

DOCUMENT 009113 – ADDENDUM #3

1.1 PROJECT INFORMATION

- A. Project Name: Park Avenue Boat Launch
- B. Owner: Park District of Highland Park.
- C. Engineer: SmithGroup, Inc.
- D. Engineer Project Number: 13258.
- E. Date of Addendum: February 16, 2022.

1.2 NOTICE TO BIDDERS

- A. This Addendum is issued to all registered plan holders pursuant to the Instructions to Bidders. This Addendum serves to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addendum affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.
- B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.
- C. The date for receipt of bids is changed by this Addendum. The location for receipt of bids is unchanged.
  - 1. Bid Date: February 23, 2022 at 1pm CST.

1.3 ATTACHMENTS

- A. This Addendum includes the following attachments:
  - 1. Clarification Statement regarding Floating Docks dated 02/16/2022

1.4 REVISIONS TO DIVISIONS 02 - 49 SPECIFICATION SECTIONS

- A. Specification Section 355905, Floating Marina Dock System, Reissued

1.5 REVISIONS TO DRAWING SHEETS

- A. Sheets - Reissued
  - 1. Drawing: CS-502: Deleted reference to specific material for framing on Detail 4, and added clarification Note 4 regarding floating dock design.

END OF DOCUMENT

CLARIFICATION STATEMENT REGARDING FLOATING MARINA DOCK SYSTEM – ADDENDUM #3

1. The Park District of Highland Park operates the Park Avenue Boat Launch Facility on a seasonal basis, with floating dock installation typically occurring in or around April and May, and removal for winter storage typically occurring in or around October each year. The Park District of Highland Park intends to continue with this operation after construction of the Park Avenue Boat Launch Project.

The Specification Section 355905 – Floating Marina Dock System is a performance specification, and the Contractor is directed to the referenced Specification Section 013573 – Delegated Design Requirements and Procedures, which further defines responsibilities and submittal procedures. For example, Section 355905 provides material criteria for both structural steel and structural aluminum. Either material is satisfactory for the floating dock system, so long as the Contractor supplies a system that demonstrably meets the specified performance requirements

END OF DOCUMENT

SECTION 355905 - FLOATING MARINA DOCK SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section is a Design/Build Specification and includes: Floating dockage system, gangways and the dockage anchorage. No Alternative system shall be considered for this project without prior approval.
- B. Related Requirements:
  - 1. Delegated Design Requirements and Procedures Section 013573

1.3 REFERENCES

- A. ASTM International, as referenced herein as ASTM.
- B. American Welding Society, as referenced herein as AWS.
- C. American Society of Civil Engineers, as referenced herein as ASCE.

1.4 SUBMITTALS

- A. Source Quality Control:
  - 1. Three copies of design calculations signed and sealed by the Dockage Designer (or another Licensed Professional Engineer, experienced in floating dock design) with an affidavit stating that "the structural details, specified materials and performance of the system under design loadings are in complete conformance with the design criteria".
  - 2. Three copies of shop drawings and manufacturers' literature, signed and sealed by the Dockage Designer (or another Licensed Professional Engineer, experienced in floating dock design) with an affidavit stating that "the structural details, specified materials and performance of the system under design loadings are in complete conformance with the design criteria". Shop drawings shall include all information necessary for the fabrication of component parts of the structure. All drawings shall be accurately and completely dimensioned. Drawings shall indicate all relevant sizes and shall show thicknesses, gauges, finishes, materials, etc., of all items shown. Indicate size of members, type and location of shop and field connections and the type, size and extent of all welds. The following is a partial listing of details required for submittal:
    - a. Cover sheet listing project, location, Owner, Manufacture and all project design criteria.

- b. Plan view layout(s) showing location of all joints, framing, cleat layout, anchorage system, and all other dockage amenities.
      - c. Typical sections at headwalk.
      - d. Details of anchorage system.
      - e. Details of flotation unit.
      - f. Rub rails and/or moldings.
      - g. **Details of lifting rings**
    3. Three copies of complete As-built Drawings, including location of anchorage system.
    4. Three copies of a complete Operations Manual, as a minimum, containing the following information:
      - a. Manufacturer's representative's name, address and phone number.
      - b. Location of anchorage and connections to dockage.
      - c. Complete discussion of **removal**, system handling for the winter season and **re-installation and** realignment for the boating season.
      - d. Drawings, diagrams, installation instructions and parts lists.

#### 1.5 QUALITY ASSURANCE

##### A. Qualifications:

1. The Floating Dockage Manufacturer (herein referred to as the Manufacturer) shall have not less than five years continuous experience in the fabrication of floating dockage.
2. The Manufacture shall demonstrate to the Owner successful floating dockage installations in a similar physical and natural environment with at least one hundred (100) boat slips.
3. The Dockage Designer shall be a Licensed Professional Engineer and shall submit at least three references for marina floating dockage anchorage systems designed by him/her. The Engineer shall review references and has the right to refuse or reject the anchorage designer. Dockage manufacturing shall not commence until the Dockage Designer is approved by the Engineer.
4. The Manufacturer or the Contractor shall provide at least one person who shall be present during installation of this work who shall be thoroughly familiar with the type of materials being installed, the requirements of this work and who shall direct all work.

#### 1.6 WARRANTY

- ##### A.
- A written Guarantee in a form satisfactory to the Owner. The guarantee shall state that all labor and materials (including dockage and all associated work) furnished by the Contractor are in accordance with the contract plans and specifications, and authorized alterations and additions thereto; and that, should any defect develop during the contract guarantee period as hereinafter defined, due to improper materials, workmanship, arrangement or design, those defects be corrected by the Contractor without expense to the Owner. The Guarantee for all labor and materials except the flotation materials shall be for a period of five (5) years from the date in which the completed work is turned over to and accepted by the Owner. The guarantee for the flotation materials shall be for a period of ten (10) years. Individual five-year manufacturer's guarantees for materials and equipment may be provided to comply with the prime contractor's guarantee responsibilities.

## PART 2 - PRODUCTS

### 2.1 SYSTEM DESCRIPTION

#### A. Performance Requirements:

1. The complete floating dockage system, gangways and anchorage shall be designed in accordance with ASCE Report No. 50 (Report on Small Craft Harbors, latest edition) except as modified herein. Frequency of spacing and sizing of components of the Anchorage System shall be as required to satisfy the horizontal loading requirements and the structural integrity of the floating dockage system. The system shall also prevent torsion, racking and twisting by providing sufficient built-in torsion resistance.
2. Lake Water Levels:
  - a. The water level at project site is subject to Lake Michigan water levels.
  - b. The dockage system anchorage shall be designed for a low water range of 576.7 (IGLD85) to 582.3 (IGLD85) with all facilities under full design loadings listed below.
  - c. During major Lake Michigan storm surge, the dockage system and anchorage shall be designed for an extreme range of 2 feet of surge) with full dead loads and 50% of the design live loads.
3. Vertical Loading:
  - a. Dead load shall be the entire weight of the floating piers including access ramps and appurtenances, if applicable.
  - b. Live load for flotation calculations shall be not less than 30 pounds/square foot (psf) for floating piers.
  - c. Piers at dead loading in the water shall maintain a free board of 18 inches to 20 inches. Design of free board shall be indicated in the shop drawings. The free board on the overall dock system shall not vary more than 1 inch from the approved drawings. On the main headwalk the slope shall not vary more than 1 inch in 10 feet. At the design load of dead load plus 30 psf live load, a free board of not less than 10 inches shall be maintained. Extra flotation shall be installed at end sections as required to compensate for end reactions of ramps due to combined loading. Additional flotation shall be adequate to ensure that the piers shall maintain a uniform free board over the length of the pier.
  - d. In addition to the above, the end of the piers must be designed to withstand a 400 pound total live load 2 feet from the end without loss of free board of more than 4 inches.
4. Horizontal Loading:
  - a. Uniform wind load perpendicular to the headwalk; assume to be full wind on unshielded boats (15 psf) and 20% of full wind on all shielded boats. Wind load perpendicular to the headwalk, assume to be full wind on the unshielded side of the headwalk (15 psf) and 15% of full wind on the shielded headwalk side
  - b. Impact of the largest boat normally using that slip striking the end of the finger dock at a maximum angle of 10 degrees to the centerline of that finger dock at a velocity of 2 knots (3 feet per second) or less.
  - c. The structure and system shall be designed to withstand the following wave conditions:
    - 1) 2.5 foot wave (boat wake) on a continual, basis.
    - 2) 4 foot wave (storm conditions) on a periodic, but not continual, basis.

- d. Dock connections and joints shall resist fatigue failures based upon continual wave loading for the life of the project (20-years minimum)
- e. Floating dock system shall be designed with lifting rings to facilitate annual removal and storage during the winter months.

## 2.2 MATERIALS

### A. Structural:

- 1. Decking lumber and side skirts shall pressure treated Southern Number 1 Select Yellow Pine, 2 by 6 inch nominal. Treatment shall be AWPA UC4B preservative at .4 pounds/cubic foot or Engineer approved equal.
- 2. Structural steel shall conform to the requirements of the standard specification for structural steel, ASTM A36. All steel for the floating dockage shall be zinc-coated (hot dipped) in accordance with the requirements of ASTM A123. Minimum zinc coating properties required are as follows:

Product Form	Minimum Weight (oz./Sq. ft.)	Minimum Thickness (mils.)
0.125 inch, 0.1875 inch Steel	2.0	3.0
0.25 inch and thicker	2.0	3.4

- a. All steel structural members shall be zinc coated after fabrication. Minimal field cutting, welding or drilling will be allowed, if pre-approved by the Engineer. Steel surfaces exposed by cutting, welding or drilling shall be coated with a zinc rich cold galvanizing paint.
- 3. Structural Aluminum components shall be 6000 Series Alloy.
- 4. Hardware - bolts, lag bolts, screws, flat washers and lock washers shall be of the type and size best suited for the intended use. All fasteners and miscellaneous hardware shall be zinc or cadmium coated in accordance with the requirements of ASTM A153. Aluminum extrusion or truss systems shall use Type 304 stainless steel connectors and shall isolate incompatible metals to mitigate electrolytic action.

### B. Flotation:

- 1. Expanded polystyrene encased all around with suitable polyethylene.
- 2. Encasement Material shall meet the following requirements:
  - a. Rotomolded Linear Low Density Polyethylene or High Density Polyethylene appropriate for a marina environment.
  - b. Nominal thickness shall be .150 inch or greater.
  - c. Encasement shall be black, minimum 2% carbon black and UV stabilized.
- 3. Flotation material shall be closed cell polystyrene. Polystyrene shall have a minimum density of approximately 0.9 pounds per cubic foot. Water absorption shall be less than 3 pounds per cubic foot at 7 days when tested by the Hunt absorption test.
- 4. Flotation material shall completely fill the encasement. No voids or air gaps will be permitted.

5. Flotation units shall be manufactured in a fashion to allow full bearing of the float on the structural frame in both vertical and lateral directions. Lateral support by bolted connections only, through the encasement, will not be accepted.
  6. Engineer reserves the right to test the flotation units at the job site.
  7. Cleats shall be galvanized heavy-duty cast iron or ALMAG 35. Mounting bolts shall be recessed to prevent bolt heads from chafing lines.
  8. Dock bumpers shall be a non-marring type, a minimum of 2 inches across consisting of extruded vinyl. The material shall be tough and tear-resistant and maintain flexibility to a temperature of 10 degrees Fahrenheit. Color shall be UV stabilized white.
  9. All steel components associated with the anchorage system shall be galvanized.
  10. Connection of the ramps to the bulkhead is the responsibility of the floating dockage manufacturer.
- C. Dockage Anchorage: Dockage anchoring system shall connect to driven pipe piles. Hoop dock connection shall be designed and installed by the Manufacturer under conditions similar to this project. Geotechnical information of the project area is available upon request.
- D. Transition Plates: Two aluminum plates of adequate size shall be installed for each dock pier. One transition plate will be installed from the abutment to dock 1 and the other from Dock 1 to 2. A **minimum** of 4 transition plates are required for this project.
- E. Other Materials: All other materials, not specifically described, but required for a complete and proper installation of floating dockage, shall be designed in accordance with ASCE Report No. 50 (Report on Small Craft Harbors, latest edition) except as modified herein.

### 2.3 CONSTRUCTION

- A. Truss cage type dockage units shall be equipped with nominal 2 inch by 6 inch timber side-skirts which provide complete enclosure of the pier framing, with not less than 12 inches of skirt in the vertical dimension. The timber skirt shall be positively fastened to the pier frame on maximum 4 feet centers.
- B. Timber decking shall be fastened to the structural frame with bolts or screws. Nails will not be permitted. There shall be at least one fastener at every structural cross support with two at the end of each board. Fasteners shall be of a protected metal compatible with the material in the structural frame. Screw holes shall be predrilled through deck boards and substructure.
- C. Deck planks shall be placed perpendicular to the longitudinal axis of the main headwalk and with bark side down.
- D. All joints and connections between floating structures must be capable of transmitting all loads and forces imposed upon the structures. Connections shall not protrude above the level of the deck.
- E. Structures are to be factory assembled in the largest possible shippable units. Modular structures must be designed for quick and easy assembly and disassembly with a minimum of bolts and connectors.

- F. Continuous dock bumpers shall be provided around all docks. Corners shall be protected by molded corner guards and not by mitering or bending the extruded vinyl guards.
- G. The docks will be removed prior to the winter months and stored in a protected in-water location or stored on shore adjacent to the launch ramps. Lifting hooks and rings shall be provided on each dock section. Docks section joints shall be able to be disconnected without disassembly of dock units. Pile cages shall be disconnected through the removal of pins and removed and stored with the docks.
- H. Connections between docks and shoreline abutments or dock abutments (where required) shall be made flexible as indicated on the detailed drawings and approved shop drawings. Transition plates from bulkhead to dock or from land to dock will be required. Connections shall be made by double shear connectors at the outer edges of dock or gangway units with a maximum opening of 1½ inches. For ADA docks maximum opening shall be 1/2 inch between units. For wider openings a transition plate is required.
- I. Connections shall not protrude above the level of the deck and shall present a relatively smooth top surface with no sharp edges, or upward projections. Connections may have sufficient "play" to permit them to work freely, but such "play" shall be controlled to prevent no more than ½ inch transverse movement. The maximum difference between the bolt diameter and hole diameter shall be 1/16 inch.
- J. Hinged transition plates between dock units shall rotate freely thru the full range of rotation required. They shall be of galvanized steel or aluminum checker plate.

#### 2.4 REMOVABLE BOARDING DOCK

- A. Removable Boarding dock shall be per length and width as shown on the drawings.
- B. Boarding dock frame system shall taper on and side section to allow for boarding dock to be in close vicinity to upland land connection and to limit lengths of transition plates from land to dock.
- C. Docks be designed to rest on concrete without damage.
- D. Docks shall be easily disconnected by Park staff without the use of specialized tools/equipment.
- E. Pile hoops shall be designed to be easily disconnected without the use of specialized tools/equipment.

### PART 3 - EXECUTION

#### 3.1 WORKMANSHIP

- A. Piers shall be completely prefabricated by the pier manufacturer and delivered ready for direct unloading into the water. All workmanship shall be first class in all respects. Any units not representing a finished and acceptable appearance will be rejected.



- B. All finished steel or aluminum members shall be free from twists, bends, distortions and open joints. All steel or aluminum construction shall be free of sharp edges and burrs. Ends of exposed steel members shall be rounded or beveled. All coping and mitering shall be done with care. Projecting materials and burrs that would prevent bearing of the various members on each other shall be removed.
- C. All drilling and cutting of steel done after galvanizing (if approved by the Engineer) shall be painted with a zinc dust content paint. All welds over galvanized material shall be thoroughly cleaned and coated with two coats of cold galvanizing compound.
- D. All welding shall conform to the requirements of the AWS. Welds shall be a solid and homogeneous part of the metals joined and shall be free from pits or scale, and shall be of full areas and length required to develop the required strength for the intended use.
- E. All bolts, nuts and washers shall be set square with connecting structural members and the nuts shall be drawn up tight. Lock washers or other devices or techniques shall be used to prevent nuts from loosening after being properly tightened.
- F. Deck screws shall be set so the heads are just below the wood surface without splintering the wood. Lumber shall be counterbored wherever projecting bolt heads or nuts may damage boats or provide a hazard to pier users
- G. Edges of all exposed wood members shall be slightly beveled to ease sharp corners and preclude wood splinters from forming.

END OF SECTION

