

United States Department of the Interior
National Park Service

KP 137

National Register of Historic Places
Registration Form

This form is for use in nominating or requesting determinations for individual properties and districts. See instructions in *How to Complete the National Register of Historic Places Registration Form* (National Register Bulletin 16A). Complete each item by marking "x" in the appropriate box or by entering the information requested. If an item does not apply to the property being documented, enter "N/A" for "not applicable." For functions, architectural classification, materials, and areas of significance, enter only categories and subcategories from the instruction. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter or computer, to complete all items.

1. Name of Property

historic name: Port Washington Narrows Bridge
other names/site number: Bridge Number 303/12 Warren Avenue Bridge

2. Location

street and number: State Route 303 over Washington Narrows N/A not for publication
city or town: Bremerton N/A vicinity
state: Washington county: Kitsap County zip code:

3. State/Federal/Tribal Agency Certification

As the designated authority under the National Historic Preservation Act, 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. I recommend that this property be considered significant nationally statewide locally. (See continuation sheet for additional comments.)

Allyson M 2-3-02
Signature of certifying official/Title Date

State or Federal agency or Tribal Government

In my opinion, the property meets does not meet the National Register criteria. (See continuation sheet for additional comments.)

Signature of certifying official/Title Date

State or Federal agency or Tribal Government

4. National Park Service Certification

I hereby certify that the property is: Signature of the Keeper Date of Action

- 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:)

5. Classification

Ownership of Property

(Check as many boxes as apply)

- private
- public-local
- public-State
- public-Federal

Category of Property

(Check only one box)

- building(s)
- district
- site
- structure
- object

Number of Resources within Property

(Do not include previously listed resources in the count.)

Contributing	Noncontributing	
		buildings
		sites
1		structures
		objects
1	0	Total

Name of related multiple property listing

(Enter "N/A" if property is not part of a multiple property listing.)

Bridges and Tunnels Built in Washington State,
1951-1960

**Number of contributing resources previously listed
in the National Register**

N/A

6. Function or Use

Historic Functions

(Enter categories from instructions)

Transportation

Historic Subfunctions

(Enter subcategories from instructions)

Road-Related

Current Functions

(Enter categories from instructions)

Transportation

Current Subfunctions

(Enter subcategories from instructions)

Road-Related

7. Description

Architectural Classification

(Enter categories from instructions)

No Style

Materials

(Enter categories from instructions)

Foundation Concrete
Other Concrete
 Steel

Narrative Description

(Describe the historic and current condition of the property on one or more continuation sheets.)

8. Statement of Significance

Applicable National Register Criteria

(Mark "x" in one or more boxes for the criteria qualifying the property for National Register listing.)

- X A Property is associated with events that have made a significant contribution to the broad patterns of our history.
B Property is associated with the lives of persons significant in our past.
X C Property embodies the distinctive characteristics of a type, period, or method of construction or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.
D Property has yielded, or is likely to yield, information important in prehistory or history.

Criteria Considerations

(Mark "x" in all the boxes that apply.)

Property is

- A owned by religious institution or used for religious purposes..
B removed from its original location.
C a birthplace or grave.
D a cemetery.
E a reconstructed building, object, or structure.
F a commemorative property.
X G less than 50 years of age or achieved significance within the past 50 years.

Areas of Significance

(Enter categories from instructions)

Engineering
Transportation

Period of Significance

1957-1958

Significant Dates

1958

Significant Person

(Complete if criterion B is marked above)

N/A

Cultural Affiliation

Architect/Builder

Tudor Engineering Company, Designer
Peter Kiewit Sons Compnay, Builder
Independent Iron Works, Inc., Builder

9. Major Bibliographical References

Bibliography

(Cite the books, articles, and other sources used in preparing this form on one or more continuation sheets.)

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
- See continuation sheet for additional HABS/HAER documentation.

Primary location of additional data:

- State Historic Preservation Office
- Other State Agency (Repository Name: WSDOT)
-
-
-
-

10. Geographical Data

Acreage of Property: 1.00

UTM References

(Place additional UTM references on a continuation sheet.)

1	10	527821	5269723	3			
	Zone	Easting	Northing		Zone	Easting	Northing
2	10	527715	5269189	4			

See continuation sheet

Verbal Boundary Description

(Describe the boundaries of the property on a continuation sheet.)

Boundary Justification

(Explain why the boundaries were selected on a continuation sheet.)

11. Form Prepared By

name/title: Oscar R. "Bob" George, Bridge Engineer

organization: Washington State Department of Transportation / Environmental Affairs Office

date: 6/30/2001

street & number: PO Box 47332

telephone: (360) 570-6639

city or town: Olympia

state: Washington

zip code: 98504-7332

Additional Documentation

Submit the following items with the completed form:

Continuation Sheets**Maps**

A **USGS map** (7.5 or 15 minute series) indicating the property's location.

A **Sketch map** for historic districts and properties having large acreage or numerous resources.

Photographs

Representative **black and white photographs** of the property

Additional items

(Check with the SHPO or FPO for any additional items)

Property Owner

(Complete this item at the request of the SHPO or FPO.)

name: Washington State Department Of Transportation

street & number: PO Box 47300

telephone: 360-705-7000

city or town: Olympia

state: Washington

zip code: 98504-7300

Paperwork Reduction Act Statement: This information is being collected for applications to the National Register of Historic Places to nominate properties for listing or determine eligibility for listing, to list properties, and to amend existing listings. Response to this request is required to obtain a benefit in accordance with the National Historic Preservation Act, as amended (16 U.S.C. 470 *et seq.*).

Estimated Burden Statement: Public reporting burden for this form is estimated to average 18.1 hours per response including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding this burden estimate or any aspect of this form to the Chief, Administrative Program Center, National Park Service, 1849 C Street NW, Washington DC 20240; and the Office of Management and Budget, Paperwork Reductions Projects (1024-0018), Washington, DC 20503.

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Section number 7. Narrative Description

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The Port Washington Narrows Bridge (known locally as the Warren Avenue Bridge) carries State Route 303 over the Port Washington Narrows in the City of Bremerton in Kitsap County, Washington. The bridge is a vital link between the downtown core in West Bremerton and Puget Sound Naval Shipyard south of the Narrows, and the residential and commercial areas of East Bremerton and other cities and towns to the north. The Narrows is a stretch of water, extending from Dyes Inlet at the northwest to Port Orchard and Puget Sound via Rich Passage to the east.

The 1,717-foot long bridge has fifteen spans. Starting from the south end, the bridge consists of one 49-foot 4 ½-inch long reinforced concrete tee-beam span; three continuous 131-foot 5-inch long reinforced concrete box girder spans; three continuous riveted steel plate girder spans (a 250-foot long main span, providing 80 feet of vertical clearance over the navigational channel, flanked by a 178-foot long span at each end); three continuous 131-foot 5-inch long reinforced concrete box girder spans; and five reinforced concrete tee-beam spans (a continuous two-span unit and a continuous three-span unit, with a maximum span length of 62 feet) at the south end of the bridge.

All concrete tee-beam spans have eight webs supporting a 6 ½-inch roadway slab. The southerly span is 4-foot 6-inches deep; the five northerly spans are 4-feet deep. The 9-foot 9 ½-inches deep concrete box girder spans have seven interior cells.

The three steel plate girder spans are supported by two deep girders spaced at 56 feet center-to-center. The girders are built up riveted I-sections consisting of a steel plate web and double rolled steel angle flanges with steel cover plates where needed. Structural Low Alloy Steel was used for most of the girder components. The girders are 12 feet deep through most of their length. However, starting at a distance of 50 feet from the centerline of the main span piers, they increase in depth linearly to a maximum of 15 feet at the center of pier. Horizontal and vertical angle web stiffeners are riveted to the web where needed to prevent web buckling. Full height truss floorbeams, spaced on 20-foot 10-inch centers in the main span and on 22-foot 3-inch centers in the flanking spans, extend transversely between the girders. The floorbeams are divided transversely into four panels. Top and bottom floorbeam members are steel rolled structural tee sections. Two inclined steel rolled angle sections in each floorbeam bay brace those members vertically. All floorbeam connections are welded, except at the floorbeam-girder connections, which are bolted. Seven longitudinal steel rolled wide flange stringers, equally spaced between the girders, are supported on the top of the floorbeams. Girders, floorbeams and stringers provide a floor system to support a 6 ½-inch deep reinforced lightweight concrete roadway slab and traffic above. The bridge carries two lanes of traffic in each direction, separated by a 2-foot wide traffic island, within a 56-foot roadway width, plus a 4-foot 11-inch sidewalk on each side of the roadway.

The south roadway approach end of the bridge is supported on a concrete wall abutment founded on a spread footing. The north roadway approach end of the bridge is supported on a cap supported by four 3-foot square concrete columns founded on individual spread footings:

Intermediate piers supporting tee-beam spans have three 3-foot 7 ½-inches square concrete columns with a common cap integral with the adjacent spans, founded on individual spread footings. Split columns are used between continuous units at the northerly end of the bridge.

Intermediate piers between concrete tee-beam and concrete box girder spans are configured with two 7-foot wide concrete columns spaced 50 feet apart. Each tapers out in the longitudinal direction from the top of the column to the top of an individual spread footing. The two footings and the base of the columns are braced with a transverse rectangular strut.

Piers supporting all concrete box girder and steel girder spans are configured with two square concrete columns spaced 45 to 56 feet apart and tapering out in the longitudinal direction from the top of the column to the top of the supporting footing.

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The columns are tied transversely to each other with an upper cap and a rectangular strut just above mid height. Each of these piers is supported on a single rectangular footing. Footings for river piers were constructed using cofferdams and tremie concrete.

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Section number 8. Narrative Statement of Significance

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The Port Washington Bridge at Warren Avenue is eligible for listing in the National Register of Historic Places under Criterion A for its association with bridge building in Washington in the 1950s as per the "Bridges and Tunnels Built in Washington State, 1951-1960" MPD and for its association with and critical role in the history and growth of the city of Bremerton. It is also eligible under Criterion C for its type, period, materials and method of construction. The bridge meets the threshold for eligibility established by Criteria Consideration G for properties not yet 50 years old for its exceptional engineering significance.

The significant engineering feature of this bridge is its 606-foot, three-span continuous riveted steel plate girder unit. When constructed in 1958, this was the longest continuous plate girder unit in the state. It remains today the longest continuous plate girder unit on the system. When erected, the main span of this unit (at 250 feet long) had been exceeded in length by only one other steel plate girder span: the 260-foot main span of the 1955 Southbound Wenatchee Avenue Bridge over the Wenatchee River (Bridge Number 285/20W). Even today, the Warren Avenue Bridge has one of the longest steel plate girder spans on the highway system. Also significant are the main components of the girders (the webs and flanges), which were fabricated from Structural Low Alloy Steel.

An unusual feature of this bridge is the deepening of the girders near the main piers, the location of maximum stresses. This deepening enables the girders to handle the higher stresses at the pier and also provides an aesthetically pleasing look to the spans.

The truss floorbeams, located between the main girders along the spans, were fully shop welded. This was an early use of shop welding for major bridge components.

The Port Washington Narrows Bridge played a significant role in the history of Bremerton as the city battled to provide adequate transportation facilities for its citizens. Construction of this bridge was the result of the perseverance of city leaders and a cooperative venture involving many layers of government. The eventual growth of Bremerton and the continuing success of the Puget Sound Naval Shipyard can be linked directly to construction of this bridge.

Historic Context:

In 1891 William Bremer, Seattle realtor and the son of a prominent German banker, convinced owners of waterfront land near the area now known as Bremerton to sell the land to the U. S. government. The sale greatly enhanced the value of his own property and gave an economic foundation for developing a town. Government procurement agent Lieutenant Ambrose Wyckoff had argued for a naval station at this location since 1877. He pointed to the magnificent harbor, mild climate, and access to abundant coal and timber. Congress heeded his advice and appropriated money in 1896 for the Bremerton drydock facility, measuring a massive 650 feet long, 130 feet wide and 39 feet deep. Although the waterfront land recommended by Lieutenant Wyckoff had been homesteaded in 1872, it was still a "wilderness of forest and swamp." Two communities grew up on each side of the navy yard as soon as operations had gotten underway: Bremerton and Charleston (later West Bremerton), connected by a boardwalk built through the shipyard.(1)

Between the turn-of-the-century and 1940, the population of Bremerton had grown to about 30,000. The emergence of World War II brought an onslaught of new people to the area. Bremerton, the home of the Puget Sound Navy Yard, attracted thousands of people who wanted to work in the war effort. These workers brought their families with them. Between 1941 and 1942, Bremerton's population swelled from 30,000 to over 100,000. This great influx of people created a strain on the city's housing, schools, roads and human services.(2)

At that time, the area on the north side of the Port Washington Narrows was known as the Manette Peninsula. A crossing

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known as the Manette Bridge had been built in 1930 as a private toll bridge to cross the channel and to serve a population of 10,000 persons living in Bremerton and 900 living in Manette. The 1937 Legislature appropriated \$325,000 from state funds to purchase the bridge from the private operators and remove the toll. However, it had been necessary for the State Toll Bridge Authority to borrow an additional \$40,000 since the court, in a condemnation suit, had awarded the operators of the bridge \$354,000. To repay the loan, the bridge tolls were extended until January 27, 1939.(3)

By 1940 it had become quite clear that the 18-foot 6-inch wide Manette Bridge was taxed well beyond its functional capacity and that a second bridge was needed. In August 1941, Mayor H. A. Bruenn of Bremerton established the Kitsap County Defense Bridge Committee to pursue an appropriation of funds from the Federal Works Agency- Defense Public Works Division. A key issue in the application for funds was that a bridge was essential to the defense effort in the Bremerton area. The State Highway Department assisted by providing an estimate of \$2.436 million for the cost of a new bridge and approaches plus improvements needed to the approaches to the Manette Bridge.(2) Although support for a second bridge was generated from all over the state, federal defense funds were not appropriated. Relief was not to come for another fifteen years.

The Port Washington Narrows Bridge project finally became a reality in 1956. Bremerton still did not have money to build the bridge and state law did not allow the city to operate a toll bridge. To forge a solution, city representatives asked the State Toll Bridge Authority to finance and construct the bridge with a bond issue, and to collect tolls until the bonds were paid off. A bond issue of \$5,375,000 was authorized.(3) A roundtrip toll of 20 cents per vehicle was to be imposed. In late 1956, the Toll Bridge Authority hired the Tudor Engineering Company of San Francisco, California, to design the bridge. State Director of Highways William Bugge approved final design plans for the steel portions of the bridge on February 14, 1957. On March 27th, a contract for this part of the work was awarded to Peter Kiewit Sons' Company of Vancouver, Washington. On May 22nd Director Bugge approved final design plans for the remainder of the bridge. Once again, Peter Kiewit Sons was the successful bidder. Total cost for the two bridge contracts was just over \$2.89 million. Kiewit sub-contracted the steel fabrication work to Independent Iron Works, Inc. from Oakland, California. In spring of 1958, separate contracts were begun on the north and south roadway approaches to the bridge and toll facilities. Finally, on November 25, 1958, with crowds of people watching, State Director of Highways William A. Bugge cut the ceremonial ribbon to culminate an 18-year effort by the city for the new bridge.(4)

In October 1972, after 14 years as a toll bridge, the bonds had been repaid and the toll was removed.

In 1994 seismic restraining devices were added to the bridge as part of a statewide program to strengthen bridges against the potential of seismic events. These devices have a very minimal effect on the appearance of the bridge. There are no other known alterations.

Engineering Context:

The 1950s marked the dawn of the use of steel plate girders for long bridge spans. Engineers had determined that through the use of continuity in their designs, steel spans could be stretched out to provide an option to the use of steel trusses. A major disadvantage of the truss bridge was that its width was fixed. A steel plate girder bridge, however, could be widened to accommodate increased traffic demands.

The decade also witnessed the first significant use of welding as an option to riveting, starting with components such as the Port Washington Narrows Bridge floorbeams. Within another decade, welded and bolted connections were to replace rivets on all bridges.

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Section number 9. Major Bibliographical References

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- (1) Ruth Kirk and Carmela Alexander, Exploring Washington's Past- A Road Guide to History, University of Washington Press, Revised 1995, pp. 372-373.
 - (2) Pamela Kruse-Buckingham, Administrator, Kitsap County Historical Society Museum, letter and attached information, February 22, 2001.
 - (3) Unauthored article, "Outline of Toll Authority Shows Agency's Importance to State, Cities," Washington State Department of Highways, Highway News, Volume 7, Number 2, August 1957, pp 8-9.
 - (4) Unauthored article, "New Toll Bridge Opened At Warren Avenue In Bremerton," Washington State Department of Highways, Highway News, January-February 1959, pp 16-17.

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Section number 10. Geographical Data

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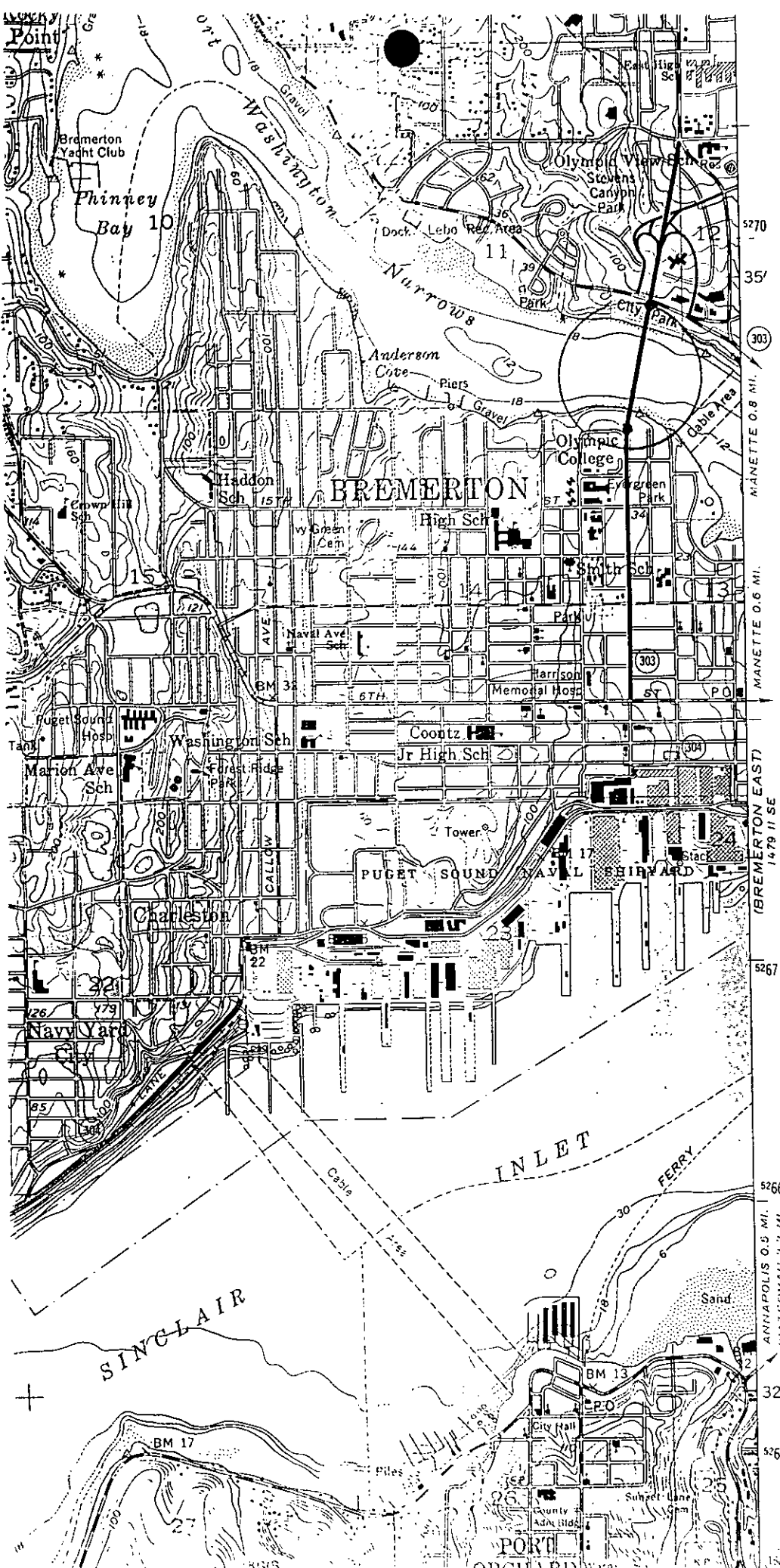
Verbal Boundary Description

Longitudinal Boundaries: Extends to the pavement seats at either end of the bridge.

Lateral Boundaries: Boundaries extend to the edges of the structure.

Verbal Boundary Justification

The boundaries include all structural elements of the bridge from approach to approach.



Part Washington Bridge
 North: 10 527821 E 5269723N
 South: 10 527715 E 5269189N

5270
 35'
 303
 MANETTE 0.8 MI.
 MANETTE 0.6 MI.
 1479 11 SE
 5267
 5266
 ANNAPOLIS 0.5 MI.
 WATERMAN 3.3 MI.
 32'30"
 5265



Port Washington

Port Washington Narrows Bridge

303/12

Kitsap County, WA

Photographer Unknown



Port Washington

Port Washington Narrows Bridge
#303/12

Kitsap County, WA

& Photographer Unknown



Port Washington Narrows Bridge
363/12

Kitsap Co., WA

C. Holstine. Photographer 11/2001



Port Washington Narrows Bridge
303/12

Kitsap Co., WA

C. Holstine, Photographer 11/2001



Port Washington Narrows Bridge
303/12

Kitsap Co., WA

C. Halstine, Photographer

11/2001