

**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 for individual properties and districts. See instructions: *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 ESMERALDA -

historic name Greene Street Bridge

other names/site number Bridge Number 53308

2. Location

street and number Greene Street over Spokane River

N/A not for publication

city or town Spokane

vicinity

state Washington

county Spokane 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)

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 Steel
- Concrete

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)

- 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
- 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
- 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

1955-1960

Significant Dates

1955

Significant Person

(Complete if criterion B is marked above)

N/A

Cultural Affiliation

Architect/Builder

City of Spokane Engineers, Designers
Henry Hagman Construction, Contractor

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
-
- Local Government (Repository Name City of Spokane Engineers Office)
-
-
-

10. Geographical Data

Acreage of Property: 1 00

UTM References

(Place additional UTM references on a continuation sheet)

	Zone	Easting	Northing		Zone	Easting	Northing
1	11	472775	5280370	3			
2	11	472775	5280426	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 City of Spokane
street & number 808 W Spokane Falls Blvd telephone 509-625-6300
city or town Spokane state Washington zip code 99201-

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 bridge carries Greene Street, a major north/south arterial through the city of Spokane, over the Spokane River near Spokane Community College. Greene Street provides a connecting route between State Route 2 to the north, and State Route 290 and Interstate 90 to the south. Roadways pass below the bridge on opposite sides of the river: Upriver Drive Parkway to the north and South Riverton Avenue to the south. The bridge carries two lanes of traffic in each direction separated by a 2-foot wide median island, within a 55-foot roadway width, and two 5-foot pedestrian walkways.

The 434-foot bridge consists of three-reinforced concrete open-spandrel rib deck arch spans, flanked at each approach end by two-reinforced concrete slab spans. The center arch is symmetrical and 133 feet long, rising more than 27 feet from the spring line to its crown at the center of span. Side arch spans are 116 feet 6-inches long and are asymmetrical to accommodate their elevated landing points on the banks of the river.

Each parabolic arch span has three 3-foot 3-inch wide ribs, 23 feet apart. Rib depth varies from about 5 feet at the intermediate piers and 3-feet 4-inches at the end piers, to 2-feet 6-inches at the crown. Struts between the ribs at the span third points provide transverse stability. The roadway deck has a concrete slab and transverse beam design. Three spandrel columns below each deck beam, located at 14-foot centers along the length of the span, carry loads from traffic and the roadway deck down to the ribs.

Interior arch support piers are skewed to the roadway at the angle of river flow to minimize the potential for scour of the riverbed. At each pier, a full width tapered concrete shaft, founded on a footing and seal, and supported by 189 timber piles, rises out of the water to provide support landings for the arch ribs in the adjacent spans. At the top of the shaft, at each rib, a 7-foot wide by 2-foot 3-inch thick concrete column extends upward toward the roadway level, where a concrete cap beam provides transverse support. Also situated there is a corbel seat for the adjacent slab spans. Transverse joints are provided across the slab at these locations to allow for expansion and contraction.

Abutments, skewed to parallel the interior piers, provide support for the approach end of the side arch spans, using 25-foot long wall extensions at each rib, founded on large concrete footings keyed into the elevated riverbanks. Transverse walls at the front and back ends of the rib extensions provide lateral stability, and a support for the ends of the two adjacent slab spans directly above. The roadway approach end of the end slab span sits on a cap, supported by six short concrete columns on individual spread footings.

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Section number 8. Narrative Statement of Significance

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The Greene Street Bridge 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 under Criterion C for its type, period and materials 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 features of this bridge are its multiple concrete open-spandrel rib deck arch spans. This is one of only two concrete arch bridges built in Washington in the 1950s and the only one with multiple arch spans. It is the only multiple-arch span bridge on the state inventory constructed since the 1930s. As such, it is an excellent example of this type of bridge designed and constructed using 1950s bridge engineering technology.

Historic Context

The current Greene Street Bridge is at least the third river crossing at this site. It replaced a narrow 19-foot wide steel through truss bridge with reinforced concrete approach spans, which had been built in 1916 to replace an earlier multiple truss bridge. The main span of the 1916 bridge was Baltimore Petit steel through truss. This truss type was an advance in strengthening the standard Pratt truss developed in the 1870s with the addition of sub-struts and sub-ties to the basic Pratt truss design. The name of the truss was derived from its extensive use by the Baltimore and Ohio Railroad (1). The truss used on the 1916 bridge had been used earlier as a portion of the falsework for the construction of the large arch bridge at Monroe Street in Spokane (2).

On February 15, 1949, the Spokesman-Review reported the following remarks from Spokane Mayor Arthur Meehan: "Everyone is familiar with crowded downtown traffic conditions and tries to by-pass them as much as possible. This condition has become particularly noticeable in the northeast section of the city. The increase of heavy truck traffic from the area served by the primary highways leading to the city from Colville and Newport has overloaded the capacity of existing city streets. This increase in heavy trucking has been caused by growth of industrial centers in the eastern part of the city and in the Spokane Valley." (3) The city's overall traffic plan for addressing this problem would result in increasing the traffic considerably on Greene Street and require a wider and stronger bridge.

Use of a multiple arch design for the bridge provided a very attractive crossing while deftly accommodating the roads passing under the bridge on each side of the river.

The city of Spokane Engineering Department designed the bridge in 1954. City Engineer was B J Garnett. On March 9, 1955, a contract for constructing the bridge was awarded to Henry Hagman Construction Company of Cashmere, at a cost of \$359,000. The Washington State Highway Department administered construction.

Nearly 500 persons attended the formal dedication and opening of the bridge to traffic on July 26, 1956. Final cost of the bridge was reported to be \$395,000 (4). It was dedicated as the "Esmeralda-Greene Street Bridge." Use of "Esmeralda" for the name of the bridge was approved by the city council at the urging of Spokane service organizations in honor of the symbol of the city's Athletic Round Table, which had contributed more than \$500,000 to civic causes (5).

In 1999, a small median island was added to the bridge, and protective concrete barrier was placed between the sidewalks and the roadway deck. Exterior sidewalk railings were extended vertically to meet current safety codes. These alterations had a minimal visual effect on the bridge.

Engineering Context

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Section number 8 Narrative Statement of Significance

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Prior to 1940, the concrete arch was a popular bridge design type, particularly favored for its durability and aesthetic qualities. In the following decades bridge engineering emphasis shifted to simpler, more functional, utilitarian designs. This is evidenced by the few concrete arch bridges remaining on the WSDOT inventory built in the following decades. Five concrete arches were built in the 1940s, two were built in the 1950s, and only seven have been built since 1960.

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Section number 9 Major Bibliographical References

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- (1) T. Allan Comp and Donald Jackson, "Bridge Truss Types: A Guide to Dating and Identifying," American Association for State and Local History, Technical Leaflet 95, History News, Vol. 32, No. 5, May 1977.
- (2) City of Spokane Ordinance No. C 2078, Passed by the City Council May 1, 1916.
- (3) Unidentified author, "New \$225,000 Bridge At Greene Street Planned By City", The Spokesman-Review, Spokane, Washington, headline story, February 15, 1949.
- (4) Unidentified author, "Esmeralda-Greene Street \$395,000 Bridge Opened" The Spokesman Review, July 27, 1956, p. 12.
- (5) Unidentified author, "Name Proposed For Bridge Sets Off Arguments", Spokane Daily Chronicle, July 3, 1956, p. 3.

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Section number 10 Geographical Data

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Verbal Boundary Description

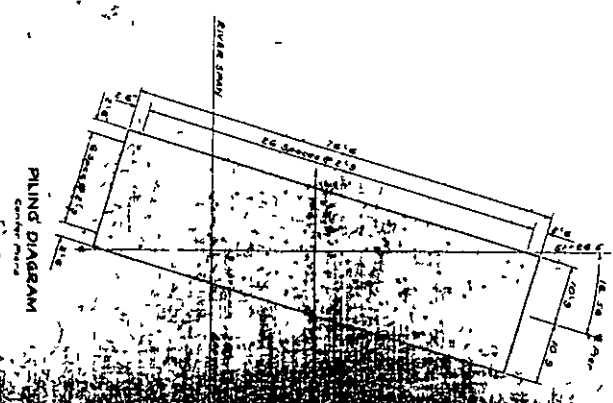
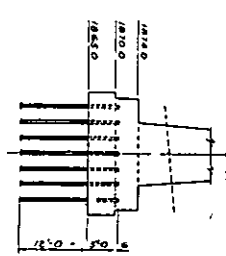
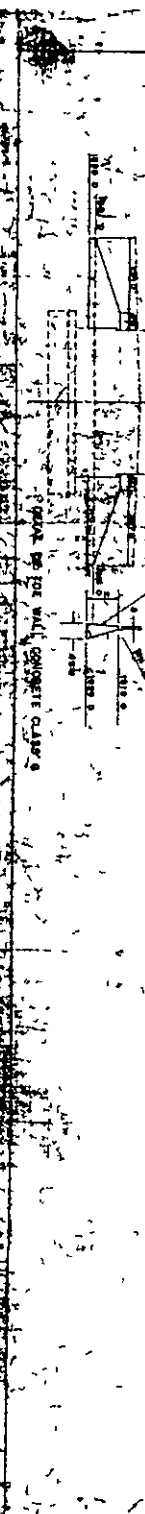
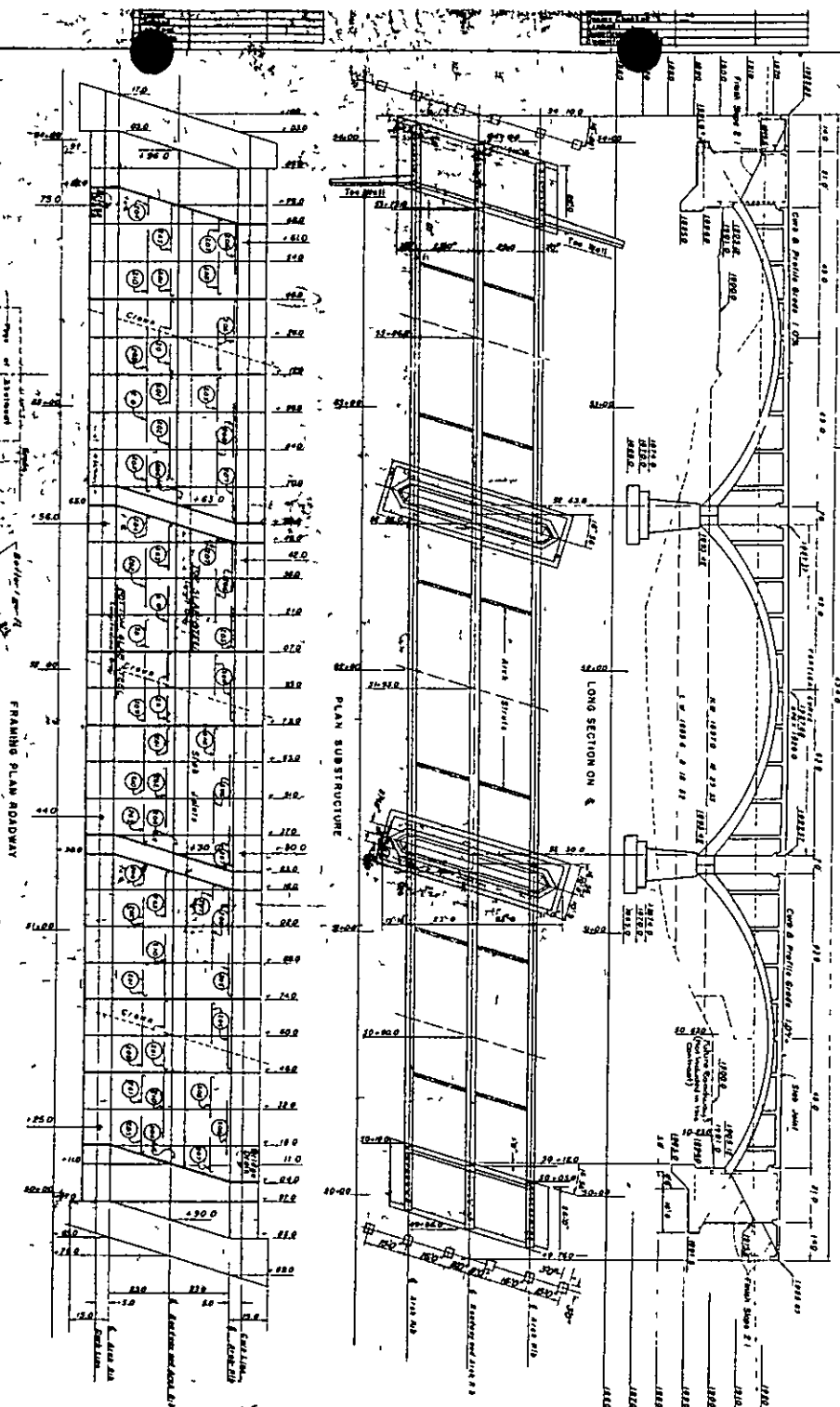
Longitudinal Boundaries Extends to the pavement seats at either end of the bridge

Lateral Boundaries Boundaries extend to the edges of the structure

Verbal Boundary Justification

The boundaries include all contributing elements and non-contributing elements of the structure

O.D.R. for V.C.
 L.V.C. 108
 P.C. 51+80.0 E.I. 1987.37
 P.T. 51+93.0 E.I. 1989.00
 P.T. 52+58.0 E.I. 1997.37
 C + 32



IN CHARGE OF DESIGN
 GREENE, S. S.

NO.	DATE	BY	FOR
1			
2			
3			
4			
5			

42'30"

5283
T 26 N

T 25 N

5282

2579 III NW
(SPOKANE NW)

5281

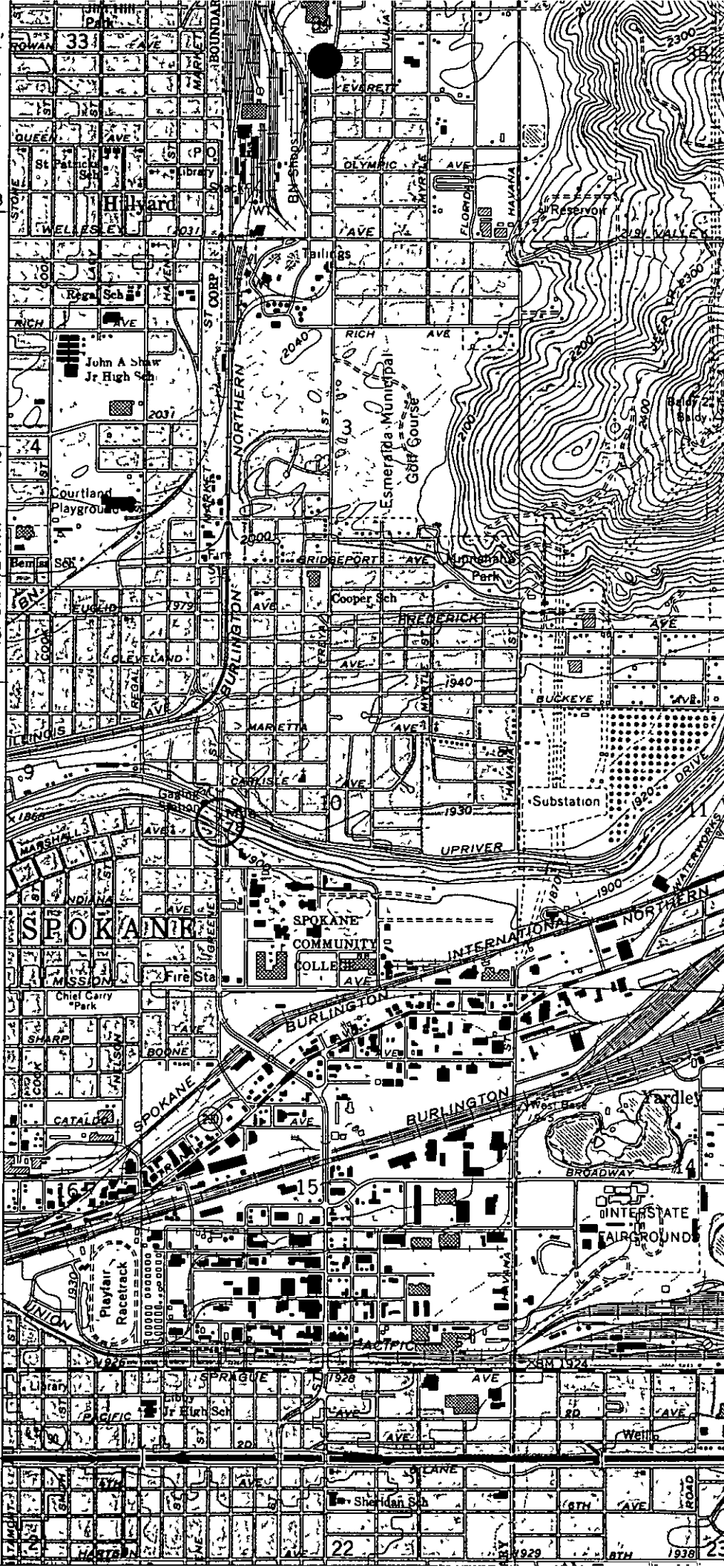
5280

5279

5278

ENTER 2 & MI
S 195 & 395

Greene St. Bridge
North: 11:47275E S2410426N
South: 11:47275E S2810370N



1929 1930 1931 1932 1933 1934 1935 1936 1937 1938 1939

