



WATKINS ISLAND

EAST SEAWALL & DOCKS DISCUSSION

## **INTRODUCTION.**

This publication is intended to document the long journey the BLYC has traversed over the last ten years with respect to Watkins Island's seawalls and other structures protecting and supporting the island and docks. However, the east seawall and covered dock structures are intended to be the main focus of this publication. Our intent is to refresh the memories of our long standing members and to inform our more recently invited members of the efforts undertaken by previous Boards in support of these significant capital improvements.

The 2010 BLYC Board had a complete engineering study done for the island bridge, seawalls and wharves. The executive summary of this study is included in the first few pages of this publication. The full study is available electronically and provides the basis for many of the decisions surrounding these expenditures.

Following the release of the study and publicly sharing the recommendations with membership, the Board and Trustees at that time voted down moving forward on any of the recommendations.

Fast forward a number of years: A hand full of years back the Board started revitalizing a capital plan by creating a Finance Committee and identifying major capital improvement projects as well as how to fund them. Since that time our projects have been identified, prioritized and re-prioritized each year. We had Phased planning for about 4 to 5 phases of work around the exterior of the island. Phase I became the seawall around the pool due to necessity in protecting the pool structure from failure. Then the progression was directed around the north side of the island and then to the east. What was Phase II and III became Phase II A & B primarily due to permitting. It took one year to obtain a permit for the north side and we were able to piggy back the east side as a part of it. Once the dam was completed, ODNR now requires all seawall permits around the island to be approved by the Army Corps of Engineers in Huntington, WV as well as the Ohio EPA and Ohio Historical Society. We could have been using the jet ski docks last summer if not for this long permitting time.

Long before the Board could even be presented with ideas and quotes for the east side of the island, the Board at that time was bombarded with accusations of non-transparency and secrecy mainly via social media. Note that the Board in 2020 did not entertain a presentation of a project plan or formal bid and did not vote on any course of action regarding the east seawall or covered docks. However, several ideas and possible solutions were floated among the membership on a casual basis during the summer. The topic was then brought up and discussed at the Commodore's luncheon in August 2020 which resulted in a meeting between the flag officers and representatives of the Commodore's Association expressing concern for the direction they believed the Board was taking. All progress was halted for the east side! The Board committed to taking a fresh look at the options which brings us to the issue at hand today-repairing the east seawall and contending with the covered docks.

Please read through the following pages / reports / letters / etc. The intention is to provide everyone with factual information so that eventually the current 2021 Board of BLYC can vote on what they feel is best for the BLYC and it's membership. Questions are welcome, please present in writing.

# 2010 STUDY

BY



**SHIRK & O'DONOVAN**  
CONSULTING ENGINEERS, INCORPORATED  
370 EAST WILSON BRIDGE ROAD  
WORTHINGTON, OHIO 43085  
TEL (614) 436-6465 FAX (614) 436-6485

## I. EXECUTIVE SUMMARY

We have been authorized to perform a structural condition assessment and to recommend repairs for the Watkins Island seawall, wharves and bridge. Some conditions at the site have deteriorated to the point of obvious damage, and the governing body of the Yacht Club seeks to begin planning for repairs and appropriation of funds for repairs.

Methods of assessment consisted of multiple trips to the site. We rented a boat and performed observations from the lake. We also performed observations from land. We probed the depth of the lake around Watkins Island and the two wharves. We probed concrete and steel surfaces, but did not test any samples or materials. We interviewed several individuals familiar with Buckeye Lake, including residents, past and present Yacht Club members, and agencies including the Army Corps of Engineers, Ohio Department of Natural Resources, local county agencies. We reviewed publications that provided a history of the region. We performed an exploratory excavation at the south end of Watkins Island. We obtained and reviewed existing soil borings provided by ODNR. We commissioned a limited scope overlay survey. See Sheet SP-1.

The following is a summary of our observations:

1. The concrete portions of the seawall around Watkins Island, for the most part, may be on the order of a hundred years old, but their condition is good, exceeding expectations for walls of this age. A typical cross section is depicted in Section S-5.
2. A portion of the Watkins Island concrete seawall along the east side is deteriorated to the point that replacement is recommended.
3. The steel sheet piling portions of the seawall around Watkins Island are in various stages of deterioration, but most of the steel sheet piling has useful service life remaining. A typical cross-section is depicted in Section S-4. We recommend one area for replacement as shown on Drawing SP-1.

4. The two wharves south of Watkins Island display advanced stages of deterioration such that their useful service life has ended and we strongly recommend replacement.
5. The bridge is in good condition, and requires maintenance work only.

The following is a summary of our recommendations for repairs:

1. Replace a section of concrete seawall at the east side of Watkins Island with new driven steel sheet piling. Abandon deteriorated concrete in place.
2. Replace a section of existing steel sheet piling with new driven steel sheet piling at the southwest edge of Watkins Island. Abandon existing steel sheet piling in place.
3. Remove the top of the concrete seawall around Watkins Island and replace with new concrete.
4. Demolish and replace both wharves south of Watkins Island. Three suggested schemes for replacement wharves are depicted in Drawings S-1, S-2 and S-3. Expected useful service life of replacement wharf schemes recommended is up to 70 years for the steel portions of the wharves. The concrete surface will likely need to be replaced prior to 70 years.
5. Use precast concrete planks for the wharf surface. Seal the surface of the precast concrete planks.
6. Replace wharf lighting.
7. Provide new stainless steel or aluminum ladders leading from the wharves to the lake.
8. Clean and paint the steel beams under the bridge.

For planning purposes, costs for the repairs described above could vary between \$900,000 and \$1.4 million, depending on the replacement wharf scheme selected. Construction work is likely going to require two seasons to complete based on the amount of work to be completed, but could be completed in one season with a more-aggressive approach and careful planning. Some concrete work and painting cannot be performed in the winter, and will have to be scheduled around non-winter months.

**The following report was written by Commodore Pyle following a meeting between the Flag Officers and two representatives of the Commodore's association last fall.**

Commodores Harris and Ryan,

This letter is in response to your request and suggestions made during and shortly after the meeting with Vice Commodore Ames, Rear Commodore Campbell and me on Thursday, September 3, 2020.

### **Current Status**

The current sea wall from the recently installed bridge and extending along the east side of the island has failed and the island is eroding into the lake. This can be observed from points on the island, but is best viewed when the lake is lowered and members can observe the erosion under the boardwalk along the covered docks. These conditions can easily be observed visually and only reinforce the conclusions of the engineering study. When the water is lowered in November, anyone can observe the deterioration that has occurred over the years negatively impacting the structure. Several posts that were once 4"X4" have been eroded to 2"X2" sticks reducing strength by 75 percent. Over the years measures have been taken to slow the erosion by adding rip rap, concrete materials and soil backfill in an effort to preserve the island and avoid impacting the covered docks.

As we stated at the outset of the meeting, no expenditures or actions have been approved by the Board or Trustees regarding the future of the docks and sea wall on the east side of the island. Thus far in our deliberations and construction plans we have relied upon the engineering study procured by the Club in 2010 from what is now known as IBI. We have also engaged IBI to update the data to provide the Army Corps of Engineers what they needed for approvals. This was true with respect to the sea walls surrounding the pool and what is to be constructed at the rear of the Club with slight dimension modifications we were able to make relying upon Club resources. Since that study was issued the path for approval of any construction concerning the island or piers has changed significantly. Instead of simply gaining approval from ODNR, now the Army Corps of Engineers, Ohio EPA and Ohio Historical Society have been added as required approvers of any plans. The Army Corps of Engineers approval requires the longest timeline as they review the plans methods and materials used in construction.

Based upon the 2010 study and taking into consideration how much lead time it takes to get plans approved, the Board applied for approval to build the rear sea wall and we also sought approval to continue under the 2010 plan along the east side. We asked to install a sheet pile wall along the rear corner on the east side of the bridge that continued down the east side of the island. Because we had the existing engineering plan and relied upon it in our application, we were not required to obtain any additional professional assistance to file the application. All approving entities approved the permit to proceed. The permit is good for two years from issuance to complete construction.

## **Construction Bidding**

The Board is evaluating the current situation where there are covered docks standing along the shore of the east sea wall. There are currently twelve docks under cover. We invited the two primary builders on the lake to bid the project and both confirmed they would not be able to access the construction site to install the steel sheet piling without removing the docks. Thus far we have asked for four sets of bids from each of the contractors:

The cost to remove the covered docks to gain construction access.

The cost of installing the sheet pile sea wall.

The cost of installing twelve new docks using a steel frame construction treated lumber decking and electrical service. Each was asked to factor in their design, the ability to add a cover to the new docks now or at a future date to maintain flexibility.

The cost of installing the roof over the newly installed docks.

You asked why we requested the bids be split into separate parts. We indicated that we asked for separate parts because we felt that these were well defined construction segments and could be completed in stages and to allow the Board greatest flexibility in how best to assess the cost/benefit and determine the timing.

## **Capital Improvements**

Over the last few years the Board has tried to raise awareness of the number of areas needing repaired or replaced and find sources of funding for those projects. We have adopted an approach that we should not delay projects but to undertake them as funds allow in a way that is a long term solution and avoid placing a band aid over the problem. Do the projects get completed as quickly as the Boards would like, absolutely not. Are we pushing forward to get them completed, definitely.

We have been monitoring the stability of the pool and clubhouse, both of which indicated a need for improvements to stabilize the facilities. Some of the more obvious higher dollar projects the Board identified include the back stairs to the Club, the sea walls securing the island, the breakwater piers in the central and west basins for accessing the island docks, the kitchen remodel to stay in compliance with board of health, the pool area including voids surrounding the pool, the Area 800 dock replacement and the front street entrance and parking lot to get the prioritization started. Some have been completed.

One of the other areas that the Board identified needing funding was the evaluation of the covered docks to repair and stabilize the structure aside from securing the sea wall.

## **Covered Docks**

Clearly it's the future of the covered docks that is generating the greatest interest and concern from some of our members, both those directly impacted and a few other long term members. We understand this was the primary reason you were asked to meet with us. From our meeting, we came away with an understanding that some believed it was the Board's intent to have the covered docks removed by installing a sea wall that would require their removal. Let us be clear – the intent of replacing the sea wall is not a disguised effort specifically crafted to remove the covered docks, but to stabilize the island and stop erosion in conjunction with the

2010 engineering study. On the contrary, anyone who takes the time to objectively investigate the covered docks as they stand today would recognize that they are in need of significant repair, both from an aesthetics standpoint, but more importantly from the structural integrity aspect.

The Board also acknowledges that covered docks have been in place along the east side of the island in a few different forms for many decades and that alone warrants recognizing the historical significance of the covered docks. We are also cognizant of the tradition and the long wait it takes to get a covered dock. As you know we are also charged with allocating scarce financial resources to the plethora of projects in the queue. In the analysis we are weighing and considering all competing projects along with the supporting or opposing constituencies for each. Even if we were to choose an alternative to stabilizing the island we would still be faced with a facility in need of improvement.

### **Internal Resources**

In addition to the engineering report, the Board has requested informal input of engineers who are Club members to gather their suggestions and opinions. These are engineers who specialize in structures, soils and hydraulics. They have relayed to us that the sheet pile wall is generally the most cost effective solution, however concrete is an alternative solution. In addition they recommend a more thorough analysis of the covered docks in order to determine the structural improvements needed and cost if they are able to be preserved.

### **Sea Wall Alternatives**

The Army Corps of Engineers has approved steel sheet pile surroundings and in gaining that approval we had to provide information like the type of sheet pile including lengths, steel gauge, tie backs and back fill material. In order to change to an alternative construction material, we would be required to return to the Army Corps of Engineers with a new study to support the design and use of the materials along with a construction plan. We have reviewed the Army Corps of Engineers specifications and it is clear that concrete or earthen materials have their own approval criteria. To change course will require additional time for the Board and added cost to the project to make the change to a different solution.

### **Moving Forward**

Since our meeting and the concerns you raised, we have requested from IBI an estimate of what it would cost to assess the use of different construction approaches for the sea wall and the impact on possibly retaining the covered docks. In addition we are requesting they provide us an estimate to assess the integrity of the covered docks and what they would recommend needs to be done to restore them.

Once we have additional information the new Board that is seated on September 20th will be faced with evaluating the proposals and determining a course of action. We also plan to tap into our Club resources to assist in this approach.

As past Commodores of this Club you know that our members often have differing opinions on how the Club should operate and spend its money. The members entrust that the Board will take the differing views under consideration when making decisions. We are pausing and doing just that as we evaluate next steps. But let us not ignore the elephant in the room – there are those who advocate for retaining the status quo and a few who directly benefit from it whereas there are those who have adapted to the open feel of the renovated North Bank dam and expressed an interest in gaining an unobstructed eastward view.

The current Board is fully aware of the sensitivity of this project and I have confidence the new Board and Trustees will move forward judiciously and take into consideration the varying viewpoints.

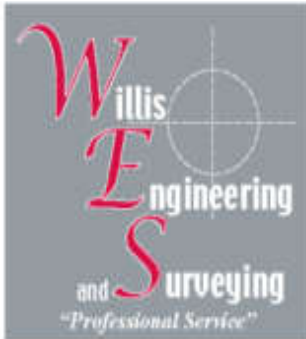
Sincerely,

Mark A Pyle

Commodore 2020

**The next few pages contain letters from Professional Engineers. They are BLYC members and were kind enough to donate their time and expertise to give a current evaluation of some of the conditions we face.**





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Web: [www.willisengineer.com](http://www.willisengineer.com)

Address: 12512 West Bank Dr., Millersport, Ohio 43046

December 4, 2020

Mr. Bruce Ames  
Commodore, Buckeye Lake Yacht Club  
5019 N. Bank Rd  
Buckeye Lake, OH 43008

RE: Sea Wall Repair, east side of island

Dear Mr. Ames;

After reviewing the site and reports for the Sea Wall replacement, prepare by Sands Decker and Shirk & O'Donovan, we believe the sheet piling option, driven to bearing, with dead man lateral supports, is the most viable solution.

This opinion is based on the need to maintain as much of the existing covered docks as possible, and construction access for the equipment needed to install the wall. The limiting factor for constructing this wall with sheet piling, is the headroom required for driving the sheet piling. Other methods of construction, such as a concrete wall, would require significant excavation in the lakebed to construct the footing. This excavation would also need to be dewatered to pour the concrete, which may become very expensive and disruptive.

Sincerely,



Todd D. Willis, PE

A handwritten signature in blue ink that reads "Todd D. Willis".

29-December-2020

Commodore Bruce Ames  
Buckeye Lake Yacht Club

Re: Structural Observations of Dock and Stair structures

At your request, we meet at the Buckeye Lake Yacht Club in late November to review the conditions of a portion of the covered docks on the east side of the island and the stair framing on the north side of the building. The review was requested to conduct visual observations of the structures framing and provide a structural assessment of the framing. The assessment and possible repairs of the dock framing are related to the upcoming installation of new sheet piling wall that is intended to replace the deteriorated concrete and masonry retaining wall. The new sheet piling is intended to start on the east side of the bridge, extend along the north side of the island, and then extend south along the east side for approximately 100 feet.

The covered docks located along the east side of the island consist of 12 total boat docks, access walkways, and roof framing. The docks appear to have been constructed in 3 sections, the southern 5 docks, the middle 6 docks and a single dock at the north end. The observations are focused on the middle and north sections as these will be affected by the new sheet piling wall. The roof framing for the middle and north docks primarily consists of pre-fabricated wood roof trusses having an approximate 3 to 12 pitch, metal roofing on flat 2x purlins, and wood beams at the east and west ends of the trusses. The beams span between 4x4 and 6x6 wood posts that extend through the water into the soils below. The framing for the walkways around the boat slips consist of flat 2x wood decking on 2x wood beams supported by the wood posts that support the roof framing and intermediate 4x4 wood posts that extend above the walkway approximately 3 to 4 feet. Additional framing has been added to and around the roof and walkway framing to accommodate boat lifts at several locations but this framing is generally independent of the roof and walkway framing and is not considered part of this report.

Generally, the roof and walkway framing appear to be in poor to fair condition. Due to the age and severe environment of the framing, some indications of potentially damaged and rotting members were observed but none appeared to be in imminent danger of collapse. The roof trusses appeared to be structurally sound and no significant splits or broken members were observed. The joints and connections at the node points of the truss members appeared to be tight and no indications of movement, slippage, or reduced capacity was observed in the trusses. Several locations along the walkways around the boat slips were found to have weak spots with large deflections which are likely the result of some damaged and deteriorated beams and decking boards. These conditions were intermittent and should be repaired or replaced soon through a regular maintenance and repair program. The wood posts supporting the walkways and roof framing are generally in fair condition but some indications of rotting, reduced cross section, and deteriorated members were observed, especially in the splash zone area around normal water level. The posts do not appear to be in immediate need of repair but these should be reviewed in the fall of each season and repairs or strengthening should be completed on an as needed basis.

As noted, the age of the framing and severe environment has contributed to the degradation of the wood framing. At this time the framing appears to be generally structurally sound but there are a few areas where the members should be repaired or replaced. Additionally, due to the environmental conditions, rotting and deterioration of the framing can accelerate quickly, once started, so continued monitoring of the structures is recommended along with completing repairs or replacements as necessary.

The second portion of the visit included observations of the stair tower framing located on the exterior of the north side of the building. The stairs extend from the ground level to the second floor of the building. The stair framing consists of 5 steel tube columns supporting channel stringers and landing beams. The 3 landings have concrete slabs. The lowest level of stair treads is comprised of checker plates and the other 2 levels of stair treads appear to be precast concrete. The majority of the framing appears to be in good condition and is structurally sound having many areas where surface rust has started. It was also observed that the concrete surface on the first landing is very rough and uneven, and it appears that the use of de-icing materials has most likely contributed to the deterioration of the concrete surface. The deterioration of the concrete appears to be primarily on the surface and does not appear to have affected the structural capacity of the landing at this time. Significant rusting of the lowest pair of channel stringers from the ground level to the first landing was also noted during the visit. The use of de-icing materials also appears to have contributed to this deteriorated condition. The rusting observed did appear to be primarily surface rust at most locations however some areas of flaking and pack rust were noted which reduces the capacity of the members. At this time, it appears that the structural capacity of the affected stringers has been reduced some but sufficient capacity to support the imposed loads currently exists. Based on the current condition, and the likely continued use of de-icing materials, the deterioration of the lowest channels will continue to accelerate and repairs will most likely be necessary within a few years. It is recommended that the condition of the lower stringers continue to be monitored on a semi-annual basis to confirm and reassess the structural soundness of these members. Because the majority of the framing appears to be in sound conditions, removal and replacement of the first landing, the lowest level of stringers, and stair treads could be completed to extend the life of the entire stair tower, if desired.

This report is limited in scope and is based solely upon visual examinations of readily accessible areas of the docks and stair framing on the date of the investigation. No representation is made that all defects may have been discovered, and due to the severe environment, it is likely that deterioration can appear and progress quickly. While due care has been exercised in the performance of these professional services, please understand that by accepting these opinions you acknowledge that they are in fact professional opinions and are not intended to be used as a guarantee, warranty, expressed or implied, regarding the adequacy, performance, or condition of the framing investigated.

If you have any questions regarding this report, or need additional assistance, please feel free to contact me.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Curt Langlois', written over a light blue horizontal line.

Curt Langlois P.E.

**The following report was put together by Vice Commodore Campbell. Following the report will be copies of the quotations we received for the different portions of the work.**

### **BLYC Comparison of Information for Phase II B Seawall Project East Side of Club**

#### ***Keeping Current East Side of Club Seawall, Docks & Roof***

1. Acknowledging that the East Side of Club seawall has failed. This failure is causing erosion of Watkins Island into Buckeye Lake.
2. The current docks and roof structure needs structural repair.
3. New seawall can be concrete instead of steel. Pour the wall on current BLYC property to avoid removal of or damage to the current docks or roof.
4. Current docks and roof have historical significance. The club's roof covered docks are in the same location since 1961. During this time the covering was in the form of garages with garage doors. Sometime from 1977 to 1981 the garages were removed and a roof was attached fitted around the docks. Although the roof supports are in the ground, support posts for power hoist systems are attached to the docks. Those members who have a hoist system are suppose to assume all liability.
5. These docks provide boat slips to which a member can park their boat and have access directly to the island/club.
6. The roof provides cover for the boats under it.
7. If a hoist is placed over the slip a boat can be lifted out of the water when not being used.
8. Members wanting one of these slips are on a waiting list. This waiting list provides desirability and one cause to keep them.

#### ***Removing Current East Side Seawall, Docks, Roof and Replacing Seawall & Docks without Roof***

1. Removal of the East Side of Club Seawall, Docks & Roof is to construct a new seawall, provide safety from collapse due to age, no maintenance and making the East side look as a yacht club should look.
2. The East concrete seawall separating the club island from Buckeye Lake is continuously failing. Constant lake water motion is eroding the soil behind the cracks in the seawall thus lessening the dimensions of the island.
3. A study for the club in 2010 by ME Companies engineering, now known as IBI Engineering, demonstrated the need for a new seawall. Their recommendation was to build a steel seawall.
4. The North East corner of the club island shows significant loss of property.
5. The current docks and dock roof are in need of major repair. The support legs, 4" x 4" wooden posts, in places have been reduced to 2" x 2" where the wood is below water level. Thus, support has been reduced by approximately 50%.
6. The roof is pushing approximately 1" off plumb from West to East.
7. During the summer of 2020 the club replaced two support legs on the East side docks at a cost of \$500. Since this structure is approximately 170 feet from South to North and 26 feet from West to East replacing structural supports is costly. This only replaces structural parts but does not add strength to the structure. Strength requires removal of posts and driving new to at least 6 feet into the hard pan or deeper to provide structural stability. Mechanically driving posts requires clear access to the top of the post. Removal of the roof is necessary for clear access.
8. Cost: Four (4) quotes for the removal and construction of this project are solicited;
  - a) **Remove** – Contractor will remove all East side current concrete seawall, wooden docks, wood & steel roof, haul all away Estimate = \$25,000.
  - b) **Replace Seawall** – After all materials are removed a wall from bridge to property line (Approximately 200 feet of wall) will be constructed. Wall will consist of 5 gauge galvanized interlocking steel sheet piling. Driven 6 feet or deeper into the hard pan. Tie backs, Steel cap, gravel/dirt fill and labor: \$80,000

c) **Replace Docks** – There are currently 12 slips. New docks will allow for 12 slips. No slips will be lost. They will be constructed with Steel framework and treated lumber construction. All connections will be screwed with stainless steel screws or bolts/washers/nuts. Dock platforms will be 3 feet wide and 24 feet long. Platforms are spaced approximately 24 feet apart providing for two boat slips which can accommodate two boat lifts. (The docks will be constructed in such a manner that if in the future a roof will be added the dock structure will adequately support the addition. It will not look like an add on) \$45,000.

d) **Replace Roof** – Roof will be engineered by IBI engineering and a reputable Architectural Engineering firm.

Cost of engineering \$18,000. Rough estimates from those quoting \$90,000 to \$110,000.

9. Projects impacting BLYC revenue in need of completion: New back stair case \$80,000; New lift \$50,000; Front seawall (In front of band stand connecting to wall from pool on the West going East to the East seawall, \$120,000; West finger removal of concrete walkway and building new, \$200,000 to \$300,000; East Finger same as West; Front basin docks; Interior steps to second floor are slanting downwards from West to East due to under club support pilings sinking?; Under pool voids, Pool is 36 years old; Parking lot increased in size as we continue to get new members; Entrance gates \$60,000; and so on...

10. The East side boat slip roof is important to many members. However, since funds are limited and there are considerable large dollar improvements needed it appears prudent that we forego the roof for now and focus on other much needed improvements.

All prices quoted within this letter are estimates made in 2019. They are meant to provide a better cost analysis for determining priorities.

Vice Commodore Charlie Campbell, House & Grounds

Complete Marine Construction

3283 Milner Rd.  
Granville, OH 43023

# Estimate

|           |              |
|-----------|--------------|
| DATE      | ESTIMATE NO. |
| 7/27/2020 | 267          |

|   |
|---|
| NAME / ADDRESS  |
| BUCKEYE LAKE YACHT CLUB<br>P.O. BOX 876<br>BUCKEYE LAKE, OH 43008 |

|                |         |
|----------------|---------|
| TERMS          | PROJECT |
| Due on receipt |         |

| DESCRIPTION   | QTY | COST         | TOTAL       |
|---|-----|--------------|-------------|
| Demolition of covered dock structures on east side of Watkins Island: To include demolition and disposal of roofing, roof structure, beams, posts, and entire dock/boardwalk structure underneath and all associated wooden posts, etc. This quote does NOT include any concrete, stone rock, etc or anything else that is not currently visible above the water level. |     | 22,400.00    | 22,400.00   |
|   |     | <b>TOTAL</b> | \$22,400.00 |

Complete Marine Construction

3283 Milner Rd.  
Granville, OH 43023

# Estimate

|           |              |
|-----------|--------------|
| DATE      | ESTIMATE NO. |
| 7/27/2020 | 269          |

|   |
|---|
| NAME / ADDRESS  |
| BUCKEYE LAKE YACHT CLUB<br>P.O. BOX 876<br>BUCKEYE LAKE, OH 43008 |

|                |         |
|----------------|---------|
| TERMS          | PROJECT |
| Due on receipt |         |

| DESCRIPTION   | QTY | COST         | TOTAL       |
|---|-----|--------------|-------------|
| Construct 7 docks to provide 12 slips: 3' wide x 24' long, steel frames (similar to area 800 fingers), galvanized pilings, treated decking installed with stainless screws, all wood tie-off posts will be through bolted with 1/2" carriage bolts. |     | 40,800.00    | 40,800.00   |
| Frames will be painted black. Frames will be attached at seawall, a middle piling and end piling. All pilings will be hot dip galvanized.   |     | 0.00         | 0.00        |
|   |     | <b>TOTAL</b> | \$40,800.00 |

Complete Marine Construction

3283 Milner Rd.  
Granville, OH 43023

# Estimate

|           |              |
|-----------|--------------|
| DATE      | ESTIMATE NO. |
| 8/20/2020 | 271          |

|   |
|---|
| NAME / ADDRESS  |
| BUCKEYE LAKE YACHT CLUB<br>P.O. BOX 876<br>BUCKEYE LAKE, OH 43008 |

|                |         |
|----------------|---------|
| TERMS          | PROJECT |
| Due on receipt |         |

| DESCRIPTION   | QTY | COST         | TOTAL       |
|---|-----|--------------|-------------|
| Construct roof structure to replace existing covered docks roof. Due to the lack of a plan I have assumed the following: All pilings will be hot dip galvanized steel, truss support beams will be painted steel, 24' wood trusses with 2' tails, steel "pole barn style" roofing (same as existing). This entire structure is intended to support ONLY the roof itself and NOT boats. The pricing for this project is intended to be a rough estimate due to the lack of detailed plans. |     | 86,920.00    | 86,920.00   |
|   |     | <b>TOTAL</b> | \$86,920.00 |



Complete Marine Construction

3283 Milner Rd.  
Granville, OH 43023

# Estimate

|           |              |
|-----------|--------------|
| DATE      | ESTIMATE NO. |
| 7/27/2020 | 268          |

|   |
|---|
| NAME / ADDRESS  |
| BUCKEYE LAKE YACHT CLUB<br>P.O. BOX 876<br>BUCKEYE LAKE, OH 43008 |

|                |         |
|----------------|---------|
| TERMS          | PROJECT |
| Due on receipt |         |

| DESCRIPTION  | QTY | COST         | TOTAL       |
|--|-----|--------------|-------------|
| Installation of approximately 200 linear feet of 5 gauge galvanized sheet piling along east side of Watkins Island noted as Phase IIB on the ACE permit. Includes necessary excavation, backfill, deadmen (where able), topsoil seed and straw. Hot dip galvanized 5 Ga sheet piling with 6' penetration expected, galvanized cap, etc.  |     | 73,600.00    | 73,600.00   |
| Deadmen have NOT been included in area of wall where concrete pad will prevent the installation of deadmen. An alternative form of structural support for the lateral force on the wall in that area such as navy style pilings, may be necessary. Amended 8-20-20: Per meeting with Charlie Campbell the area where deadmen installation is prevented due to the existing concrete slab will have 3 - Galvanized I beams driven into lake bottom approximately 6' apart on lake side of wall to act as navy style wall reinforcement. |     | 3,800.00     | 3,800.00    |
| Existing concrete wall under part of covered docks is significantly higher than the surrounding walls. Amended 8-20-20: Per meeting with Charlie Campbell concrete wall adjacent to tent will be saw cut 3' from south end to accommodate that dock and will create 1 step down to dock. The balance of that same wall will be demoed down below the top of the new wall. Concrete will be poured between existing concrete pad and new wall and dirt will be placed in other areas.   |     | 2,950.00     | 2,950.00    |
|  |     | <b>TOTAL</b> | \$80,350.00 |

Complete Marine Construction

3283 Milner Rd.  
Granville, OH 43023

# Estimate

|           |              |
|-----------|--------------|
| DATE      | ESTIMATE NO. |
| 9/25/2020 | 275          |

|   |
|---|
| NAME / ADDRESS  |
| BUCKEYE LAKE YACHT CLUB<br>P.O. BOX 876<br>BUCKEYE LAKE, OH 43008 |

|                |         |
|----------------|---------|
| TERMS          | PROJECT |
| Due on receipt |         |

| DESCRIPTION  | QTY | COST         | TOTAL       |
|--|-----|--------------|-------------|
| Installation of approximately 140 linear feet of 5 gauge galvanized sheet piling along east side of Watkins Island noted as Phase IIB on the ACE permit. Includes necessary excavation, backfill, deadmen, topsoil seed and straw. Hot dip galvanized 5 Ga sheet piling with 5' penetration expected, galvanized cap, etc. Included in this price is the demolition and disposal of the existing boardwalk but does NOT include reinstalling the boardwalk as a consistent even grade will be reestablished with the new wall. |     | 87,590.00    | 87,590.00   |
| This estimate is intended to address the issue of leaving the roof and dock structures in place. The new wall would begin at the bridge and stop at the north end of the concrete wall under the flat roof covered docks. This process makes installation more difficult and forces the sheet piling further out away from the island requiring additional backfill. It will also require the removal of a portion of each dock and then extending those docks back to the new seawall   |     | 0.00         | 0.00        |
| Most of the covered dock roof support pilings closest to shore will become encapsulated in the backfill behind the new wall.   |     | 0.00         | 0.00        |
| Underwater obstructions that affect the seawall installation cannot be anticipated and should any be found additional costs may be incurred to address them. Such items may include but are not limited to old concrete foundations, seawalls, pilings, etc.   |     | 0.00         | 0.00        |
|  |     | <b>TOTAL</b> | \$87,590.00 |

## Summary

This summary page is intended to show some comparisons to each option. With the comparisons one should be able to come to a conclusion on what is the best option for our membership as a whole. Please take some time and review this. If you have questions please send them.

| <b>OPTION A:</b>   | <b>UNIT COST</b> | <b>TOTAL</b>        |
|--|------------------|---------------------|
| DEMOLITION AND REMOVAL OF ALL COVERED DOCKS AND ROOF STRUCTURE |                  | \$ 22,400.00        |
| NEW SEAWALL (200') WITH REQUIRED AMENDMENTS DATED 8/20/2020    | \$ 401.75        | \$ 80,350.00        |
| NEW DOCKS BUILT SAME AS AREA 800 DOCKS (12 TOTAL)              | \$ 3,400.00      | \$ 40,800.00        |
|  | <b>TOTAL</b>     | <b>\$143,550.00</b> |
| OPTIIONAL FUTURE STRUCTURE (APPROXIMATE ONLY)                  |                  | \$100,000.00        |

| <b>OPTION B:</b>  | <b>UNIT COST</b> | <b>TOTAL</b>        |
|---|------------------|---------------------|
| EXISTING COVERED DOCKS TO REMAIN. 140' NEW SEAWALL                          | \$ 625.64        | \$ 87,590.00        |
| <u>FUTURE COSTS REQUIRED TO EQUAL PLAN A BASED ON PRESENT DAY ESTIMATES</u> |                  |                     |
| DEMOLITION  |                  | \$ 22,400.00        |
| DOCKS   |                  | \$ 40,800.00        |
| REMAINING 60' OF SEAWALLREPLACEMANT   |                  | \$ 24,105.00        |
|   | <b>TOTAL</b>     | <b>\$174,895.00</b> |

## Conclusion:

- We have a permit in hand which allows us to move forward. If we do not proceed this year we will have to apply for a new permit.
- All of the studies and professional opinions conclude that we need to do something soon.
- The per lineal foot cost of the seawall in Plan B is one and a half times higher than Plan A. This will ultimately add over \$31,000 to the overall project.

I believe the best option for the overall membership of BLYC is to move forward on Plan A. The roof structure will be a future project down the road. We have several other capital projects that are a higher urgency. We have already started working with ODNR and ACOE on the front piers.