Shabica & Associates, Inc.

Ms. Kathy Chernich
East Section Chief, Regulatory Branch
Chicago District
U.S. Army Corps of Engineers
231 S. LaSalle Street, Suite 1500
Chicago, IL 60604

Dear Ms. Chernich:

February 24, 2022

Please find enclosed a permit application for shore protection and sand nourishment for the Elder Lane Park and Centennial Park Shoreline Stabilization Project located at 225 - 299 Sheridan Road, Winnetka, Illinois 60093, owned by the Winnetka Park District. The beach at Elder/Centennial is currently in an erosive state and needs updating to its infrastructure to provide a stable more sustainable shoreline amenity for the public. The project design is in-line with the Park District's recently completed *Winnetka Waterfront 2030 Master Plan* (WW 2030).

A *Design of Shoreline Erosion Protection* report has been attached to this cover letter as the coastal design specifications component of this permit. All references and figures referred to in the cover letter and the following report can be found in the Appendix.

The proposed activity complies with the approved Illinois Coastal Management Program and will be conducted in a manner consistent with such policies.

Project Purpose Statement

The Winnetka Park District has retained Shabica & Associates (SA) to consult on improvements to the Elder/Centennial Beach in accordance with the *Winnetka Waterfront 2030 Master Plan* (WW 2030). The WW 2030 was officially adopted in 2016 after much community engagement (beginning in 2014) in the form of public meetings, public open houses, surveys, and focus groups, as well as the formation of the Lakefront Advisory Committee (a citizens advisory committee). Community engagement has continued in an ongoing manner.

The property owners to the north and south of the project are aware of and support this project (see attached letters of support). This application is jointly submitted by both the Winnetka Park District and the immediately adjacent property owner to the south, the Orchard 2020 Revocable Trust, as co-applicants.

The project also has the support of several federal and state elected officials including United States Senators Richard J. Durbin and Tammy Duckworth, United States Representative Jan Schakowsky, Illinois Representative Robyn Gabel, and Illinois Senator Laura Fine and the Village of Winnetka (please see attached letters of support).

The beach has functioned typically between average to high water levels but the extreme increase in Lake Michigan water levels from 2013 to 2020 severely damaged the beach and Park District infrastructure. Due to shoreline damage and beach stability concerns, the beach has been closed for two years and has now been prioritized by the Park District for restoration starting in the summer of 2022. Additionally, a resident has helped implement a critical component of the master plan by donating the existing single property that currently separates the two parks. It is with that acquisition that the Park District can now implement the full vision of the park improvements.

The Winnetka Park District website and discussion of the WW 2030 for Elder/Centennial Beach states that the following work will be completed for shore stabilization:

> *"**New breakwater system:** a new breakwater system will be installed to reduce wave action near the shoreline, reduce bluff erosion, and make the beach better for patrons. The new system will also hold sand more effectively, maintaining a usable beach during high and low lake levels.*
>
> https://www.winpark.org/elder-centennial-design-development/

Based on the needs and input from the community, this project will provide a higher level of shore protection for the bluff, infrastructure, and lakebed. The property currently has an eroding beach with an exposed steel seawall (that was buried for decades), a beach house that has historically been damaged by stormwaves, a failing modular concrete block pier and stormwater outfall, and boat storage racks on concrete foundations. The proposed system is designed to help improve these issues, provide greater and more stable public access to Lake Michigan waters, offer new recreational activities to beach-goers, and provide a sustainable shoreline for the community.

Project Description

This application is for a breakwater protected beach system comprised of three quarrystone and steel breakwater structures and a steel and concrete pier in the center. All the lengths noted below are toe to toe.

The northernmost breakwater is a shore-connected stone and steel breakwater that projects east 265' and then curves south. The west 100' is a capped steel sheetpile planting pocket tapering from 590' at the bluff toe to 587'. Steel wave louvers attached on the northern cap of the sheeting will extend 155' lakeward as measured from the toe of the bluff, tapering from 596.7' down to 588.6'. The eastern 155' of the structure will be quarrystone with a 3 stone crest tapering from 587' to 586' lakeward. The existing 54" stormwater outfall will be relocated into this breakwater with two 36" steel ductile pipes that exit at the east end of the structure.

Moving to the south after a 150' gap is a 260' long breakwater/pier with a 300' long steel and concrete pier connecting to land. The lakeward portion of the pier will be 15' wide with a crest of 585' surrounded by quarrystone with a crest at 587'. The land connecting section will be 12' wide and will taper from 587' landward to 585' where is connects to the lakeward section.

Moving south past a 180' gap, there is the southernmost 300' shore-connected breakwater. This breakwater will mirror the north breakwater. The west 100' is a capped steel sheetpile planting pocket tapering from from 591' at the toe of the bluff to 587'. Steel wave louvers attached on the southern cap of the sheeting will extend 185' lakeward as measured from the toe of the bluff, tapering from 597.5' down to 588.5'. The eastern 120' of the structure will be quarrystone with a 3 stone crest tapering from 587' to 586' lakeward to help reduce wave overtopping. The slopes of all quarrystone structures will be 1v:1.5h, and sandfill will be placed in accordance with IDNR regulations.

Coastal Geology

This section of coastline has historically lost sand due to lakebed downcutting especially during prolonged periods of low lake levels. Nearshore sand deposits are thin and less than one foot in some locations at this site (Figure 1, Appendix) and scientists estimate that the rate of lakebed erosion up to 6 inches per year (Nairn, 1997). The net result is similar to the effects of global warming and rising sea level on marine coasts. This includes deeper water nearshore, larger stormwaves and progressively narrower beaches as the nearshore lakebed continues to erode.

The effect of lakebed downcutting is very evident at the beach at Elder shown by the significant loss of beach recently at above average water levels. Historically this beach has held a small beach at time of high-water levels. The loss of

beach from the record low 2013 water levels to an above average water level in 2016 took almost all of the sand out of the steel groin encapsulated system at Elder leaving the site without a sandy beach and damage to the existing boathouse. The effects of lakebed downcutting are evident with the large stormwaves breaking onshore as observed in the 2014 Halloween storm, the 2015 October storm, and ongoing storms events at high Lake Michigan water levels.

The Illinois Lake Michigan shoreline is considered "sediment starved" by coastal scientists. This is in contrast to East Coast and Gulf Coast open ocean shores where tens of thousands of tons of sand are found in the nearshore system that provides a primary line of defense against stormwaves. On most Great Lakes shores including southern Lake Michigan, natural sand beaches are not able to protect the lakeshore (exceptions may be during very low lake levels like 1964 or 2004-13). Large quantities of sand have been trapped or diverted offshore by municipal structures that extend 900 feet or more into the lake. Today, the main sand supply is wave erosion of the nearshore glacial clay lakebed that contains only about 10% sand (Shabica and Pranschke, 1994). The result is that groins and piers are losing their effectiveness at holding a sandy beach during average to high lake levels. To retain a sand covering of the shallow lakebed (where downcutting is most active) as well as to protect the bluff toe, SA has modified the design of this beach system to better hold sand as necessary and protect the lakebed and bluff during variable lake levels.

2013 Google Earth image at record low Lake Michigan water levels (left) compared to 2020 high water levels (right)

If beach and nearshore sand is lost, degradation of the nearshore ecosystem will result. Meadows et al., (2005) reports an increase in zebra mussels *Dreissena polymorpha*, and a decrease in native zooplankton in waters where the lakebed is eroding clay and rocks. In comparison, a nearshore area with 100% sand cover supports a species-rich community. The report concludes, "it [is] nonetheless clear that sand-based areas were characterized by sufficient shallow water fish CPUE and species richness to suggest that these are important habitats within the context of the Great Lakes Basin and not simply 'wet deserts' as they are often considered."

Coastal Climate

One of the largest factors in determining the scope of a project is analyzing current lake levels and climatic conditions. Over the past several years, larger-than-normal stormwaves have impacted the shoreline of Lake Michigan. The shoreline presented in this application has been impacted by the recent extreme increase in water level and effects of lakebed downcutting evidenced by waves eroding the sand and destroying concrete boat storage racks. These stormwaves, in combination with a severe rebound in Lake Michigan water levels, have exacerbated the nearshore erosion along the lakefront.

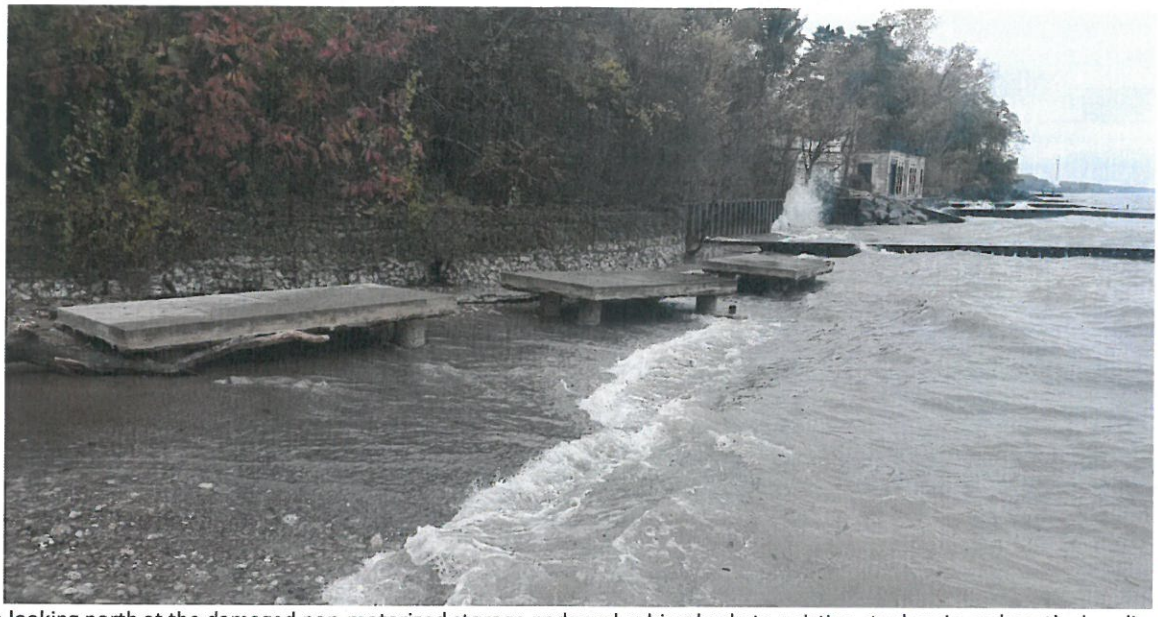
One thing most Great Lakes hydrologists agree upon: with global warming, lake storms will continue to get more intense and destructive.

The **Illinois State Water Survey, Prairie Research Institute** report on *Potential Impacts of Climate Change on Water Availability* (http://www.isws.illinois.edu/iswsdocs/wsp/climate_impacts_012808.pdf) states that:

> *"Scientists cannot predict future Illinois climatic conditions with confidence. The historical climate and hydrological records since the nineteenth century show that climate has changed significantly in the past and, even without human interference, could change significantly in the future."*

The Illinois State Water Survey goes on to graph future precipitation models, illustrating conditions that are wetter or drier than previous historic extremes. Either scenario is likely to cause loss of property due to stormwave erosion from either lakebed downcutting and/or larger stormwaves. Currently, Lake Michigan has risen over 6' since January of 2013 leading to a significant loss of nearshore sand. US Army Corps of Engineers forecasts predict that Lake Michigan water levels will continue to fluctuate even as water levels start to recede from the record 2020 highs.

Ongoing storms continue to damage the shoreline and beach house even as Lake Michigan water levels start to recede.



2020 photo looking north at the damaged non-motorized storage pads and gabion baskets, existing steel groin and north shoreline structures

2021 photo looking north along the steel seawall at Centennial Park

Benefits of Sandy Beaches

The Great Lakes represent the most important natural resource in the United States. Sandy beaches play an important role in maintaining water quality and stable access. Furthermore, a sandy beach makes a better ecotone (transitional environment) for flora and fauna than seawalls and revetments. As the permit application is for the public benefit, it is crucial that the beach and boat launching facility remain available and usable for the public. Summary arguments supporting a sandy beach system include:

1) Beaches are filters for non-point source runoff.
2) Beaches reduce lakebed downcutting, a source of fine clay pollutants.
3) Beaches support endangered species such as sea rocket, marram grass, and seaside spurge.
4) Beaches make better wildlife habitat than actively eroding bluffs or seawalls.

5) Stone headlands make better fish habitat than eroding lakebed clay.
6) Beaches protect the lakebed from erosion that causes larger stormwaves to impact the shore.
7) Beaches are far more appropriate for swimmers and boaters than a coast lined with seawalls or revetments, especially in an emergency.

On urban coasts, more than 35 years of system monitoring (Shabica et al, 2011) has shown that engineered pocket beaches (aka bay-beaches or attached-breakwater beaches), pre-nourished with sand, have shown a great resilience to changing lake-levels and decreased sediment-supply. After an intense storm such as the storm on Halloween, 2014, pocket beach recovery is fast. Further, net sand loss and renourishment costs are lower than for unprotected beaches on open Great Lakes coasts. And with each beach, thousands of tons of new sand is brought in, not only to initially nourish the pocket beach but also to add 20% overfill sand to the adjacent lakeshore. Periodic sand re-nourishment has proven to be a successful management tool and provides additional sand for the entire Illinois coastal ecosystem.

Impact to Littoral Drift System

The proposed plan for this site includes construction of a breakwater-protected beach system including placement of mitigational sandfill, as required for permit. The design of the proposed system, including the mitigational sandfill, will help assure no negative impact to the littoral drift system. This region of the Lake Michigan shoreline around the project site is completely engineered. The shoreline north and south of the Elder/Centennial Beach is privately owned residential property that is protected by revetments, steel groins and breakwater protected beaches. Sand mitigation (as required by the IDNR) will be placed on the subject property and on the properties immediately to the north and south with a 20% overfill as required.

The proposed quarrystone breakwaters for the beach will extend to approximately 300' offshore. The littoral drift system is designed to remain at a dynamic equilibrium once the mitigational sand is placed (anticipated quantity plus 20% overfill).

The proposed beach at Elder/Centennial is on a relatively straight section of shoreline.

IDNR regulations for structures that will retain sand require pre- and post-construction surveys, as well as surveys at the one- and five-year intervals. A more intensive monitoring plan has been developed due to the scale of the project, see Appendix. This requirement will help assure that a sand equilibrium is met and that the new project is gaining and losing sand at a similar rate to neighboring properties or mitigation may be required.

Impact on Public Uses

The breakwaters and beach will help to provide a more stable shoreline environment for boaters and swimmers with two separated usage bays and easier access to the water. Fishing will not be impacted negatively, as the underwater area of the quarrystone breakwater protection will create an improved fish habitat. Open water navigation will not be impacted, as the proposed construction extends slightly further east than the existing nearby structures. Launching of kayaks and paddleboards will be improved by the dual bay beach system. The new park borders and boundaries established by the project afford the Park District the opportunity to permit dogs on the beach during off-season months without introducing the risk of dogs straying onto adjacent private property.

Impact on Natural Resources

Quarrystone structures in the nearshore waters of Lake Michigan and sandy beaches improve native species habitat. The LandOwner Resource Centre with support from the Canadian Wildlife Service and the Ontario Ministry of Natural Resources states that, "unstable shorelines can release silt that can choke nearby aquatic habitats." Additionally, underwater structures such as artificial reefs constructed of large boulders and clean riprap material "in large water bodies, such as the Great Lakes . . . are often the best method of creating habitat." As stated above, according to Meadows, et al., 2005, "a nearshore area with 100% sand cover support[s] a species rich community." As the design

does not impact the bluff and vegetation, the local terrestrial wildlife will continue to inhabit this property. In many nearshore areas in Illinois where the sand is less than 3 feet thick, lakebed erosion of glacial clay results in large suspended plumes of clay in the water during storm wave events. An eroding clay lakebed is not considered good aquatic habitat.

Type of Permit
The scope of this project requires an individual permit.

Description and Schedule of Proposed Activity
Installation of the breakwaters will start soon after the permits are issued as the beach is not currently usable for residents. The breakwaters will be built by a combination of marine and land-based access (pending lake level and conditions at the time of construction). This project is anticipated to be completed within a single year.

Type and Quantity of Fill/Measures Taken to Avoid Impact/Erosion and Sediment Control Plan
All material will be clean and from inland quarries. Approximately 21,243 tons of clean quarried stone will be placed to construct the breakwater system. Approximately 23,200 cubic yards of clean sand will be placed as sandfill in and around the system. The area of fill to be placed below the Ordinary High Water Mark (581.5 feet, IGLD 1985) is 1.0 acre.

Ongoing Maintenance
The Winnetka Park District is requesting a 10-year sand nourishment permit. As lake levels lower, sand will tend to accumulate more in the beach bays. The Winnetka Park District would like to have the ability to mobilize up to 2,000 cubic yards of sand annually if and when necessary to help maintain a stable beach and the metastable equilibrium.

Mitigation
This project covers 1.0 acre of the lakebed below the OHWM with fill. The fill does improve the quality of the lakebed and water with the quarrystone breakwaters creating habitat for fish. As this system will be monitored annually for 5 years north of and south of the proposed system, sand removed from the littoral drift system can be better quantified for replacement. Additionally, this permit calls for up to 2,000 tons of sand to be placed annually or as needed for beach nourishment. Based on this information, we offer no additional mitigation unless specified by the USACE or IDNR.

Summary
All of the above-described activities and plans will follow IPP terms and conditions. All of the proposed work adheres to the guidelines prescribed by the Illinois Environmental Protection Agency and its Anti-Degradation Assessment. U.S. Fish & Wildlife Service will be updated on all relevant correspondence.

If you have any questions, please feel free to call me at the phone number below.

Sincerely,

Jon Shabica
Vice President

C: IDNR/OWR
Illinois EPA, Bureau of Water, Permit Section
U.S. Fish & Wildlife Service
Winnetka Park District (Peterson)

Letters of authorization attached:
John Edwardson, 301 Sheridan Road – Placement of sand and stone
Peter Lee, 205 Sheridan Road – Placement of sand and stone

Letters of support attached:
US Senator Richard Durbin
US Senator Tammy Duckworth
US Representative Jan Schakowsky
Illinois Representative Robyn Gabel
Illinois Senator Laura Fine
Village of Winnetka
Dmitry Godin, 319 Sheridan Road, Winnetka
John Edwardson, 301 Sheridan Road, Winnetka
Orchard 2020 Trust, 203 Sheridan Road, Winnetka
Leo Birov, 195 Sheridan Road, Winnetka

DESIGN OF SHORELINE EROSION PROTECTION

Introduction

The following report summarizes assumptions and design criteria for a quarrystone breakwater system and sandfill, along with other recreational improvements to help retain a beach, provide lake access, and better protect the property located at 225 - 299 Sheridan Road, Winnetka. The design is based on the drawings included in this submission dated February 24, 2022.

The entire reach of shoreline within the project limits, and including areas north and south of these limits, has been modified by the construction of groins, seawalls, revetments and breakwater-protected beaches in the past. This section of coast is sand-starved due to municipal structures (littoral barriers) constructed over the past 130 years that extend east past the littoral zone and reduce sand bypass, as well as armoring of the shoreline reducing erosion of the glacial clay bluffs. According to the Illinois State Geological Survey, there is almost no sand moving along this section of coast. All structures in the area have been steadily losing their effectiveness at holding beach sand. This problem is exacerbated by lakebed erosion. In many cases where all the sand has been lost, the adjacent bluffs have begun to erode. To provide adequate protection for the upland property, solutions have typically been of two types: breakwater- or groin-anchored beaches to protect the bluffs, or a lower-cost system with a lower level of protection in the form of quarrystone revetments placed against the toe of the bluff that prevents stormwave erosion but at the expense of the beach and pedestrian access.

Project Description

The proposed design includes a two bay beach design with three breakwaters, a pier and sandfill. The project will include sandfill mitigation that fulfills the design requirements of 20-year stormwave erosion protection. The current public beach is suffering from erosion as well as is unstable for users including the summer programming for the community with the current site conditions. Additionally, with the high lake levels, there has been damage and destruction to lakefront structures in addition to stormwaves causing erosion of the bluff toe, as well as severe icing problems and impacts to the property.

AECOM has provided coastal and structural evaluations of the steel breakwater structures in the attached report. Their report demonstrates the steel portions will provide environmental benefit by managing wave attack, providing reductions in potential beach erosion, and protecting the planting pocket habitats from damage. Additionally, the report includes the structural engineering studies and results to demonstrate the structures are properly engineered and robust enough to withstand Lake Michigan wind, wave, and ice events without exceeding material limits for allowable stress or deformation.

Summary Specifications

Using the Army Corps of Engineers Shore Protection Manual (1984), performance of nearby prototypes and other sources, the following specifications were developed for this site (elevations are based on IGLD 1985):

Breakwater Specifications – for Breakwaters	
Lakeward Crest Elevation:	586 ft
Toe of Breakwater:	572 ft
Crest Width:	11 ft
Average Armor Size:	4.5 tons
"B" Stone	600 - 1200 lbs

Slope:	1:1.5
Tons/linear ft:	32 tons

Assumptions

• Design High Water (DHW):	584 ft *
• Design Water Level:	582.0 ft
• Design Low Water (DLW):	577.5 ft *
• Existing clay/dense sand & gravel elevation:	570 to 572.0 ft
• 20-yr lakebed erosion at toe of groin:	3 ft
• Design wave height:	Hs = 12.3 ft
• Nearshore Slope:	1:40 – 1:100
• Design Wave Period (T):	9.9 s **
• Depth at Structure Toe DHW (Ds):	12'
• Design Deepwater Wave (Ho):	20.0'***
• Design Wave Length (Lo):	501.8'
• Stone Porosity:	37%

* DHW includes 2 ft storm setup, DLW is equivalent to Low Water Datum
** Resio & Vincent, 1976
*** US Army Corps of Engineers 1982 Draft Reconnaissance Report

Shoreline/Bathymetry
A full bathymetric survey was performed in September 2020, updated in November 2021. Survey notes: Lake conditions at the time of survey were waves of 1 foot or less. Bathymetric survey was performed using a Trimble R10 GPS Receiver along with a Hydrolite-TM Single Beam Echosounder. Survey was performed tied to Trimble's VRS Now Network, data points were collected in NAV88 datum and converted to IGLD1985. Cross Sections were cut from a surface created from actual survey points.

Water Levels
The following table summarizes water level data representing daily highest extremes measured at Calumet Harbor, Illinois, approximately 26 miles to the south of Winnetka. Note: Low water datum LWD = 577.5 ft (IGLD 1985).

Lake Level	LWD	IGLD 1985
Record High	+5.5	583.0
Record Low	-1.4	576.1

Project Supporting Data
To help facilitate project review, Shabica & Associates offers the following supporting data based on standard coastal engineering practices:

1. **Sediment transport around structure**
   The structure is designed to lie within the surf zone (zone of breaking waves), therefore allowing sediment transport around the structure. The range of breaking wave heights is from 8.3 ft based on a 6-second wave with a wave length of 184 ft (using 1/25 Lo) to 18 ft based on a 9.9-second wave with a wave length of 501.8 ft (Resio and Vincent, 1976). The commonly accepted zone of sediment transport is to 18 ft (depth

of closure) in this section of Lake Michigan, which is a function of the design wave parameters. Based on this data, once the structure has been filled with sand, it will continue to bypass littoral drift sand. Survey monitoring will be conducted, as required by the IDNR, to assure that the system performs as designed.

The IDNR requires sandfill in areas where sediment will be trapped by the new system. Sand volume quantities have been calculated as shown in the permit drawings. As required by the IDNR, a 20% overfill will be added to the calculated volume. Additionally, the new pre- and post-construction monitoring will be performed and submitted to the IDNR to verify the impacts to the system.

2. **Effect on Adjacent Shorelines**
   A wave diffraction diagram (Figure 2, Appendix) has been overlain on the proposed shore protection system. Using a refracted incident wave angle of 90 degrees (USACE, Shore Protection Manual), with average and design waves, there will be a decrease in wave energy on adjacent properties. The wave diffraction pattern shows that the coefficient of diffraction (K) reduces the wave energy to a distance of about ½ the wave length downdrift and does not have an impact further downdrift. For the average 6-second wave, that distance of reduced wave energy is about 90 ft and for the design wave, the protected distance is about 250 ft. This protected area close to the structure has diminished wave energy that will in turn reduce erosion in the area.

3. **Wave Reduction in Rubble-Mound Structures**
   The Iribarren number (ξ), or surf similarity number, is used to determine the wave reflection coefficient. For rubble-mound structures, wave reflection (and wave energy) is reduced by one half or more (0.2 to 0.53) (Figure 3, Appendix). For example, a wave reflection of 0.25 means that the wave energy is reduced by 75%. The range of wave reflection for beaches peaks at about 0.44. The range for plane slopes, however, quickly rises to 0.5 and peaks at .91. This illustrates that rubble-mound structures reduce wave energy almost as well as beaches.

Lakebed Erosion

Lakebed erosion, active in water depths of 10 ft or less, is a design component of this plan. This section of the Winnetka lakeshore is considered sediment starved. Sand deposits were measured at this site (Elder Lane Beach, Winnetka) from the backshore to a depth of 6.7 m (22 ft) in 1989. In 1989, the nearshore sand deposits averaged 1.6 to 2.0 ft thick from shore to 50 ft offshore and thinned to 0 feet thickness at 100 ft, and then thickening to 4.5 ft at 250 ft offshore. At 1,000 ft offshore, no sand was present through the end of the transect. Farther offshore, the sand ranged from 1.8 to 2.9 ft thick (Shabica & Pranschke, 1994). In July of 2010, the clay depth and sand cover were resurveyed to a depth of 2m (6.3 ft). In 2010, the nearshore sand deposits were typically 1 foot thick with the exception of a sandbar that averaged 2 feet thick. The site is underlain by highly-erodable, cohesive glacial clay-till. During the period from 1989 to 2010, erosion of the clay lakebed varied from negligible to 2.3 ft. The 2.3 ft of erosion occurred in the location where there was no sand cover in 1989. See Shabica survey data and cross-section (Figures 1 a-c, Appendix) showing loss of lakebed sand from 1975 to 1989. Calculated sand deposits at this site in 1989 were 161 cubic meters per meter of lakeshore to a depth of 4 meters. According to Robert Nairn, approximately 200 m^3 of sand cover per meter of lakeshore (out to a depth of 4 m) is necessary to protect the underlying cohesive profile from lakebed erosion under most conditions. Sand and coarser sediments represent typically less than 15% of the material eroding from the lakebed and bluffs.

Using the historic rate of lakebed downcutting of 0.15 ft/yr, an irreversible lowering of the nearshore lakebed clay of approximately 3.0 ft over a 20-year period is predicted in unprotected areas. With the breakwater and sandfill installed, the lakebed erosion will be reduced.

Stone Stability, Armorstone

The proposed quarrystone breakwater has two layers 3 – 6 ton armorstone built on a 1:1.5 slope. Overtopping of the structure is expected during storms and higher water levels. Design conditions include:

* Lakeward breakwater crest elevation 2 ft above DHW, 8.5 ft above DLW
* Depth-limited breaking waves will break on the stone revetment, stone breakwaters and sand beach
* Depth at the toe of the structure is 14 ft (572) at design high water
* Incident wave directions: NE, E and SE
* Wave period for DHW T = 9.9 seconds
* Wave period for average conditions T = 6 seconds

Quartzite, granite or Limestone armorstone is recommended as it is highly durable and is locally available in most gradations under 6 tons. Hudson's formula was used to estimate armorstone size. An armorstone of 4.3 tons is predicted for 2-layer random placement armorstone based on the design conditions. Based on experience and prototype structures, an average stone size of 4.5 tons is being specified for this project, and the armorstone gradation selected for this project is 3 – 6 tons.

PHOTO 1
2013 Google Earth image at record low Lake Michigan water levels (left) compared to 2020 high water levels (right)

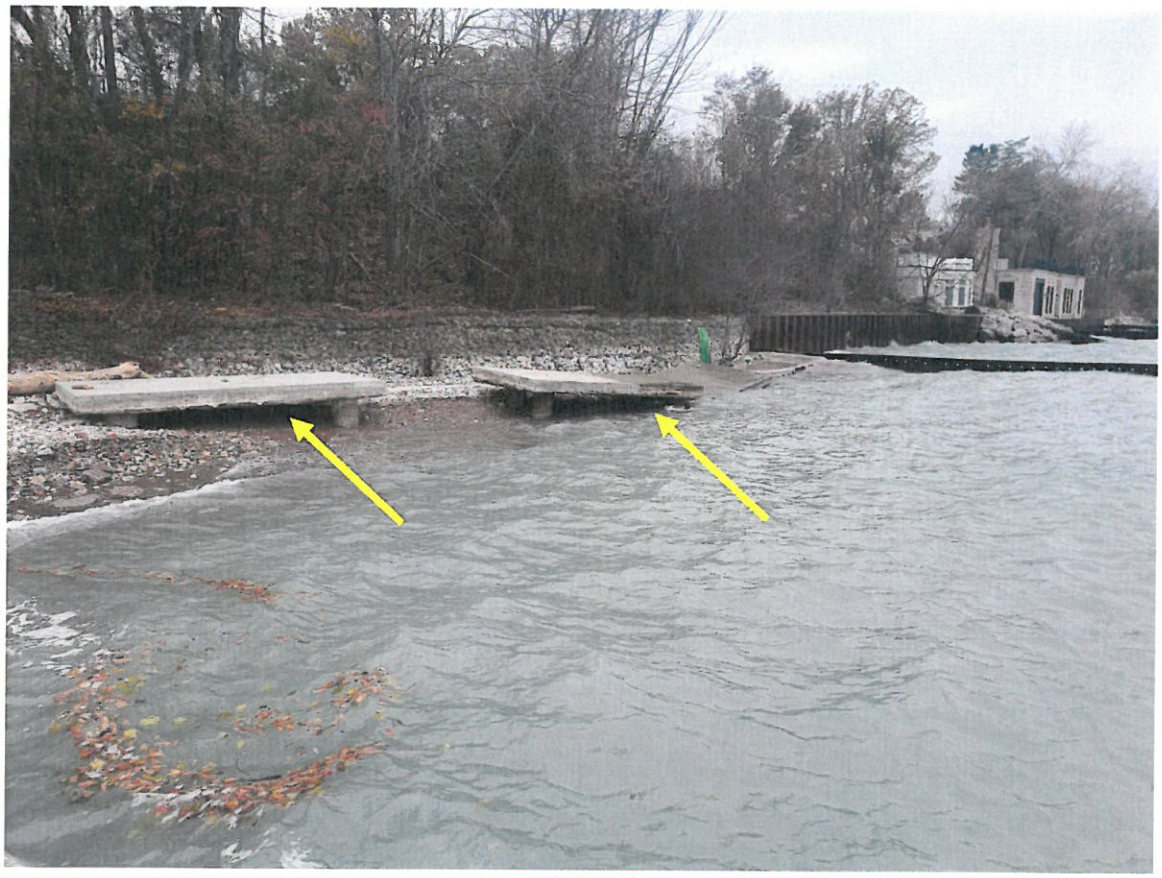


PHOTO 2
Photo looking north at recent erosion and damaged storage pads (yellow arrows)

PHOTO 3
Photo looking north at the adjacent shoreline and lack of access

PHOTO 4
Shoreline looking north along the toe of the bluff at Centennial Beach

PHOTO 5
1997 Shabica aerial photograph of Elder Beach

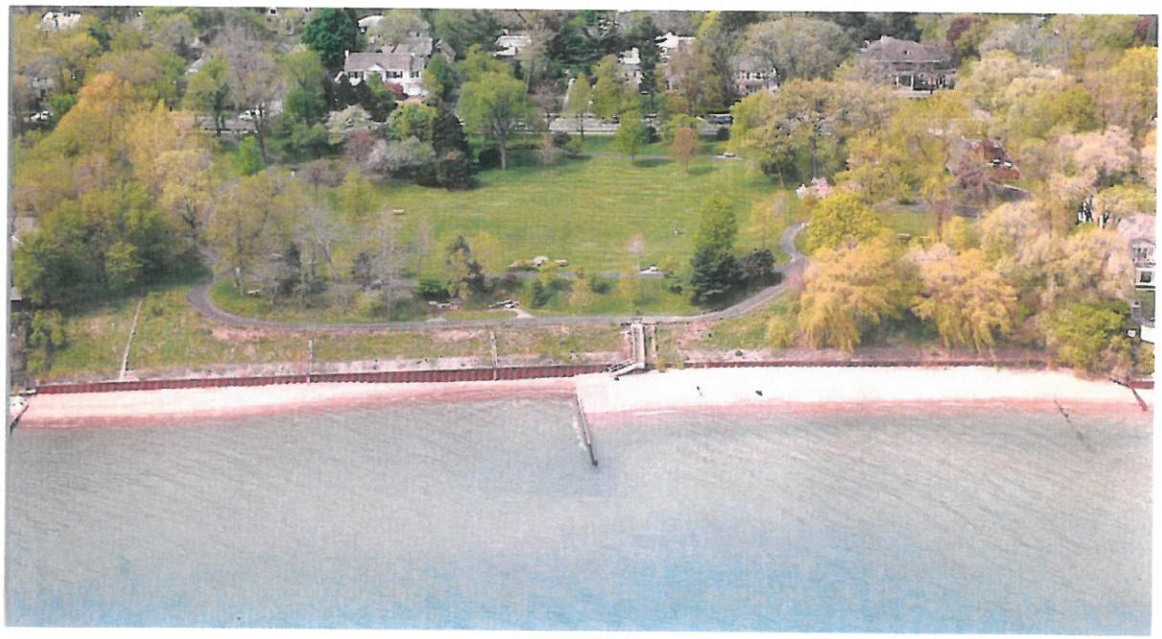


PHOTO 6
1997 Shabica aerial photograph of Centennial Beach

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US Army Corps of Engineers, 1984, *Shore Protection Manual*, Coastal Engineering Research Center, Vicksburg, Mississippi.

US Army Corps of Engineers *Reconnaissance Report on Beach Erosion at Lloyd Park Beach*, 1982

FIGURE 1a

Winnetka - Elder Lane Date:06/27/89 Time:

Enter lake surface 578.90 elevation for time of survey

Enter Graph: DATA A DATA B DATA C

Enter Dist. From Shore	Enter Water Depth	Enter Sand Thick ness	Top of Sand Elev. 1990	Bottom of Sand Elev. 1990	Enter Sand Thick. 1975	Top of sand 1975	Enter Hard- pan Type	Sand Volume Cu.Yd. Per ft. 1975	1990
-10.0	-1.0	2.0	579.9	577.9	10.0	587.9		1.9	0.4
0.0	0.0	1.8	578.9	577.1	10.0	587.1		6.5	1.2
25.0	0.8	1.6	578.1	576.5	10.0	586.5		9.3	1.5
50.0	1.9	1.9	577.0	575.1	10.0	585.1		13.9	2.6
100.0	3.3	0.0	575.6	575.6	10.0	585.6		18.5	0.0
150.0	5.9	0.7	573.0	572.3	10.0	582.3		27.8	1.9
250.0	6.5	4.5	572.4	567.9	10.0	577.9		64.8	29.2
500.0	9.8	2.9	569.1	566.2	7.0	573.2		64.8	26.9
750.0	13.3	1.0	565.6	564.6	5.0	569.6		46.3	9.3
1000.0	15.0	0.0	563.9	563.9	4.0	567.9		37.0	0.0
1250.0	15.9	2.6	563.0	560.4	3.0	563.4		27.8	24.1
1500.0	16.9	2.9	562.0	559.1	3.0	562.1		27.8	26.9
1750.0	20.3	1.8	558.6	556.8	2.0	558.8		18.5	16.7
2000.0			578.9	578.9		578.9		0.0	0.0
0.0			578.9	578.9		578.9		0.0	0.0
0.0			578.9	578.9		578.9		0.0	0.0
0.0									
							TOTAL	364.8 CuYd/ft 1975	140.5 CuYd/ft 1990

Note all measurements in feet

All Elevations IGLD 1955

Field Worksheet from 1991 USGS Lakefront Sand Thickness Survey at Elder Lane Beach, Winnetka (Shabica et al., 1991)

FIGURE 1b

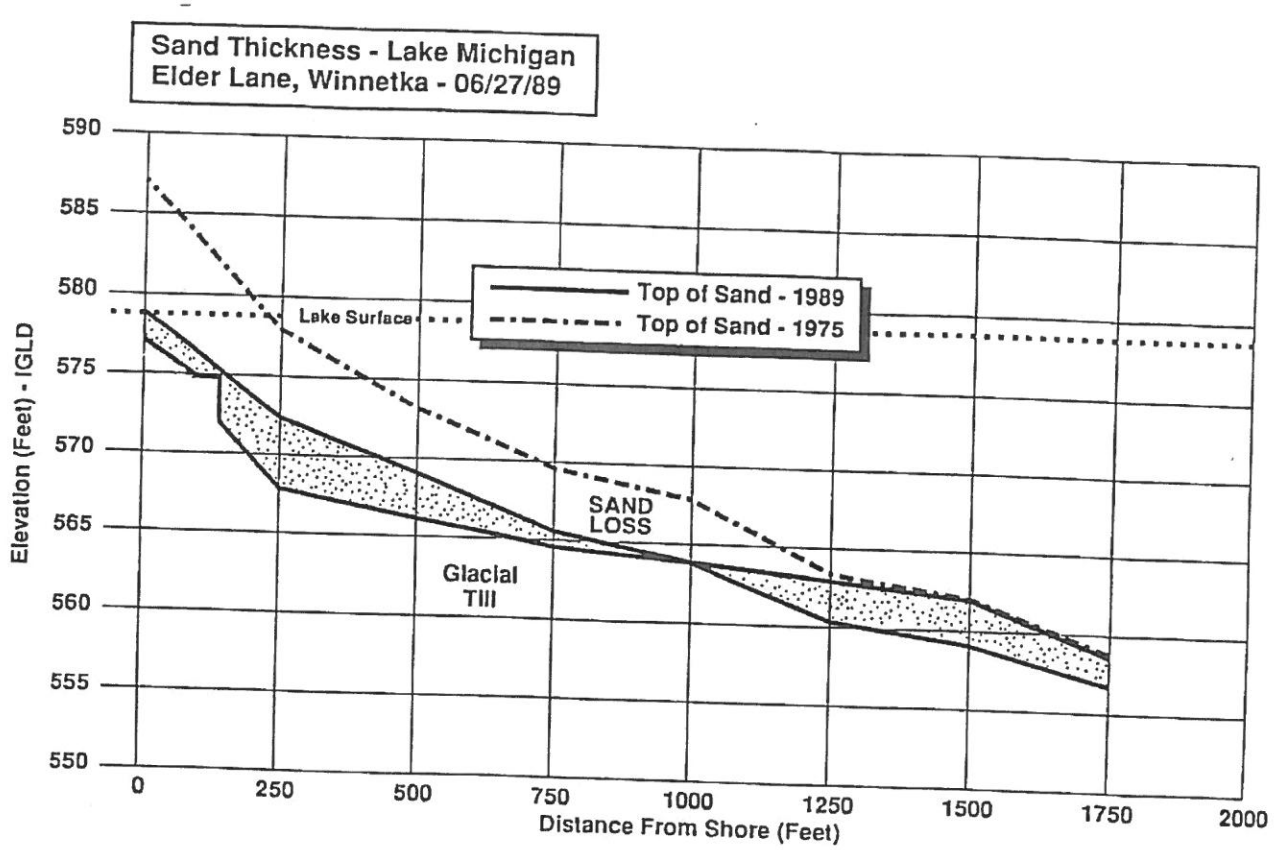

Sand Thickness - Lake Michigan
Elder Lane, Winnetka - 06/27/89
590
585
580
575
570
565
560
555
550
Elevation (Feet) - IGLD
Lake Surface
Top of Sand - 1989
Top of Sand - 1975
SAND
LOSS
Glacial
Till
0
250
500
750
1000
1250
1500
1750
2000
Distance From Shore (Feet)

FIGURE 1c

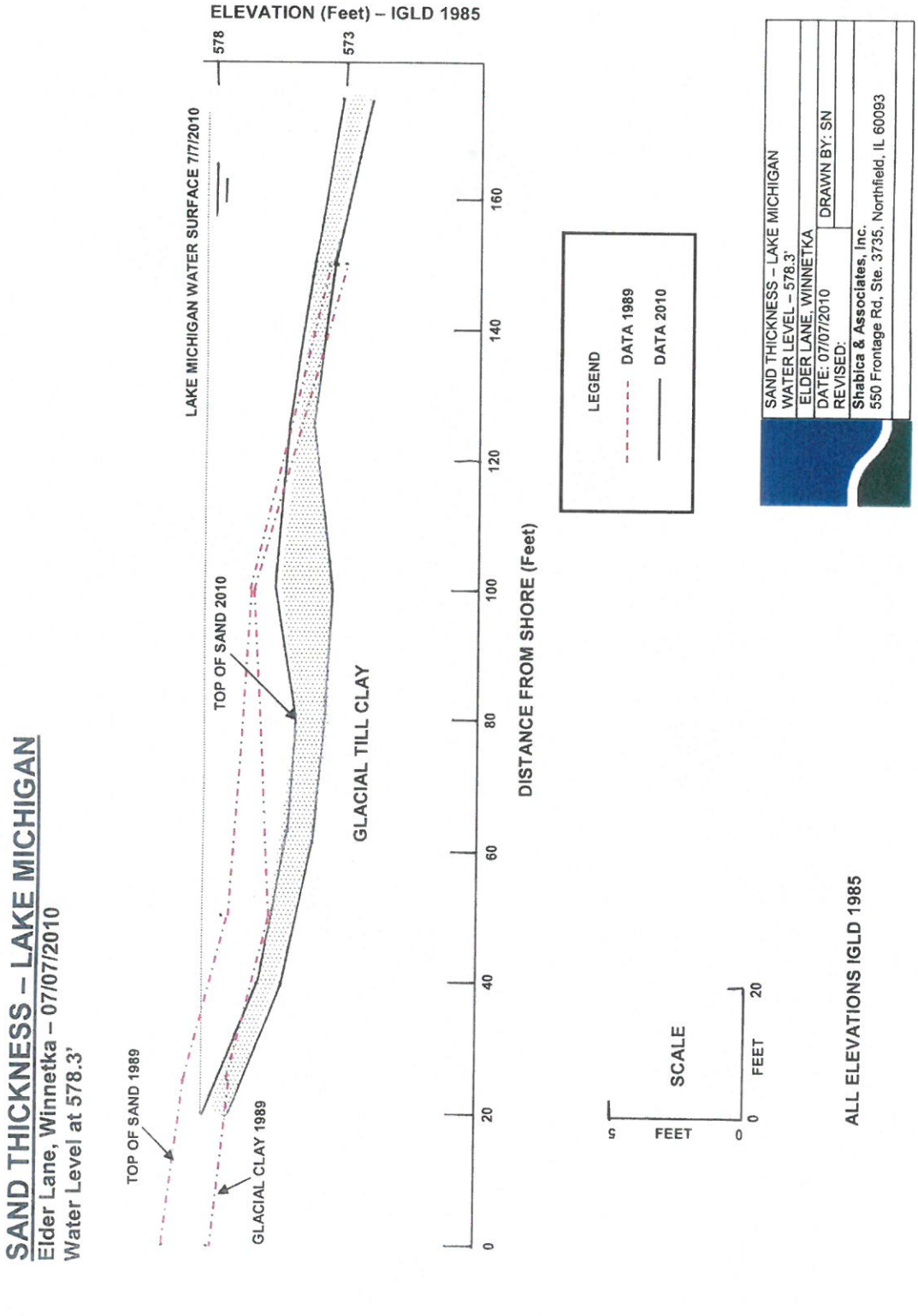
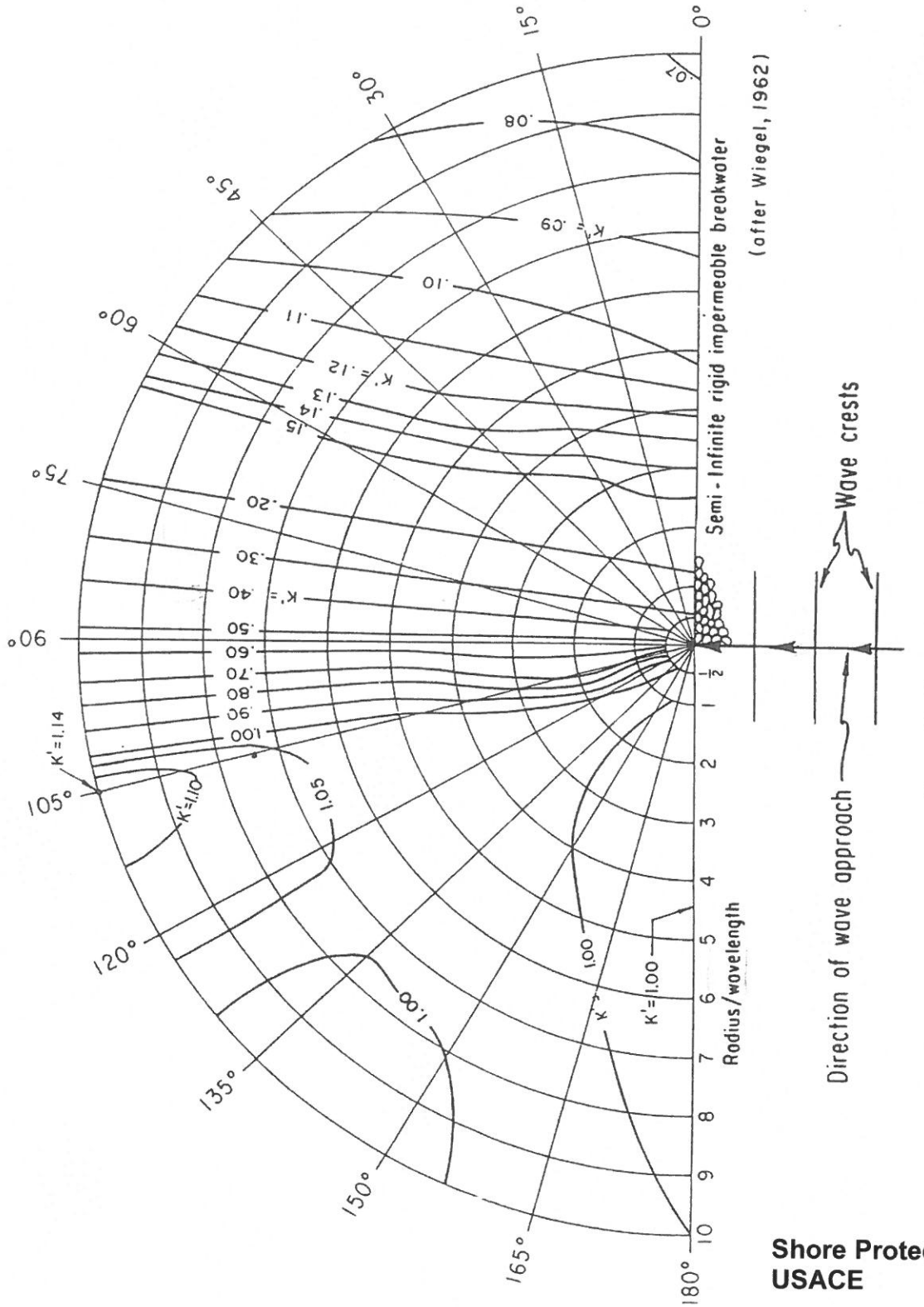
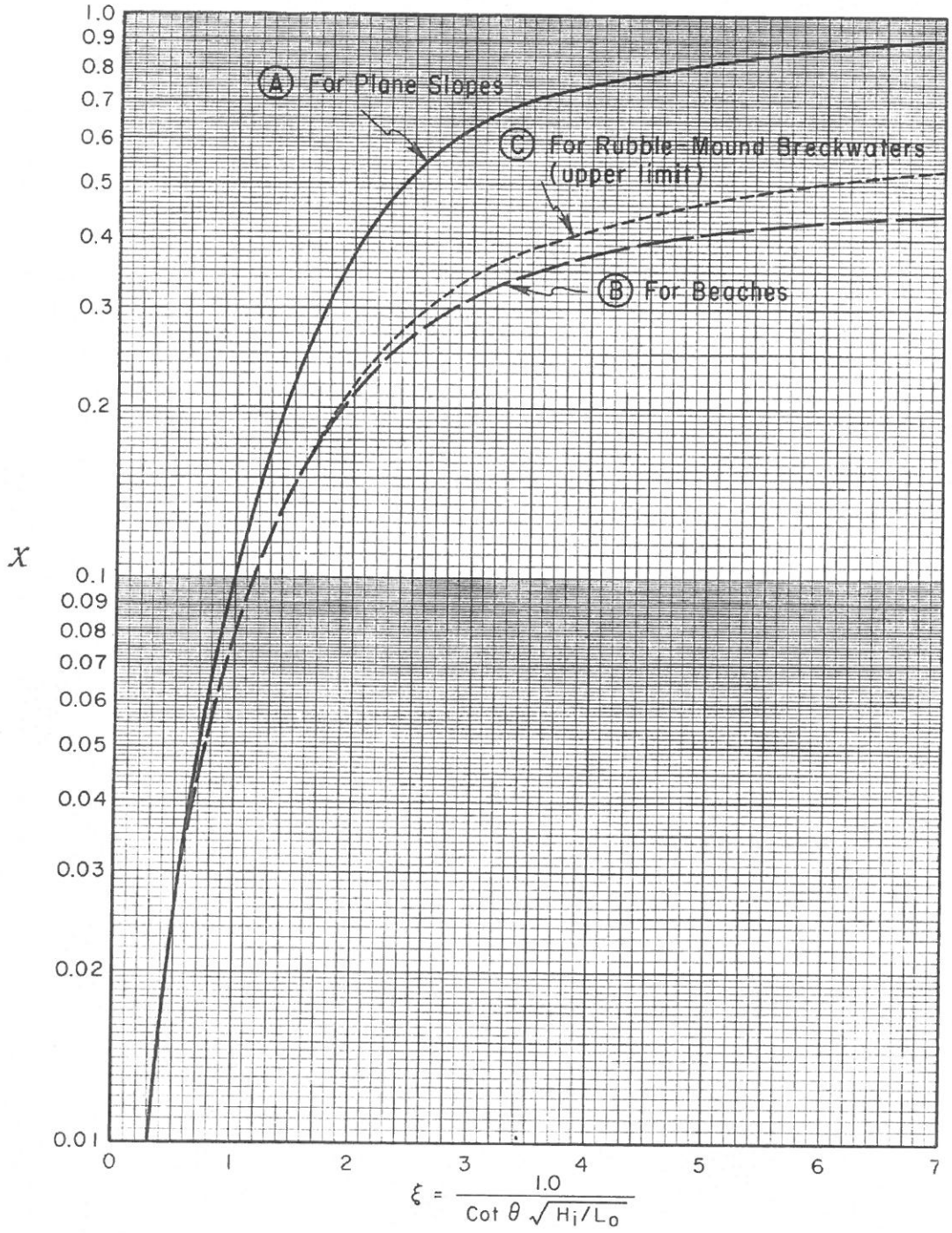

SAND THICKNESS – LAKE MICHIGAN
Elder Lane, Winnetka – 07/07/2010
Water Level at 578.3'
ELEVATION (Feet) – IGLD 1985
578
573
LAKE MICHIGAN WATER SURFACE 7/7/2010
TOP OF SAND 2010
TOP OF SAND 1989
GLACIAL CLAY 1989
GLACIAL TILL CLAY
0
20
40
60
80
100
120
140
160
DISTANCE FROM SHORE (Feet)
LEGEND
DATA 1989
DATA 2010
SCALE
5
FEET
0
0
FEET
20
ALL ELEVATIONS IGLD 1985
SAND THICKNESS – LAKE MICHIGAN
WATER LEVEL – 578.3'
ELDER LANE, WINNETKA
DATE: 07/07/2010
DRAWN BY: SN
REVISED:
Shabica & Associates, Inc.
550 Frontage Rd, Ste. 3735, Northfield, IL 60093

FIGURE 2



Shore Protection Manual
USACE

FIGURE 3

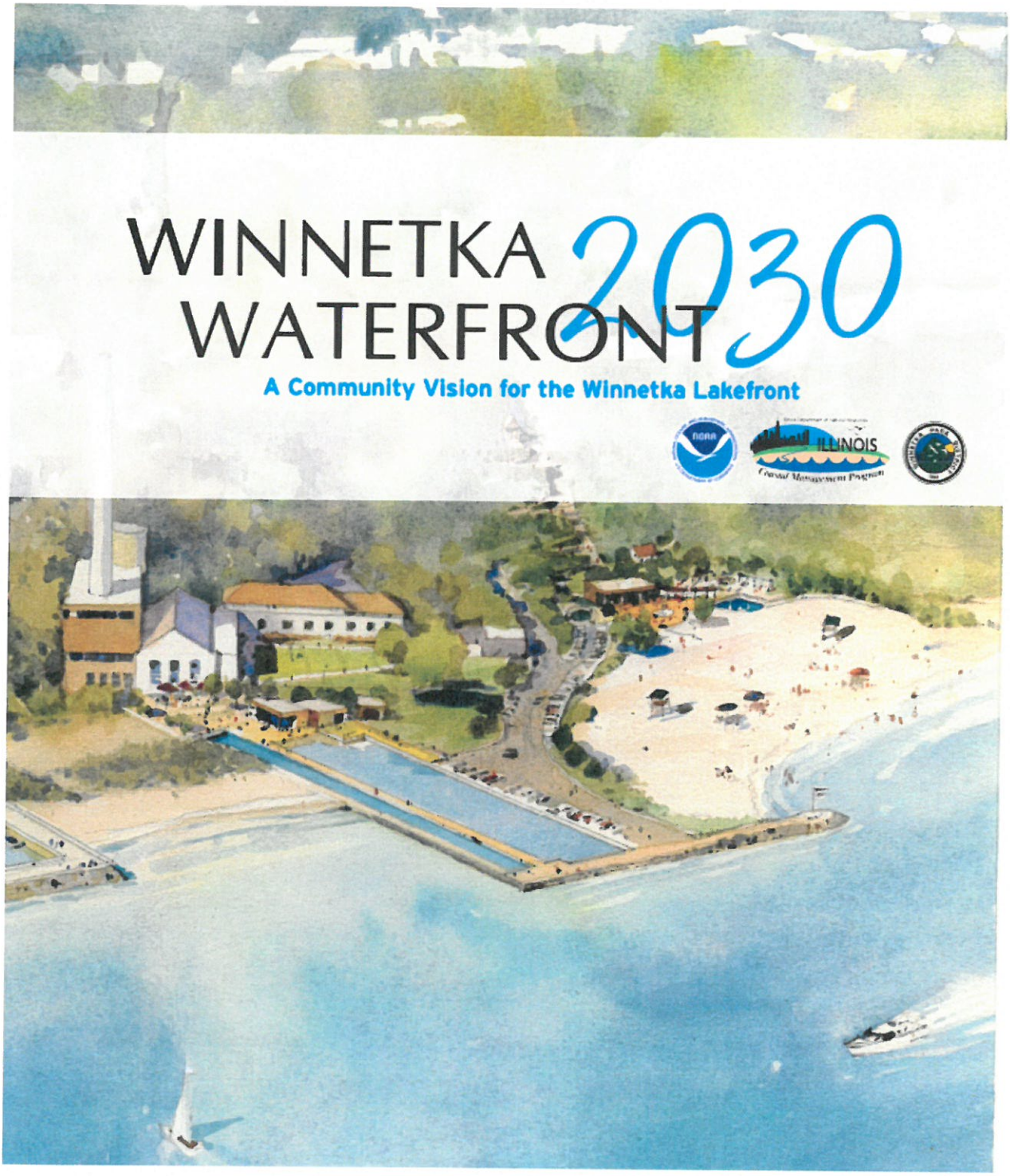


Wave reflection coefficients for slopes, beaches, and rubble-mound breakwaters as a function of the surf similarity parameter ξ .

Shore Protection Manual
USACE

Additional Resources:

Winnetka Waterfront 2030 – A community vision for the Winnetka Lakefront – Excerpts Attached



Winnetka Waterfront 2030 – A community vision for the Winnetka Lakefront –

Elder Lane Park & Beach

299 Sheridan Rd

Classification:
Neighborhood Park

Size:
4.52 ac

PIN:
05-21-403-013-0000
05-21-412-014-0000

Owner:
Winnetka Park District

Zoning:
R-2

Parking:
65 spaces

Elder Lane Park is located immediately northeast of New Trier High School. Total area for the park is about 4.56 acres including about 400 feet of Lake Michigan shoreline. Elder Lane Park and Beach was assembled of land acquired from private owners and the Villag of Winnetka in April 1920 - December 1921 and February 1946.

Soils, Slopes, and Drainage

Land cover includes mostly open space with a small number of trees.

Amenities

Swim beach, a playground is located at the top of the bluff near the parking area. Elder Lane Park and Beach is a great child swimming beach given the shallow water depth almost to the end of the modular concrete pier.

Structures

Two steel groins and one concrete pier project from the beach into the lake. A beach house is located at the foot of the bluff.

Access and Circulation

The park includes approximately 65 parking spaces at the top of the bluff. At times when New Trier High School is in session, parking is available to students from 8:00AM - 5:00PM for all spaces except the 3 standard spaces and 2 handicap spaces on the east side of the lot. Beach access is available from an asphalt drive that begins at the top of the bluff and ends at a small building in the middle of the beach. The service drive leading down to beach level is approximately 10 feet wide with slopes of approximately 15 percent. This road geometry is likely to result in safety issues for cars traveling in opposite directions or when access is required for emergency vehicles. Concrete stairs provide pedestrian access from the top of the bluff to beach level.

Utilities

Survey information for this park includes limited information regarding underground utilities; however water, sanitary, and electrical utilities are available at the building at the base of the bluff.

Programs and Events

Special events hosted at Elder include Beach Clean-Up and BBQ (spring) and the Winnetka Total Fitness Challenge (summer).

550 Frontage Road • Suite 3735 • Northfield, Illinois 60093 • Tel 847.446.1436 • info@shabica.com
www.shabica.com

Structures

Beach House	C. 2002. The 900 SF stone-clad beach house is located just above the beach, and includes a multi-purpose room, two restrooms, a guardroom, a mechanical room, and a hallway with vending machines and a drinking fountain. There is indoor/outdoor lighting and an exterior shower. The beach house is constructed of concrete block load bearing walls over a slab with foundation walls and footings. The roof is standing seam metal over wood rafters.

Amenities

	Qty	Notes
Benches	9	Benches surround the playground and line a path overlooking the lake
Picnic Tables	6	Three picnic tables are located on the bluff, and three are adjacent to the beach house
Bike Racks	1	
Drinking Fountains	2	
Showers	2	One adjacent to the beach house, another on the beach in front of the beach house
Trash Receptacles		
Playground	1	A swing set and two play structures, located on the bluff
Lifeguard Chairs		
Fishing Pier	1	A concrete pier with removable railings projects out from the beach house stairs
Sand Volleyball	1	
Site Lighting	Y	

Beach Notes:	400 feet of shoreline. The beach is used for swimming and sand volleyball
Bluff Notes:	Gabion baskets, sheet piling, and a wrought iron fence protect the wildflower-planted bluff
Road & Pathway Notes:	A brick path runs from the parking lot entrance to the top of the bluff; The beach area and accessible parking space can be accessed by a service drive.
Stair Notes:	A series of concrete stairs leads down to the beach house from the paver path; Another set of stairs and a pedestrian ramp lead down to the beach from the beach house.
Special Amenities:	Elder Lane Park won an award for 2003 Outstanding Facility and Park Renovation (Division III) from the Illinois Park and Recreation Association.

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www.shabica.com

Centennial Park & Beach

225 Sheridan Rd

Classification:
Neighborhood Park

Size:
5.22 acres

PIN:
05-21-403-013-0000
05-21-412-014-0000

Owner:
Winnetka Park District

Zoning:
R-2

Parking:
11 spaces

Centennial Beach

Centennial Beach is located immediately northeast of New Trier High School and immediately south of Elder Lane Park. Total area for the park is about 5.22 acres including about 550 feet of Lake Michigan shoreline.

Soils, slopes, and drainage

Land cover includes mostly open space with a small number of trees. A buried foundation covers much of the parks open space footprint. This foundation will need to be considered if development is proposed in affected areas.

Amenities

Centennial Beach is home to Winnetka's only off-leash dog area.

Structures

Two steel groins project from the beach into the lake.

Access and Circulation

The park does not include beach access for vehicles. The park includes approximately 11 parking spaces at the top of the bluff. Concrete stairs provide pedestrian access from the top of the bluff to beach level. This park has great potential for local bike riders as it is in line with access to the Green Bay Trail.

Utilities

Survey information for this park includes limited information regarding underground utilities; however water, sanitary, and electrical utilities are available from Sheridan Road. It is also suspected that utilities were installed for a washroom near the east end of the existing parking lot.

Structures

N/A

Amenities

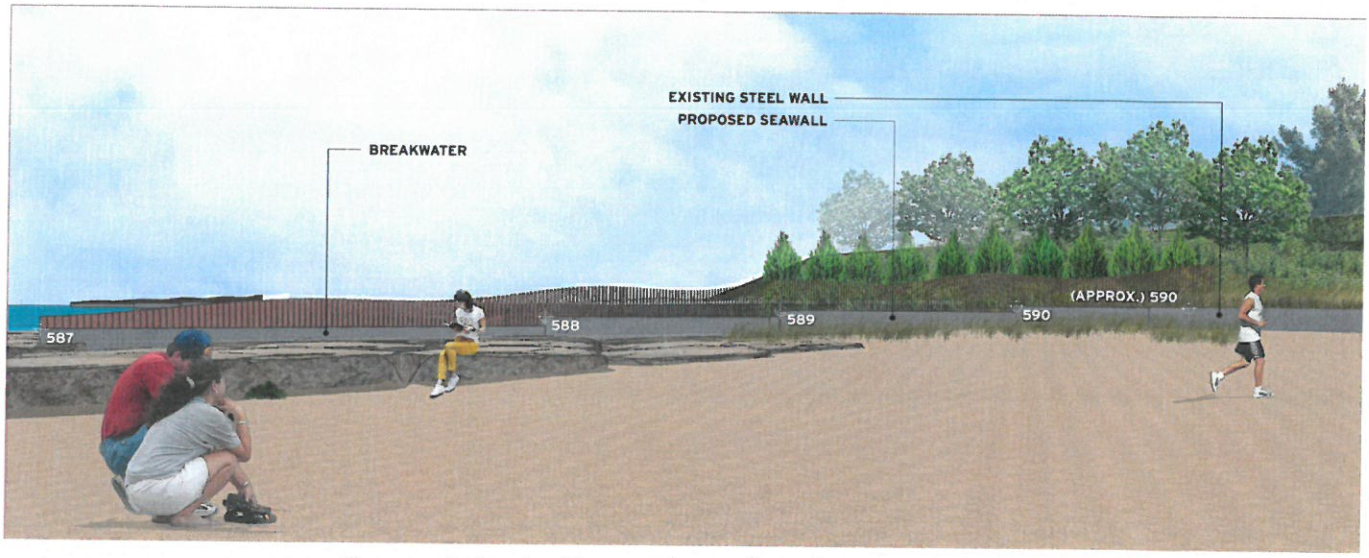
	Qty	Notes
Benches	6	
Picnic Tables		
Grills		
Bike Racks	1	
Drinking Fountains	2	Located at the southwest and north ends of the upper bluff walkway.
Showers	1	For dog-washing
Trash Receptacles		
Playground		
Lifeguard Chairs		
Fishing Pier		
Sand Volleyball		
Site Lighting		

Beach Notes:	**525 feet of shoreline. Used as Winnetka's dog beach**
Bluff Notes:	**Sheet piling protects the bluff, which is planted with wildflowers.**
Road & Pathway Notes:	**A curbed asphalt parking lot with spaces for 11 vehicles and a turnaround circle is located on the northwest corner of the site; A winding concrete pathway encircles the upper bluff; Another concrete path connects upper bluff walkways to a lower bluff section.**
Stair Notes:	**A steel and wooden stairway provides access from the bluff down to the beach.**
Special Amenities:	**A card-swipe at the gate limits access to the beach for patrons who purchase a pass; A wash area for the dogs is located just west of the gate; A cluster of stepped outcropping stone and pavers known as the Babize Memorial occupies the lower bluff area.**

- A Rubble-mound breakwater structure
- B Stormwater management improvements
- C Secure non-motorized water craft storage
- D Existing boat house improvements
- E Boardwalk improvements
- F Dune landscape restoration
- G Bluff restoration
- H Expand surface parking
- I Nature based play area
- J Construct a new upper-level restroom building
- K Vehicular circulation improvements and retaining walls
- L Lifeguard stations
- M New sheet-pile groin
- N Renovate single-family home into new beachfront event space
- O New beach house

550 Frontage Road • Suite 3735 • Northfield, Illinois 60093 • Tel 847.446.1436 • info@shabica.com
www.shabica.com

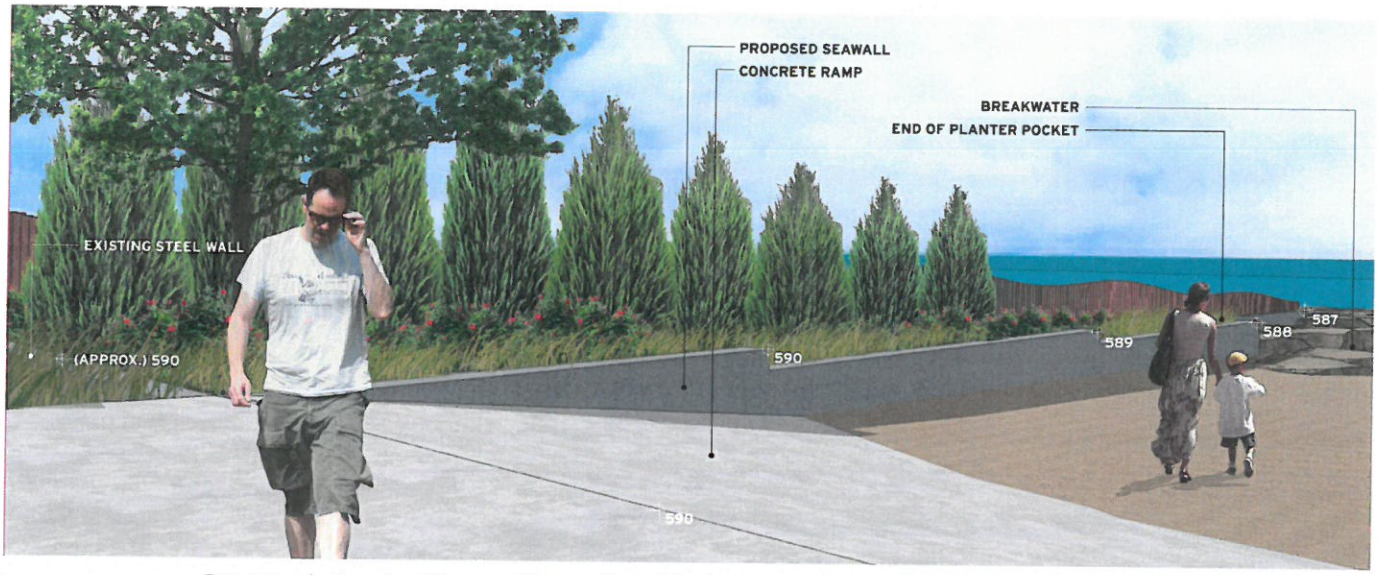
Elder & Centennial Design Development – Renderings



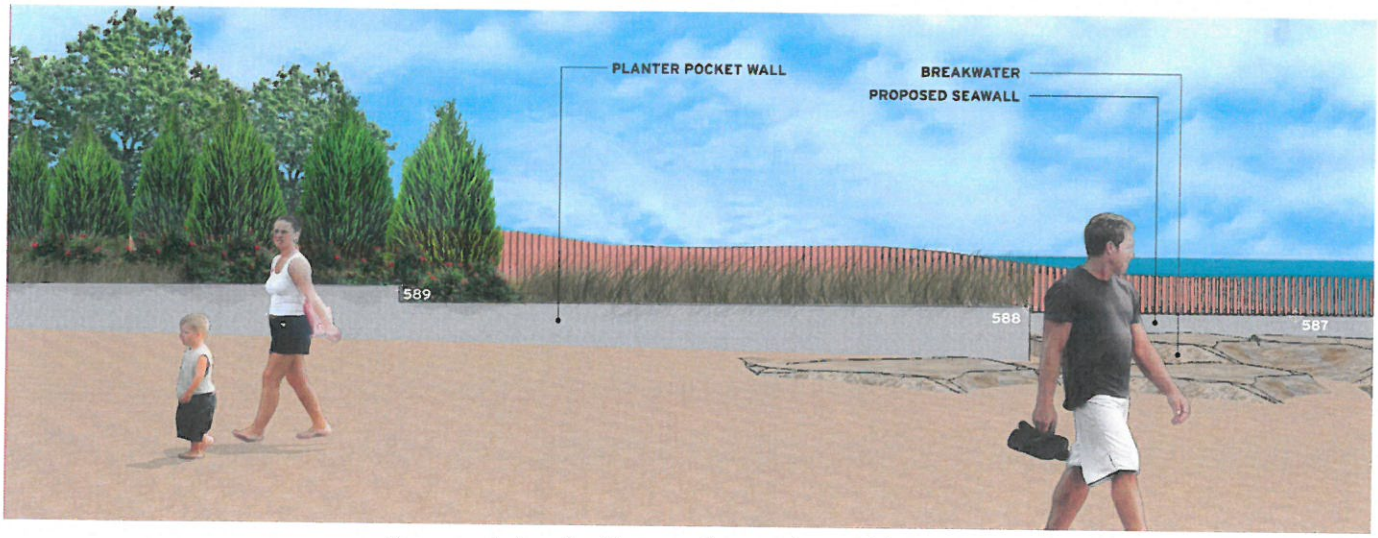
Proposed view looking southwest from Centennial Beach

Proposed view looking south toward Elder Beach

Elder & Centennial Design Development – Renderings



Proposed view looking northeast from the bottom of the Elder Beach access ramp



Proposed view looking northwest from Elder Beach

John Edwardson
585 Bank Lane
Lake Forest, Illinois 60045

U.S. Army Corps of Engineers - Chicago District Regulatory Branch - East Section
231 South LaSalle Street, Suite 1500
Chicago, Illinois 60604

November 15, 2021

Dear Sir or Madam,

I authorize the placement of sand and stone on my property at 301 Sheridan Road as part of the Winnetka Park District lakefront project at Elder Lane Park Beach, 299 Sheridan Road, Winnetka. If additional information is required, please contact me at the address above.

Sincerely,

John Edwardson

C: Illinois Department of Natural Resources
Illinois Environmental Protection Agency
Shabica & Associates, Inc.

Orchard 2020 Revocable Trust
c/o Peter Lee, Trustee
353 N. Clark St., Floor 27
Chicago, Illinois 60654

U.S. Army Corps of Engineers - Chicago District Regulatory Branch - East Section
231 South LaSalle Street, Suite 1500
Chicago, Illinois 60604

November 15, 2021

Dear Sir or Madam,

I authorize the placement of sand and stone on the property at 209 Sheridan Road (to be known as 205 Sheridan Road) as part of the Winnetka Park District lakefront project at Centennial Park Beach, 225 Sheridan Road, Winnetka. If additional information is required, please contact me at the address above.

Sincerely,

Peter Lee, Trustee

C: Illinois Department of Natural Resources
Illinois Environmental Protection Agency
Shabica & Associates, Inc.

RICHARD J. DURBIN
ILLINOIS
DEMOCRATIC WHIP

United States Senate

WASHINGTON, DC 20510-1304

COMMITTEE ON AGRICULTURE, NUTRITION, AND FORESTRY
COMMITTEE ON APPROPRIATIONS
COMMITTEE ON THE JUDICIARY
COMMITTEE ON RULES AND ADMINISTRATION

October 13 2021

Colonel Paul Culberson
Commander, Chicago District
U.S. Army Corps of Engineers
231 S. LaSalle Street, Suite 1500
Chicago, Illinois, 60604

Dear Colonel Culberson:

I am writing to in support of the Winnetka Park District's proposal to create a protected beachfront area encompassing Elder and Centennial Parks. If approved, this project will fulfill a major piece of the Park District's "Winnetka Waterfront 2030" Plan and provide meaningful beachfront recreational opportunities for individuals in the community.

Extreme weather and climate change have been key factors in the high water levels along Lake Michigan, and have contributed to erosion and destruction of the shoreline. In addition to the elimination of accessible beachfront, the impact to the shoreline creates significant safety hazards.

Winnetka Park District's plan will address both the erosion of the beachfront as well as the safety risks presented by the current waterfront. My staff visited the current parks and witnessed firsthand the need to improve safety and accessibility of these beaches moving forward.

Please give full and fair consideration to Winnetka Park District's proposal. If you require additional information, please contact my State Director, Clarisol Duque, at (312) 353-4952.

Sincerely,

Richard J. Durbin
United States Senator

711 HART SENATE OFFICE BUILDING
WASHINGTON, DC 20510-1304
(202) 224-2152

230 S. DEARBORN STREET
SUITE 3892
CHICAGO, IL 60604
(312) 353-4952

525 SOUTH EIGHTH STREET
SPRINGFIELD, IL 62703
(217) 492-4062

1504 THIRD AVENUE
SUITE 227
ROCK ISLAND, IL 61201
(309) 786-5173

250 W. CHERRY STREET
SUITE 115-D
CARBONDALE, IL 62901
(618) 351-1122

durbin.senate.gov

TAMMY DUCKWORTH
ILLINOIS

United States Senate

ARMED SERVICES
COMMERCE, SCIENCE, AND TRANSPORTATION
ENVIRONMENT AND PUBLIC WORKS
SMALL BUSINESS AND ENTREPRENEURSHIP

October 8, 2021

Colonel Paul Culberson
Commander, Chicago District
U.S. Army Corps of Engineers
231 S. LaSalle Street, Suite 1500
Chicago, Illinois, 60604

Colonel Culberson:

I write to express my support for the Winnetka Park District's Elder and Centennial Park Combined Park (the "Park") project. Understanding the importance of building sustainable beachfront infrastructure while handling Lake Michigan's high water levels and increasingly extreme weather conditions, Winnetka endeavors to prevent further erosion of their beaches and bluffs while accomplishing the long-stated goal of creating a unified park.

The Park is the culmination of the vision and strategy adopted by the Winnetka Park District in its Winnetka Waterfront 2030 Plan. It is my understanding that the Winnetka Park District's plan for this project includes combining two beach-front parks that are currently separated by a private residence into one contiguous parcel with nearly 1,000 feet of safe shoreline. Beyond generating significant new beach area, the Park plan aims to protect against further erosion of the beach, bluff and table land by including thoughtfully designed, soil protecting planting pockets and breakwaters with safety enhancements at the northern and southern boundaries of the Park. Additionally, the Park District has taken several measures to include ADA ramp access to the boardwalk and beach enabling recreational participation at the Park for individuals of all abilities.

As a U.S. Senator, I have made it a priority to support locally led projects that enhance public access to Illinois beaches, address potential safety concerns and sustainably protect against erosion. I believe the public's safe use of all parts of this park is of the utmost importance and I believe the Winnetka Park District is acting proactively to protect our residents and Park patrons.

In keeping with your existing rules and regulations, I urge you to give this proposal full and fair consideration. Should you have any questions, please contact my Chicago Director, Loren Harris, at (312) 886-3506.

Sincerely,

Tammy Duckworth
United States Senator

SUITE 524
HART BUILDING
WASHINGTON, DC 20510
(202) 224-2854

SUITE 3900
KLUCZYNSKI FEDERAL BUILDING
230 S. DEARBORN STREET
CHICAGO, IL 60604
(312) 886-3506

8 SOUTH OLD STATE CAPITOL PLAZA
SPRINGFIELD, IL 62701
(217) 528-6124

EDWARD C. HAYES CENTER
441 EAST WILLOW STREET
CARBONDALE, IL 62901
(618) 677-7000

SUITE 2
1623 2ND AVENUE
ROCK ISLAND, IL 61201
(309) 606-7060

SUITE 460
23 PUBLIC SQUARE
BELLEVILLE, IL 62220
(618) 722-7070

JANICE D. SCHAKOWSKY
9TH DISTRICT, ILLINOIS

COMMITTEE ON ENERGY AND COMMERCE
Chair, Consumer Protection and Commerce
Environment and Climate Change
Oversight and Investigations

COMMITTEE ON THE BUDGET

SENIOR CHIEF DEPUTY WHIP

Congress of the United States
House of Representatives
Washington, DC 20515-1309

2367 RAYBURN HOUSE OFFICE BUILDING
Telephone 202-225-2111
Fax 202-226-6890
TTY 202-224-3901

5533 N. BROADWAY, SUITE 2
CHICAGO, IL 60640
Telephone 773-506-7100
Fax 773-506-9202

1852 JOHNS DRIVE
GLENVIEW, IL 60025
Telephone 847-328-3409
Fax 847-328-3425

October 8, 2021

Colonel Paul Culberson
Commander, Chicago District
U.S. Army Corps of Engineers
231 S. LaSalle Street, Suite 1500
Chicago, Illinois, 60604

RE: Letter of Support for Winnetka Park District's recent proposal for a lake front project encompassing Elder & Centennial Parks

Dear Colonel Culberson:

I am writing to share my enthusiastic support for the recent proposal submitted by the Winnetka Park District for an effort to create a protected beachfront area encompassing Elder and Centennial Parks. If approved, this project will fulfill a major piece of the Park District's "Winnetka Waterfront 2030" Plan and provide meaningful beachfront recreational opportunities for individuals in the community.

As a Member of Congress representing the 9th Congressional District for many years, I know that many of our community's proximity to Lake Michigan's shoreline is both a major benefit and a major challenge. High water levels along Lake Michigan in recent years have had a devastating impact on public spaces along its entire shoreline, and Winnetka is no exception. My staff were able to tour these parks firsthand and confirm that significant efforts are necessary to ensure safe and accessible use of these beaches moving forward.

It is my understanding that the Winnetka Park District's plan for this site encompasses the combination of these two parks in a way that ensure almost 1,000 feet of protected and safe shoreline for public use. According to Park District staff, this design will include dedicated and distinct swimming and paddleboat/kayak areas, a boardwalk, an event space, and more.

I am convinced that this proposed project will meaningfully benefit Winnetka and its residents. In keeping within your existing rules and regulations, I urge you to give this recent application full and fair consideration. If you need additional information and/or if you have questions, I encourage you to reach out to Mr. Andrew Goczkowski, the Grants Coordinator on my staff. He is available directly by telephone at 202-427-2176 or by email at Andrew.Goczkowski@mail.house.gov.

Sincerely,

Jan Schakowsky
Member of Congress

GENERAL ASSEMBLY

STATE OF ILLINOIS

United States Army Corps of Engineers
Chicago District
Regulatory Branch
231 S. LaSalle Street, Suite 1500
Chicago, IL 60604

October 7, 2021

Illinois Department of Natural Resources
OWR Lake Michigan Management Section
Michael A. Bilandic Building
160 N. LaSalle Street, Suite S-703
Chicago, Illinois 60601

Re: Letter of Support for Elder and Centennial Park Project

Dear Army Corps of Engineers and Illinois Department of Natural Resources:

Please accept this letter as evidence of our full support for the Winnetka Park District's plan to combine Elder Lane Park and Beach and Centennial Park and Beach to dramatically improve available lakefront recreation programming for Illinois residents to embrace and enjoy.

The Park District's work to create the new park is a wonderful culmination of the vision and strategy adopted by the Winnetka Park District in its Winnetka Waterfront 2030 Plan. We understand the plan is the product of numerous community engagement and planning sessions dating back to 2011 for the Park District and a Village of Winnetka strategy since the 1990s. We visited the two parks and beaches to gain significant appreciation for the design plan to combine the parks and beaches. It is a transformative plan for the benefit of the entire community and the public at large.

During the visit to Elder Lane Beach and Centennial Beach, we witnessed how Lake Michigan's high water levels and increasingly extreme weather conditions have deteriorated the steel groins currently on the site and how the conditions have significantly eroded the shorelines and bluffs at Elder Lane Park and Beach and

GENERAL ASSEMBLY

STATE OF ILLINOIS

Centennial Park and Beach. We also learned about how the Park District has designed a breakwater plan for the new, combined park to protect the shorelines and bluffs and provide a safe recreation environment. In our view(s), the most important component of this new park is that the plan has many thoughtful design features to prevent further erosion of the beaches and bluffs while accomplishing the long-stated goal of creating a unified park with unparalleled amenities for the community.

Importantly, this new Park as designed accomplishes the following key objectives:

- Combines two beach-front parks that are currently separated by a private residence (rendering the beach front impassable) into one contiguous parcel, with nearly 1,000 feet of safe shoreline;
- Creates distinct recreation activities including a swimming area, a non-motorized watercraft area, 800 feet of continuous boardwalk, a large "T-shaped" sunbathing pier, and a new beachfront event space; and
- Generates significant new beach area and protects against further erosion of the beach, bluff and table land by including thoughtfully designed, soil protecting planting pockets and breakwaters with safety enhancements at the northern and southern boundaries of the Park.

Individually and collectively, we fully support the way this park and beach, as designed, addresses potential safety concerns. The new park and beach are expected to attract thousands of visitors per year. The public's safe use of all parts of the park and beach is of the utmost importance, and we support the extra steps taken by the Winnetka Park District to proactively protect our citizens and patrons.

GENERAL ASSEMBLY
STATE OF ILLINOIS

Thank you for your work and please feel free to contact us if you would like to discuss any aspect of this new Park further.

Sincerely,

Robyn Gabel
State Representative
District Office Address
2100 Ridge, Suite 2600
Evanston, IL 60201

Laura Fine
State Senator
District Office Address
1812 Waukegan Road, Suite A
Glenview, IL 60025

Village of
WINNETKA, IL
Office of the Village Manager
847.716.3541

510 Green Bay Road • Winnetka, IL 60093 • 847.501.6000
contactus@villageofwinnetka.org • villageofwinnetka.org

October 8, 2021

United States Army Corps of Engineers
Chicago District
Regulatory Branch
231 S. LaSalle Street, Suite 1500
Chicago, IL 60604

Illinois Department of Natural Resources
OWR Lake Michigan Management Section
Michael A. Bilandic Building
160 N. LaSalle Street, Suite S-703
Chicago, Illinois 60601

Re: Letter of Support for Elder and Centennial Park Project

Dear United States Army Corps of Engineers and Illinois Department of Natural Resources:

Please accept this letter as evidence of the Village of Winnetka's full support for the Winnetka Park District's plan to combine Elder Lane Park and Beach and Centennial Park and Beach to dramatically improve available lakefront recreation programming, which Illinois residents will embrace and enjoy.

The Park District's work to create the new park is a wonderful culmination of the vision and strategy adopted by the Winnetka Park District in its Winnetka Waterfront 2030 Plan. The plan is the product of numerous community engagement and planning sessions dating back to 2011 for the Park District. The plan also has been part of the Village of Winnetka's current Comprehensive Plan. While we have visited the parks and beaches many times, we most recently visited the two parks and beaches October 5 and October 6 to, again, gain significant appreciation for the design plan to combine the parks and beaches. It is a transformative plan for the benefit of the entire community and the public at large.

We have witnessed how Lake Michigan's high water levels and increasingly extreme weather conditions have deteriorated the steel groins currently on the site and how the conditions have significantly eroded the shorelines and bluffs at Elder Lane Park and Beach and Centennial Park and Beach. The Park District has designed a breakwater plan for the new, combined park to protect the shorelines and bluffs and provide an engaging recreation environment. The most important component of this new park is that the plan has many thoughtful design features to prevent further erosion of the beaches and bluffs while accomplishing the long-stated goal of creating a unified park with unparalleled amenities for all visitors.

Importantly, this new Park as designed accomplishes the following key objectives:

- Combines two beach-front parks that are currently separated by a private residence (rendering the beach front impassable) into one contiguous parcel, with nearly 1,000 feet of shoreline;
- Creates distinct recreation activities including a swimming area, a non-motorized watercraft area, 800 feet of continuous boardwalk, a large "T-shaped" sunbathing pier, and a new beachfront event space; and
- Generates significant new beach area and protects against further erosion of the beach, bluff and tableland by including thoughtfully designed, soil protecting planting pockets and breakwaters at the northern and southern boundaries of the Park.

We fully support the Winnetka Park District's design for this park and beach. The new park and new beach are expected to attract thousands of visitors each year. The public's use of all parts of the park and beach is of the utmost importance, and we support the extra steps taken by the Winnetka Park District to provide remarkable access to Lake Michigan for our citizens and all patrons.

Thank you for your work and please feel free to contact either of us if you would like to discuss any aspect of this new park further.

Sincerely,

Christopher D. Rintz
President, Village Council
Village of Winnetka
510 Green Bay Road
Winnetka, IL 60093

Robert M. Bahan
Village Manager
Village of Winnetka
510 Green Bay Road
Winnetka, IL 60093

October 7, 2021

Mr. Soren Hall
United States Army Corps of Engineers
Chicago District, Regulatory Branch
231 South LaSalle Street, Unit 1500
Chicago, Illinois 60604

James P. Casey, Chief
Lake Michigan Management Section
Illinois Department of Natural Resources
Office of Water Resources
160 N. LaSalle Street, Suite S-703
Chicago, IL 60601

RE: Letter of Support for Elder Lane Park and Beach + Centennial Park and Beach Project

Dear United States Army Corps of Engineers and Illinois Department of Natural Resources:

Please accept this letter as evidence of my full support for the Winnetka Park District's plan to combine Elder Lane Park and Beach and Centennial Park and Beach, which will dramatically improve available lakefront recreation programming for Winnetka residents and the community at large to enjoy for decades to come.

The Park District's work to create the new park is a wonderful culmination of the vision and strategy adopted by the Winnetka Park District in its Winnetka Waterfront 2030 Plan. I understand the plan is the product of numerous community engagement and planning sessions dating back to 2011 for the Park District and a Village of Winnetka strategy since the 1990s. As a Winnetka resident and a neighbor to the north of Elder Lane Park, I often visit the two parks and beaches. I have significant appreciation for the design plan to combine the parks and beaches; it is a transformative plan for the benefit of the entire community and the public at large.

As a resident along the shoreline, I am keenly aware of Lake Michigan's high water levels and increasingly extreme weather conditions. The water levels and severe storms have deteriorated the steel groins currently on the Elder and Centennial shorelines and have significantly eroded the shorelines and bluffs at Elder and Centennial. I have come to learn about how the Park District has designed a breakwater plan for the new, combined park to protect the shorelines and bluffs and provide an engaging recreation environment.

In my opinion, the most important component of this new park is that the plan has many thoughtful design features to prevent further erosion of the beaches and bluffs while accomplishing the long-stated goal of creating a unified park with unparalleled amenities for the community.

Importantly, this new Park as designed accomplishes the following key objectives:

- Combines two beach-front parks that are currently separated by a private residence (rendering the beach front impassable) into one contiguous parcel, with nearly 1,000 feet of shoreline;
- Creates distinct recreation activities including a swimming area, a non-motorized watercraft area, 800 feet of continuous boardwalk, a large "T-shaped" sunbathing pier, and a new beachfront event space; and
- Generates significant new beach area and protects against further erosion of the beach, bluff and tableland by including thoughtfully designed, soil protecting planting pockets and breakwaters at the northern and southern boundaries of the combined property.

I fully support the Winnetka Park District's Elder and Centennial plan, as designed. The new park likely will attract thousands of visitors per year. The public's use of all parts of this park received my full support. I appreciate the extra steps taken by the Winnetka Park District to proactively provide Winnetka residents and all park patrons with remarkable access to Lake Michigan.

Thank you for your work with the Winnetka Park District.

Sincerely,

Dmitry Godin

Dmitry Godin
319 Sheridan Road
Winnetka, IL 60093

October 7, 2021

Mr. Soren Hall

United States Army Corps of Engineers

Chicago District, Regulatory Branch

231 South LaSalle Street, Unit 1500

Chicago, Illinois 60604

James P. Casey, Chief

Lake Michigan Management Section

Illinois Department of Natural Resources

Office of Water Resources

160 N. LaSalle Street, Suite S-703

Chicago, Illinois 60601

RE: Letter of Support for Elder Lane Park and Beach + Centennial Park and Beach Project

Dear United States Army Corps of Engineers and Illinois Department of Natural Resources:

Please accept this letter as evidence of my full support for the Winnetka Park District's plan dated September 9, 2021 to combine Elder Lane Park and Beach and Centennial Park and Beach, which will improve available lakefront recreation programming for Winnetka residents and the community at large to enjoy for decades to come. The Park District's work to create the new park is a wonderful culmination of the vision and strategy adopted by the Winnetka Park District in its Winnetka Waterfront 2030 Plan. I understand the plan is the product of numerous community engagement and planning sessions dating back to 2011 for the Park District and a Village of Winnetka strategy since the 1990s. As a Winnetka resident and a neighbor to the north of Elder Lane Park, I often visit the two parks and beaches. I have great appreciation for the design plan to combine the parks and beaches; it is a transformative plan for the benefit of the entire community and the public at large.

As a resident along the shoreline, I am keenly aware of Lake Michigan's high water levels and the damage resulting therefrom. The recent water levels and severe storms have deteriorated the steel groins currently on the Elder and Centennial shorelines and have significantly eroded the shorelines and bluffs at Elder and Centennial. I support the Park District's breakwater plan for the new, combined park to protect the shorelines and bluffs and, at the same time, provide a remarkable recreation environment. The most important component of this new park is that the plan has many thoughtful design features to prevent further erosion of the beaches and bluffs while accomplishing the long-stated goal of creating a unified park with unparalleled amenities for the community.

Importantly, this new Park as designed accomplishes the following key objectives:

- Combines two beach-front parks currently separated by a private residence (rendering the beach front impassable) into one contiguous parcel, with nearly 1,000 feet of shoreline;
- Creates distinct recreation activities: a swimming area, a non-motorized watercraft area, 800 feet of continuous boardwalk, a large "T-shaped" sunbathing pier, and a new beachfront event space; and
- Generates significant new beach area and protects against further erosion of the beach, bluff and tableland by including thoughtfully designed, soil protecting planting pockets and breakwaters with enhancements at the northern and southern boundaries of the Park.

I fully support the plan for Elder and Centennial, as designed. The new park likely will attract thousands of visitors per year. The public's use of all parts of this park is of the utmost importance, and I support the extra steps taken by the Winnetka Park District to proactively provide such for Winnetka residents and all park patrons.

This letter of support does not grant any easements to the Winnetka Park District.

Thank you for your work with the Winnetka Park District.

Sincerely,

301 Sheridan Road, Winnetka, IL 60093

Re: Letter of Support for Elder and Centennial Park Project 10/5/2021

Dear Winnetka Park District,

My family and I would like to express our complete support for the pending combination of Elder and Centennial Park into one large lakefront park and beach system. We are in full support of the combined park in its current design.

We are excited about the many opportunities and amenities the project offers to all Winnetka residents and their guests. We appreciate the Park District's effort to support infrastructure improvements which are required due of high lake water levels, and address erosion and bluff deterioration through the project.

Additionally, we fully encourage the Park District's addition of an accessible walking path to the beach and the new driveway allowing emergency vehicle access to the beach. Should the Park District allow any kind of usage for dogs, keeping the dogs on Park District property and beach is critical.

Thank you to the Winnetka Park District for their planning, hard work, and perseverance to bring these unbelievable new amenities to the shores of our Village.

Sincerely,

Re: Letter of Support for Elder and Centennial Park Project 10/5/2021

Dear Winnetka Park District,

My family and I would like to express our complete support for the pending combination of Elder and Centennial Park into one large lakefront park and beach system. We are in full support of the combined park in its current design.

We are excited about the many opportunities and amenities the project offers to all Winnetka residents and their guests. We appreciate the Park District's effort to support infrastructure improvements which are required due of high lake water levels, and address erosion and bluff deterioration through the project.

Additionally, we fully encourage the Park District's addition of an accessible walking path to the beach and the new driveway allowing emergency vehicle access to the beach. Should the Park District allow any kind of usage for dogs, keeping the dogs on Park District property and beach is critical.

Thank you to the Winnetka Park District for their planning, hard work, and perseverance to bring these unbelievable new amenities to the shores of our Village.

Sincerely,

LEO BIRDA
195 SHERIDAN
WINNETKA, IL, 60093
847-462-0502

JOINT APPLICATION FORM FOR ILLINOIS

ITEMS 1 AND 2 FOR AGENCY USE

1. Application Number	2. Date Received

3. and 4. (SEE SPECIAL INSTRUCTIONS) NAME, MAILING ADDRESS AND TELEPHONE NUMBERS

3a. Applicant's Name:	3b. Co-Applicant/Property Owner Name (if needed or if different from applicant):	4. Authorized Agent (an agent is not required):
John Peterson, Executive Director	Peter Lee, Trustee	Jon Shabica
Company Name (if any): Winnetka Park District	Company Name (if any): Orchard Revocable Trust	Company Name (if any): Shabica & Associates, Inc.
Address: 540 Hibbard Road Winnetka, IL 60093	Address: 353 N. Clark Street, Floor 27 Chicago, IL 60654	Address: 550 Frontage Road, Suite 3735 Northfield, IL 60093
Email Address: JPeterson@winpark.org	Email Address: peter.lee@summittrail.com	Email Address: jon@shabica.com
Applicant's Phone Nos. w/area code Business: 847-501-2074 Residence: Cell: Fax:	Applicant's Phone Nos. w/area code Business: 312-660-1260 Residence: Cell: Fax:	Agent's Phone Nos. w/area code Business: 847-446-1436 Residence: Cell: Fax:

STATEMENT OF AUTHORIZATION

I hereby authorize, _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.

Applicant's Signature — Date: 11.01.2021 (JF) 11/2/21 (PL)

5. ADJOINING PROPERTY OWNERS (Upstream and Downstream of the water body and within Visual Reach of Project)

Name	Mailing Address	Phone No. w/area code
a. see attached list		
b.		
c.		
d.		

6. PROJECT TITLE:
Breakwater-Protected Beach System

7. PROJECT LOCATION:
299, 261 and 225 Sheridan Road, Winnetka, IL 60093

LATITUDE: 42.09959 °N LONGITUDE: -87.71571 °W	UTMs Northing: 4661083.75 m Easting: 16T 440816.10 m

STREET, ROAD, OR OTHER DESCRIPTIVE LOCATION	LEGAL DESCRIPT	QUARTER	SECTION	TOWNSHIP NO.	RANGE
299, 261 and 225 Sheridan Road		SE	21	42N	13E

☐ IN OR ☐ NEAR CITY OF TOWN (check appropriate box)
Municipality Name: Winnetka

COUNTY	STATE	ZIP CODE	WATERWAY	RIVER MILE (if applicable)
Cook	IL	60093	Lake Michigan	

Revised 2010

☐ Corps of Engineers ☐ IL Dep't of Natural Resources ☐ IL Environmental Protection Agency ☐ Applicant's Copy

8. PROJECT DESCRIPTION (Include all features):

This application is for a breakwater protected beach system comprised of three quarrystone and steel breakwater structures and a steel and concrete pier in the center. All the lengths noted below are toe to toe. The northernmost breakwater is a shore-connected stone and steel breakwater that projects east 265' and then curves south. The west 100' is a capped steel sheetpile planting pocket tapering from 590' at the bluff toe to 587'. Steel wave louvers attached on the northern cap of the sheeting will extend 155' lakeward as measured from the toe of the bluff, tapering from 596.7' down to 588.6'. The eastern 155' of the structure will be quarrystone with a 3 stone crest tapering from 587' to 586' lakeward. The existing 54" stormwater outfall will be relocated into this breakwater with two 36" steel ductile pipes that exit at the east end of the structure. Moving to the south after a 150' gap is a 260' long breakwater/pier with a 300' long steel and concrete pier connecting to land. The lakeward portion of the pier will be 15' wide with a crest of 585' surrounded by quarrystone with a crest at 587'. The land connecting section will be 12' wide and will taper from 587' landward to 585' where is connects to the lakeward section. Moving south past a 180' gap, there is the southernmost 300' shore-connected breakwater. This breakwater will mirror the north breakwater. The west 100' is a capped steel sheetpile planting pocket tapering from from 591' at the toe of the bluff to 587'. Steel wave louvers attached on the southern cap of the sheeting will extend 185' lakeward as measured from the toe of the bluff, tapering from 597.5' down to 588.5'. The eastern 120' of the structure will be quarrystone with a 3 stone crest tapering from 587' to 586' lakeward to help reduce wave overtopping. The slopes of all quarrystone structures will be 1v:1.5h, and sandfill will be placed in accordance with IDNR regulations.

9. PURPOSE AND NEED OF PROJECT:

Stabilization of a public beach facility, as well as bluff toe protection

COMPLETE THE FOLLOWING FOUR BLOCKS IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

10. REASON(S) FOR DISCHARGE:

Stabilization of a public beach facility, as well as bluff toe protection

11. TYPE(S) OF MATERIAL BEING DISCHARGED AND THE AMOUNT OF EACH TYPE IN CUBIC YARDS FOR WATERWAYS:

TYPE: Quarried stone and sand

AMOUNT IN CUBIC YARDS:

9,276 cubic yards of stone, 23,200 cubic yards of sand

12. SURFACE AREA IN ACRES OF WETLANDS OR OTHER WATERS FILLED (See Instructions)

1.0 acre

13. DESCRIPTION OF AVOIDANCE, MINIMIZATION AND COMPENSATION (See instructions)

After working through the master plan process, the design meets the needs of the community.

14. Date activity is proposed to commence: Summer 2022

Date activity is expected to be completed: Fall 2023

15. Is any portion of the activity for which authorization is sought now complete? Yes [ ] No [X]

Month and Year the activity was completed

NOTE: If answer is "YES" give reasons in the Project Description and Remarks section. Indicate the existing work on drawings.

16. List all approvals or certification and denials received from other Federal, interstate, state, or local agencies for structures, construction, discharges or other activities described in this application.

Issuing Agency	Type of Approval	Identification No.	Date of Application	Date of Approval	Date of Denial

17. CONSENT TO ENTER PROPERTY LISTED IN PART 7 ABOVE IS HEREBY GRANTED. Yes No

18. APPLICATION VERIFICATION (SEE SPECIAL INSTRUCTIONS)

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

Signature of Applicant or Authorized Agent — Date: 2-24-2022

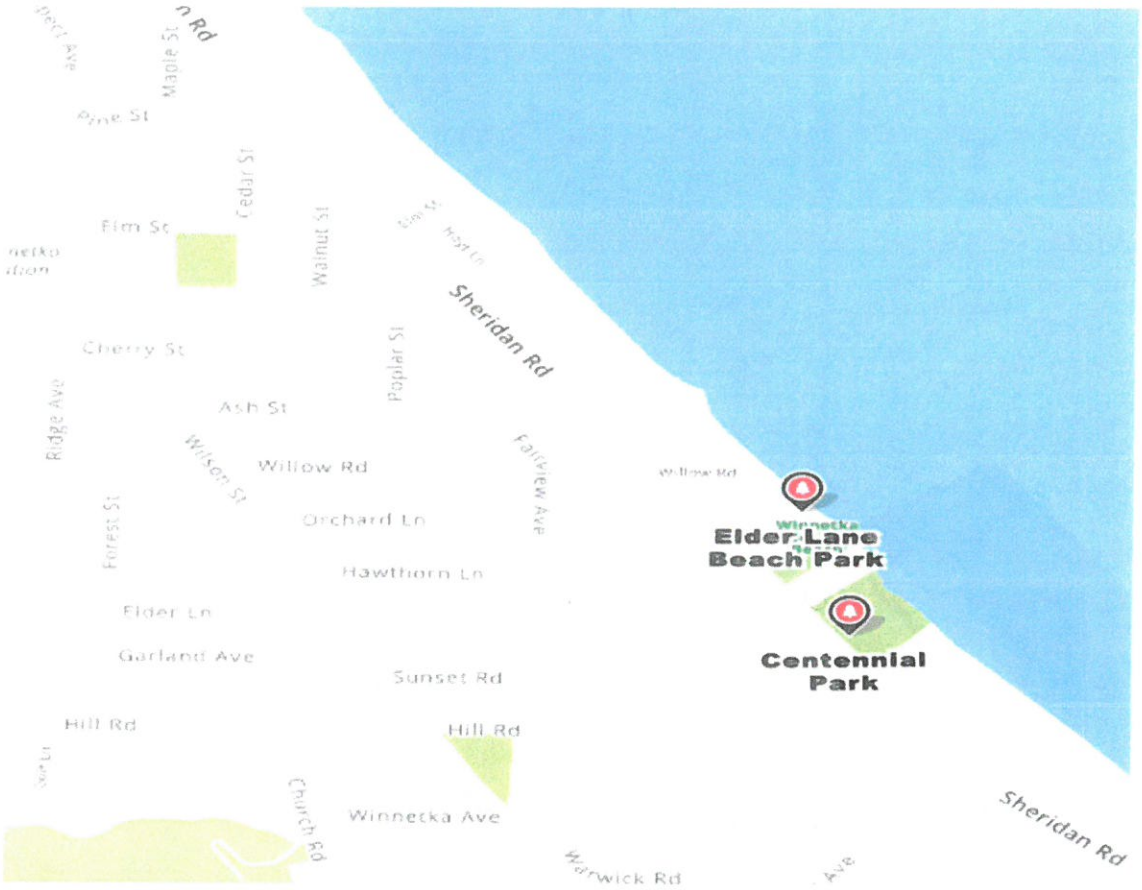
Signature of Applicant or Authorized Agent — Date

Signature of Applicant or Authorized Agent — Date

[ ] Corps of Engineers Revised 2010 [ ] IL Dep't of Natural Resources [ ] IL Environmental Protection Agency [ ] Applicant's Copy

SEE INSTRUCTIONS FOR ADDRESS

Vicinity Map



Shoreline Stabilization Project

Elder Lane Park and Centennial Park
299, 261 and 225 Sheridan Road
Winnetka, IL 60093

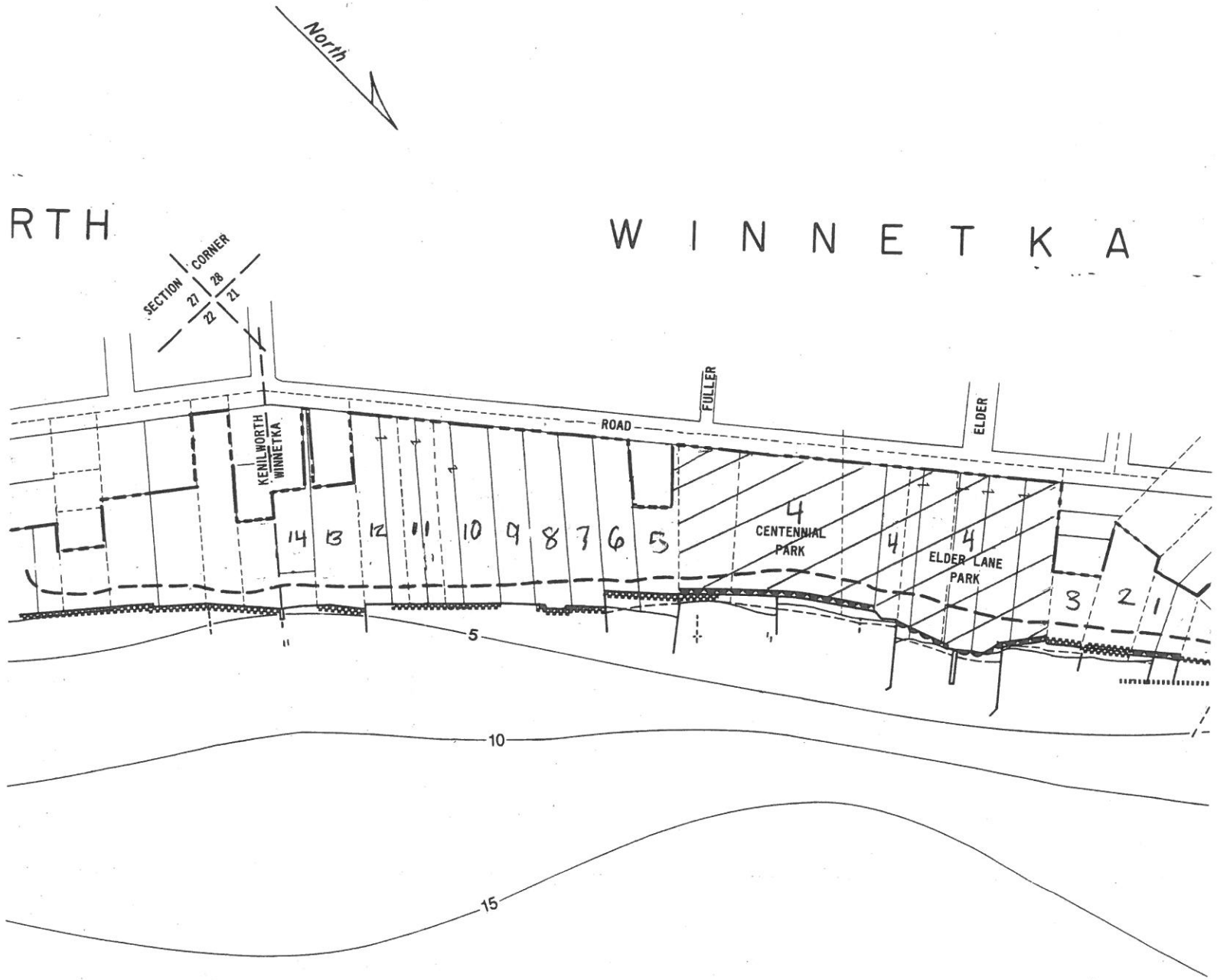
Shabica & Associates, Inc.

Location of Project: 299, 261 and 225 Sheridan, Winnetka, IL 60093

List of property owners (from North to South):

1. Doug & Karen Kiersey, 335 Sheridan Road, Winnetka, IL 60093
2. Dmitry Godin, 319 Sheridan Road, Winnetka, IL 60093
3. John A. Edwardson, 301 Sheridan Road, Winnetka, IL 60093
   (mailing: 585 Bank Lane, Lake Forest IL 60045)
4. Subject Properties: Elder Lane Park, 299 Sheridan Road, Winnetka, IL 60093
   (mailing: Winnetka Park District, 540 Hibbard Road, Winnetka, IL 60093)
   Orchard 2020 Revocable Trust, 261 Sheridan Road, Winnetka, IL 60093
   (mailing: 353 N. Clark Street, Floor 27, Chicago, IL 60654)
   Centennial Park, 225 Sheridan Road, Winnetka, IL 60093
   (mailing: Winnetka Park District, 540 Hibbard Road, Winnetka, IL 60093)
5. Orchard 2020 Revocable Trust, 209 Sheridan Road (to be known as 205 Sheridan Road), Winnetka, IL 60093
   (mailing: 353 N. Clark Street, Floor 27, Chicago, IL 60654)
6. Walton 2019 Revocable Trust, 203 Sheridan Road (to be known as 205 Sheridan Road), Winnetka, IL 60093
   (mailing: 353 N. Clark Street, Floor 27, Chicago, IL 60654)
7. Leo Birov, 195 Sheridan Road, Winnetka, IL 60093
   (mailing: 1741 Harding Road, Northfield, IL 60093)
8. Nancy Santi, 191 Sheridan Road, Winnetka, IL 60093
9. Joint Management LLC, 181 Sheridan Road, Winnetka, IL 60093
   (mailing: 309 W. Chicago Avenue, #1R, Chicago, IL 60654)
10. Robert & Carol Rasmus, 175 Sheridan Road, Winnetka, IL 60093
11. Richard Tinberg, 159 Sheridan Road, Winnetka, IL 60093
12. Jason Hanold, 151 Sheridan Road, Winnetka, IL 60093
    (mailing: 207 Cumberland Avenue, Kenilworth, IL 60043)
13. John McDonagh III, 141 Sheridan Road, Winnetka, IL 60093
    (mailing: 700 Harvard Street, Wilmette, IL 60091)
14. Mike Bonds, 139 Sheridan Road, Winnetka, IL 60093
    (mailing: 137 Sheridan Road, Winnetka, IL 60093)

550 Frontage Road • Suite 3735 • Northfield, Illinois 60093 • Tel 847.446.1436 • info@shabica.com
www.shabica.com



LOCATION MAP

Elder/Centennial Beach Monitoring **February 24, 2022**

As the performance of shore protection structures cannot be predicted with absolute certainty, the shore protection system for Elder/Centennial Beach, Winnetka will be inspected as described in the 5-Year Monitoring Plan.

Objective: Document amount of sand that accumulates or is lost from the littoral system after construction of the proposed project. Based on 30+ years experience monitoring similar projects, for example Sunrise Beach, Lake Bluff and Forest Park Beach, Lake Forest, we recommend the following:

Survey: Pre and Post construction (as-built) and 4 more annual surveys.

Method: Bathymetry using Trimble R10 GPS Receiver with Hydrolite-TM Single Beam Echosounder. Survey tied to Trimble VRS Now Network. Data points are collected in NAVD88 Datum, converted to IGLD88. Lakebed elevation changes will be shown at 1 foot intervals along shore perpendicular transects spaced 50 feet apart at project site and 100 feet apart downdrift.

Location: 500 feet updrift (north) of Elder Lane Park, 950 feet through both beaches and 700 feet downdrift (south) of Centennial Park. Bathymetric surveys to extend from bluff toe (or seawall or revetment) to 600 feet offshore. See attached map.

Sand Loss/Gain: Calculate annual sand volume change within the beach system as well as updrift and downdrift properties. Show areas of sand gain and loss. Any dredged material removed after the most recent survey will be included in the sand calculations for the following year.

Additionally:

1. Surveys will be performed by a licensed surveyor with experience working in coastal environments
2. Surveys will be performed on the water when wave conditions are less than one foot
3. The location of the Ordinary High Water Mark (581.5 IGLD-85) will be clearly marked along the entire monitoring area
4. Survey notes will include: water level and weather/wave conditions at the time of the data collection
5. Records of major storm events occurring each year will be included

550 Frontage Road • Suite 3735 • Northfield, Illinois 60093 • Tel 847.446.1436 • info@shabica.com
www.shabica.com


LOCATION MAP
ELDER/CENTENNIAL BEACH MONITORING SURVEY
(Profiles spaced 50 feet apart)
North
W I N N E T K A
CORNER
ROAD
FULLER
ELDER
KENILWORTH
WINNETKA
CENTENNIAL PARK
ELDER LANE PARK
WILLOW RD.
600'
700'
950'
500'
5
10
15
20
L A K E M I C H I G A N