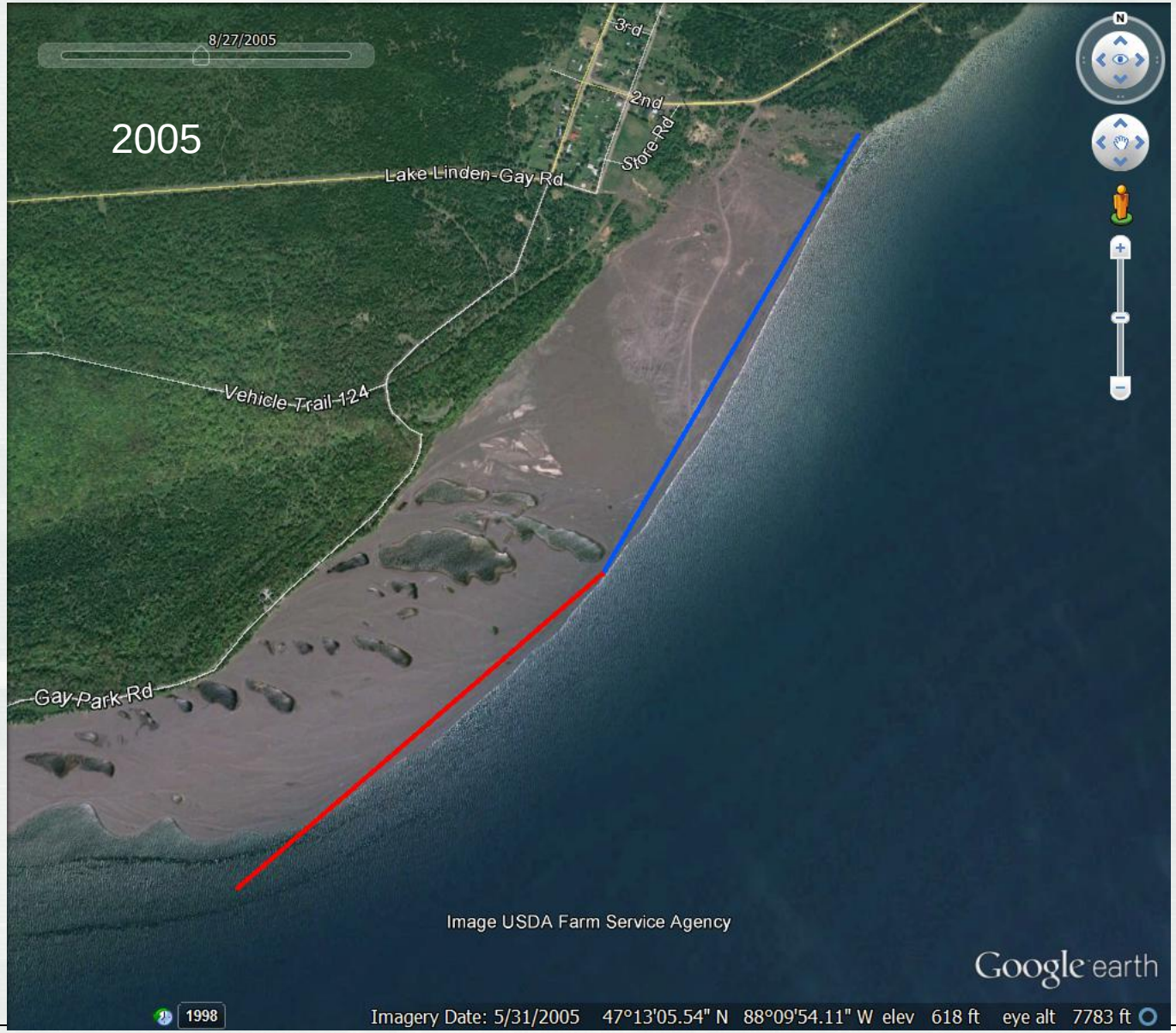

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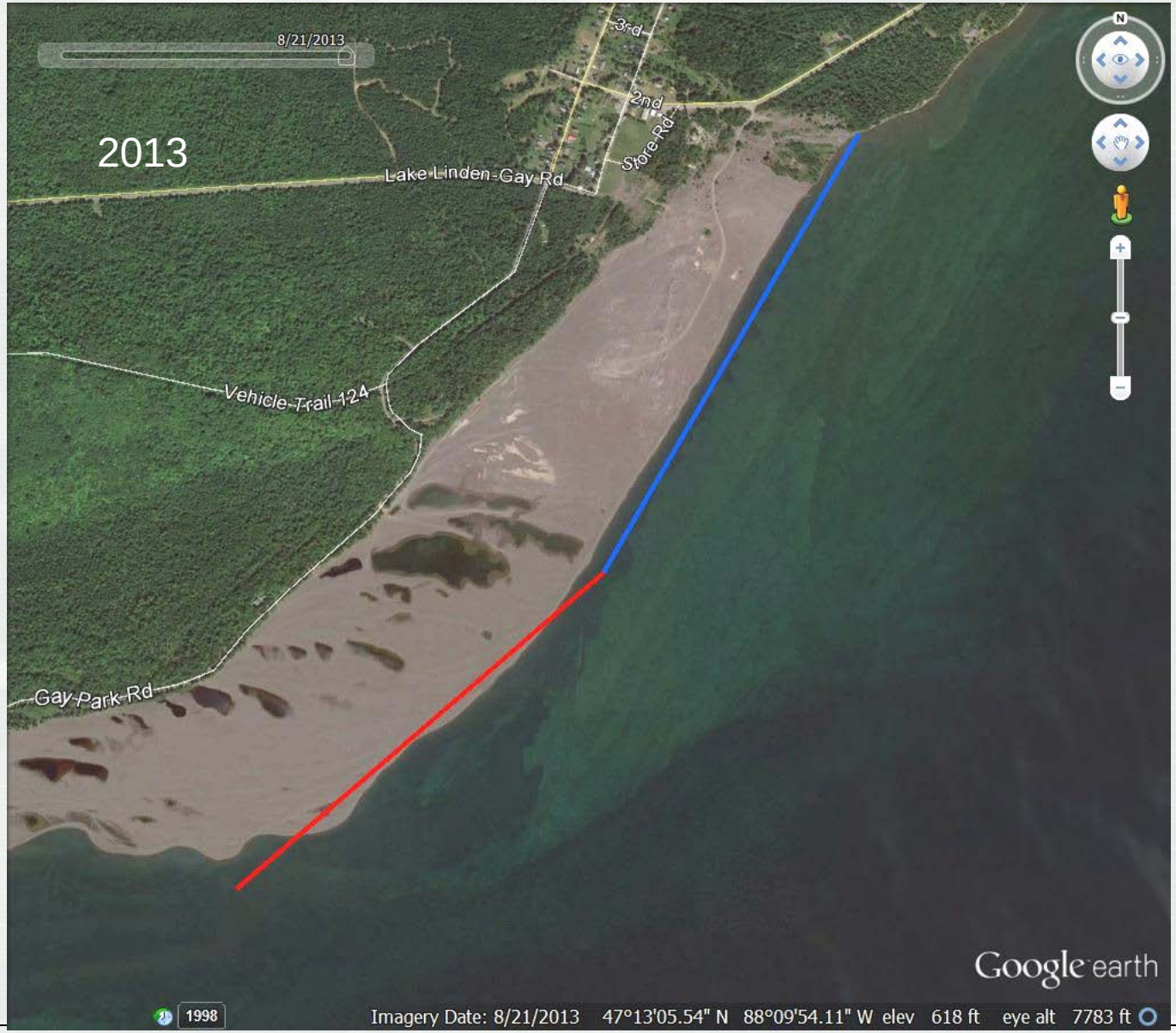
6/21/2011
2010
3rd
2nd
Store Rd
Lake Linden-Gay Rd
Vehicle Trail 124
Gay Park Rd
N
Image USDA Farm Service Agency
Google earth
1998
Imagery Date: 7/25/2010 47°13'05.54" N 88°09'54.11" W elev 618 ft eye alt 7783 ft



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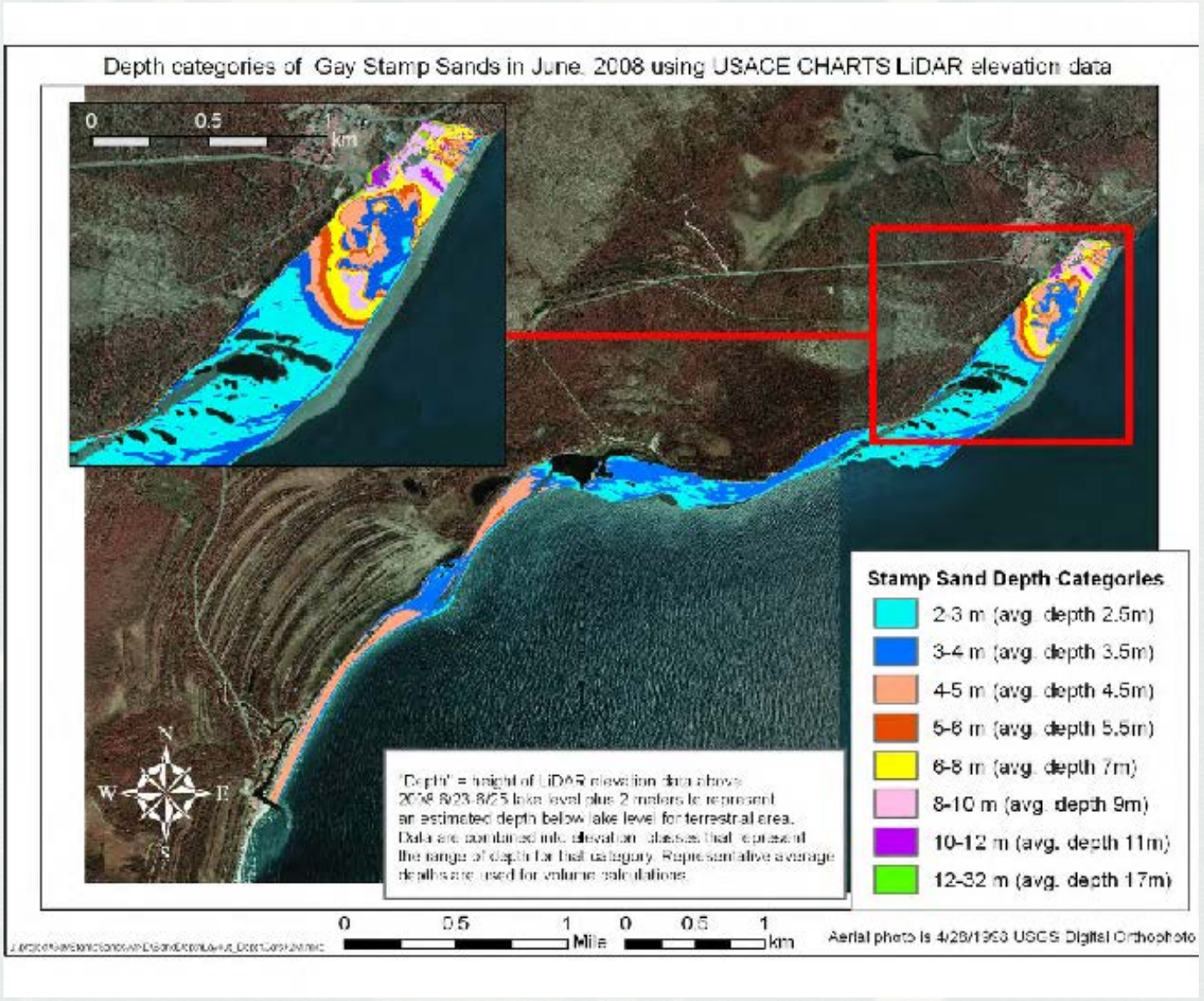

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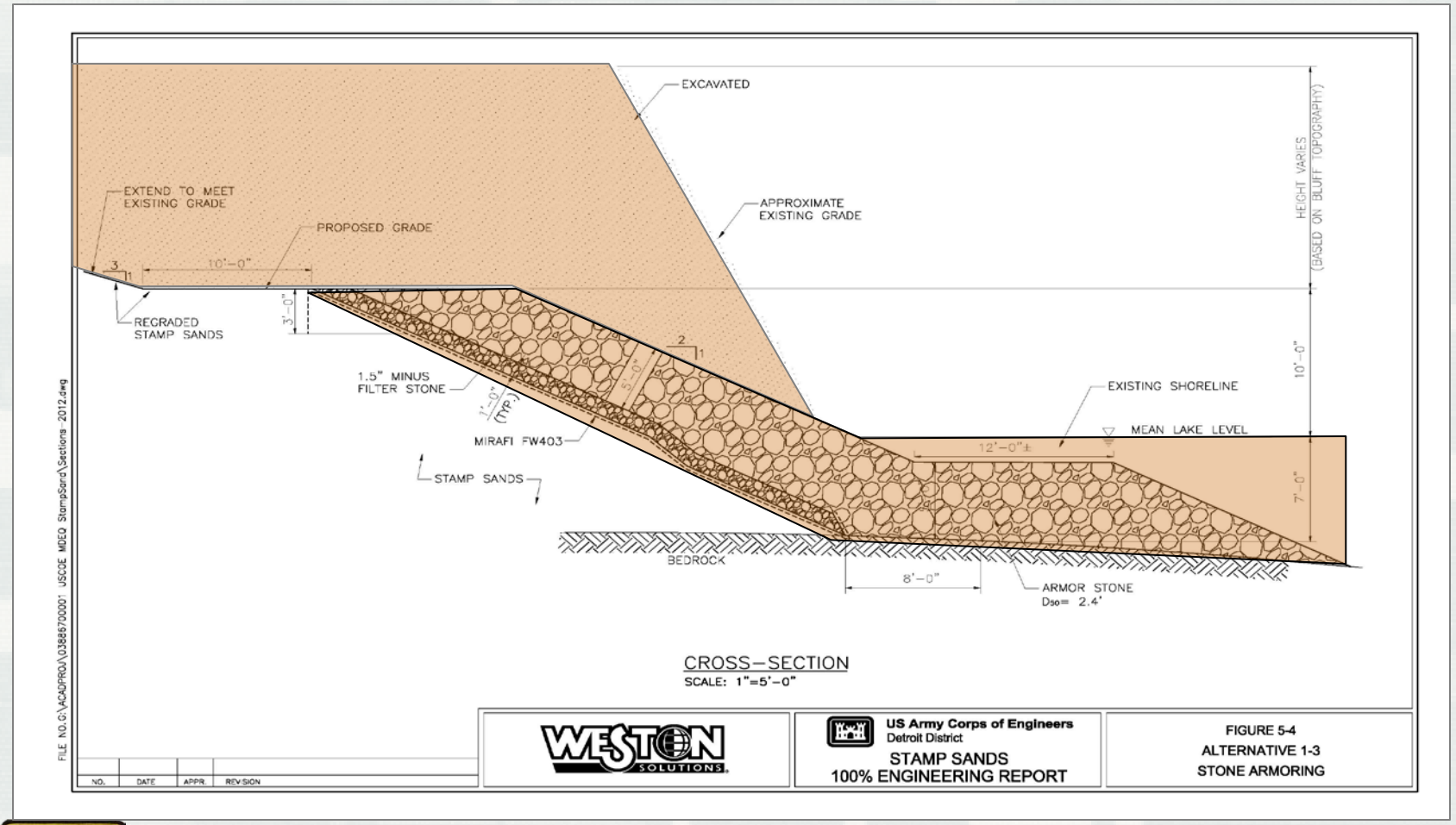
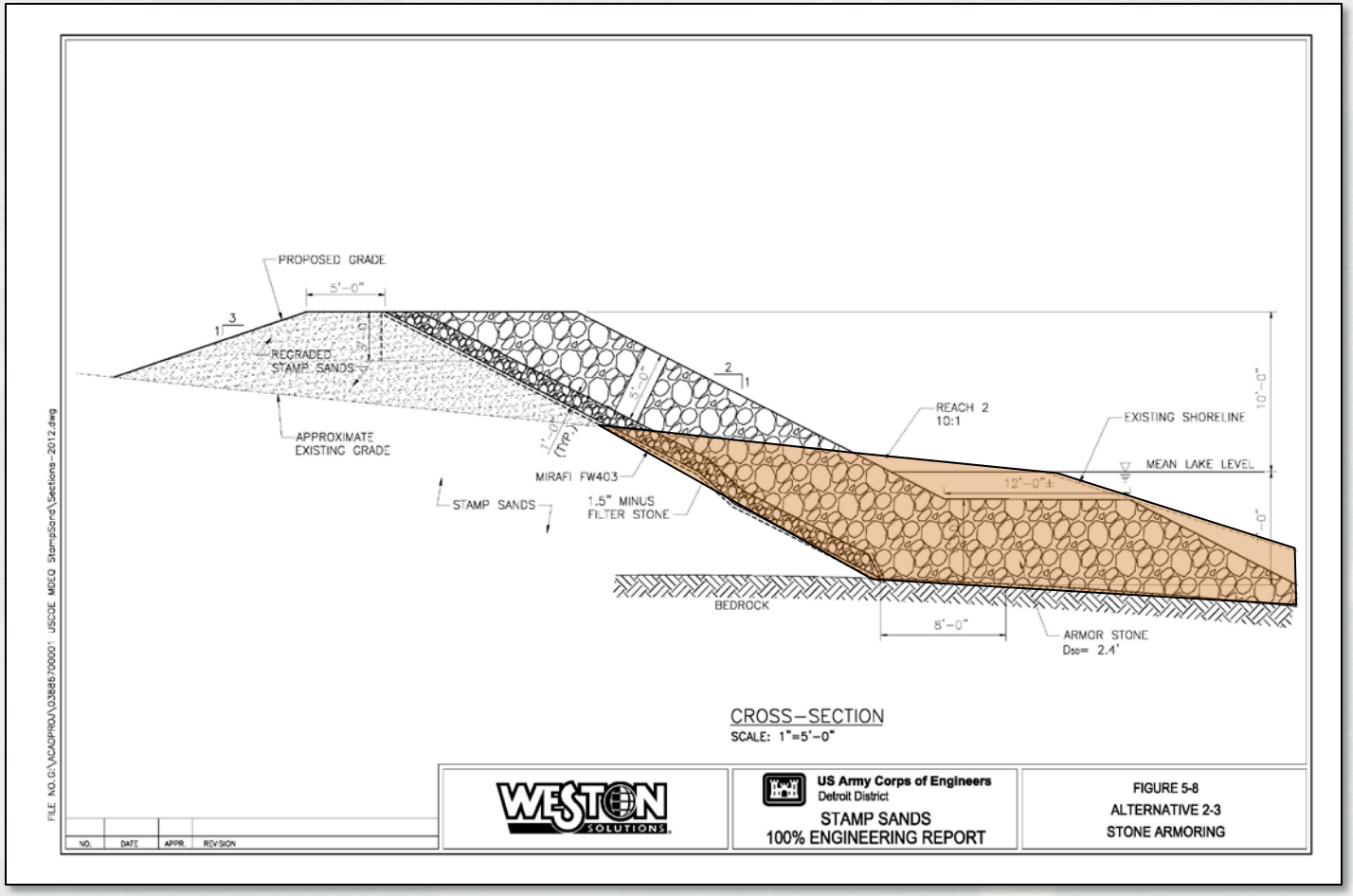
Reach 1


EXCAVATED
APPROXIMATE EXISTING GRADE
EXTEND TO MEET EXISTING GRADE
PROPOSED GRADE
REGRADED STAMP SANDS
1.5" MINUS FILTER STONE
MIRAFI FW403
STAMP SANDS
EXISTING SHORELINE
MEAN LAKE LEVEL
BEDROCK
ARMOR STONE
D50= 2.4'
HEIGHT VARIES (BASED ON BLUFF TOPOGRAPHY)
CROSS-SECTION
SCALE: 1"=5'-0"
US Army Corps of Engineers
Detroit District
STAMP SANDS
100% ENGINEERING REPORT
FIGURE 5-4
ALTERNATIVE 1-3
STONE ARMORING

Reach 2



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Leveraging Project Benefits

- Reduce Cost of Construction.
  - Low-cost Source of Stone.
  - Site earthwork by State and Partners
- Increase Project Environmental Benefits.
  - Add Dredging of Trough to Provide Immediate Benefits.
- Increase Project Economic Benefits.
  - Offloading site Provides Transfer Site for Economic Development.

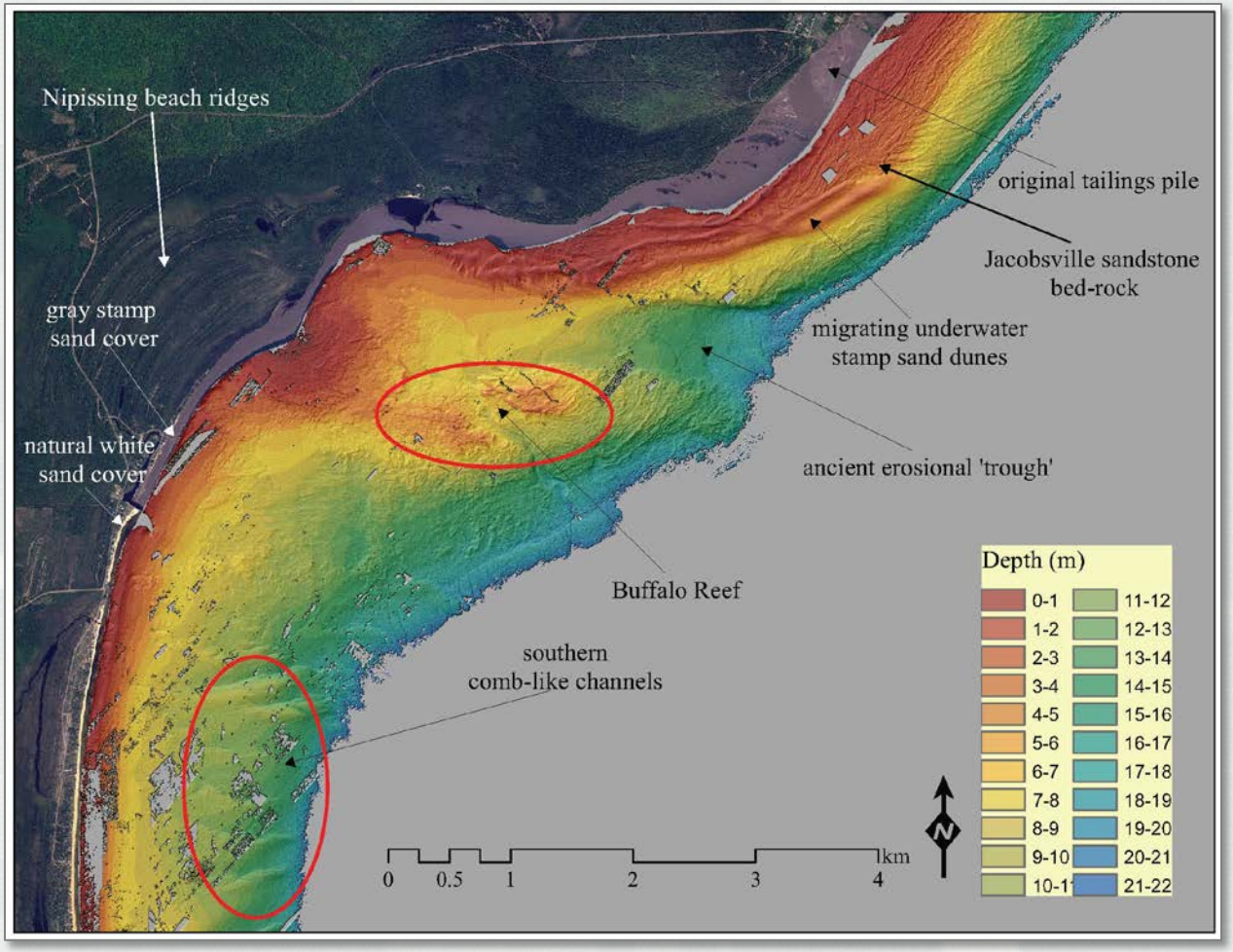
Transfer Area Provides:

- **Offloading Site for Marine Delivery of Stone.**
- **Offloading Site for Dredged Stamp Sands.**
- **Refuge for Dredging/ Construction Team.**
- Trap for Migrating Stamp Sands.
- Transfer Facility for Removal of Stamp Sands.

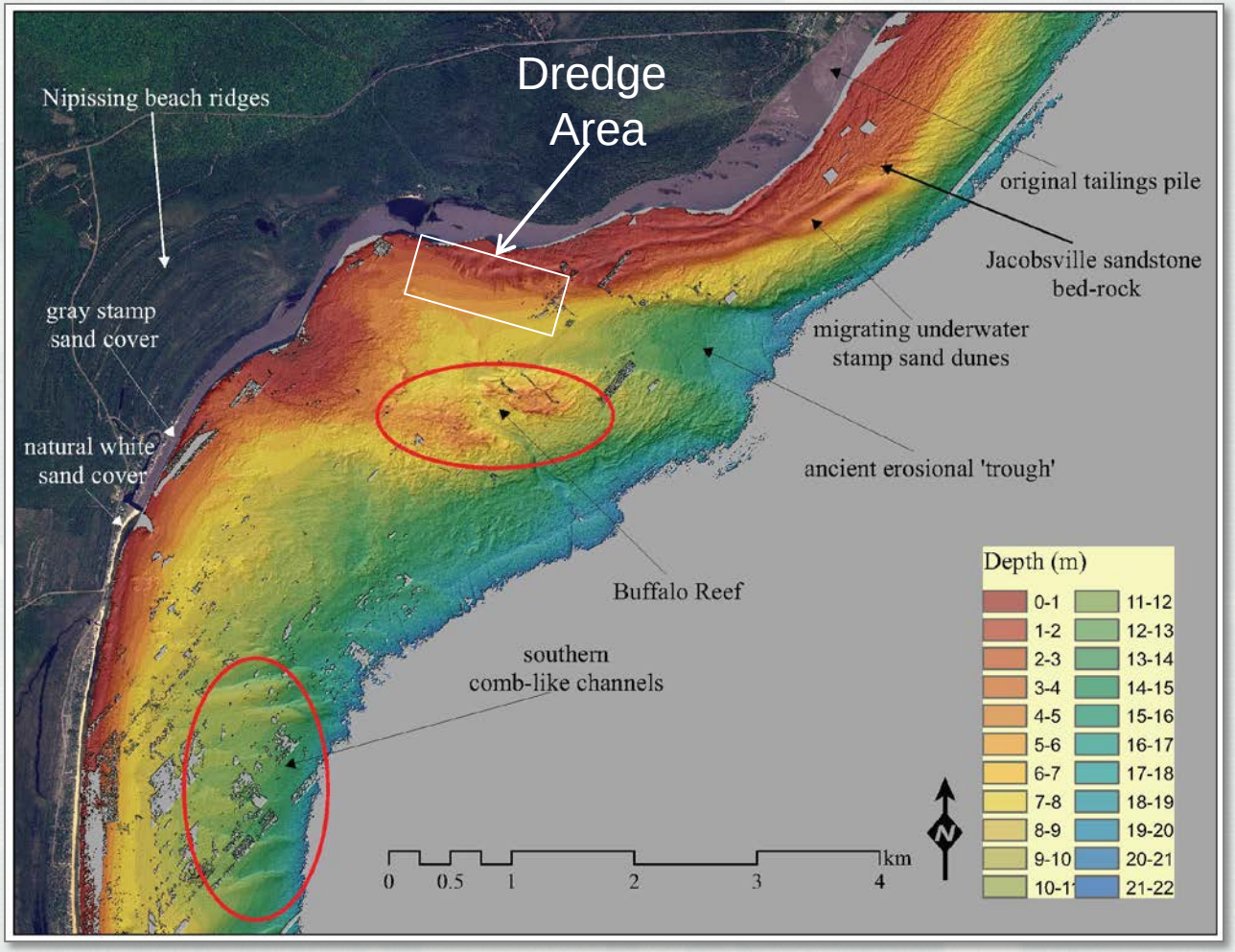
Project Alternatives

- Reach 1
- Reach 1+2
- Extend Reach 2 by 300 feet.
  - ► Important if marine equipment used and/or if dredging will be conducted.
- Construct off-loading platform
  - ► Important for mechanical offloading of dredged stamp sands.
  - ► Important for offloading of marine delivered stone.
- Above alternatives + Dredge 75,000 cy.

Stamp Sands Deposit Showing Trough



Stamp Sands Deposit Showing Proposed Dredging Area



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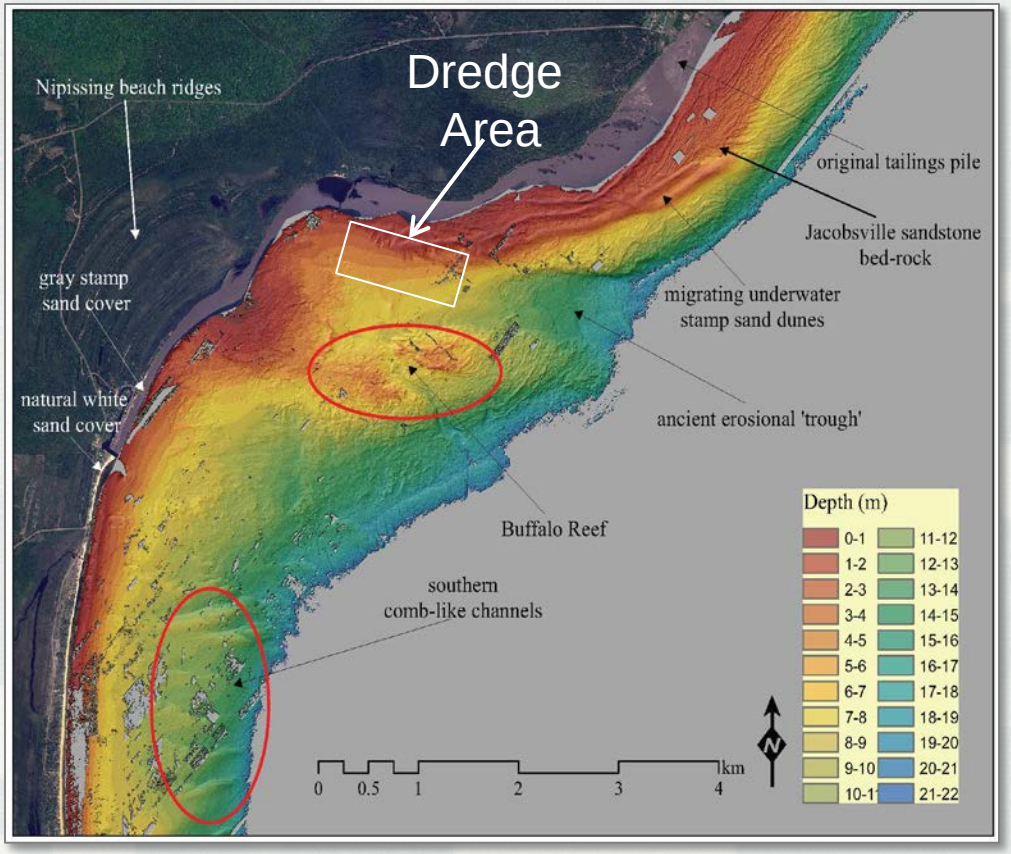
Dredging of the Trough

- 75,000 cubic yards of dredging each year would maintain the Trough at equilibrium.
- 250,000 cy of dredging would allow 3-5 year intervals.



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Dredging of the Trough

- Mechanical dredging would reduce water management issues.
- Govt. Furnished Disposal Area - Placement Behind the Revetment at Reach 2.
- Push up berms to drain stamp sands.
- Quantities would diminish over time.

On-site Stamp Sands Placement

- Push up On-site Stamp Sands to Create Temporary Berms.
- 100 acre Area Would Provide Ample Placement.
- Mechanical Dredging Would Minimize Water Handling.

Dredging Contracts

- Announced in *FedBizOpps*.
- Allow for a Govt.-Furnished Disposal Area or the Contractor May Propose a Contractor-Furnished Disposal Area.
- Contractor-Furnished Disposal Area May Be Proposed Before or After Contract Award.

Grand Traverse Harbor

A Role for the Corps of Engineers?

- Swale to Trap Blowing Stamp Sands.
- Snow Fence or Trees in Planters to Hold Back Blowing Stamp Sands.

		Reach 1	Reach 1+2	Reach1+2 +Trough	1+2+Trough Extension	1+2+Trough Off-Loading Area
Feasibility Costs						
Corps Sunk Costs (FY11-12)		$ 534,000	$ 534,000	$ 534,000	$ 534,000	$ 534,000
Corps Costs (FY13-14)	Estimated	$ 650,000	$ 650,000	$ 650,000	$ 650,000	$ 650,000
		$ 1,184,000	**$ 1,184,000**	**$ 1,184,000**	**$ 1,184,000**	**$ 1,184,000**
Estimated Construction Cost (Alternatives 1-3 and 2-3)		$3,492,000	$ 6,368,000	$ 6,368,000	$ 6,368,000	$ 6,368,000
Dredging Cost for Grand Traverse Harbor	Estimated					
Dredging Cost for Trough	Estimated			$ 750,000	$ 750,000	$ 750,000
Dredging Cost for Off-Loading Area	Estimated			$ 100,000	$ 100,000	$ 100,000
Stamp Sand De-watering Facility (Push-up Berms)	Estimated			$ 150,000	$ 150,000	$ 150,000
Reach 2 Extension	TBD					
Off-Loading Area	TBD					
Sub-Total		$ 4,676,000	$ 7,552,000	$ 8,552,000		
Inflation to FY15	7.5%	$ 351,000	$ 566,000	$ 641,000		
Contingency	20%	$ 935,000	$ 1,510,000	$ 1,710,000		
Sub-Total		$ 5,962,000	$ 9,628,000	$ 10,903,000		
Supervision & Administration During Construction	6.5%	$ 388,000	$ 626,000	$ 709,000		
Engineering & Design During Construction	2.0%	$ 119,000	$ 193,000	$ 218,000		
Estimated Construction Cost		**$ 6,469,000**	**$ 10,447,000**	**$ 11,830,000**		
Lands, Easements, Rights-of-Way	Estimated					
NFS Credit for Other Contributions (Audits, Coordination)	Estimated	$ 100,000	$ 100,000	$ 100,000		
Post-Construction Monitoring	1.0%	$ 65,000	$ 104,000	$ 118,000		
Total Project Cost		**$ 7,818,000**	**$ 11,835,000**	**$ 13,232,000**		

	Reach 1	Reach 1+2	Reach1+2 +Trough	1+2+Trough Extension	1+2+Trough Off-Loading Area
Total Project Cost	**$ 7,818,000**	**$ 11,835,000**	**$ 13,232,000**		
Total Federal Cost (65% of Project Cost)	$ 5,082,000	$ 7,693,000	$ 8,601,000		
Non Federal Share (35% of Project Cost)	$ 2,736,000	$ 4,142,000	$ 4,631,000		
Credit for Lands, Easements, Rights of Way					
Other Contributions (Audits, Coordination)	$ 100,000	$ 100,000	$ 100,000		
Total NFS Payment	$ 2,636,000	$ 4,042,000	$ 4,531,000		

Project Funding Issues

Great Lakes Restoration Initiative

- Federal Funding Limited to $10M by the GLFER Authority.
- Project is Cost-Shared 65% Federal/35%Non-Federal.
- Sponsor can be Provided Credit for Work-in-Kind Contributions.
- Sponsor can be Provided Credit for Providing Materials Integral to the Project.

Economy Act Project

- EPA negotiates a Project Agreement.
- Corps Becomes Agent for the EPA.
- Several Levels of Review are Eliminated.

Project Schedule

- Review Model Results. Evaluate Scenarios.
- Draft Environmental Document.
- Update Cost Estimate.
- Prepare Detailed Project Report (DPR) (December).
- Send DPR to Division Office for Review (3 mos.)
- HQ Review of DPR (3 mos.)
- Draft DPR Approval
- EPA Review of DPR.
- Environmental Assessment for Public Review (2 mos.)
- Final DPR Approval (3 mos.)
- Project Partnership Agreement. (5 mos.)
- Integral Determination Report (5 mos.).
- Develop Plans & Specifications (4 mos.).
- Construction Contract Advertise and Award (2 mos.).

Strike While the Copper is Hot!

- Project is a Continuing Source to Lake Superior. Modeling Effort Documents ‘With’ and ‘Without’ Project Conditions.
- MTU has Documented the Impacts of the Stamp Sands on the Beach and the Buffalo Reef.
- Filling of the Trough Makes Action More Critical.
- Private Enterprise Prepared to Remove Stamp Sands from the Beach near the Coal Dock.
- Private Enterprise Prepared to Process Stamp Sands at the Original Deposit. [Needs Sufficient Material to Make Business Case] .
- State Prepared to Dredge Grand Traverse Harbor.
- Project Plan Supports Continued Economic Development of Stamp Sands.