

## **Quarterly Report** *(All fields required)*

**Date:** January 15, 2018

**Project Title:** Barker's Island Beach Restoration Project

**Grant Recipient:** City of Superior: Parks, Recreation and Forestry

**Report Prepared by:** AMI Consulting Engineers, PA

**Time period covered for this report:** 2017 – Q4  
(year and quarter, ex: 2015-Q2)

**Activities completed/work accomplished this quarter:**

(For example: events held, description and outcomes including number of people, attending, amount of material collected at beach cleanup, etc. Include electronic copies of any materials developed using CAC support funds (including printed brochures and event announcements), number of meetings held, number of samples collected, lab results, progress made on deliverables)

Prior to preparing designs for the Barker's Island Beach Restoration Project, AMI collected data for an elevation survey and stormwater in addition to ten soil/sand samples for gradation analysis.

AMI assessed reports, data, and received public input to prepare conceptual and 30% design plans to restore Barker's Island Inner Beach and recreation area. AMI prepared three conceptual designs for review (see attached plans).

Barker's Island Inner Beach Restoration Kick Off Stakeholders Meeting was held at the City of Superior Parks, Recreation and Forestry Department on Friday, November 3, 2017; 10:00 AM to 11:30 AM to get input from stakeholders on their ideas to help reach goals associated with the restoration project (see attached notes).

Wetland boundaries were located and flagged and AMI surveyed the boundaries. AMI presented three conceptual designs by 11-27-17 for consideration. Conceptual design included grade changes, parking, vegetation, and size and placement of design features. The City of Superior Parks, Recreation and Forestry Department received input from City Commissioners that preferred Option 2 for the Beach Restoration Project. A stakeholder meeting was held on December 11<sup>th</sup>, 2017 that concurred with the Option 2 Conceptual design. (see attached notes) AMI presented a bathymetric map of the estuary from EPA survey data that stakeholders reviewed for options on locating the fishing pier for best locations for fishing depths and located where it would have less impact on the beach area (see attached map).

The City of Superior Parks, Recreation and Forestry Department received input from City Commissioners and Rotary regarding the plan and the upcoming Lake Superior Dragon Boat Festival scheduled for the end of August 2018.

AMI developed a 30% plan on December 21<sup>st</sup>, 2017 and a beach rendering on December 28<sup>th</sup>, 2017 that included locations of the beaches, fishing pier, buffer strips, infiltration swales, rain gardens, paths, boardwalks, parking areas and access routes (see attached plans). AMI scheduled a stakeholder meeting on Thursday, January 18<sup>th</sup>, 2018 at 1 PM at the Superior Park's Department office. A public meeting for the Barker's Island Beach Restoration Project is scheduled for Wednesday, January 24<sup>th</sup>, 2018, from 5 – 7:00 PM at the Lake Superior Estuarium on Barkers Island, 3 Marina Drive, Superior, WI.

**Budget:**

Amount of the funds expended to date-- this can be approximate if an invoice is not yet available

The City of Superior Parks, Recreation and Forestry Department was invoiced by AMI for \$22,624.11 on December 18, 2017.

Subcontracts or subgrants awarded this reporting period: None

QAPP (project plan) Status: N/A during this reporting period

Local services and/or products purchased this reporting period: Soil / beach sand samples collected by AMI were evaluated for gradations by Twin Ports Testing Company.

Number of jobs created this reporting period: AMI had nine employees working on the project during the reporting period (no new employment).

**Schedule:**

Is the project on track for completion by end date?

Yes. The project started on time in mid-October and AMI conducted surveys of the project area. The 30% plan has been completed on schedule and Stakeholder meetings were held for input and future meetings will be scheduled for further input. The project is on schedule and cost estimates are planned to be submitted by the mid-February 2018 due date.

**Grant End Date:**

The restoration is anticipated to be completed during the 2018 construction season. A ten-year monitoring and maintenance plan for the restored beach area will be developed separately after the final restoration design is complete by the University of Wisconsin, Superior. This will be contracted directly through WDNR.

**Problems / Issues:**

Note any issues or concerns for completing project on time or within budget; problems encountered; other concerns.

No problems are foreseen at this time.

**Activities and work goals planned for next quarter:**

AMI and the City of Superior Parks, Recreation and Forestry Department have scheduled a stakeholder meeting on Thursday, January 18<sup>th</sup> at 1 PM at the Superior Park's Department office. A public meeting for the Barker's Island Beach Restoration Project is scheduled for Wednesday, January 24<sup>th</sup>, 2018, from 5 – 7:00 PM at the Lake Superior Estuarium on Barkers Island, 3 Marina Drive, Superior, WI.

Preliminary Design, including construction cost estimate, design feature information, and map is scheduled to be submitted to City of Superior by February 15, 2018.



PRELIMINARY  
 NOT FOR CONSTRUCTION

REV. BY:	
DESCRIPTION	
REV.:	
DATE:	

DATE:	
REV.:	
DESCRIPTION	
REV. BY:	

BARKERS ISLAND BEACH RESTORATION	
BARKERS ISLAND SUPERIOR, WI	SITE PLAN OPTION 1

JOB No: 171276  
 DATE: 11/13/2017  
 DRAWN BY: AJP  
 DESIGNED BY: ECR

SHEET:  
**C2.1**



PRELIMINARY  
 NOT FOR CONSTRUCTION

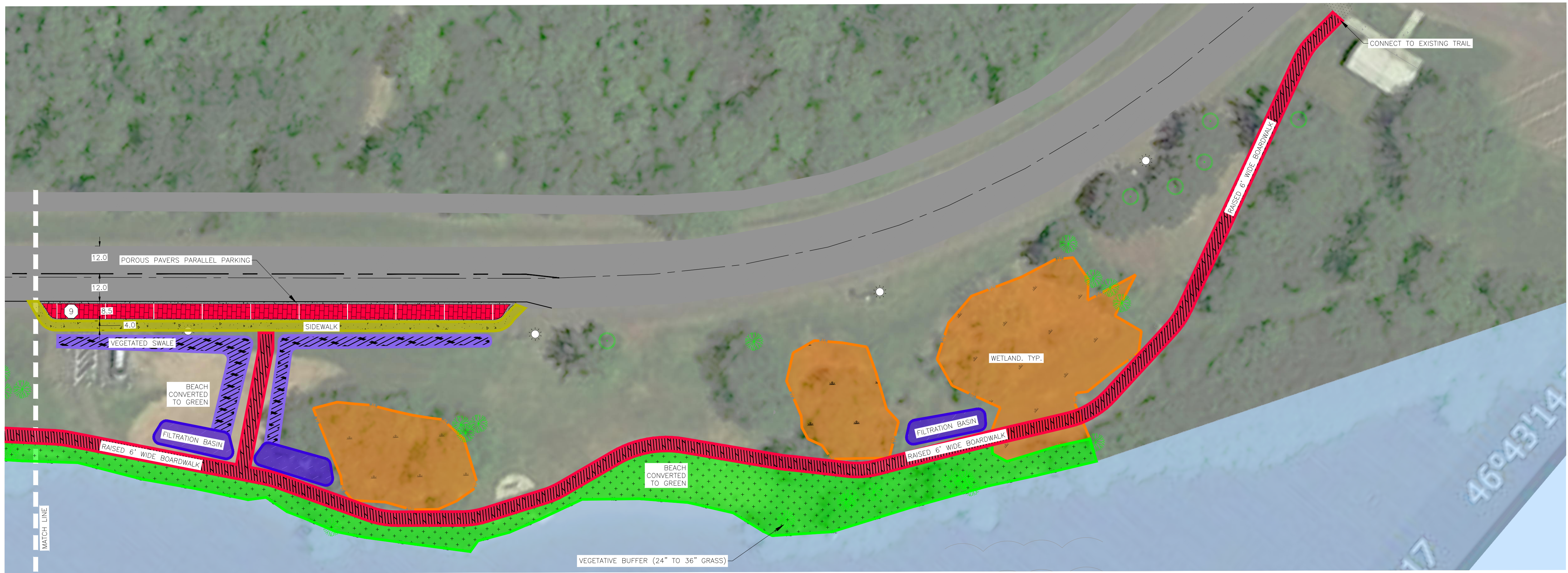
REV. BY:	DESCRIPTION:	DATE:	REV.:

DATE:	DESCRIPTION:	REV.:

BARKERS ISLAND BEACH RESTORATION	
BARKERS ISLAND SUPERIOR, WI	SITE PLAN OPTION 2

JOB No: 171276  
 DATE: 11/13/2017  
 DRAWN BY: AJP  
 DESIGNED BY: ECR

SHEET:  
**C2.2**



I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.  
 NAME: \_\_\_\_\_  
 SIGNATURE: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
**NOT FOR CONSTRUCTION**

REV. BY:	DESCRIPTION	DATE:	REV.:

**BARKERS ISLAND BEACH RESTORATION**  
 BARKERS ISLAND  
 SUPERIOR, WI  
 SITE PLAN  
 OPTION 3

JOB No: 171276  
 DATE: 11/13/2017  
 DRAWN BY: AJP  
 DESIGNED BY: ECR

SHEET:  
**C2.3**



Consulting Engineers P.A.

BARKER’S ISLAND INNER BEACH RESTORATION -

KICK OFF STAKEHOLDERS’ MEETING AGENDA

LOCATION: 1316 North 14th Street, Room 217, | Superior, WI

DATE & TIME: Friday, November 3, 2017 | 10:00 AM to 11:30 AM

INTRODUCTIONS

Karl Everett	AMI Consulting Engineers	<a href="mailto:karl.everett@amiengineers.com">karl.everett@amiengineers.com</a>	715.718.5647
Ted Smith	AMI Consulting Engineers	<a href="mailto:ted.smith@amiengineers.com">ted.smith@amiengineers.com</a>	715.296.3905
Eli Rupnow	AMI Consulting Engineers	<a href="mailto:eli.rupnow@amiengineers.com">eli.rupnow@amiengineers.com</a>	651.428.7265
Allen Best	ESDPW - COS	<a href="mailto:besta@ci.superior.wi.us">besta@ci.superior.wi.us</a>	715.817.8795
Kristy DeVera	ESDPW - COS	<a href="mailto:deverak@ci.superior.wi.us">deverak@ci.superior.wi.us</a>	715.969.8150
Kelsey Prihoda	LSRI - UWS	<a href="mailto:kprihoda@uwsuper.edu">kprihoda@uwsuper.edu</a>	715.394.8422
Heidi Saillard	LSRI - UWS	<a href="mailto:hsaillar@uwsuper.edu">hsaillar@uwsuper.edu</a>	715.394.8276
Matt Steiger	WDNR	<a href="mailto:matthew.steiger@wisconsin.gov">matthew.steiger@wisconsin.gov</a>	715.395.6904
Donalea Dinsmore	WDNR		
Steve LaValley	WDNR	<a href="mailto:steve.lavalley@wisconsin.gov">steve.lavalley@wisconsin.gov</a>	715.392.0803
Linda Cadotte	Parks, Recreation, and Forestry	<a href="mailto:cadottel@ci.superior.wi.us">cadottel@ci.superior.wi.us</a>	218.348.7315
Tessah Behlings	Douglas County Health	<a href="mailto:tessah.behlings@douglascountywi.org">tessah.behlings@douglascountywi.org</a>	715.395.1490

PURPOSE

Restoration of the beach and recreational area is needed to mitigate potential E. Coli sources and contribute to beneficial use impairment (BUI) removal.

[Discussed beneficial use, sources of impairment, Great Lakes Initiative, ten-year maintenance plan. Goal to mitigate beach closings.](#)

PROJECT OVERVIEW

Review existing conditions survey of entire site  
Stakeholders provide any additional data sources for utilities etc.

[Reviewed existing plan layout and elevations](#)

[Would like technical input on design concepts](#)

Stakeholder Input/Guidance on Big Picture (Is current allotment sufficient or excessive?)

[Linda discussed the intended use of the beach would need input from the public](#)

10 Parking Stalls

[Pervious design, not too many handy capped, discussed diagonal and parallel parking options. Number determined by how many fit the design.](#)

2 Walking Trail Connections (East & West Project Extents)

[Would like to connect to bike trail on East & West Project Extents](#)



Consulting Engineers P.A.

Mentioned future planned loop around the park.

Trail Width – Currently 6'

Would like trail width to match current Wisconsin point boardwalk for ease of maintenance repairs and replacements.

Trail Surface –Bituminous & Plastic Currently

Discussed replacing existing asphalt walkway with a permeable boardwalk.

Raised boardwalk over wet areas like Wisconsin Point.

Any Maintenance Issues/Input Regarding Current?

Trash Pickup, Snow Plowing, Sweeping etc.

Receptacle Locations vs. Generation Locations

Trail Usage / Focal Points / Destinations

Walking Path Along Water

Would like bike path in current location along the high ground north of the road and a raised walking path along the water. Match the design similar to Wisconsin point boardwalk.

Picnics – Half Circle Design Aesthetics?

Benches

Sand / Beach Areas

Linda discussed the intended use of the beach would need input from the public. Discussed several possible options for moving the beach to the central area or west area. Circulation of the water was discussed.

Beach sand brought was in from offsite. Discussed replacing with coarse sand. Chapter 30 Permitting required if placed in water below OHWM.

Approval of In-water sand blanket will be very difficult.

Dock

Discussed options for moving the fishing pier down current of the beach. Along the causeway. Said optimum +6-foot depth for best fishing. Seagulls roosting on railing.

Trees / Hammocks

Plants / Birds (upland)

Long range plan for Wildlife management – we know the birds will be there.

Wayfinding / Place signage

Water Level Design Elevation Range for Vegetation & Waterfowl

Current issues with waterfowl droppings on the walking path and controlling the number of geese.

Concrete curbing, similar to a seawall along the water's edge would require permitting and may not be allowed.

Using vegetation to control waterfowl access

Public has issues with tall vegetation. Buckthorn has been subject to removal.

Kristy said you only need two or three-foot vegetation to discourage geese and waterfowl.





Consulting Engineers P.A.

#### Wet Areas

Would need to consider environmental permitting for wetland areas and indicated that it is too late in the season to map the wetlands, but that they could provide a LIDAR survey and flag the perimeters of wetlands this week.

Environmental Permitting and Wetland Considerations.

Must consider wetland issues and plan to flag wetland boundaries

Potential BMP Discussion

Sand Re-gradation

Waterfowl Deterrents

Discussed ineffective dog decoy silhouettes. Suggested using moving decoys to discourage waterfowl. Talked about options to use real trained dogs on a regular two days per week schedule. Some thought that the geese on grassy area along the entrance to Barker's Island has potential impact on the beach.

Shoreline / Upland Vegetation

Discussed options for wetland sedge meadows. Mosquito problems with wet areas were discussed including dragonfly habit and Boy scout bat or bird house projects.

Shoreline Grade Change

Public Information / Signage

Signs alerting the public to not feed wildlife are posted at each end of the walking path. AMI proposal suggested more signage where people are feeding the waterfowl.

Pet Stations

Some pet stations are located over near the Meteor; AMI suggested consideration for additional stations near the beach area along the walkway.

Stormwater Infiltration / Filtration

Discussed wet area infiltration ponds, rain gardens and coarser beach sand to improved infiltration.

Stormwater Runoff Reduction

Discussed controlling SW management off the roadway.

Reduce Impervious

Parking areas and walkway design to be more pervious.

Amend Soil

Pervious Hard Surfaces (wood plank, wood chip, pavement)

Would like wood plank walkway like Wisconsin Point design.

Water Circulation

Discussed poor water circulation along the beach area

Kristy's experience indicated that Solarbees have been successfully used within ww/sw stabilization ponds.

Potential for waterfowl roosting

Water circulation devices may need permitting.

New causeway is expected in two years may improve/affect water circulation

Mentioned paddleboard access through the causeway.

Detailed Area Review – Four Plan Sheets



Consulting Engineers P.A.

[Ami Provided Plan sheets for review.](#)

Briefly discuss each area specifically and brainstorm ideas from all

Trees – Preserve or Remove

[Would like to preserve major trees](#)

Potential BMPs / Signage etc.

[Grassy swale stormwater BMPs shouldn't obstruct peoples access.](#)

Potential Functional Improvements

Tall Vegetation vs Wall or Raised Trail

[Wall design would need to consider changing water level. Wall at water's edge would need permitting as a seawall, but would be acceptable away from the water.](#)

[The public would have issues with very tall vegetation. Vegetation 24 to 36-inch height would help deter geese at the shoreline.](#)

Sand Areas Utilized or Better Converted to Turf/Natives

[Discussed options for moving or consolidating beach areas.](#)

SCHEDULE/NEXT STEPS

30% Plan Submittal Date:

30% Plan Review Meeting Date:



Consulting Engineers P.A.

BARKER’S ISLAND INNER BEACH RESTORATION -

STAKEHOLDERS’ MEETING MINUTES

LOCATION: 1316 North 14th Street, Room 217, | Superior, WI

DATE & TIME: Monday, December 11, 2017 | 2:00 PM to 3:30 PM

INTRODUCTIONS

Karl Everett	AMI Consulting Engineers	<a href="mailto:karl.everett@amiengineers.com">karl.everett@amiengineers.com</a>	715.718.5647
Eli Rupnow	AMI Consulting Engineers	<a href="mailto:eli.rupnow@amiengineers.com">eli.rupnow@amiengineers.com</a>	651.428.7265
A.J. PirkI	AMI Consulting Engineers	<a href="mailto:anthony.pirkI@amiengineers.com">anthony.pirkI@amiengineers.com</a>	218.434.0394
Allen Best	ESDPW - COS	<a href="mailto:besta@ci.superior.wi.us">besta@ci.superior.wi.us</a>	715.817.8795
Kristy DeVera	ESDPW - COS	<a href="mailto:deverak@ci.superior.wi.us">deverak@ci.superior.wi.us</a>	715.969.8150
Kelsey Prihoda	LSRI - UWS	<a href="mailto:kprihoda@uwsuper.edu">kprihoda@uwsuper.edu</a>	715.394.8422
Matt Steiger	WDNR	<a href="mailto:matthew.steiger@wisconsin.gov">matthew.steiger@wisconsin.gov</a>	715.395.6904
Steve LaValley	WDNR	<a href="mailto:steve.lavalley@wisconsin.gov">steve.lavalley@wisconsin.gov</a>	715.392.0803
Linda Cadotte	Parks, Recreation, and Forestry	<a href="mailto:cadottel@ci.superior.wi.us">cadottel@ci.superior.wi.us</a>	218.348.7315

PURPOSE

Restoration of the beach and recreational area is needed to mitigate potential E. Coli sources and contribute to beneficial use impairment (BUI) removal.

Discussed conceptual plans. Linda stated that the City Park Board meeting recommended the plan option depicted on map C2.2. The stakeholders in attendance were also in favor of that plan approach.

Wetland Areas

Linda discussed wetland areas and increasing the hydrology as feasible to utilize as filtration basins is an acceptable practice. Talked about wetland restoration and improving the quality of the wetland plant species. The desire is to maximize the quality plants and minimize the cattails and water areas to avoid mosquito problems. Noted that trees in the wetland areas will eventually die if the water level remains at the current high level for an extended duration. Steve said that posts or helicals for the boardwalk are not considered wetland fill and do not require wetland permitting. No wetland permit is required for the east end boardwalk where there is currently a plastic boardwalk as previous wetland fill permit was granted at this location.

Trees

Discussed landscaping designs for planting tree species suitable for the wet areas. Avoid planting maples because the City has a high percentage of



Consulting Engineers P.A.

maples already. Linda would like to preserve larger trees and would like planting native species. White pines were suggested for uplands. Cedars would need to be protected from deer browsing. White oak or burr oak were mentioned, and acorn issues were discussed. Suggested native trees/shrubs with berries that have wildlife value.

It was also requested that trees/shrubs be planted on the west end of the project where the trail is being removed to direct/guide human traffic in these areas.

#### Vegetated Buffers

Vegetated buffers shown on the plan along shoreline will be used to discourage waterfowl. Kristy mentioned eliminating the vegetated swales along the west shoreline and widening the shoreline grass area. Matt suggested a wide buffer to help eliminate issues associated with high water. We discussed planting a mixture of grasses and small native trees/shrubs, many of which had challenges/drawbacks such as: block the water view, height greater than 36", establishment challenges, monoculture, etc. Species such as willow (sandbar), red osier dogwood, serviceberry, cordgrass and spirea were discussed. Linda mentioned treating the areas to minimize buckthorn, not planting grass species that have maintenance issues or aggressively take over areas, and one- or two-year warranty for plant success to be added to construction specifications.

#### Beach Areas

Stakeholders generally were in favor of the proposed location and size of the beach area on plan C2.2. Coarse, dry sand beach was recommended with frequent beach grooming maintenance required. Discussed options for a retaining wall along the beach to discourage waterfowl. Beach drop-off limit was suggested that it should be roped off and marked at the six-foot or shallower depth. Linda had concerns about the nature of the sediment materials underwater and depth of the water in the swimming area and whether any dredging or filling would be required. Matt mentioned J. Austin UMD hydrologic model to review flow gradients in the area. Steve had suggested pulling the sand away from the shoreline in the fall to prevent sand from moving into the water as part of the ice movements.

Also discussed adding some vegetated areas to limit waterfowl movement through the beach past the proposed boardwalk location. Specific boardwalk accesses, possibly with steps to beach area should be identified on the plans.

#### Fishing Pier

Linda thought it would be best to locate it to the east and did not want it along the causeway because of the future causeway construction project. AMI will provide a map depicting the bathymetric data for the location of the fishing pier. Matt had indicated that it was recommended that six foot minimum for fishing depth.

#### Grass Active Play Area

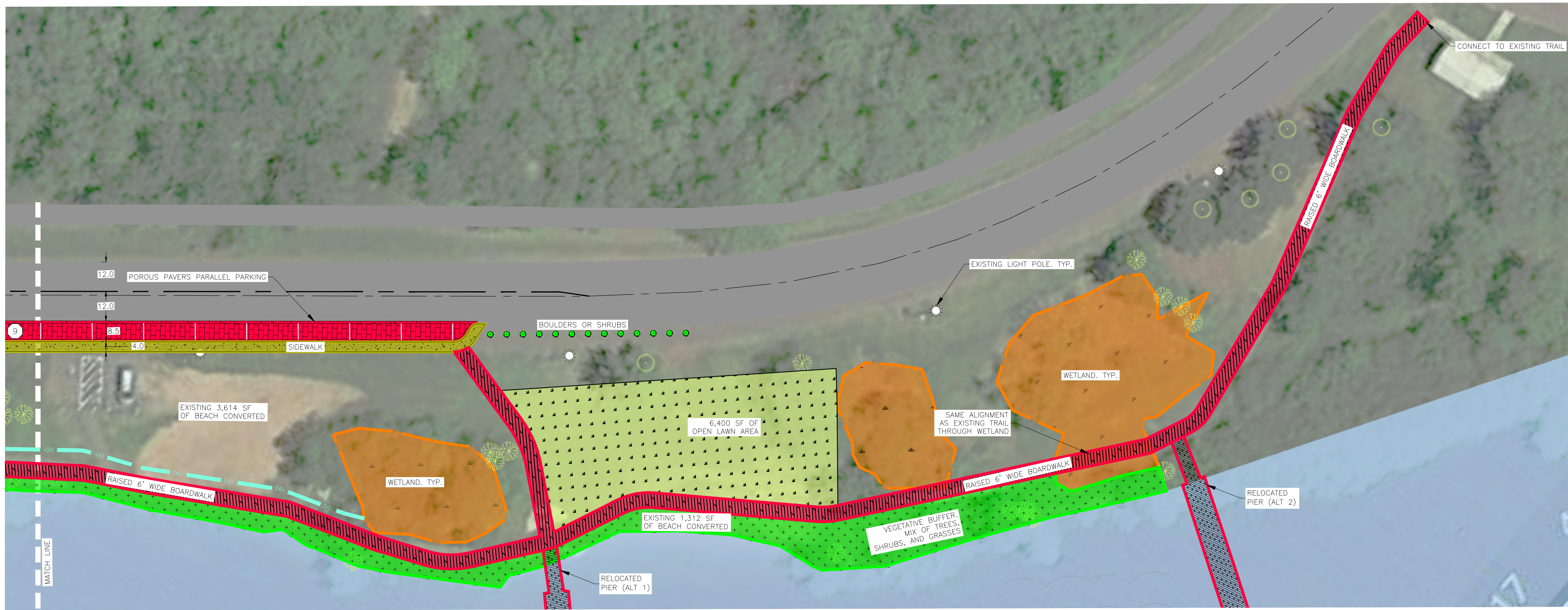
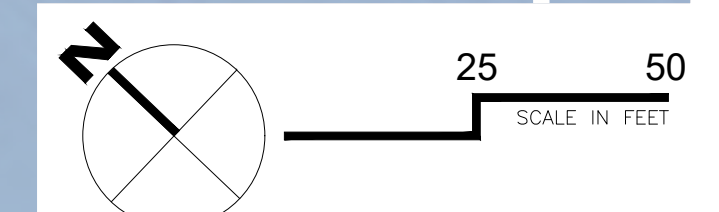
Would like level grassy play area on the east side for playing soccer or similar activities.

#### Parking Areas

Discussed pervious pavement. Suggested path on the east side to connect pier/path to the parking area. Plans will show boulders or small shrubs on both the east and west sides of the parallel parking to protect against parking in these areas, while maintaining visibility for traffic.

#### Next Steps

Linda will discuss with Rotary items associated with the Dragon Boat festival. Next Stakeholder meeting scheduled for Thursday, January 18<sup>th</sup> at 1 PM. Updated concept plan to be provided by AMI to Linda by January 2<sup>nd</sup> or before. 30% plans to be completed for February 15<sup>th</sup> per project timeline. Matt indicated that he needs a cost estimate the first week of February. Linda to provide the unit costs for the boardwalk and porous pavers from the Wisconsin Point bid tab. 95% construction design, specifications and cost estimates for a biddable document, by April 20, 2018.



**CIVIL SITE LEGEND:**

	EXISTING WETLAND
	POROUS PAVERS
	BOARDWALK
	SIDEWALK
	RESTORED/NEW GRANULAR BEACH
	VEGETATIVE BUFFER
	OPEN LAWN AREA
	SHRUB
	TREE
	PICNIC TABLE
	VEGETATED SWALE
	EXISTING LIGHT POLE
	EXISTING TREES

11,367 SF OF EXISTING SAND BEACH AREA  
10,822 SF OF PROPOSED SAND BEACH AREA

PRELIMINARY  
NOT FOR CONSTRUCTION

REV. BY:	DESCRIPTION:

REV. BY:	DESCRIPTION:

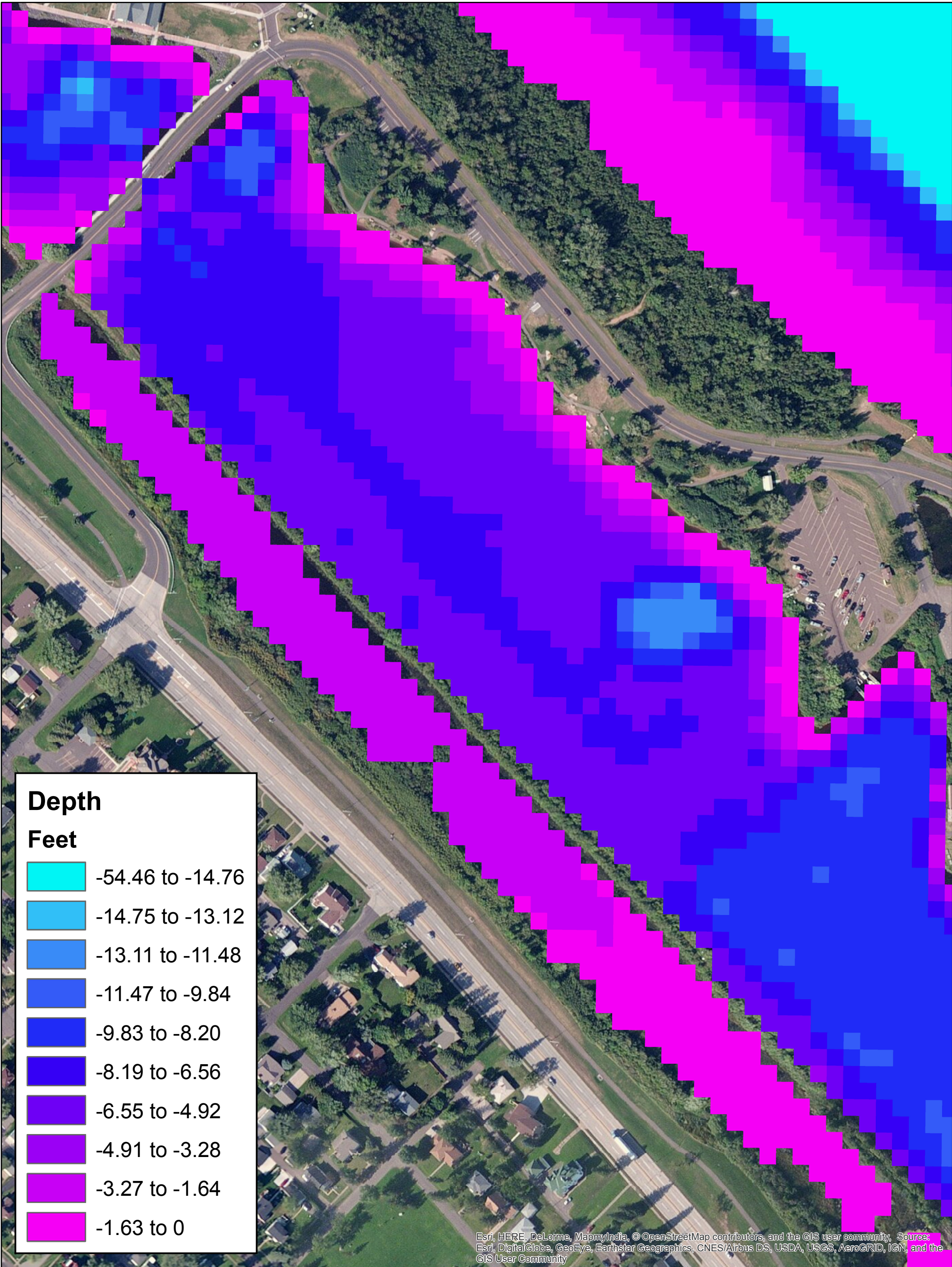
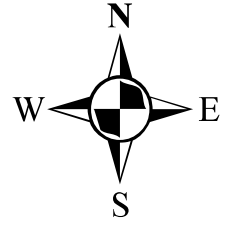
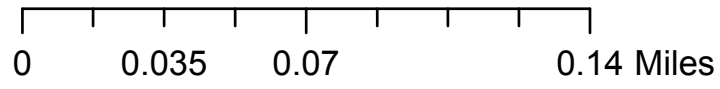
DATE:	

BARKERS ISLAND BEACH RESTORATION	
BARKERS ISLAND SUPERIOR, WI	SITE PLAN 30% LAYOUT
JOB No: 171276	DATE: 12/20/2017
DRAWN BY: AJP	DESIGNED BY: ECR
SHEET:	
<b>C2.2</b>	

# Barker's Island Bathymetric Survey




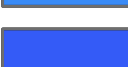








Consulting Engineers P.A.



## Depth

### Feet

	-54.46 to -14.76
	-14.75 to -13.12
	-13.11 to -11.48
	-11.47 to -9.84
	-9.83 to -8.20
	-8.19 to -6.56
	-6.55 to -4.92
	-4.91 to -3.28
	-3.27 to -1.64
	-1.63 to 0

