NPS Form 10-900
(Rev. 8-86)

OMB No. 1024-0018

United States Department of the Interior
National Park Service

National Register of Historic Places Registration Form

This form is for use in nominating or requesting determinations of eligibility for individual properties or districts. See instructions in *Guidelines for Completing National Register Forms* (National Register Bulletin 16). Complete each item by marking "x" in the appropriate box or by entering the requested information. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, styles, materials, and areas of significance, enter only the categories and subcategories listed in the instructions. For additional space use continuation sheets (Form 10-900a). Type all entries.

1. Name of Property

historic name Luna

other names/site number Tugboat Luna

2. Location

street & number NDC Pier, Charles River ☐ not for publication

city, town Boston ☐ vicinity

state Massachusetts code 25 county Suffolk code 025 zip code

3. Classification

Ownership of Property	Category of Property	Number of Resources within Property	
		Contributing	Noncontributing
☒ private	☐ building(s)		buildings
☐ public-local	☐ district		sites
☐ public-State	☐ site		structures
☐ public-Federal	☒ structure	1	objects
	☐ object		Total

Name of related multiple property listing:

Number of contributing resources previously listed in the National Register 0

4. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this ☐ nomination ☐ request for determination of eligibility meets the documentation standards for registering properties in the National Register of Historic Places and meets the procedural and professional requirements set forth in 36 CFR Part 60. In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of certifying official Date

State or Federal agency and bureau

In my opinion, the property ☐ meets ☐ does not meet the National Register criteria. ☐ See continuation sheet.

Signature of commenting or other official Date

State or Federal agency and bureau

5. National Park Service Certification

I, hereby, certify that this property is:

☐ entered in the National Register.
☐ See continuation sheet.

☐ determined eligible for the National Register. ☐ See continuation sheet.

☐ determined not eligible for the National Register.

☐ removed from the National Register.

☐ other, (explain:)

Signature of the Keeper Date of Action

6. Function or Use

Historic Functions (enter categories from instructions)

Transportation/ Water Related

Current Functions (enter categories from instructions)

Transportation/Water Related
Museum
Education/Research Facility

7. Description

Architectural Classification (enter categories from instructions)

N/A

Materials (enter categories from instructions)

foundation N/A
walls N/A
roof N/A
other N/A

Describe present and historic physical appearance.

The wooden-hulled tugboat Luna, a Boston civic landmark listed in the National Register of Historic Places, is a museum vessel undergoing restoration by her owners, the Terra/Mare Research and Education Society, Inc. of Boston, Massachusetts. Luna is moored in the Charles River, at the Metropolitan District Commission Dock on the Esplanade.

Luna as Built and Maintained

Luna, official number 230263, is constructed of oak and longleaf yellow pine fastened with treenails. She is 97.3 feet long overall, 90.5 feet registered length, 24.8 feet in breadth, and has a depth of hold of 11.3 feet. Luna is 165 gross tons, 112 net tons, and a displaces approximately 325 tons. [1]

Luna's hull is heavily built with oak beams and double-sawn frames clad by longleaf yellow pine ceiling and outer hull planking. The original wooden knees have been augmented by steel knees installed during the Second World War. Luna's hull form is typical of large harbor tugs built internationally between 1880 and 1940. The moderately high bow is slightly raked forward with a gentle sheer leading down and back to the elliptical tugboat fantail. The interior of the hull is divided by watertight bulkheads into the forepeak, the forecastle which housed the crew, the engine room, and the stern flat.

The deckhouse is quite long and displays a more pronounced sheer than does the deck. A galley, equipped with a coal burning stove, is in the foremost compartment of the deckhouse. The ship's head and a storage closet are just aft of the galley. The next compartment aft is the engineroom. The engineroom is not decked over the machinery except along the after bulkhead where the electrical switchboard is located. Cabins for the engineer and mate, each equipped with a sink and single berth, consume the remaining space in the deckhouse.

[X] See continuation sheet

8. Statement of Significance

Certifying official has considered the significance of this property in relation to other properties:

☐ nationally ☐ statewide ☐ locally

Applicable National Register Criteria ☐A ☐B ☐C ☐D NHL CRITERIA 1, 4

Criteria Considerations (Exceptions) ☐A ☐B ☐C ☐D ☐E ☐F ☐G

Areas of Significance (enter categories from instructions)	Period of Significance	Significant Dates
Architecture (Naval)	1930-1971	1930
Military	1941-1945	
Maritime History	1931-1971	
Transportation (1930-1971)		
NHL XII-L		
Business: Shipping & Transportation		

Cultural Affiliation: N/A

Significant Person: N/A

Architect/Builder: John G. Alden & Co./M.M. Davis & Sons, Solomons, Md.

State significance of property, and justify criteria, criteria considerations, and areas and periods of significance noted above.

The tugboat Luna, one of a handful of wooden-hulled tugboats in operating condition remaining in the United States, possesses integrity of location, setting, design, materials, and workmanship. During her long career Luna was associated with a number of significant events, vessels and people. She was designed by the renowned Boston naval architectural firm of John G. Alden, and built as the showpiece flagship of the Boston Towboat Co. by M. M. Davis and Sons of Solomons, Maryland.

Luna is an early example of a diesel-electric propelled vessel; in fact she was the first diesel-electric vessel built for a commercial tugboat company in the world. The successful operation of Luna was a major influence on tugboat propulsion designs in this and other countries. Luna's long and enduring career in the nationally-significant port of Boston saw an active association with the maritime history of the North Atlantic and Mid-Atlantic regions. As the flagship of Boston's leading tugboat company commodore, Luna often received special assignments which took her to other ports. Luna often welcomed and docked famous ocean liners (including Normandie and Queen Mary) at New York on their maiden voyages to American shores. Back in Boston, Luna also assisted USS Constitution with her annual "turnaround" in peacetime. Luna attended warships and military transports at launch and helped them to form up into convoys during her service with the War Shipping Administration during the Second World War.

The preceding statement of significance is based on the more detailed statements which follow.

☒ See continuation sheet

9. Major Bibliographical References

SEE FOOTNOTES IN TEXT.

☐ See continuation sheet

Previous documentation on file (NPS):

☐ preliminary determination of individual listing (36 CFR 67) has been requested
☐ previously listed in the National Register
☐ previously determined eligible by the National Register
☐ designated a National Historic Landmark
☐ recorded by Historic American Buildings Survey # _____
☐ recorded by Historic American Engineering Record # _____

Primary location of additional data:

☐ State historic preservation office
☐ Other State agency
☐ Federal agency
☐ Local government
☐ University
☒ Other

Specify repository:
Terra Mare Research & Education Society

10. Geographical Data

Acreage of property Less than one acre

UTM References

	Zone	Easting	Northing
A	19	329200	4692470
B			
C			
D			

☐ See continuation sheet

Verbal Boundary Description

All that area encompassed by the extreme length and beam of the vessel.

☐ See continuation sheet

Boundary Justification

The boundary encompasses the entire area of the vessel as she floats at her berth.

☐ See continuation sheet

11. Form Prepared By

name/title Kevin Foster, Historian
organization National Park Service (418) date August 5, 1988
street & number P.O. Box 37127 telephone (202) 343-9550
city or town Washington state D.C. zip code 20013

The pilot house and captain's cabin are located atop the deckhouse forward, with a large smokestack and the ship's boat in davits to port, immediately aft. The pilothouse holds a large wheel, voicepipes to the engine room and galley, and bridge engine controls. Luna was among the first vessels designed to allow direct control of the engines from the pilothouse. Direct control greatly facilitates handling and safety which are prime requisites for tugboats. [2]

Luna retains her original unstayed rig. The foremast supports the running and towing lights and the mainmast supports the ensign and another running light. On deck, large towing bitts are located running fore and aft at the bow, on the port and starboard rails at each end of the deckhouse and athwartships on the centerline abaft the house. A unique feature in Luna's construction is a glass port through the hull over the propeller to allow the crew to check for fouling. Aft of the viewing port is the rudder quadrant covered by a raised grating.

Luna was built to be the flagship of the owner's company and as such, was particularly well finished. Her hull was painted white with black rubbing strakes and trim, while the deckhouse interior and exterior were varnished. The deck was kept oiled and the many brass fixtures kept polished. This finery was covered with Navy camouflage gray during the Second World War, and from 1946 to 1981, with the black and red color scheme of the Boston Towing Co. Luna was returned to her original appearance of white hull, black trim, and varnished deckhouse in 1981. [4]

Though conservative in outward appearance, Luna had a state-of-the-art engineering plant below decks. Two powerful six-cylinder Winton diesel engines drive Westinghouse generators, which in turn power Luna's single propulsion motor. The diesel-electric system allowed both the diesel engine and the propeller to operate at the most efficient speed, gave a quick startup speed, and allowed instant reversal of engines when necessary. The system also allowed two engines to apply a large amount of power to the single, four-bladed screw propeller. [5]

Luna is basically unaltered and retains a high level of integrity. Alterations have been minor and have not compromised her historic fabric. At present her decks, along with some beams, are undergoing restoration with in-kind replacement of rotten timbers. The engines are serviceable and allow Luna to move about Boston harbor on occasion.

SEE CONTINUATION SHEET

NOTES

1
Merchant Vessels of the United States (Washington, D.C.: Government Printing Office, 1952), p. 329.

2
Edward M. Brady, Tugs, Towboats and Towing (Cambridge, Maryland: Cornell Maritime Press, 1967), pp. 40-44.

3
Carolyn Royal, "Tugboat Luna Restoration Project History," N.D., N.P., pp. 1-2.

4
Robinson, Electric Ship Propulsion (N.P., N.D. {ca.1922}), pp. 1-8. A. C. Hardy, American Ship Types (New York: D. Van Nostrand Company, 1927), pp. 145-153.

DEVELOPMENT OF THE TUGBOAT

The first steam powered tugboat was Charlotte Dundas, which demonstrated the usefulness of mechanical propulsion in 1802 on Britain's Forth and Clyde Canal. Her steam engine turned sidewheels that moved her through the water. The idea of steam power spread rapidly, and by the 1830s steam tugboats had freed sailing ships from their dependence on winds and tides when entering and leaving most ports in America and Europe. [1]

Improvements in tugboat design included screw propulsion introduced in the mid-1840s, compound and then triple-expansion steam engines in the 1860s, and iron and later steel hulls from 1860 to 1900. The compression-ignition engine invented by Rudolph Diesel offered even more advantages than earlier advances in marine engineering. "Diesel" engines require less fuel, store more fuel in the same size hull, take less time to load, and require fewer crew. Unlike steam engines, diesel engines give a constant pull and can be started in minutes. The biggest drawback to diesel engines for marine propulsion is that the large, heavy-pitch propellers used by tugs are more efficient at slow speeds whereas a diesel engine is more efficient at higher speeds. In order for the propeller and engine to operate at the most advantageous speed a compromise in their different operating speeds must be made. This can be done by expensive gearing between engine and propeller or by using the diesel engine to turn an electrical generator to supply power to an electric motor which turns the propeller. The U.S. Navy adopted electric propulsion for some submarines prior to the First World War, but it was not until 1926 that diesel-electric propulsion was applied successfully to a surface vessel. Three diesel-electric tugboats were built in that year and from that time the system's use spread steadily. [2]

CONSTRUCTION AND CAREER OF LUNA

Luna was the first commercial tugboat company vessel to apply the new system. She was designed by John G. Alden & Co., a well-known Boston naval architectural firm, and constructed by M.M. Davis and Sons of Solomons, Maryland, known for fine workmanship; Luna was launched July 29, 1930. Luna was built for the Mystic Steamship Company and operated by the Boston Towboat Company, working out of Boston Harbor during her 41 years of service from 1930 to 1971. For the first 10 years of Luna's service, her master was the commodore of the company's fleet, Captain David Cunningham.

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Luna and her sister ship Venus proved that diesel-electric tugboats were exceptionally easy to control and manuever, required fewer crew and, due to the use of engine control from the bridge, responded directly to the captain's demands rather than through an intermediary. Hailed by the press as a "Super Tug," Luna received worldwide publicity and became the prototype for subsequent diesel-electric tugs, notably those built in England by Robinson and Crosthwaite, the oldest tugboat company in the world. [3]

Luna was designed with very conservative lines and a larger than neccesary smokestack to mollify shipowner customers suspicious of anything new. Although steel-hulled tugs had generally superseded wooden ones at the time, a wooden hull was selected both for its traditional qualities and for its resiliency to impact. Luna and her sister Venus were, therefore, among the last wooden-hulled, "classic" tugboats to be built. [4]

Luna's contribution to Boston harbor during her 41 years of service was vital to the port's progress and development. In addition to her primary task of docking and undocking commercial ships, Luna supplied electricity to different companies on the waterfront in emergencies, helped extinguish numerous fires, and carried out search and rescue work. She also represented the city of Boston to welcome the ocean liner Normandie on her maiden voyage, June 2, 1935, and Queen Mary on hers, June 1, 1936. In Boston Luna docked USS Constition on May 7, 1934, following her famous cruise sponsored by the pennies of schoolchildren. The U.S. Navy would request Boston Towboat Company's diesel-electric tugs for the gentle and careful assistance USS Constitution required. [5]

Early in the Second World War Luna was requisitioned by the War Shipping Administration to work at the Charlestown Navy Yard and the South Boston Naval Annex. She also participated in the assembly of convoys and was "on call" day and night to the U.S. Coast Guard. Without the efficient and expedient help of Luna and other ships of her type, costly delays would have occurred. [6]

In the 1960s the preponderance of steel-hulled tugboats with more powerful engines and smaller crews forced an end to Luna's active duty. She was retired March 30, 1971, and after narrowly escaping disposal as floating refuse by the U.S. Army Corps of Engineers, was used as an office and residence by several owners.

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In 1979 a group of volunteers headed by Ms. Frances R. Gage began restoring the vessel and as the Terra-Mare Research and Education Society, Inc., a non-profit corporation, incoporated to purchase and rehabilitate her as a living museum.

NOTES

1
Edgar C. Smith, A Short History Of Naval And Marine Engineering (Cambridge: Babcock an Wilcox, Ltd. 1937), pp. 12-13.

2
Louis R. Ford, Marine Diesel Handbook (New York City: Diesel Publications, Inc., 1942), pp. 496-506.

3
Carolyn Royal, "The Luna: Queen of the Tugboat Fleet," Alliance Letter Vol. 4, No. 4, May 1983.

4
"Down to the Sea with the Tugs Luna and Venus," Massachusetts Gas Companies Bulletin, Vol.12, No.7, August, 1930, pp. 3-5.

5
Carolyn Royal, "Tugboat Luna Restoration Project History," N.D., N.P., pp. 1-2.

6
Royal, "Queen of the Tugboat Fleet," p. 1.