

repealed 2004/5?

**THE BROADWAY PIER
MANAGEMENT AGREEMENT**

THIS AGREEMENT is made as of the ____ day of **JUN 29 1994**, 1994, by and between the **MAYOR AND CITY COUNCIL OF BALTIMORE**, a municipal corporation of the State of Maryland (the "City") and **BROWN'S WHARF LIMITED PARTNERSHIP** ("BWLP"), a Maryland limited partnership.

RECITALS

WHEREAS, the City owns a pier located in the Fells Point area of Baltimore, Maryland at the foot of Broadway as shown on the attached Exhibit A which is incorporated herein (the "Pier");

WHEREAS, BWLP owns the land and buildings and riparian rights known as "Brown's Wharf" adjacent to the west side of the Pier and operates Brown's Wharf for mixed commercial uses including restaurant, retail, office, marina and other facilities;

WHEREAS, BWLP has made a significant financial investment in the renovation of the Pier;

WHEREAS, BWLP desires to use the Pier for certain limited purposes in connection with the facilities and activities planned for Brown's wharf and seeks to work in cooperation with the City to reinforce the historic legacy of Fells Point as a shipbuilding and maritime transportation center:

WHEREAS, the City is willing and able to work in cooperation with BWLP for the foregoing purposes upon the terms and conditions outlined below;

NOW, THEREFORE, this Management Agreement witnesseth that for the agreed upon fee, mutual obligations, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties hereto agree as follows:

1. Management of the Pier.

The City does hereby grant the right to manage the Pier, as shown on Exhibit A attached hereto and made a part hereof, unto BWLP, and BWLP accepts the duty of managing the Pier, all under those terms, conditions and covenants as set forth in the following Sections hereof.

2. Maintenance.

During the term of this Management Agreement, and except as otherwise provided herein, the City shall, at its sole expense, perform routine operational and maintenance services relating to the Pier, including, without limitation:

A. Maintaining the surface and structural areas of the Pier in good condition, by performing all necessary repairs necessitated by normal wear and tear as caused by the elements, use of the same by the general public, and including repair and/or replacement subject to Section 9 of this agreement, and

B. Maintaining the public street lights in good condition including repair and/or replacement by performing all necessary repairs necessitated by normal wear and tear as caused by the elements and use of the same by the general public;

3. Priority of use.

The City retains priority in use of the Pier. BWLP agrees to reserve certain areas of the Pier for exclusive use by the City, when notified in writing at least seven (7) days in

advance by the City, or its designated representative. It is further understood that from time to time as need may arise BWLP will utilize its best efforts to comply with requests for more immediate use of the Pier by the City regardless of the notice period involved.

4. Permitted Activities.

A. In consideration of BWLP's obligations described herein, the City grants to BWLP the exclusive right, subject to priority of use by the City, and access by the general public, to use the Pier for the following operations and activities, provided that BWLP understands and agrees that the management rights herein granted shall not be construed or deemed to be permission by the City to conduct activities on the Pier which would otherwise require additional City or State permits (e.g. zoning, etc.), licenses or authorization; permission and payment for services (police, solid waste, etc.), and the grant of the rights detailed herein shall be contingent upon BWLP obtaining all such requisite permits and licenses, etc.

(1) Operation of a commercial marina and related maritime uses in compliance with attached Exhibit C, The Broadway Pier Policy.

(2) Sponsorship of certain public activities utilizing the surface of the pier in compliance with attached Exhibit C, The Broadway Pier Policy.

The foregoing Management Agreement includes the right to conduct the above listed activities and any other actions or activities necessary to effectuate these or related activities; all of the foregoing being hereinafter referred to as "Permitted Activities".

B. BWLP shall submit to the Commissioner of Housing and Community Development, on an annual basis no later than January 31, a report of the type of operations it is then currently conducting or plans to conduct under this Management Agreement. The City

shall have the right to disapprove of any proposed operation and thereby revoke BWLP's right to conduct those operations on the Pier, provided such disapproval shall be based on reasonable and valid considerations of City wharfage policy, public safety, health or welfare, and community concerns, and submitted by the City within 30 days following receipt of the report.

C. BWLP shall comply with the requirements of the Broadway Pier Policy attached as Exhibit C, while engaging in the foregoing Permitted Activities. The City retains the right to modify the Broadway Pier Policy at their sole discretion, and BWLP shall comply with the requirements of the amended policy following written notification of such amendment.

5. Additional Obligations of BWLP.

A. BWLP shall be responsible for all costs specifically associated with BWLP's use of the Pier for the Permitted Activities.

B. BWLP shall be responsible for the operating costs of the public street lights located on the Pier.

C. BWLP shall be responsible for the ongoing private collection and disposal of trash and debris from the surface of the Pier, except when the Pier is utilized for a City sponsored event. BWLP shall maintain a clean and orderly appearance of the Pier at all times.

D. BWLP shall carry and maintain, or require its contractors to carry and maintain, at all times during the duration of the agreement, the minimum insurance levels outlined in the attached Exhibit B.

E. BWLP shall install no permanent signage on or above the pier or along its bulkhead without the prior approval of the City's Signage Committee. Permanent signage must comply with the City's 80/20 rule. Temporary signage may be erected only during the course

of a specific event utilizing the pier, and shall be removed within 24 hours of the conclusion of that event. Temporary signage shall be reasonable in scope, content, and size, and shall respect the ambiance of the Fells Point community.

6. Payment to City.

The City shall receive as a fee twenty percent (20%) of all gross revenues collected by BWLP for use of the Pier, which monies shall be paid to the City on an annual basis by January 31 of each year. BWLP agrees to maintain a separate ledger at the BWLP Marina Office or such other location to be agreed upon by BWLP and the City detailing all revenue received. The City shall have the right to examine at its expense said ledger detailing all collected dockage and activity fees without notice during normal business hours, or at any other time upon notice to BWLP.

All payments of fees or monies required hereunder to be paid by BWLP to the City shall be made to:

Director of Finance
424 City Hall
100 N. Holiday Street
Baltimore, Maryland 21202

or such other person and address that may be designated in writing by the City with written notice thereof given to BWLP.

7. Term.

A. This Management Agreement shall have an initial term of three (3) years from the date of execution, and shall be granted at no cost or set fee to BWLP other than the revenue sharing provision set forth above. This Management Agreement will renew

automatically for successive one (1) year terms commencing immediately upon the expiration of the initial term. Either party, in their sole and absolute discretion, may elect to terminate this Management Agreement at any time by providing written notification thereof at least sixty (60) days in advance of such termination.

B. The management right granted hereunder is exclusive and the City agrees that it will not give others permission to conduct the Permitted Activities or any other activities which interfere with the Permitted Activities on the Pier without prior written notification to BWLP.

8. Indemnification.

A. BWLP agrees to indemnify, defend, and hold harmless, the City, its appointed and elected officials, employees, agents, representatives, from and against liability from all claims, demands, suits, and judgements, including cost of defense thereof, which are caused by, and arising out of the negligent acts or willful misconduct of BWLP in the performance of its duties and obligations under the Management Agreement, for failure to abide by its obligations under the Management Agreement.

B. The City agrees to indemnify, defend, and hold harmless, BWLP, its employees, agents, and representatives, from and against liability for all claims, demands, suits, and judgements to the extent permitted under the Local Government Tort Claims Act, which are caused by, and arising out of the negligent acts or omission or willful misconduct of the City, its appointed and elected officials, employees, agents, and representatives, for failure to abide by its obligations under the Management Agreement.

C. BWLP shall require its permittees, licensees and other entities conducting Permitted Activities on the surface of the Pier with BWLP sponsorship to provide reasonable insurance coverage which indemnifies the City and BWLP for claims arising out of their negligence or willful misconduct.

D. Either party shall notify the other within fifteen (15) days of receipt of notice of any such claim and cooperate fully with the other party in the defense of any such claim. Nothing contained herein shall be construed to be a waiver of the City's sovereign immunity, if and when applicable.

9. Damage or Destruction.

In the event of a casualty to the Pier sufficient to curtail the Permitted Activities, the decision to repair or replace the Pier will be within the sole discretion of the City. In the event that the City decides not to repair or replace the said Pier this Management Agreement will automatically terminate following written notice from the City to BWLP, unless BWLP promises to rebuild, repair or replace the said Pier at its own expense in a manner approved by the City and commences said rebuilding, repairs or replacement within a reasonable time.

10. Default.

A. In the event either party fails to fulfill its obligations under this Management Agreement, the non-defaulting party shall notify the defaulting party in writing of such failure and if such failure is not cured or reasonably being pursued within thirty (30) days of such notice, the non-defaulting party may, at its option, perform the defaulting party's

unperformed obligations. In such event, the defaulting party shall be liable for all reasonable costs incurred by the non-defaulting party and shall reimburse the non-defaulting party immediately upon receipt of an invoice and reasonable supporting documentation evidencing such costs.

B. No mention in this Management Agreement of any specific remedy or right shall preclude the City from exercising any other right or from having any other remedy or from maintaining any action to which it may otherwise be entitled, either in law or equity; and the failure of the City to insist in any one or more instances upon a strict performance of any covenants of BWLP under this Management Agreement or to exercise any option or right herein contained, shall not be construed as a waiver or relinquishment for the future of such covenant, right, option, term or condition, but the same shall remain in full force and effect unless the contrary is expressly stated in writing by City.

11. Abandonment.

It is the intent of this Management Agreement that BWLP will continue to use its rights as granted hereunder for the entire term of the Management Agreement. In the event the City believes that BWLP has abandoned all of the rights granted hereunder, the City shall so notify BWLP and BWLP shall, within fifteen (15) days of receipt of such notice provide evidence to the City of its continuing operation under this Management Agreement. If BWLP fails to provide such evidence within the required time period, this Management Agreement shall terminate by written notice from the City to BWLP and the use of the Pier shall be governed exclusively by the City.

12. BWLP's Care and Surrender of Pier.

BWLP will during the term and any renewal thereof keep the Pier and appurtenances in good order and condition in accordance with the terms of this Management Agreement, and will upon the expiration of this term, or at the sooner termination thereof, by forfeiture or otherwise, deliver up the Pier in reasonable good condition, with normal wear and tear as caused by the elements and use of same by the public, and damage as described in Section 9 hereby excepted. BWLP in no event assumes either responsibility and/or liability for any damage or injury caused or resulting to the structural components of the Pier or the engraved brick pavers placed on the surface of same. Other than as excepted for in the preceding sentence BWLP will pay for the repair or cause to be promptly repaired any damages to the Pier directly attributed to the neglect or carelessness of its servants, agents and employees.

13. Notices.

Any notice or other communication pursuant to this Management Agreement shall be in writing and shall be deemed to have been duly given when personally delivered or on the third business day after being mailed by United States Registered or Certified Mail, postage prepaid, the following addresses:

If to the City: Director of Finance
 424 City Hall
 100 North Holiday Street
 Baltimore, Maryland 21202

With a copy to: The Comptroller of Baltimore City
 204 City Hall
 100 North Holiday Street
 Baltimore, Maryland 21202

If to BWLP: Brown's Wharf Marina Manager
 1615 Thames Street
 Promenade
 Baltimore, Maryland 21231

With a copy to: General Counsel
 Constellation Real Estate, Inc.
 8815 Centre Park Drive, Suite 400
 Columbia, Maryland 21045

or to such other addresses as each party may hereafter specify in writing to the other party.

14. Nonassignability.

Except as otherwise specifically provided in this Management Agreement, BWLP may not assign any of its rights to any other person or entity without prior written consent of the City to be exercised at its sole discretion.

15. Entire Agreement; Amendments; Beneficiaries.

Except as expressly set forth herein, this Management Agreement constitutes the entire agreement between the parties and contains all of their representations, warranties, covenants or obligations. This Management Agreement supersedes all prior and contemporaneous agreements, understandings, negotiations and discussions, written or oral, of the parties, relating to any transaction contemplated by this Management Agreement. This Management Agreement may be amended only by a writing executed by both parties. The rights and obligations of the parties under this Management Agreement shall inure to the benefit of and be binding upon their respective successors and permitted assigns.

16. Severability.

In the event any provision of this Management Agreement is held invalid for any reason, such invalidity shall not affect the other provisions which can be given effect without

the invalid provision; and all of the provisions of this Management Agreement are deemed to be severable.

17. Enumeration and Headings.

The enumerations and headings contained in this Management Agreement are for convenience of reference only and do not form any part of this Management Agreement.

18. Counterparts.

This Management Agreement shall be executed in any number of counterparts and each counterpart shall be deemed an original.

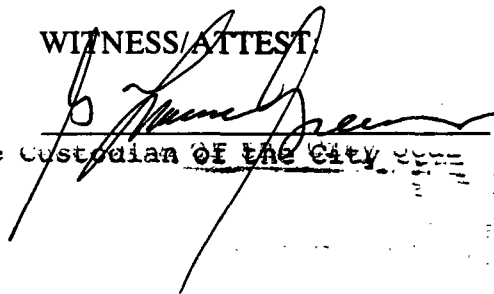
19. Governing Law.

This Management Agreement shall be governed by and construed in accordance with the laws of the State of Maryland, and nothing contained herein shall be deemed a waiver of any governmental requirements for licenses or permits, or a waiver of any applicable laws or regulations governing.

IN WITNESS WHEREOF, the parties have caused this Management Agreement to be executed by their duly authorized representatives as of the date first written above.

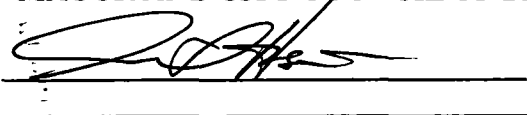
WITNESS/ATTEST:

MAYOR AND CITY COUNCIL OF BALTIMORE


Alternate Custodian of the City

By:

Title:

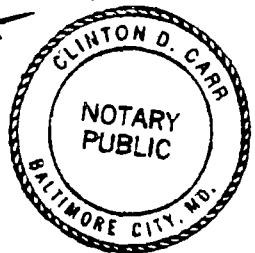


STATE OF MARYLAND, CITY/COUNTY OF Baltimore, TO WIT:

I HEREBY CERTIFY that on this 23 day of June, 1994, before me, the subscriber, a Notary Public of the aforesaid State and City/County, personally appeared DANIEL P. HENSON III, HOUSING COMMISSIONER of the City of Baltimore and acknowledged the foregoing Management Agreement to be the act and deed of said Mayor and City Council of Baltimore and in my presence signed the same.

WITNESS my hand and notarial seal. Clinton D. Carr
Notary Public

My Commission Expires: 1/19/95



WITNESS/ATTEST: BROWN'S WHARF LIMITED PARTNERSHIP

By: Constellation Properties, Inc.,
General Partner

[Signature]

By: [Signature]
President ZMG

STATE OF MARYLAND, CITY/COUNTY OF Baltimore, TO WIT:

I HEREBY CERTIFY that on this 17th day of June, 1994, before me, the subscriber, a Notary Public of the aforesaid State and City/County, personally appeared Randall W. Griffin President of Constellation Properties, Inc., acting in its capacity as General Partner of Brown's Wharf Limited Partnership, and acknowledged the foregoing Management Agreement to be the act and deed of said Brown's Wharf Limited Partnership and in my presence signed the same.

WITNESS my hand and notarial seal. Sheila A. Cassel
Notary Public

My Commission Expires: 2/2/98

Approved as to form and legal sufficiency this 23^d day of Jan., 1994.

By: *Wayne Brown*
Assistant City Solicitor

Approved by the Board of Estimates of Baltimore City:

By: *Charley G. Williams* **JUN 29 1994**
Deputy Comptroller and Clerk Date
to the Board

EXHIBIT A

PLAN SHOWING LOCATION OF PIER

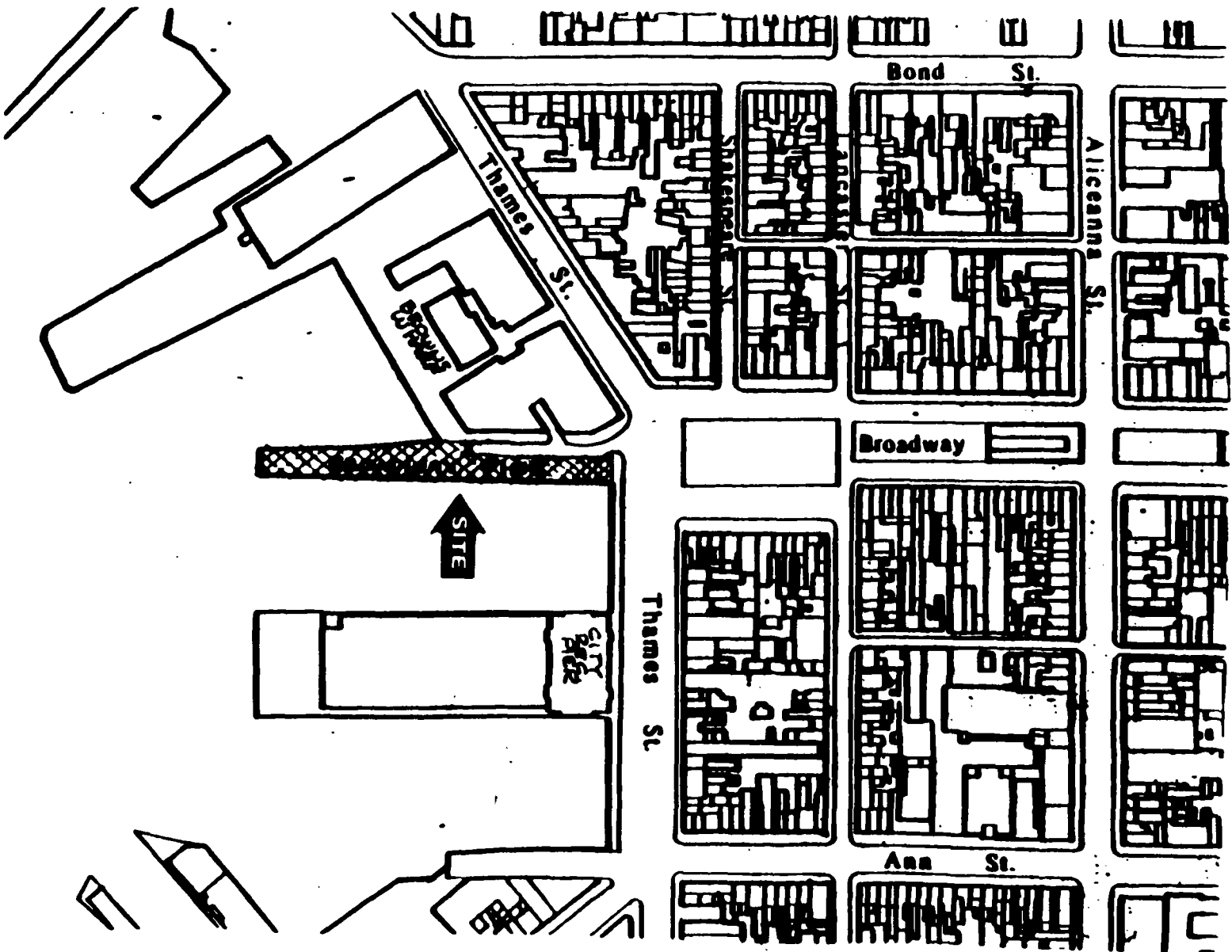


EXHIBIT B
LIABILITY INSURANCE

A. Commercial General Liability Insurance at limits of not less than One Million (\$1,000,000.00) CSL, per occurrence, and with those policies with aggregate limits, a Two Million (\$2,000,000.000) aggregate. The insurance shall provide coverage for all claims involving bodily injuries, including death and or property damages, which may arise during the term of the Management Agreement.

B. Marina Operator's Insurance, at limits of not less than One Million (\$1,000,000.00) for any one vessel with a minimum limit of Five Million (\$5,000,000.00) for all vessels damaged while in the care custody and control of BWLP during the term of the Management Agreement.

The Mayor and City Council of Baltimore shall be named as additional insured on all policies required by this Agreement. Required coverage shall not be suspended, voided, cancelled, reduced in coverage or in limits, until thirty (30) days prior written notice thereof has been given to the City. BWLP shall furnish the City with certificates of insurance and with copies of additional insured endorsements affecting coverage required by this Agreement.

EXHIBIT C

THE BROADWAY PIER POLICY

The Broadway Pier lies in heart of Baltimore's original seaport, and its use should reinforce the historic legacy of Fells Point as a shipbuilding and maritime transportation center. The Broadway Pier is one of the few multipurpose piers in Baltimore where the public can walk alongside and talk to the crews of working commercial vessels, visiting historic vessels, and private pleasure craft.

The reconstructed Broadway Pier and its unique waterfront surface of over ten thousand engraved bricks helps preserve the legacy and is a major attraction in Fells Point. As such, the Broadway Pier has been incorporated into the Baltimore Waterfront Promenade system. All public and private activity along the Promenade is subject to established "Special Conditions for Inner Harbor Park and the Harbor's Public Pedestrian Promenade" as outlined in the City's Department of Recreation and Parks Rules and Regulations.

Maritime use of the Pier shall be in conformance with the "Broadway Pier Docking and Mooring Load Study" dated October 1993 as prepared by Century Engineering. No vessel exceeding the allowable ship specifications established in this study will be allowed to utilize the Pier without a specific written authorization from the City.

In recognition of the desire to protect the legacy of the Pier, the City institutes the following additional regulations:

BROADWAY PIER

GENERAL USE REGULATIONS:

1. The City may contract with an independent "Pier Manager" to implement and enforce the City's Pier policy. The Pier Manager will coordinate all activities involving the Pier, and may charge reasonable fees for such activities. The City, at its sole discretion, reserves the right to waive the Pier Manager's fees for a specific event or a specific user. The Pier Manager shall be responsible for the trash collection, providing and posting City approved dock signage, and communication of Pier policy to boaters and other Pier users. The Pier Manager shall have the authority to order the eviction of vessels whose owners violate the Pier policy or refuse to cooperate with dockage requests.
2. The City has priority in use of the Pier. The City, or its designated representative such as Operation Sail, will provide reasonable notice to the Pier Manager, if any is utilized, with regard to the scheduling, docking, and fee collection for visiting or ceremonial ships, or other high priority vessels.
3. The Pier Manager is not permitted to enter any contractual agreements for dockage of more than three days continuous duration without specific written approval from the City.
4. The Pier Manager shall provide insurance coverage for the pier of the type and amount deemed appropriate by the City and specified in the Management Agreement. All activity involving the surface of the Pier or the maritime use of the Pier is subject to provision of additional insurance coverage in a type and amount deemed appropriate by the Pier Manager. Such additional insurance shall name the Mayor and City Council as "additional insured".

5. Gang planks may be utilized provided they are carefully cushioned so as not to damage the Pier surface or amenities (including, but not limited to signage, lighting, and benches). Visiting vessels may not store or place any item on the Pier without the prior written approval by the City or its designated representative.
6. Trucks or vehicles, other than police, fire or medical emergency units, or water supply or sanitation trucks serving priority vessels, shall not be permitted beyond the designated service drive.
7. No loud music or sound(s) shall be allowed to resonate from the vessels, Pier surface or service drive without specific written approval by the City.
8. No temporary or permanent appendages, attachments or additional dockage rights may be added to the Pier wharfage without specific written approval by the City.
9. Docking of one vessel alongside another vessel ("rafting out") is permitted at the discretion of the Pier Manager, provided such additional docking privileges do not interfere with the adjacent maritime uses of the City Recreation Pier or the Thames Street bulkhead. The Pier Manager must coordinate in advance with the adjacent maritime users to allow rafting out of more than one additional vessel adjacent to any vessel docking at the Broadway Pier. The Pier Manager shall indemnify and hold harmless the adjacent maritime users from liability for any damage to rafted vessels resulting from normal maritime operations, and not resulting from negligence or willful misconduct on the part of the adjacent users.
10. Additional use restrictions apply for areas designated Zone I and Zone II on the attached "Plan of the Broadway Pier".
11. The City reserves the right to modify the Broadway Pier Policy at any time.

BROADWAY PIER
ADDITIONAL USE RESTRICTIONS

ZONE I: Thames Street south to the concrete band delineating the engraved brick portion of the Pier surface. Approximately 25' south of the existing bulkhead at Thames Street to a point approximately 240' south of that bulkhead, as indicated on the attached "Plan of the Broadway Pier".

1. Temporary (3 days or less) docking on the east bulkhead is permitted and may be privately managed. The City, or its designated representative, shall coordinate with the Pier Manager and attempt to provide a minimum three day notice relative to the scheduling and docking of visiting or ceremonial ships.

2. Pier surface activities are permitted in this zone. Acceptable activities include: educational or informative exhibits, ceremonies, or special events whose primary purpose is to provide entertainment and enjoyment for Baltimore residents and visitors. Exhibits or activities shall be scheduled only between the hours of 8 a.m. and 11 p.m. and must be open to the public. Temporary structures shall be limited to booths, kiosks, carts or sandwich sign boards which may be utilized provided they do not damage the brick surface or other Pier amenities. No food or drink vendors will be allowed at any time. Vending and sales are permitted to occur only in conjunction with a permitted activity. Portable spot-a-pots shall not be permitted. Pier surface activities must be coordinated with the Municipal Market Association (MMA) to insure that they are not in conflict with other MMA sponsored activities. In the event of conflicting

activities, MMA activities will have priority. Written notice of any event must be provided to the Baltimore City Police Department Planning Unit (BCDPU) at least two weeks prior to an event. In the interest of public safety, when warranted, the BCPDPU may require the Pier Manager to provide additional security for crowd control.

3. Any scheduled activity or exhibit may not encroach on the service drive. There shall be free and unrestricted public access through Zone I at all times.

ZONE II: The engraved brick portion of the Broadway Pier. From a point approximately 240' south of the Thames Street bulkhead to the southern tip of the Pier, as indicated on the attached "Plan of the Broadway Pier".

1. Temporary (3 days or less) dockage along the east and west bulkheads is permitted. Dockage is not permitted along the south bulkhead so as to maximize the public view of the harbor. Commercial vessels shall have priority over pleasure craft along the east bulkhead.

2. The Pier Manager shall use his best efforts to accommodate dockage requests by operating commercial tugboats along the east bulkhead, and shall not charge for such dockage. Upon receipt of an advance reservation by a commercial tugboat, the Pier Manager shall reserve appropriate dockage, provided that the dock is not already occupied.

3. No Pier surface activities, other than those supporting permitted maritime uses, are permitted in Zone II.

CENTURY ENGINEERING, INC.

CONSULTING ENGINEERS

October 7, 1993

Mr. Richard Hurley, Jr.
Baltimore Development Corp.
36 S. Charles Street
Baltimore, MD 21201

Subject: Broadway Pier
Mooring Load Investigation
Our Contract No. 93044

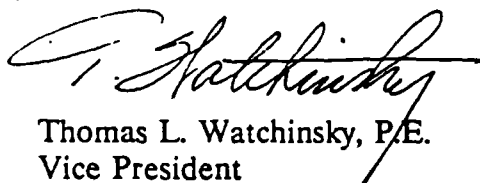
Dear Mr. Hurley:

We have completed our work on re-evaluating the ship mooring capabilities of the rehabilitated Broadway Pier. Our findings are that the maximum vessel size that can be accommodated is of course still limited by available water depth and pier length. Additionally, the existing mooring hardware limits the berth to ships of about 15,000 square feet wind or "sail" area. These determinations are discussed in more detail in the attached letter report. Also included is a plan showing existing mooring hardware, and the results of new soundings done last month for this investigation.

Should you have any comments, or require and additional information, please call.

Very truly yours,

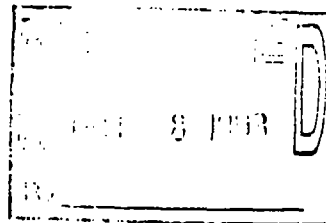
CENTURY ENGINEERING, INC.



Thomas L. Watchinsky, P.E.
Vice President
Facilities/Marine Division

TLW/ejc

93044.LTR



BROADWAY PIER

REPORT ON DOCKING AND MOORING LOAD STUDY

The purpose of this report is to summarize changes that have occurred to the Broadway Pier as a result of modifications or change orders during the recent construction period. The report will concentrate on changes that affect the mooring capability of the structure.

AVAILABLE DEPTH

In order to determine the available depth in the east side ship berth of the Broadway Pier, new soundings were run on September 15, 1993. The purpose of these soundings was to detect changes in water depth that may have occurred since the soundings that were done in 1987. The new soundings were taken on a 50 ft. (E-W) by 100 ft. (N-S) grid. Results of the soundings are shown in Figure 1. Soundings were taken at fifty foot intervals along the east edge of the pier. The soundings taken along the pier edge show a good deal of variation from those done in 1987. This is no doubt due to recent construction activities. The sounding lines run 50 and 100 feet off the east side of the pier generally conform to the water depths recorded in 1987.

Based on these soundings, the maximum allowable draft for vessels docking at Broadway Pier is about 19 feet. This available depth only applies to the outboard 400 feet of the pier length. As mentioned in our original study, the inboard 100 ft. of the pier length is too shallow for vessel access. This shallow area could be deepened to increase the pier length available for docking. This should not be done, however, without first checking the depth of the structures along Thames St. for stability with a deeper water depth.

PIER LENGTH

As mentioned above, the recommended maximum draft of 19 feet is only available for 400 feet of the approximately 500 ft. of pier length. Standard docking and mooring practices of the U.S. Navy and commercial shipping indicate that the lengths of moored vessels

should be incrementally shorter than the pier they are moored to. Navy standards call for 50 ft. of clearance from bow and stern to the end of the pier, or that a ship be 100 feet shorter than the pier. Since the first 100 feet of Broadway pier is not useable, part of this requirement is met immediately. Although 50 ft. of clearance is desirable between the vessel stern and the pier end, this is a flexible requirement. We do not recommend that the vessel project beyond the pier end. Given these restrictions, the maximum recommended length of vessel to be accommodated at Broadway Pier is about 400 ft.

MOORING LOADS

Mooring loads are of two types. Ships breasting against the pier when docking create an impact load on the pier, which is transmitted through the pier fendering system. The second type of load occurs when the wind blows against the above water area of the ship creating a lateral load. This load may push the ship against the pier, or when blowing out of the west, push the ship away from the pier. In the latter case, the ship's mooring lines restrain the ship from being blown away from the pier.

Although higher wind speeds may occur, it is customary to use a wind speed of 60 miles per hour when computing mooring loads. The basis for this limitation is the standard assumption that sustained wind speeds above 60 mph will only occur in major storms, for which there should be ample warning. When such conditions are forecasted, the preferred practice is for ships to put out to sea and either out-run or ride out the storm where they have room to maneuver.

In the case of the Broadway Pier, the controlling factor is the force generated by a 60 mph wind blowing the vessel away from the pier. This translates into a determination of the strength and availability of the pier deck fittings to which the ship's mooring lines can be attached.

The mooring hardware that exists on Broadway Pier consists of the following:

- One forty ton bollard at extreme southeast corner of pier

- Three ten ton double bits spaced 75 ft. apart on the west side of the pier.
- Eight 10 ton double bits spaced 50 to 75 ft. apart on the east side of the pier.

Based on the capacity of this hardware, it is possible to determine the maximum size vessel that can be safely moored to the Broadway Pier. The controlling force in determining the maximum allowable load is the tension force placed on the mooring hardware when the wind is blowing the ship away from the pier. The three inboard double bits are available to receive the bow and forward breast line. These mooring points control the allowable load, since the outboard moorings are stronger due to the presence of the 40 ton bollard at the end of the pier. Each double bitt is rated for a load of 10 tons or 20,000 pounds. Allowing for a 30 degree vertical angle for the mooring line, this produces a maximum allowable load on each bitt of about 23,000 pounds. With three bits available for the bow lines, an allowable load of 69,000 pounds results to offset the wind-generated load from half the ship's total wind area.

A 60 mile per hour wind generates a force on a vertical object, such as a ship's side, of approximately 9.2 pounds per square ft. Since the maximum wind load sustainable by the mooring hardware on Broadway Pier is two times 69,000 pounds, of 138,000 pounds, then the maximum wind area that can be accommodated is 15,000 square feet. Therefore, only ships of 15,000 sq. ft. or less of wind or "sail area" should be moored to Broadway Pier.

SUMMARY

We have described the maximum ship that can be safely moored to Broadway Pier. The parameters of that maximum ship are as follows:

Length:	400 feet maximum
Draft:	19 feet maximum
Wind Area:	15,000 sq. ft. maximum

In determining the ability of the pier to serve a particular vessel, it is important to ascertain the wind area of the vessel. If length and draft criteria are met, then the determining factor becomes the ship's wind area. The wind area of a particular vessel is a parameter of the ship that should be in the possession of the ship's owner or crew. U.S. Navy ships that fall within the limiting criteria include submarines, destroyers, frigates, and a wide range of auxiliary ships. However, it is necessary to obtain the pertinent length, draft, and wind area data for each individual ship to be sure.

In the final analysis, the decision on whether any given vessel can safely be moored at Broadway Pier should rest with the vessel's captain. The captain knows the critical mooring parameters of his vessel. Figure 1, included with this letter report, should be examined by captains of vessels considering docking at Broadway Pier. With this information on pier length, available water depth, and mooring hardware, a captain can decide whether he can safely moor his vessel at Broadway Pier.

20 "NEWPORT" CLASS: TANK LANDING SHIPS (LST)

Name	No.	Laid down	Launched	Commissioned	F/S
NEWPORT	LST 1179	1 Nov 1966	3 Feb 1968	7 June 1969	AA
MANITOWOC	LST 1180	1 Feb 1967	4 June 1969	24 Jan 1970	AA
SUMNER	LST 1181	14 Nov 1967	13 Dec 1969	20 June 1970	AA
FRESNO	LST 1182	16 Dec 1967	28 Sep 1968	22 Nov 1969	PA
PEORIA	LST 1183	22 Feb 1968	23 Nov 1968	21 Feb 1970	PA
FREDERICK	LST 1184	13 Apr 1968	8 Mar 1969	11 Apr 1970	PA
SCHENECTADY	LST 1185	2 Aug 1968	24 May 1969	13 June 1970	PA
CAYUGA	LST 1186	28 Sep 1968	12 July 1969	8 Aug 1970	PA
TUSCALOOSA	LST 1187	23 Nov 1968	6 Sep 1969	24 Oct 1970	PA
SAGINAW	LST 1188	24 May 1969	7 Feb 1970	23 Jan 1971	AA
SAN BERNARDINO	LST 1189	12 July 1969	28 Mar 1970	27 Mar 1971	PA
BOULDER	LST 1190	6 Sep 1969	22 May 1970	4 June 1971	NRF
RACINE	LST 1191	13 Dec 1969	15 Aug 1970	9 July 1971	NRF
SPARTANBURG COUNTY	LST 1192	7 Feb 1970	11 Nov 1970	1 Sep 1971	AA
FAIRFAX COUNTY	LST 1193	28 Mar 1970	19 Dec 1970	16 Oct 1971	AA
LA MOURE COUNTY	LST 1194	22 May 1970	13 Feb 1971	18 Dec 1971	AA
BARBOUR COUNTY	LST 1195	15 Aug 1970	15 May 1971	12 Feb 1972	PA
HARLAN COUNTY	LST 1196	7 Nov 1970	24 July 1971	8 Apr 1972	AA
BARNSTABLE COUNTY	LST 1197	19 Dec 1970	2 Oct 1971	27 May 1972	AA
BRISTOL COUNTY	LST 1198	13 Feb 1971	4 Dec 1971	5 Aug 1972	PA

Displacement, tons: 8 450 full load
 Dimensions, feet (metres): 522.3 (hull) x 69.5 x 17.5 (aft) (159.2 x 21.2 x 5.3)
 Guns: 4—3 in (76 mm)/50 (twin Mk 33) (see Gunnery notes)
 Main engines: 6 diesels (General Motors in 1179-1181. Alco in others).
 2 shafts (cp propellers): 16 000 bhp = 20 knots
 Range, miles: 2 500— (cruising)
 Complement: 290 (18 officers, 272 enlisted men)
 Troops: 400 (20 officers, 380 enlisted men)

An entirely new design, larger and faster than previous tank landing ships. They operate with 20 knot amphibious squadrons to transport tanks, other heavy vehicles, engineer equipment, and supplies which cannot be readily landed by helicopters or landing craft.

Newport was authorised in the FY 1965 new construction programme. LST 1180-1187 in FY 1966, and LST 1188-1198 in FY 1967. LST 1179-1181 built by Philadelphia Naval Shipyard. LST 1182-1198 built by National Steel & S B Co. San Diego, California. Seven additional ships of this type that were planned for the FY 1971 new construction programme were deferred. Boulder (LST 1190) was assigned to the NRF on 1 December 1980 and Racine (LST 1191) on 15 January 1981.

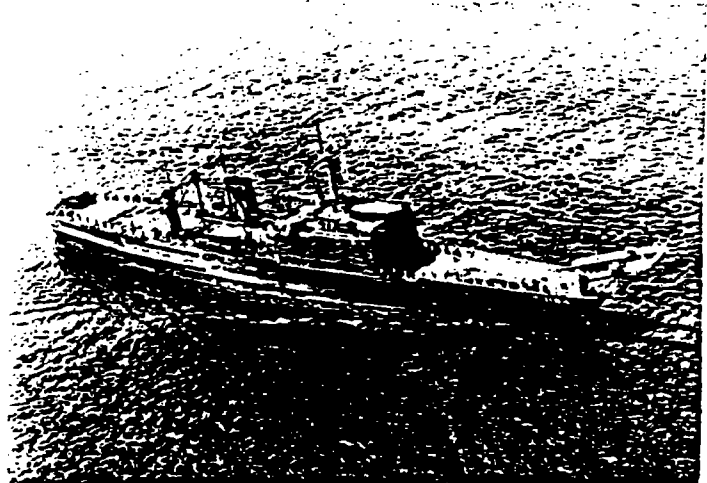
Countermeasures: One Mk 36 Super RBOC Chaffroc.

Design: These ships are the first LSTs to depart from the bow-door design developed by the British early in the Second World War. The hull form required to achieve 20 knots would not permit bow doors, thus these ships unload by a 112 ft ramp over their bow. The ramp is supported by twin derrick arms. A ramp just forward of the superstructure connects the lower tank deck with the main deck and a vehicle passage through the superstructure provides access to the parking area amidships. A stern gate to the tank deck permits unloading of amphibious tractors into the water, or unloading of other vehicles into an LCU or on to a pier. Vehicle stowage is rated at 500 tons and 19 000 sq ft (5 000 sq ft more than previous LSTs). Length over derrick arms is 562 ft; full load draught is 11.5 ft forward and 17.5 ft aft. Bow thruster fitted to hold position offshore while unloading amphibious tractors.

Electronics: OE-82 satellite communications antenna, SSR-1 receiver and WSC-3 transceiver.

Gunnery: Two 20 mm Mk 16 CIWS being fitted. Already in LST 1180, 1181 and 1192.

Radar: Surface search: SPS 10F
 Navigation: LN 66 (LST 1179-81, 1183, 1184, 1186, 1187, 1196, 1197);
 CRP 3100 Pathfinder (LST 1188, 1192-94).



FREDERICK

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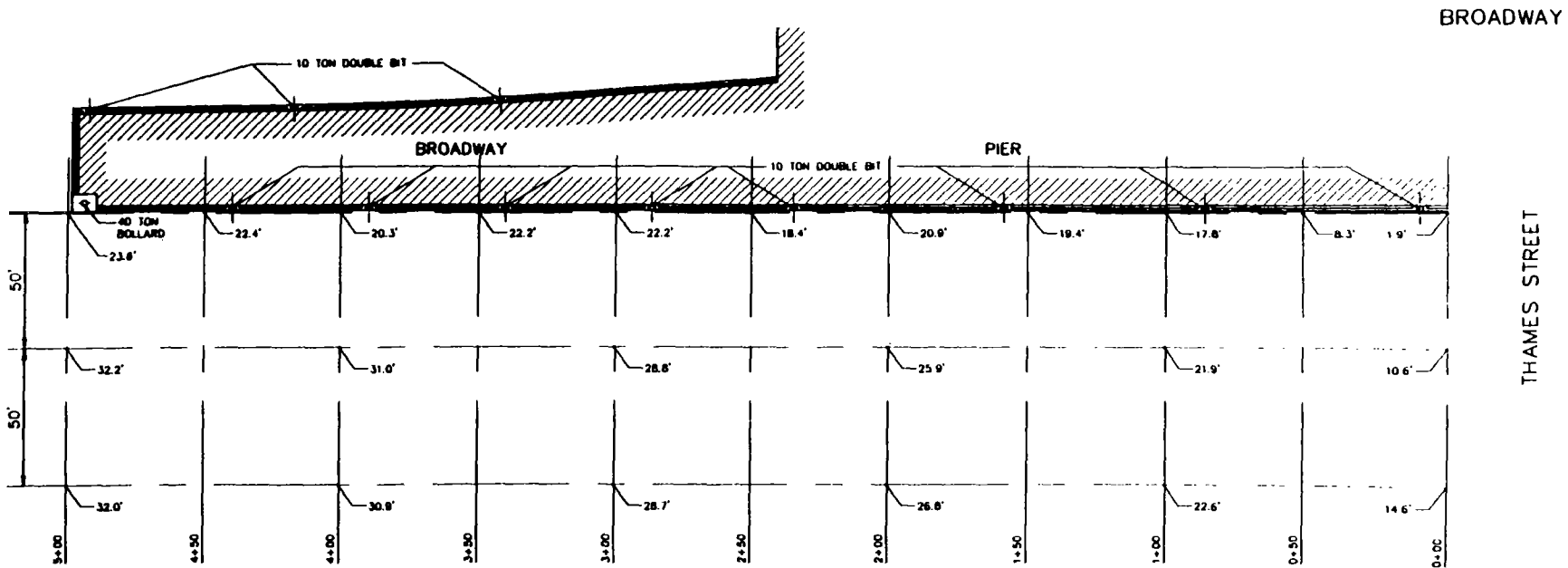
SPARTANBURG COUNTY

1/1986, Dr. Giorgio Arra

3 (RESERVE) "DE SOTO COUNTY" CLASS: TANK LANDING SHIPS (LST)

Name	No.	Builder	Commissioned	F/S
SUFFOLK COUNTY	LST 1173	Boston Navy Yard	15 Aug 1957	MAR
LORAIN COUNTY	LST 1177	American S.B. Co. Lorain, Ohio	3 Oct 1959	MAR
WOOD COUNTY	LST 1178	American S.B. Co. Lorain, Ohio	5 Aug 1959	MAR

Displacement, tons: 4 164 light; 7 100 full load
 Dimensions, feet (metres): 445 x 62 x 17.5 (135.6 x 18.9 x 5.3)
 Guns: 6—3 in (76 mm)/50 (twin Mk 33)
 Main engines: 6 diesels (Fairbanks-Morse in 1173, Cooper Bessemer in others).
 2 shafts (cp propellers): 13 700 bhp = 16.5 knots
 Complement: 188 (15 officers, 173 men)
 Troops: 634 (30 officers, 604 enlisted men)



SOUNDINGS CORRECTED
TO MEAN LOW WATER

CITY OF BALTIMORE
BROADWAY PIER REHABILITATION STUDY
CENTURY ENGINEERING, INC. SUBOCEANIC CONSULTANTS, INC.
Scale: 1" = 40' Date: 9 15 93 Fig No 1