Georgia Street Bridge

Bridge No. 57C-0418

Georgia Street and University Avenue
between Florida Street and Park Boulevard

Historical Resource Technical Report

Prepared for:

The City of San Diego

Submitted to:

Helix Environmental Planning, Inc.

7578 El Cajon Boulevard, Suite 200

La Mesa, California 91942

Prepared by:

Ione R. Stiegler, Architect, FAIA, NCARB

IS Architecture

5649 La Jolla Boulevard

La Jolla, CA 92037

June 28, 2012

Contents

I. Executive Summary

This report summarizes the research and coordination which occurred in the process of selecting the preferred architectural alternative for the seismic retrofit and rehabilitation of the Georgia Street Bridge. The Technical Report identifies that rehabilitation is a feasible approach that would retain and modify the existing bridge and retaining walls to provide the additional strength needed to withstand a seismic event. The Report further identifies ways to accomplish the seismic retrofit without sacrificing the historic integrity of the bridge and associated retaining walls. The approach used to prepare the Report included a review of the various elements of the rehabilitation and identification of options which would balance the goals of rehabilitating the bridge and preserving its historic character. Based on the preferred rehabilitation alternative which was ultimately developed during this process, the Report evaluates the potential effects of the rehabilitation on the historic value of the bridge and associated structures, including the retaining walls which extend beyond the buttress beneath the bridge, in accordance with procedures contained in the Secretary of Interior's Standards for Rehabilitation. After review of all presented alternatives for the Georgia Street Bridge Rehabilitation, IS Architecture has found Rehabilitation Alternative #1, to conform to the Secretary of the Interior's Standards for Rehabilitation. The cumulative elements of the design have 'No Adverse Effect' on the existing historic resource while meeting the Secretary of the Interior's Standards for Rehabilitation.

II. Introduction

This report summarizes the research and coordination which occurred in the process of selecting the preferred architectural alternative for the seismic retrofit and rehabilitation of the Georgia Street Bridge. During this phase of the work, IS Architecture worked closely with the project engineer, Simon Wong Engineering and City of San Diego staff, to review the various elements of the project and identify options which would balance the goals of retrofitting and rehabilitating the bridge with preserving its historic character. Based on the preferred alternative which was ultimately developed during this process, this report evaluates the potential effects of the rehabilitation on the historic value of the bridge and associated structures including retaining walls which extend beyond the abutment beneath the bridge in accordance with procedures contained in the Secretary of Interior's Standards for Rehabilitation. It is anticipated that this report will be used by the City of San Diego as part of the environmental documentation prepared to satisfy the California Environmental Quality Act (CEQA). Similarly, the information from this report is intended to be used by Caltrans as part of the documentation for the National Environmental Protection Act (NEPA).

A. Report Organization

The report is organized per the City of San Diego Historical Resources Board, Historical Resource Technical Report, Guidelines and Requirements as delineated as part of the Land Development Manual, Historical Resources Guidelines, Appendix E, Part 1.2, issued February 2009 and revised May 2009. The report briefly describes the bridge physically, reiterates the statement of significance and designation criteria from the National Register Nomination, and restates the character defining features. The report then discusses the proposed options and focuses on a preferred option with an element by element analysis of the potential effects.

B. Project Area

Located in San Diego, California the Georgia Street Bridge, Caltrans Bridge No. 57C-0418, crosses over University Avenue and serves as a physical demarcation between the neighborhoods of Hillcrest and North Park. The project area borders the community planning area of Uptown and is within the community planning area of Greater North Park. The location has no Assessor's Parcel Number (APN). The resource has three elements: the three-hinge arch bridge, the abutment walls which are contiguous with the anchor-block retaining walls and the separated travel way below the bridge extending from Park Boulevard to Florida Street.

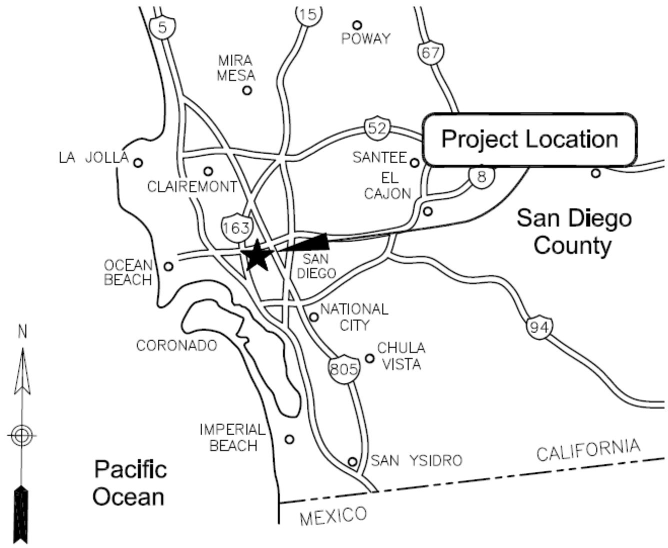

Figure 1. Project location map. Star indicates location of Georgia Street Bridge.

C. Project Personnel

The primary investigator from IS Architecture, Ione R. Stiegler, FAIA, meets the National Park Service, qualifications for "Architectural History", "Architecture" and "Historic Architecture," as published in the Code of Federal Regulations, 36 CFR Part 61. IS Architecture served as a historic preservation consultant to HELIX Environmental Planning, Inc. (HELIX), represented by Bruce McIntyre, a Senior Project Manager with HELIX. HELIX served as a consultant directly to the City of San Diego. The prime consultant for the bridge design is Simon Wong Engineering led by James Frost, P.E., Principal Bridge Engineer, assisted by Nathan S. Johnson, Ph.D., Senior Bridge Engineer P.E. and Karibia Encinas, Assistant Engineer. Representing the City of San Diego were Brad Johnson, Senior Civil Engineer and Mark Giandoni, Associate Civil Engineer.

III. Project Setting

A. Physical Project Setting

The resource currently sits within an urban environment. After the establishment of the bridge in 1914, retaining walls, and grade-separation development of the adjoining residential area commenced. Initially the area developed with modest single-family residences and religious buildings. (Sanborn Map Company, Insurance Maps of San Diego, California, Volume Three, 1921. Blocks 330, 332, 344 and 346.) On the north side of the grade-separation, between Georgia Street and Florida Street, a series of single-family residences were purposely situated to front towards the pedestrian access sidewalk and retaining walls of the grade-separation. Single-family residences gradually gave way to medium to large multi-family apartment complexes and small-scale commercial and entertainment buildings at the Park Boulevard end of the grade-separation. Today, the area is a mixture of a few of the original single-family residences and the later infill of medium to large multi-family apartment complexes.

The three-hinge arch structure is 30 feet wide and approximately 70 feet long. It is supported on three arch ribs with floating end spans supported on approximately 30-foot-tall anchor-block closed-end strutted abutment walls. The abutment walls are contiguous with anchor-block retaining walls which extend beyond the bridge to create an approximate 670 foot-long, grade-separated travel way below the bridge extending from Park Boulevard to Florida Street. One-way side service roads parallel the grade-separation retaining walls on the north and south sides, between Park Boulevard and Georgia Street. The road bed in this area directly abuts the guard rail of the retaining wall, and pedestrian access is via a sidewalk within the right-of-way that abuts the adjacent private lots. This configuration changes to pedestrian-only between Georgia Street and Florida Street. Here there is no roadway only a sidewalk in the right-of-way between the adjacent private lots and the guard rails of the retaining wall.

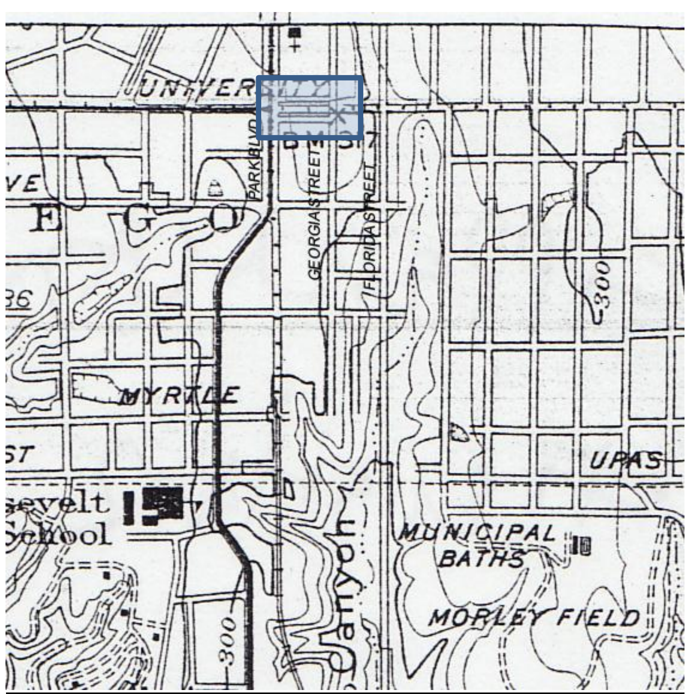

Figure 2. Detail of Point Loma Quadrangle, California-San Diego Co., 7.5-Minute Series, USGS Map, 1942.

Figure 3. Aerial photograph showing Georgia Street Bridge and grade-separation. Dashed line indicates resource location.


Figure 4. Georgia Street Bridge and grade separation, looking west. Photo taken 2012, IS Architecture.

B. Project Area and Vicinity

The historic development of the project area and vicinity was previously comprehensively described by Alex Bevil in his 1999 National Register of Historic Places Registration Form. The following quotes succinctly retell the historical development of the area.

> "The present Georgia Street Bridge is not the first to carry Georgia Street over University Avenue. In 1907 the City of San Diego initiated the construction of a smaller wooden bridge to allowed (sic) street and pedestrian traffic to cross over the newly dug University Avenue Grade Separation Cut. Cut between Park Boulevard and Florida Street, the grade separation cut passed through a steep escarpment overlooking Florida Canyon to the east. Because of the cut's narrow width, the sloping earth sides were left bare. Once completed, it allowed the streetcars of the San Diego Electric Railway Company [SDERy] to proceed eastward beyond San Diego's city limits toward City Heights."
> (Bevil, 1998, section 8, page 1)
>
> "By 1911, City Heights' population had increased dramatically from 400 to over 4,000 residents. As a result, on November 7, 1911, it incorporated into the City of East San Diego, and remained so until its eventual annexation by the City of San Diego in 1926. In addition to East San Diego's phenomenal growth, between 1906 and 1914, no fewer than nine residential additions sprang up along the University Avenue shuttle line. Among these was the present community of North Park. Laid out on April 8, 1912, the former site of a lemon orchard developed into a major suburban commercial center around a trolley transfer point at the intersection of 30th Street and University Avenue.
> The resulting increase in population along University Avenue east of Park Boulevard caused a converse demand for improved streetcar service. So much so that in 1912 SDERy negotiated with the City of San Diego to widen and pave the grade separation cut between Park Boulevard and Florida Street. This would facilitate the eventual laying down of an additional set of tracks along University Avenue between Park Boulevard and the 30th Street intersection in North Park.' The widening and paving of University Avenue was also due in part to the growing popularity of automobiles in San Diego. Privately owned cars were now starting to compete with the streetcars for space along University Avenue."
> (Bevil, 1998, section 8, page 2)

C. Historical Overview

The broad context within which the resource was evaluated for significance was previously identified by Alex Bevil in his 1998 National Register of Historic Places Registration Form:

> "Completed in 1914, the Georgia Street Bridge and the adjoining retaining walls lining the University Avenue Grade Separation Cut are

Figure 5. Historic view of Georgia Street Bridge ca. 1940. Note the original concrete lamp posts which were later removed. Photo by Richard Kurylo, www.railwaypreservation.com.

among the most visible and important manifestations of early 20th century civil engineering projects in San Diego's urban environment. The bridge's three-hinge, open-spandrel reinforced concrete arches, along with the tall blind-arcade-faced reinforced concrete retaining walls, is a unique solution to a difficult local engineering and transportation planning problem. Built in response to the need for improved electric railway and automobile traffic through the University Avenue Grade Separation Cut, the new and wider roadway was directly responsible for the growth of at least nine residential districts in San Diego's northeastern "streetcar suburbs" prior to World War I.

Designed by local civil engineer James R. Comly, the graceful design of the reinforced concrete bridge and retaining walls reflect the growing national trend toward the material's use for its strength, durability, and aesthetic design possibilities. Comly, like other innovative American civil engineers at the time, regarded reinforced concrete as an extraordinarily versatile building material that could be used for utilitarian, ornamental and monumental purposes. The bridge and the deep roadway that it spans are essential components of an emerging public works foundation that supported American transportation networks during the early part of the twentieth century. In addition, they possess high artistic value as local architectural engineer James R. Comly's interpretation of the Beaux-Arts/ American City Beautiful Movement's penchant for monumental civic architecture. The 84-year-old bridge and retaining walls serve as a monumental and artistic gateway between the communities east and west of the historic University Avenue Grade Separation Cut."
(Bevil, 1998, section 8, page 1)

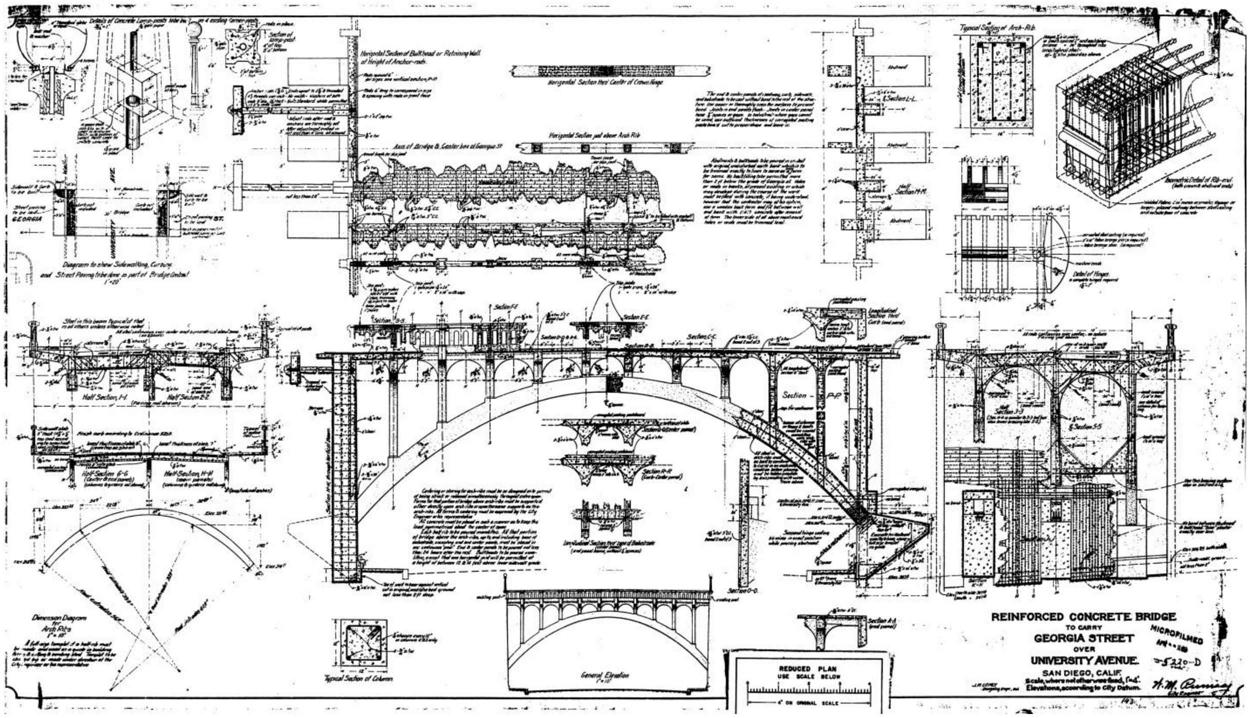

Figure 7. Original as-built drawings of Georgia Street Bridge designed by J.R. Comly.

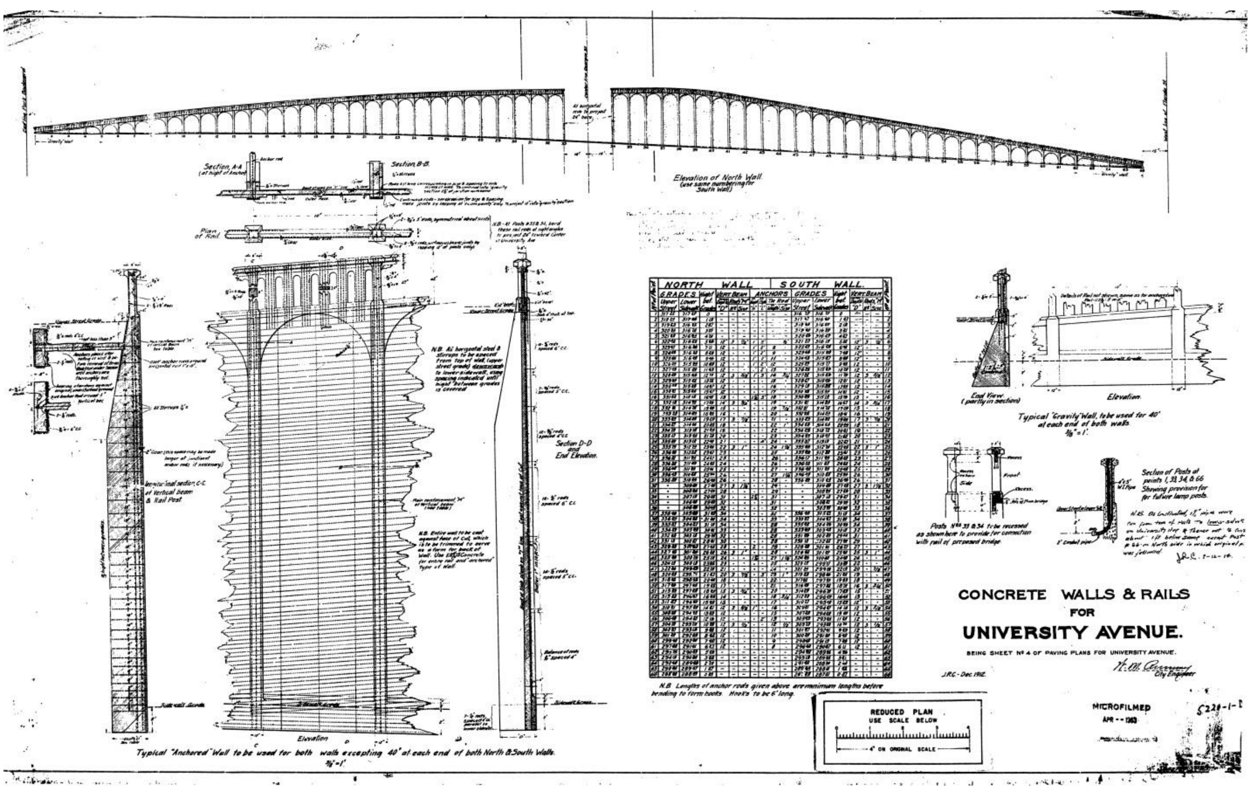

Figure 6. Original drawing of concrete walls and rails for University Avenue for the Georgia Street Bridge, design by J.R. Comly. December 1912.

IV. Methods and Results

A. Summary of Previous Work / Archival Research

The author of this report reviewed the following extensive studies of the bridge, which have occurred over several years including:

- City of San Diego. Office of the City Clerk. Resolution No. R-9409281. Designation of Georgia Street Bridge as San Diego Historic Landmark No. 325, 28 September 1994.
- Project Study Report for the Repair and Retrofit of Georgia Street Bridge over University Avenue and Repair of University Avenue Ramp Retaining Walls/Barrier Rails from Park Boulevard to Florida Street, Libby Engineers, dated August 10, 1995.
- Project Study Report for the Replacement of Georgia Street Bridge over University Avenue, Libby Engineers, dated August 10, 1995.
- Historic Property Survey Report for the Georgia Street Bridge and Retaining Walls, Architect Milford Wayne Donaldson, dated August 28, 1998.
- United States Department of the Interior, National Park Service, National Register of Historic Places, Registration Form, Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls, City of San Diego/Caltrans Bridge I.D. # 57C-418, authored by Alexander D. Bevil, June 5, 1998.
- Georgia Street Bridge Seismic Vulnerability Study, Libby Engineers, dated September 30, 2002.
- Character-Defining Features of the Georgia Street Bridge and University Avenue Grade-Separation Cut Retaining Walls, by ICF Jones & Stokes, September 4, 2009 by David T. Greenwood Architectural Historian III
- Georgia Street Seismic Strategy Report, Simon Wong Engineering, dated March 23, 2012
- Caltrans Bridge Inspection Reports for City of San Diego Bridge #57C-418

Primary documentation reviewed includes:

- City of San Diego. Engineering Department. "Concrete Walls & Rails for University Avenue." Document No. D5220-1 [Microfilm], December 1912.
- City of San Diego. "Reinforced Concrete Bridge to Carry Georgia Street over University Avenue." Document No. D5220 [Microfilm], December 1912.
- Sanborn Map Company, Insurance Maps of San Diego, California, Volume Three, 1921. Blocks 330, 332, 344 and 346

B. Field Survey

Ione R. Stiegler, FAIA a qualified professional in “Architectural History”, “Architecture” and “Historic Architecture” as published in the Code of Federal Regulations, 36 CFR Part 61, conducted two field reconnaissance visits on:

- February 16, 2012 with Nathan S. Johnson, Ph.D., P.E. of Simon Wong Engineering and Mark Giandoni of the City of San Diego.
- May 5, 2012 with Nathan S. Johnson, Ph.D., P.E., of Simon Wong Engineering and Brad Johnson of the City of San Diego.

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The initial field reconnaissance involved a site visit to review the previously identified character-defining features and to concur with or amend previous findings. A comparison was made between the present and past physical condition regarding the survival of those architectural characteristics that existed during the resources historic period of significance. Digital photographs were taken, including detailed images of some of the individual elements of the structures.

The second field reconnaissance visit examined in detail the extant original concrete and the layers of surface coatings. Special note was taken of the textural finish and color of the concrete at the extant, sidewalks, guard rail, bridge arch rib and retaining wall.

C. Description of Surveyed Resources

1. Narrative Description

The Georgia Street Bridge (#57C-0418, which serves as the official alphanumeric designation for the structure) spans University Avenue between the 3800 and 3900 blocks of Georgia Street, between Florida Street and Park Boulevard in the City of San Diego, in the County of San Diego. The Georgia Street Bridge and University Avenue grade-separation cut retaining walls are three interrelated structures. The first is an open-spandrel, single-span, reinforced concrete-ribbed arch bridge that crosses the University Avenue grade-separation cut midway between Park Boulevard to the west and Florida Street to the east. The bridge's 69-foot-long by 30-foot-wide asphalt covered reinforced concrete deck permits two lanes of automobile traffic across the University Avenue grade-separation cut. The cantilevered sidewalks extend out laterally beyond the roadway some 5 feet, allowing pedestrians to use the bridge to travel between two moderately built up residential districts along Georgia Street. The second and third interrelated structures consist of the anchor-block retaining walls, and their associated guard rails, ranging from 1 to 34 feet in height, along University Avenue. These retaining walls extend to the east and west of the bridge abutments on either side of University Avenue.

Figure 8. Georgia Street Bridge and grade separation, looking east. Photo taken 2012, IS Architecture.

Both the bridge and retaining walls were placed on the National Register of Historic Places (NR) on February 12, 1999. They were automatically listed in the California Register of Historical Resources as a result of the National Register listing. The City of San Diego Historical Resources Board, in 1994, designated the Bridge and Retaining Walls as Historical Site Number 325.

2. Architectural Style

The architectural styles of the bridge and grade-separation retaining walls were described in the National Register nomination as follows:

> "The overall design of the Georgia Street Bridge follows closely the principles of the Beaux Arts/American City Beautiful Movement. Its graceful, yet massive arch acts as a monumental gateway straddling the University Avenue Grade Separation Cut. The view from either of the bridge's cantilevered balustrades offer sweeping vistas in the best tradition of Renaissance Revival and Neo-Baroque city planning. For example, an approximately 4-foot tall open-arched concrete railing ran along the bridge's cantilevered sidewalks and along the twin retaining walls entire upper length. In addition, the retaining walls' dull concrete surfaces was broken up by blind arcades composed of semi-circular arches, modeled after the bridge's open-spandrel arches, set between tall engaged pilasters resembling stretched modified Doric capitals."
> (Bevil, 1998, section 8, page 6)

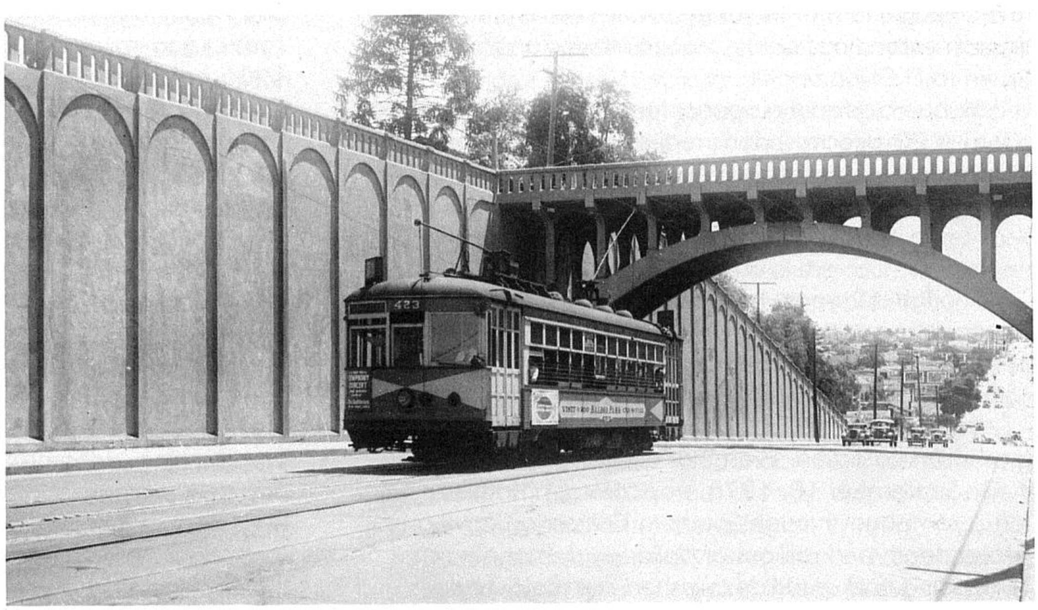

Figure 9. Historic photograph of Georgia Street Bridge. Courtesy of Simon Wong Engineering.

3. Minor Features and Alterations

According to Bevil, three features are embedded in the reinforced concrete retaining wall's surface. Bevil described them as follows:

> "The first is a pair of metal eyebolts. Once used to anchor the overhead trolley wire running above the roadway, each eyebolt is affixed near the top of the wall approximately 8 feet west of the wall/bridge junction. The second feature is a small bronze plaque beneath the southeast comer parabolic rib/wall junction at eye-level above the sidewalk. Dating from the time of the bridge's completion, the plaque commemorates the work of its designing engineer, James R. Comly and builder, Edward T. Hale. Directly below the plaque is the third and final feature: a brass U.S. Geodetic Survey Benchmark installed in 1927."
> (Bevil, 1998, section 7, page 1)

Post 1947 but of undetermined specific date, alterations to the bridge, guard rails and retaining walls include filling in the open arcade design of the guard rails along the crest of the retaining walls and the bridge. The formerly open pattern was filled in with concrete to create solid panel railings between the modified Doric-style piers. Perhaps concurrent with these repairs, but again of an unknown date, the bridge, retaining walls and guardrails were textured with a spray coating of gunite. Other alterations include the removal of the four 4'-6" tall cast concrete lamp posts and globe light fixtures from the rail ends at the north and south approaches to the bridge as well as, 4-5 inches of asphalt on the bridge deck.

The 115 feet of new sidewalk pavement directly replaced the location of the original sidewalk pavement. The sidewalks have all also been modified at all of the corners to provide disabled access ramps. The first 40 feet of the north sidewalk, on the east side of Georgia Street, adjacent to the top barrier rail have been replaced. The continuation of this sidewalk, as it moves down the hill to the east, has had a substantial amount of cutting and patching in the concrete and includes several sections of missing pavement and heaved or lifted slabs. The west end of the north sidewalk, adjacent to University Avenue, and at the base of the retaining walls has been removed, west of the bridge overpass, in order to provide for a left hand turn lane to Park Boulevard.

Figure 10. Alterations to the bridge, guard rails and retaining walls include filling in the open arcade design of the guard rails along the crest of the retaining walls and the bridge. Photo taken 2012, IS Architecture.

4. Character Defining Features of the Resource

Contributing Character Defining features of the resource:
The area or feature retains integrity from the period of significance (1914) including:

Bridge Elements:

- three parabolic, reinforced concrete ribbed arches beneath the bridge deck;
- the series of columns at the top of the ribbed arches, which are joined by small semicircular spandrel arches, producing an open-spandrel arched arcade;
- cantilevered sidewalk slabs projecting off the bridge deck, supported by reinforced concrete beams;
- hinged arch design (the three parabolic arches are hinged at either end to the abutments and at mid-span, 30 feet above the roadway);
- horizontal reinforced concrete beams;
- reinforced concrete bridge deck;
- reinforced concrete abutments;
- concrete pedestrian sidewalks (at the top of the deck), and
- two-lane asphalt-covered roadway (at the top of the deck).

Retaining Wall Elements:

- anchor-block retaining walls, ranging from 1 to 34 feet in height;
- engaged pilasters running at I0-foot intervals;
- semicircular arches that connect the pilasters, forming a blind arcade;
- small bronze plaque, located beneath the southeast corner of the parabolic arch rib/wall junction;
- metal eye bolts from street car overhead wire;
- tie-back anchors, consisting of l-inch iron bars incased in 13-foot-long 6- by 6-inch concrete squares, which are attached to a reinforced concrete rectangular block (anchor);
- pair of metal eyebolts, once used to anchor the overhead trolley wire running above the roadway;
- brass U.S. Geodetic Survey benchmark that was installed in 1927; and
- unaltered associated sidewalks, scoring patterns and curb and sidewalk-date stamps.

Non-Contributing (NC) features of the resource:
The area or feature no longer retains integrity from the period of significance (1914) including:

Bridge Elements:

- panel railings along the outer bridge deck, at top of the cantilevered sidewalk slabs;
- infill of concrete, between the panel railings; and
- spray coating of gunite over the exterior bridge surfaces and panel railings.

Retaining Wall Elements:

- concrete posts, railings, and crown at top of the retaining walls;
- infill of concrete between the panel railings;
- spray coating of gunite over the exterior surfaces of the truncated parabolic retaining walls, railings, posts, and crown; and
- altered associated sidewalks, scoring patterns and curb and sidewalk-date stamps.

V. Significance Evaluations and Integrity

The discussion and analysis of the significance of the resource against designation criteria was previously identified by Alex Bevil in his 1998 National Register of Historic Places Registration Form and is provided below.

National Register Criteria Considerations
The Georgia Street Bridge and the University Heights Grade Separation Cut Retaining Walls are eligible for designation to the National Register according to the following criteria:

A. Criteria A: Association With Events That Have Made A Significant Contribution To The Broad Patterns Of Our History

Completed in 1914, the Georgia Street Bridge and the adjoining retaining walls lining the University Avenue Grade Separation Cut are among the most visible and important manifestations of early 20th century civil engineering projects in San Diego's urban environment. The Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls are directly associated with the expansion of San Diego's early streetcar and automobile highway systems. Built in response to the need for improved electric railway and automobile traffic through the University Avenue Grade Separation Cut, the new and wider roadway was directly responsible for the growth of at least nine residential districts in San Diego's northeastern streetcar suburbs" prior to World War I. The bridge and the deep roadway that it spans also represent an emerging public works foundation that supported American transportation networks during the early part of the twentieth century.

B. Criteria C: Design/Construction

The Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls embody the distinctive characteristics of a particular type, period, and method of American bridge design and construction. Together, they are a unique design solution to a difficult local engineering and transportation planning problem. Designed by local civil engineer James R. Comly, the graceful design of the reinforced concrete bridge and retaining walls reflect the growing statewide and national trend toward the use of concrete for its strength, durability, and aesthetic design possibilities. Comly, like other innovative American civil engineers at the time, regarded reinforced concrete as an extraordinarily versatile building material that could be used for utilitarian, ornamental and monumental purposes. Both the bridge's graceful open spandrel arches and the tall, blind-arcade retaining walls, exhibit the innovative use of reinforced concrete in their construction. In addition, they possess high artistic value as local architectural engineer James R. Comly's interpretation of the Beaux-Arts/City Beautiful Movement's penchant for monumental civic architecture.

C. Criteria D: Information Potential

The Georgia Street Bridge is a rare local variation on a state and nationwide standard for the design and construction of a reinforced concrete open-spandrel arch bridge. Its associative retaining walls, with their massive anchor abutments and anchors, contribute to the study of a unique design solution for the containment of the University Avenue Grade Separation Cut and the availability materials and the expertise of early 20th century civil engineers like James R. Comly.
(Bevil, 1998, section 8, page 9)

The discussion and analysis of the Integrity of the resource using the seven aspects of historic integrity was previously identified by Alex Bevil in his 1998 National Register of Historic Places Registration Form and restated below.

Evaluation of The Structures' Historic Integrity
Despite the filling in of the railings, the coatings of gunite, and the definite need of replacing rusted rebar and spalling concrete, the Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls have kept all seven aspects of their historic integrity. They convey this significance by their location, setting and feeling, giving an understanding of why they were built in the first place 84 years ago. The bridge and the retaining walls reinforced concrete construction also convey the historic materials that went into their construction and the workmanship of San Diego's early concrete masons. Finally, the bridge's ribbed arch design, as well as the blind arcade along the flanking retaining walls, combine to create a form, plan, and unique structure reflecting a local example of early 20th century American reinforced concrete bridge design and construction.
(Bevil, 1998, section 8, page 9)

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VI. Review of Proposed Design Alternatives

The need for major seismic strengthening of both the bridge and the retaining walls was identified by Simon Wong Engineering in a Seismic Strategy Report prepared for the City of San Diego on March 23, 2012. Within the report, Simon Wong Engineering indicates:

> It was further established through the current analysis that both the bridge and walls are exceptionally deficient with respect to seismic loading. The bridge deck and supporting arches have a lack of continuity which leads to instability under the design seismic event. Bridge column and supporting arch reinforced concrete elements are not properly detailed to resist shear forces and would be subjected to non-ductile shear failure. Both the abutment walls and retaining walls are significantly inadequate to resist soil pressures that would be applied under earthquake loading. Even static loading (without seismic forces) suggests many portions of the walls to be on the verge of instability. These determinations were made through analysis that assumes materials are in repaired condition. In reality, the structural materials, especially the retaining wall concrete are badly deteriorated.
> (Simon Wong Engineering Seismic Strategy Report, 2012, page 1)

IS Architecture was initially tasked with a review of five bridge design alternatives and three retaining wall alternatives proposed by Simon Wong Engineering. IS Architecture reviewed Table 5, from the Georgia Street Bridge, Bridge No. 57C-0418, DRAFT, Bridge Rehabilitation Report, April 2012, which succinctly described the alternatives. In the course of this review process, IS Architecture made specific recommendations for ways to accomplish the seismic retrofit without sacrificing the historic integrity of the bridge and associated retaining walls which resulted in the preferred alternative which is currently being processed by the City. A summary of the preferred alternative is provided in Table 1.

A. Bridge Design Alternatives

Two general categories of modifications were initially considered as a means to strengthen the bridge and retain walls: replacement and rehabilitation. Replacement would entail the complete removal of the bridge and retaining walls and the construction of new bridge structure. Rehabilitation would retain and modify the existing bridge and retaining walls to provide the additional strength needed to withstand a seismic event.

Due to the National Register historic designation of the Georgia Street Bridge and University Avenue Grade-Separation Cut Retaining Walls, any changes to the bridge and/or retaining walls must be done in accordance with the Secretary of the Interior's Standards for Historic Preservation (Standards). There are four approaches to preservation treatments permitted under the Standards: Preservation, Restoration, Rehabilitation and Reconstruction. In the course of reviewing the historic preservation treatment options, it became clear that rehabilitation was feasible. Thus, the replacement options #1, 2 and 3 were not considered in detail since the designs proposed could quickly be determined to not meet the Standards. The retrofit and rehabilitation alternatives #1 and 2 were identified as potentially feasible alternatives that merited further review. Table 1 provides a general comparison of the rehabilitation alternatives with the existing bridge structure.

The primary difference between the two bridge rehabilitation alternatives is related to the way in which they provide the strength needed to withstand anticipated seismic events. Bridge Rehabilitation Alternative #1 uses a shear wall to connect the bridge deck with the underlying arch. Concrete would be added to the center arch to create the shear wall. Bridge Rehabilitation Alternative #2 would take a different approach to providing the needed seismic strength. This alternative would add a series of isolation joints between the spandrels and the arch to allow for controlled movement between the bridge deck and arch during a seismic event.


Figure 11. Detail of center arch to be strengthened with the addition of a shear wall. Photo taken 2012, IS Architecture.

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Table 1. Bridge Design Alternatives	
Alternative	**Description**
Rehabilitation	
Bridge Rehabilitation Alternative #1 (Preferred Alternative)	• Replace deck and spandrel columns • Reinforce arch ribs • Protect arch ribs (concrete coating) • Abutment wall stabilization • Soil improvements and abutment retrofit • Arch end guides • Spandrel shear wall • Lower roadway approximately 2 to 2.5 feet from current road elevation and about 1.4 feet to 1.9 feet at the center of the roadway from the historic road elevation. • Stabilize walls • Replace bridge and wall barriers with architectural enhanced barrier (C411 Modified)
Bridge Rehabilitation Alternative #2	• Replace deck and spandrel columns • Reinforce arch ribs • Protect arch ribs (concrete coating) • Abutment wall stabilization • Soil improvements and abutment retrofit • Arch end guides • Spandrel isolation bearings • Arch rib hinge shear guide • Lower roadway approximately 2 to 2.5 feet from current road elevation and about 1.4 feet to 1.9 feet at the center of the roadway from the historic road elevation. • Stabilize walls • Replace bridge and wall barriers with architectural enhanced barrier (C411 Modified)
Alternative	**Description**
Replacement	
Bridge Replacement Alternative #1	• Replace bridge with an in-kind arch structure • Match existing bridge details where feasible • Alternative includes 52 foot wide (R1A) and 32 foot wide (R1B) • Lower University Avenue approximately 1 to 1.5 feet • Stabilize walls • Replace wall barriers with architectural enhanced barrier (C411 Modified)
Bridge Replacement Alternative #2	• Replace bridge with an modern arch structure • Alternative includes 52 foot wide (R2A) and 32 foot wide (R2B) • Lower University Avenue approximately 1 to 1.5 feet • Stabilize walls • Replace wall barriers with architectural enhanced barrier (C411 Modified)
Bridge Replacement Alternative #3	• Replace bridge with an conventional precast beam structure • Stabilize walls • Replace wall barriers with architectural enhanced barrier (C411 Modified)

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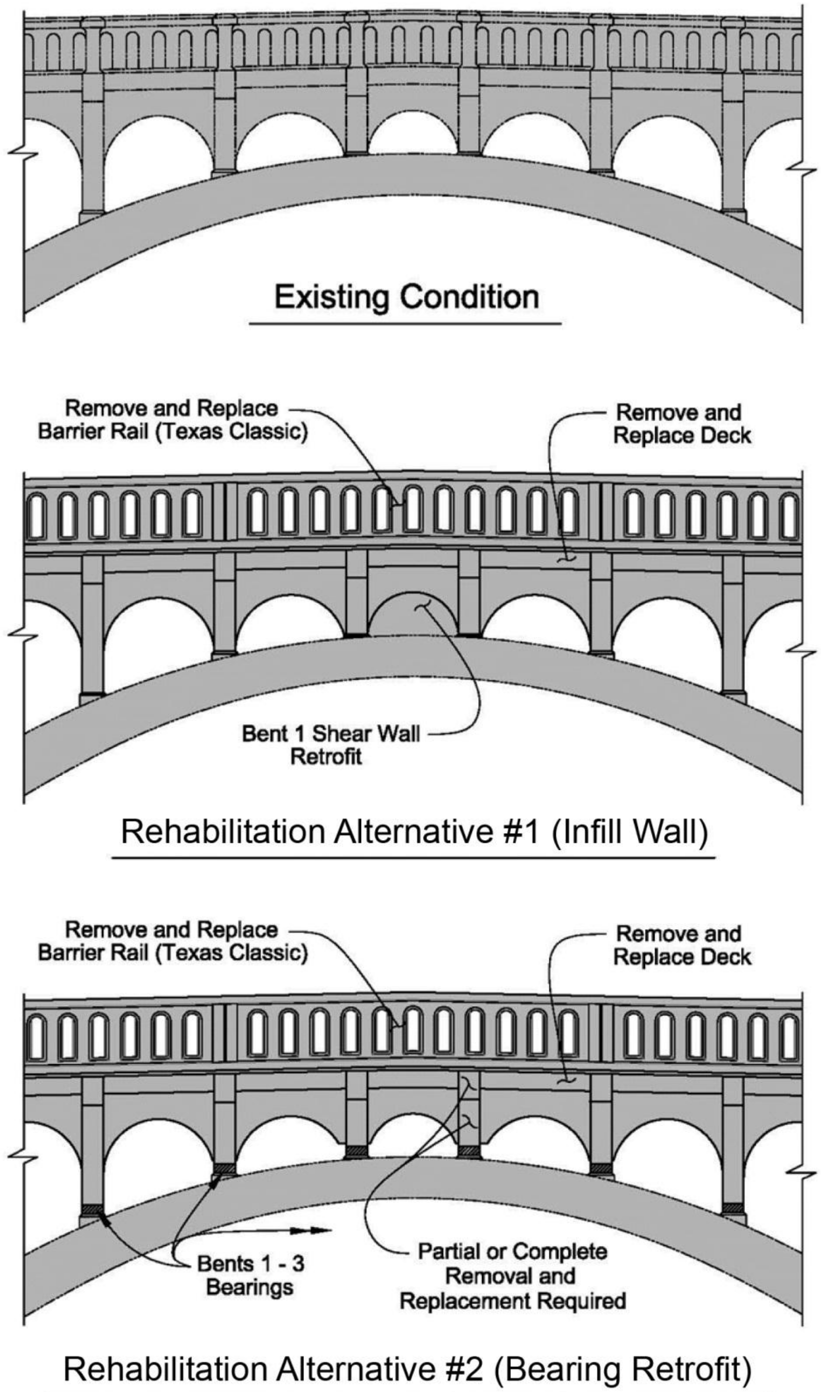

Figure 12. Center of Arch Elevation Comparisons of Existing Condition, Rehabilitation Alternative 1, and Rehabilitation Alternative 2.

An in-depth review of Bridge Rehabilitation Alternative #1 (with shear wall) and Bridge Rehabilitation Alternative #2 (with bearings) determined that Bridge Rehabilitation Alternative #1 would be the preferred alternative. Based on the Secretary of the Interior's Standards for Rehabilitation, Bridge Rehabilitation Alternative #2 had the following concerns:

5. **Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.**

   The introduction of rubber and steel isolation joints would have significantly altered the distinctive materials, finishes and construction technique of the existing reinforced concrete structure.

9. **New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.**

   The exterior alteration of the introduction of rubber and steel isolation joints would have significantly altered the historic materials that characterize the resource. In addition while the new material would have been differentiated from the historic it would not have been compatible with the historic materials and features of the existing reinforced concrete structure.

10. **New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.**

    The exterior alteration of the introduction of rubber and steel isolation joints could not be installed in a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

B. Retaining Wall Design Alternatives

Three basic techniques were considered for retrofitting and rehabilitating the bridge abutment and associated retaining walls (see Table 2). Two of the alternatives involve replacing the existing retaining walls. The third involves rehabilitating the existing walls by adding soil nails and/or soil anchors to better anchor the wall into the existing geological formations behind them and re-facing the wall with an in-kind reconstruction of the wall face.

The wall replacement alternatives would involve two approaches. Wall Replacement Alternative #1 would add tie-back anchors with the sequential removal and replacement of the wall in approximately 5 foot lifts from the top down. Wall Replacement Alternative #2 would add temporary soldier piles in front of the wall, permanent tie-back anchors and sequential removal and replacement of the wall in approximately 5 foot lifts from the bottom up. According to Simon Wong Engineering, both of these approaches are considered risky due to the instability of the existing retaining wall system and the retained soil which supports adjacent buildings. Thus, Simon Wong Engineering concludes that strengthening the existing walls represents the most appropriate technique for achieving seismic stability.

Table 2. Retaining Wall Design Alternatives	
Alternative	**Description**
Rehabilitation	
Wall Rehabilitation Alternative #1 (Preferred Alternative)	• Place stabilizing soil nails and/or soil anchors through existing wall face • Lower roadway approximately 2 to 2.5 feet from current road elevation and about 1.4 feet to 1.9 feet at the center of the roadway from the historic road elevation. • Construct 9 inch thick concrete overlay; re-facing the wall with an in-kind reconstruction of the wall face. • Placement of new vertical crack control joints adjacent to the reconstructed historic pilaster details.
Replacement	
Wall Replacement Alternative #1	• Place tieback anchors through existing wall face and vertical beam • Remove and replace wall face in 5 foot lifts • De-tension and Re-tension tiebacks with each lift • Lower roadway approximately 2 to 2.5 feet from current road elevation and about 1.4 feet to 1.9 feet at the center of the roadway from the historic road elevation. • Construct 6 inch thick permanent concrete facing with historic architectural treatment (in-line)
Wall Replacement Alternative #2	• Place temporary soldier piles in front of existing wall full height • Place temporary tieback anchors through existing vertical beams • Remove and replace existing wall facing from bottom up in 5 foot lifts • Lower roadway approximately 2 to 2.5 feet from current road elevation and about 1.4 feet to 1.9 feet at the center of the roadway from the historic road elevation. • Construct 6” thick permanent facing with historic architectural treatment (in-line)

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D. Preferred Project

Based on the alternatives evaluation project, the City selected a preferred project scenario which it intends to process. The preferred project includes the following elements identified in Tables 1 and 2: As depicted in Figures 13-15, the preferred bridge alternative would replace the deck and spandrel columns. The spandrel columns would be removed and reconstructed in-kind. The bridge would have arch end guides installed, but hidden from view.

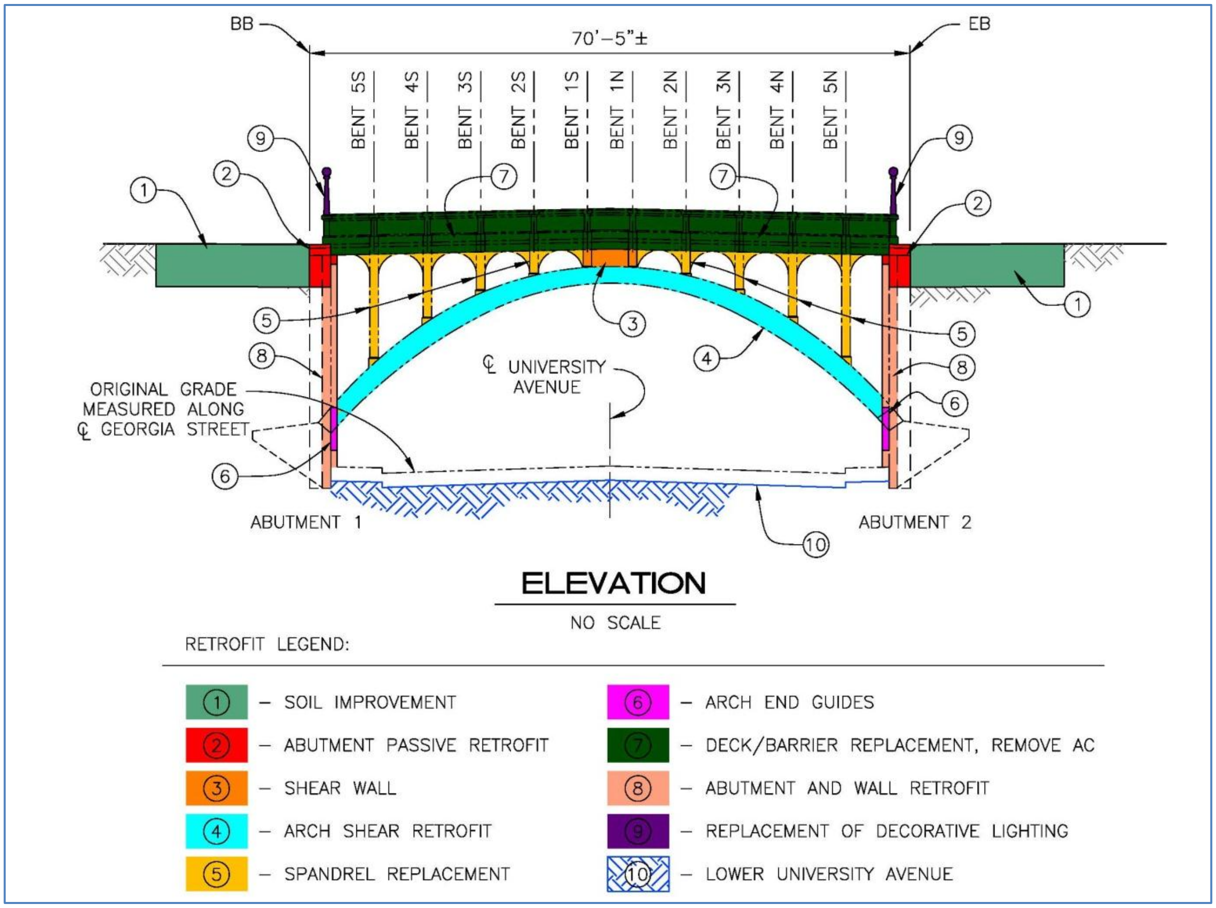

Figure 13. Elevation diagram of preferred bridge alternative #1. Simon Wong Engineering

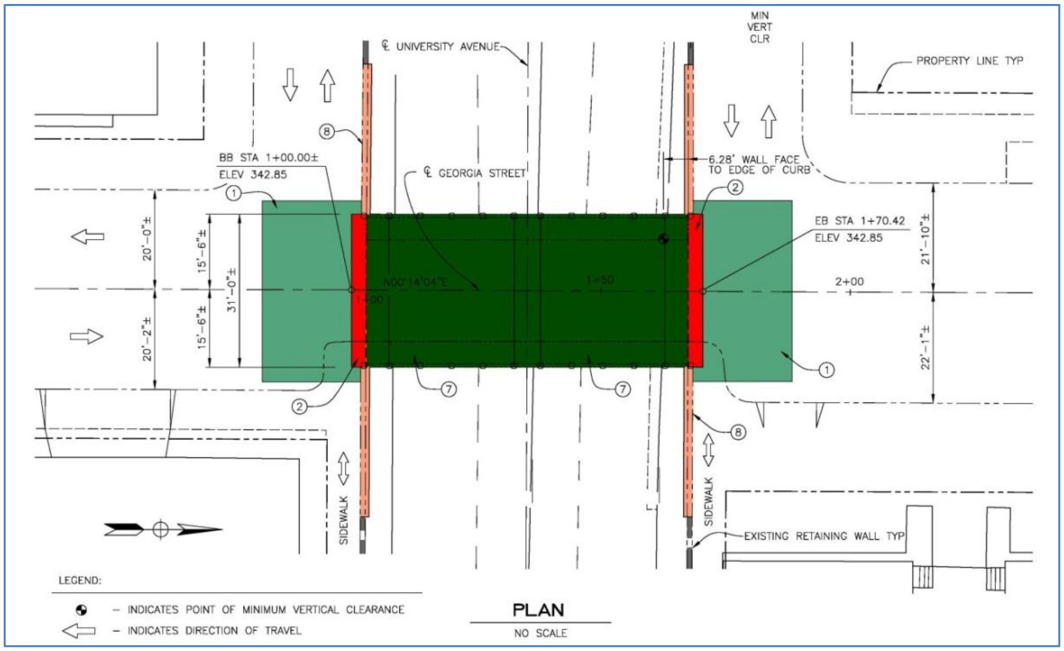

Figure 14. Plan diagram of preferred bridge alternative #1. Simon Wong Engineering

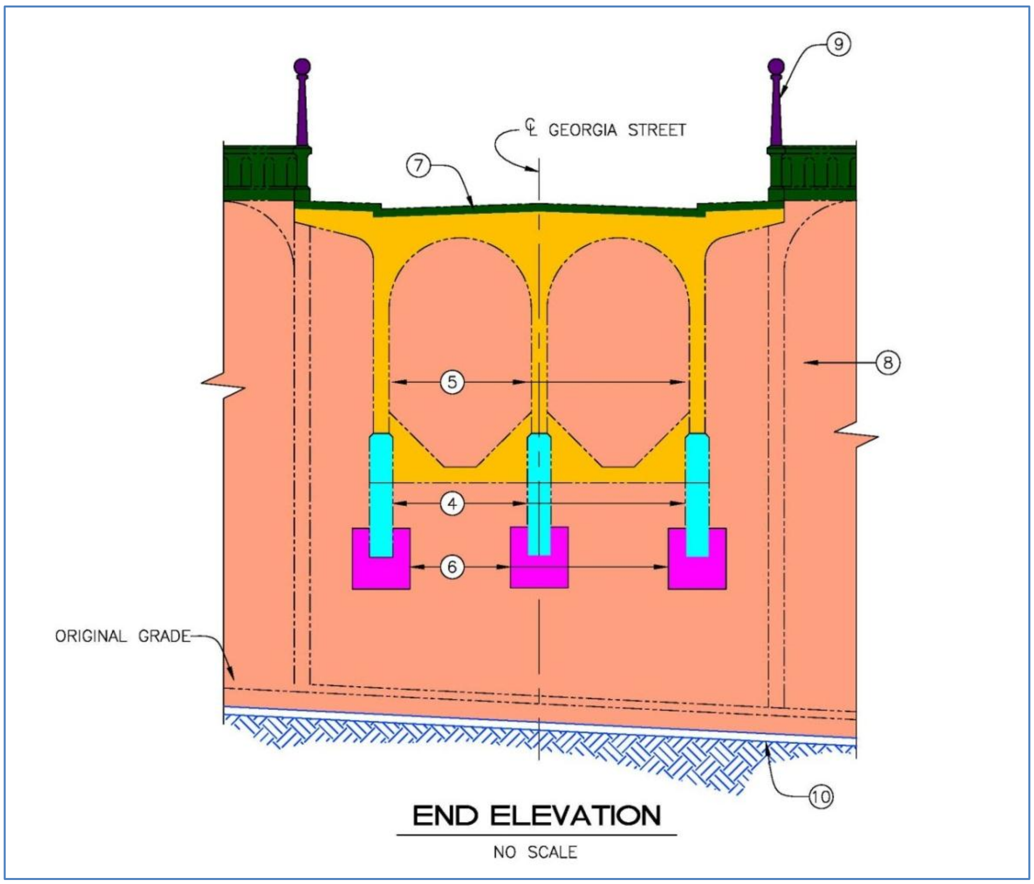

Figure 15. End elevation diagram of preferred bridge alternative #1. Simon Wong Engineering

The center arch would be filled with concrete to enhance seismic stability by connecting the bridge deck to the arch. The fill would be recessed, retaining the arch design as a blind arcade to keep the shadow-line of the arch and diminish its impact on the appearance of the bridge. The arch ribs would be reinforced and coated with a concrete coating. To reflect the original design, the concrete coating would be finished in the color of the original concrete and with a texture that emulates the original parged plaster/grout coat.

The guard rail along the bridge would be replaced with a railing which meets current safety standards while more closely reflecting the original railing details (see Figure 16). Using FHWA (Federal Highway Administration) nomenclature, the railing would be a modified version of a C411 "Texas Classic" barrier. The proposed replacement would include open pickets, top rail and pilasters. The pilaster and picket depth would be increased to about 10 inches (from 8" and 3" respectively) to meet current design standards for vehicular impact loads and crash testing. In addition, the top rail and bottom rail shape and pilaster details would be modified for the vehicular side of the barrier to meet safety requirements and prevent vehicular impact "snag" concerns.

The C411 "Texas Classic" barrier is a crash tested standard that meets test level 2 (TL-2) criteria and is an FHWA accepted standard suitable for the project conditions. The modifications proposed for this project are to adjust the baluster spacing to match the spacing of the bridge spandrel columns and retaining wall blind-arcade architectural treatment per the as-built details. Further modifications to the C411 "Texas Classic" proposed for this project are to adjust the picket spacing and opening size to compliment the spacing of the original bridge architectural treatment, however, they cannot duplicate the as-built details without compromising the test rating of the barrier rail.

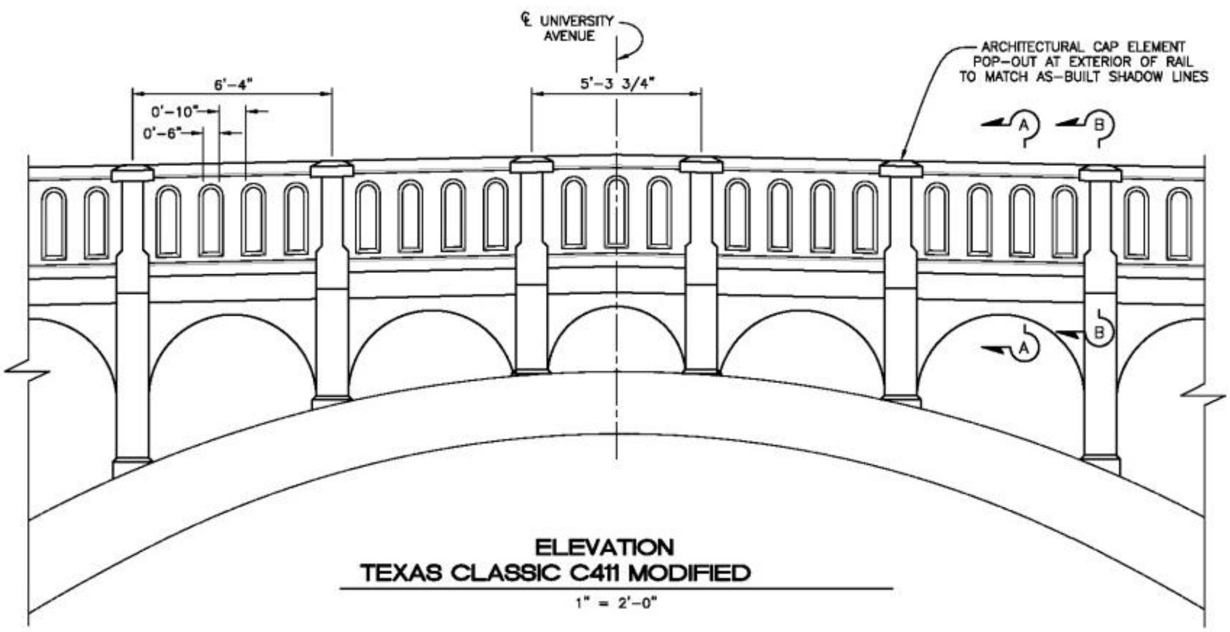

Figure 16. Preferred guard rail – "Texas Classic" C411 Modified

The abutment and retaining walls would be stabilized by inserting soil nails and soil anchors through the existing walls to anchor the wall to the soil behind the wall. To hide the soil nails and retain the original appearance of the walls, the walls would be faced with up to 9 inches of concrete with a reconstruction of the historic blind arch arcades and attached pilasters.

The surface elevation of University Avenue, beneath the bridge would be lowered by as much as 2.5 feet from the current conditions and about 1.4 feet to 1.9 feet at the center of the roadway from the historic road elevation. The surface elevation is being proposed to be lowered to meet the vertical clearance required by FHWA. The roadway surface lowering would extend to the east and west to an appropriate transition point. The adjoining sidewalks would be reconstructed to respond to the elevation change.

Figure 17. The surface elevation is being proposed to be lowered to meet the vertical clearance required by FHWA.

VII. Findings and Conclusions

A. Findings

In evaluating the potential effects of a project on a historic resource, one of the following conclusions must be reached.

- No Effect: This finding means that a proposed project will not affect the qualities that make the historic resource eligible for the National Register. Affecting only non-contributing elements will generally be found to constitute no effect on the resource as a whole.
- No Adverse Effect: This finding means that the project could have an effect on the qualities that make the resource eligible, but the effect will not be adverse; i.e., the undertaking will not diminish the resource's integrity. Project effects that would otherwise be adverse can be found to be not adverse when they meet the Secretary of the Interior's Standards.
- Adverse Effect: This finding includes but is not limited to physical destruction, damage, or alteration of the resource; isolation from or alteration of the setting; introduction of intrusive elements; neglect leading to deterioration or destruction; and transfer, sale, or lease of the property.

Non-contributing features or components may be altered if necessary. However, the character of the alteration should be compatible with the existing historic character of the bridge and retaining walls. The primary project elements which are considered to potentially affect the historic integrity of the bridge and retaining walls are discussed below.

1. Shear Wall (Figure 13 – Retrofit Legend #3)

The center arch opening will be reconstructed to exactly reflect the historic configuration. The new work will be differentiated from the old and be compatible with the historic materials, features, size, scale and proportion, and massing as follows.

- **Material**: apply texture finish that subtly varies from historic materials, yet is noticeably different from the proposed finish material for the entirety of the structure.
- **Shadow Line Features**: to be constructed to fill historic arched opening and be recessed to the maximum structurally feasible beyond the outside surface of the structure. The shear wall does not need to be recessed from the interior face of the structure.
- **Spatial Relationships:** Center arch opening to be reconstructed to reflect the historic configuration and shadow lines.
- **Size**: The arch shadow lines should be the same size as the original.
- **Scale**: The arch shadow lines should be the same scale and proportion as the original.
- **Massing**: The arch shadow line will emulate the massing but cannot maintain the transparency of the original opening.

Finding: No Adverse Effect
Inclusion of these design features into the sheer wall would avoid an adverse effect on the historic character of the bridge.

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2. Arch Rib Shear Retrofit (Figure 13 – Retrofit Legend #4)

The Arch Rib Shear Retrofit will remove the cover concrete, strengthen with additional reinforcement and replace the cover concrete as follows.

- **Material**: color and texture-match new concrete to visually convey original concrete color and finish.
- **Design**: partial reconstruction of arch rib to reflect original size, proportion, and massing.

Finding: No Effect
Inclusion of these design features into the arch rib retrofitting would not have an effect on the historic character of the bridge.

3. Spandrel Replacement (Figure 13 – Retrofit Legend #5)

Spandrel replacement is designed to be in-kind and no changes will be visible on the exterior surface. Affected surfaces surrounding the replacement should be patched, as needed, with finish matching the original in design, color, texture, and were possible, materials as follows.

- **Material**: texture-match new concrete to visually convey original concrete finish.
- **Size**: to reflect original size, proportion, and massing.
- **Historic Material**: apply texture finish that color and texture-match new concrete to visually convey original concrete color and finish.
- **Size**: the spandrel will be the same size as the original.
- **Scale**: the spandrel will be the same scale and proportion as the original.
- **Massing**: the spandrel will emulate the massing and maintain the transparency of the original openings.

Figure 18. Detail of spandrel arches. Photo taken 2012, IS Architecture.

Finding: No Effect
Inclusion of these design features into the spandrel replacement would not have an effect on the historic character of the bridge.

4. Arch End Guides (Figure 13 – Retrofit Legend #6)

The Arch End guides will be concealed into the structure of the "built-out" abutment wall. Effected surfaces surrounding the retrofit should be patched, as needed, with finish matching the original in design, color, texture, and materials.

Finding: No Effect
Concealing the arch ends in the retaining wall would not have an effect on the historic character of the bridge.

Figure 19. Detail of location of proposed arch end guides. Photo taken 2012, IS Architecture.

5. Deck Replacement

The new work will be differentiated from the old and be compatible with the historic materials, features, size, scale and proportion, and massing as follows.

- **Size**: The deck will be the same depth as the original (10 to 12 inches).
- **Scale**: The deck will be the same scale and proportion as the original.
- **Design:** The deck would be reconstructed to visually convey original configuration and design. The sidewalks would be rebuilt in-kind at the same current elevation and location.

- **Material**: new concrete will be textured to visually convey original concrete color and finish as seen from University Avenue. The asphalt top layer, as seen at Georgia Street, will not be replaced.

Finding: No Adverse Effect
The deck replacement will remove existing 10 to 12 inch thick deck currently comprised of 7 to 8 inches of concrete and 3 inches of asphalt with a 10 to 12 inch concrete deck. Asphalt will not be used in the replacement due to potential for water to become trapped and rust the reinforcing steel. Small modifications in historic design are permitted to correct innate design flaws. The new work will be differentiated from the old and be compatible with the historic materials, features, size, scale and proportion, and massing. Therefore the use of concrete in place of asphalt would not have an adverse effect on the historic character of the bridge.

6. Guard Rail Barrier Replacement for Both the Bridge and the Retaining Walls (Figure 13 – Retrofit Legend #7)

The existing barriers will be replaced with Modified Type C411 "Texas Classic" barriers to meet the following criterion:

- Match the original historic barrier in color, texture, height, scale and proportion;
- Retain historic materials, features, and spatial relationships that characterize the property; and
- Replace existing rail caps along barrier to match original configuration (from non-traffic side).

Finding: No Adverse Effect
The current barrier rail has been heavily modified from its original design intent. The proposed design, while not an exact historic match, is a significant improvement toward replacing a lost design element. The historic design drawings and field investigation have been researched to design the proposed replacement. The proposed design reflects the historic height of the guard rail, the pattern of pilasters and the design intent of a pattern of open arches. Due to Caltrans requirements and life safety concerns the proposed design has a distinctly thicker cross section and elements of the restored historic design will only be applied to the non-traffic side of the barrier. Therefore, it is determined that proposed railing meets the Secretary of the Interior's Standards for Rehabilitation and will have no adverse effect on the historic character of the bridge.

7. Soil Improvements

Soil amendments will be placed behind the walls to increase their ability to withstand seismic action.

Finding: No Effect
The soil improvements will be completely hidden from view. Therefore, they would not have an effect on the historic characteristics of the bridge.

8. Abutment Wall and Retaining Wall

The abutment wall and retaining wall will be built as follows:

- **Build-out** wall nine-inches beyond the face of the current wall and conceal Arch End Guides into structure of the built-out abutment wall.
- **Reconstruct** colonnade pattern to visually convey original configuration and design. With the addition of expansion joints semi-concealed at the pilaster to blind arcade juncture. The current design has an inherent flaw leading to relief cracks in the extant wall. The lack of forethought on the expansion needs of the material must be corrected. Metal eye bolts, dedication plaque and survey marker to be salvaged and reinstalled.
- **Reconstruct** historic railing/ barrier wall. Site railing/barrier wall nine-inches toward University Ave. to sit atop new abutment and retaining wall.
- **Material**: texture-match new concrete to visually convey original concrete color and finish.
- **Size**: to reflect original size, proportion, and massing. Where needed to accommodate the lowering of University Avenue the added height to the wall will be added to the length of the blind arcade pilasters.

Finding: No Adverse Effect
The abutment and retaining walls would be stabilized by inserting soil nails and soil anchors through the existing walls to anchor the wall to the soil behind the wall. To hide the soil nails and retain the original appearance of the walls, the walls would be faced with up to 9 inches of concrete with a reconstruction of the historic blind arch arcades and attached pilasters. Therefore, the proposed design has 'No Adverse Effect' on the existing structure and conforms to the Secretary of the Interior's Standards for Rehabilitation.

9. Lowering of University Avenue

In order to provide standard minimum vertical clearance over University Avenue, the roadway must be lowered approximately 2 to 2.5 feet from the current elevation. In order to provide a smooth vertical profile, the amount of roadway lowering will taper over a distance of approximately 200 feet east and west of the Georgia Street Bridge. This will allow the roadway to transition back to the current elevations prior to the intersections at Park Boulevard and Florida Street. The preliminary street improvement exhibit in the Rehabilitation Report provides the limits for the roadway lowering.

The historic elevation of University Avenue has been altered over the years since the Georgia Street Bridge was completed due to numerous asphalt concrete (AC) overlays by the City of San Diego. Based on recent AC cores, the historic elevation is approximately 7 inches below the current roadway elevation near the center of the road. Therefore, the net difference between the historic roadway elevation and the proposed elevation is only about 1.4 feet to 1.9 feet at the center of the roadway near the bridge. At the shoulders, the existing elevations will more closely match the historic elevations since the sidewalk position relative to the retaining walls and bridge abutment appears to match the as-built plans. The difference between the current and historic elevations should vary linearly between the shoulders and the center of the roadway.

Finding: No Adverse Effect
Reviewing the proposed change to the relative overall proportions of the roadbed elevation, the grade-separation and the bridge the change was deemed visually negligible. Therefore, a finding of 'No Adverse Effect' on the existing structure while meeting the Secretary of the Interior's Standards for Rehabilitation can be found.

10. Replacement of Decorative Light Fixtures

The decorative light fixtures will be built as follows:

- **Size**: The decorative light fixtures will be the same height as the original.
- **Scale**: The decorative light fixtures will be the same scale and proportion as the original.
- **Reconstruct** decorative light fixtures to visually convey original configuration and design.
- **Material**: texture-match new concrete to visually convey original concrete color and finish

Finding: No Effect
The replacement of the light fixtures that were removed from the bridge will be a significant improvement toward restoring the historic resource to its original design intent. With the existing “as-built” drawings for reference the light fixtures can be reconstructed. Therefore, a finding of ‘No Effect’ on the existing structure while meeting the Secretary of the Interior’s Standards for Rehabilitation can be found.

<u>Cumulative Effect</u>
An evaluation of the interaction of the proposed improvements revealed that the combined effect of these actions would not result in a cumulatively substantial effect on the historic character of the bridge. The two design issues that were reviewed separately but could be cumulative are the combination of the narrowing of the University Avenue grade-separation by nine inches from either side while simultaneously lowering the grade approximately 18 to 27 inches from the historic roadbed elevation. The current height from the road bed to the top of the rail is approximately 30. 5 feet and the new height would be approximately 32.5 feet. This equates to a 6% change in elevation relative to the top of the bridge barrier guard rail. Further mitigating the impact of the change in elevation is that the grade change will taper and occurs at this depth through less than a third of the length of University Avenue. The current width of the University Avenue Grade-Separation is approximately 64 feet the new width would be approximately 62.5 feet, a change of 2.3%. Given the relatively diminutive changes, they would not create a cumulative impact.

B. Conclusions

In conclusion, assuming the Preferred Project incorporates the elements discussed in Section VII.A, it is determined that the Preferred Project Alternative would not have an adverse impact on the historic characteristics of the Georgia Street Bridge and the associated retaining walls.

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VIII. Conformance with Secretary of the Interior Standards:

The Secretary of the Interior's Standards for Rehabilitation

1. **A property will be used as it was historically or be given a new use that requires minimal change to its distinctive materials, features, spaces, and spatial relationships.**

   Use – the resource will continue to be used as it was historically; the upper deck serving as a vehicular bridge and pedestrian walkway; the retaining walls purposed to hold back fill and act as passageway of travel into East San Diego.

2. **The historic character of a property will be retained and preserved. The removal of distinctive materials or alteration of features, spaces, and spatial relationships that characterize a property will be avoided.**

   The historic character of the property will be retained and preserved. The restored and rehabilitated portions of the bridge, the guard rail barrier, the abutment and retaining walls will be recreated thereby not altering features of the resource. The spatial relationship will only be minimally altered by the lowering of the elevation of University Avenue and the facing of the existing abutment and retaining walls.

3. **Each property will be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or elements from other historic properties, will not be undertaken.**

   No changes that create a false sense of historical development, or additions of conjectural features or elements from other historic properties is proposed.

4. **Changes to a property that have acquired historic significance in their own right will be retained and preserved.**

   No changes have acquired a historic significance in their own right.

5. **Distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize a property will be preserved.**

   Every portion of the project preserves or reconstructs the distinctive materials, features, finishes, and construction techniques or examples of craftsmanship that characterize the property.

6. **Deteriorated historic features will be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature will match the old in design, color, texture, and, where possible, materials. Replacement of missing features will be substantiated by documentary and physical evidence.**

The deteriorated fabric will be repaired and only where there is no other feasible option is a new feature proposed which will match the old in design, color, texture and materials. The replacement of the missing guard rail barriers and lamp posts will be based on documentary evidence.

7. **Chemical or physical treatments, if appropriate, will be undertaken using the gentlest means possible. Treatments that cause damage to historic materials will not be used.**

   No chemical treatments are proposed and all physical treatments, when appropriate, will be undertaken using the gentlest means possible.

8. **Archeological resources will be protected and preserved in place. If such resources must be disturbed, mitigation measures will be undertaken.**

   Not Applicable

9. **New additions, exterior alterations, or related new construction will not destroy historic materials, features, and spatial relationships that characterize the property. The new work shall be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.**

   As discussed above the new shear wall addition will not destroy historic materials, features, and spatial relationships that characterize the property by maintaining the visual demarcation and a shadow-line of the center spandrel arch. The new work will be differentiated from the old and will be compatible with the historic materials, features, size, scale and proportion, and massing to protect the integrity of the property and its environment.

10. **New additions and adjacent or related new construction will be undertaken in a such a manner that, if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.**

    Not Applicable

After review of all presented alternatives for the Georgia Street Bridge Rehabilitation, IS Architecture has found Rehabilitation Alternative #1, to conform to the Secretary of the Interior's Standards for Rehabilitation. The cumulative elements of the design have 'No Adverse Effect' on the existing historic resource while meeting the Secretary of the Interior's Standards for Rehabilitation.

IX. BIBLIOGRAPHY

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Simon Wong Engineering. *Update Draft Final Seismic Strategy Report*. Report. San Diego, 2012. Document.

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X. Appendices

Appendix A: National Park Service - National Register nomination
Appendix B: Original Drawings by J.R. Comly
Appendix C: DPR Forms
Appendix D: Preparer(s)' Qualifications

Appendix A

National Park Service - National Register Nomination

STATE OF CALIFORNIA – THE RESOURCES AGENCY
GRAY DAVIS, Governor
OFFICE OF HISTORIC PRESERVATION
DEPARTMENT OF PARKS AND RECREATION
P.O. BOX 942896
SACRAMENTO, CA 94296-0001
(916) 653-6624 Fax: (916) 653-9824
calshpo@mail2.quiknet.com

May 11, 1999

ALEXANDER D. BEVIL
UNIVERSITY HEIGHTS HISTORICAL SOCIETY
4752 MT. LONGS DRIVE
SAN DIEGO, CA 92117

**RE: GEORGIA STREET BRIDGE-CALTRANS BRIDGE·
SAN DIEGO, SAN DIEGO COUNTY, CALIFORNIA**

The property listed above was placed on the National Register of Historic Places on February 12, 1999. As a result of being placed on the National Register of Historic Places, this property has also been listed in the California Register of Historical Resources, pursuant to Section 4851(a)(2) of the Public Resources Code. Please refer to the enclosed sheet for more information about the California Register.

Placement on the National Register affords a property the honor of inclusion in the nation's official list of cultural resources worthy of preservation and provides a degree of protection from adverse effects resulting from federally funded or licensed projects. Registration provides a number of incentives for preservation of historic properties, including special building codes to facilitate the restoration of historic structures, and certain tax advantages.

There are no restrictions placed upon a private property owner with regard to normal use, maintenance, or sale of a property listed in the National Register. However, a project that may cause substantial adverse changes in the significance of a registered property may require compliance with local ordinances or the California Environmental Quality Act. In addition, registered properties damaged due to a natural disaster may be subject to the provisions of Section 5028 of the Public Resources Code regarding demolition or significant alterations, if imminent threat to life safety does not exist.

If you have questions or require further information, please contact the National Register Unit at (916) 653-6624.

Sincerely,

Daniel Abeyta

Daniel Abeyta, Acting
State Historic Preservation Officer

Enclosure

NPS form 10-900
(Oct. 1990)

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 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 any 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 instructions. Place additional entries and narrative items on continuation sheets (NPS Form 10-900a). Use a typewriter, word processor, or computer, to complete all items.

1. Name of Property

historic name Reinforced Concrete Bridge to Carry Georgia Street over University Avenue and Concrete Walls and Rails for University Avenue

other names/site number Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls City of San Diego/Caltrans Bridge I.D. # 57C-418

2. Location

street & number Georgia Street and University Avenue/between Floriada Street and Park Boulevard

city or town San Diego ___ not for publication ___ vicinity

state California code CA county San Diego code 073 zip code 92103

3. State/Federal Agency Certification

As the designated authority under the National Historic Preservation Act of 1986, 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 and title of certifying official/Title Date

State or Federal agency and bureau

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 and bureau

4. National Park 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
- X public-local
- ___ public-State
- ___ public-Federal

Category of Property (Check one box)
- ___ building(s)
- ___ district
- X structure
- ___ object

Number of Resources within Property

Contributing	Noncontributing	
___	___	buildings
___	___	sites
3	___	structures
___	___	objects
3	___	Total

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

Number of contributing resources previously listed in the National Register 0

6. Function or Use

Historic Functions (Enter categories from instructions)

Cat:	Sub:
Public Works	Bridge, Retaining Wall, Roadway, Sidewalks
Transportation	Road-Related, (vehicular bridge and grade separation)
Transportation	Rail-Related, (electric streetcar line grade separation)
Transportation	Pedestrian-Related, (sidewalks)

Current Functions (Enter Categories from instructions)

Cat:	Sub:
Transportation	Road-Related, (vehicular bridge)
Transportation	Pedestrian-Related, (sidewalks)

7. Description

Architectural Classification (Enter categories from instructions)

Cat: Other

Sub: Three-hinged Reinforced Concrete Open Spandrel Arch Bridge
Reinforced Concrete Blind Arcade Retaining Wall and Railings
Asphalt-Covered Poured Concrete Grade Separation Roadway

Materials:

Bridge: Concrete, Asphalt

Walls: Concrete, Gunite

Roadway: Asphalt, Concrete

Sidewalks: Concrete

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

❖ See attached 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.
- [x] 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 a 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

Engineering

Transportation

Architecture

Period of Significance

1914-1949

Significant Dates

1914
Widening and paving of grade separation roadway; completion of bridge, retaining walls and commencement of dual electric railway traffic along grade separation right-of-way along University Avenue

1949
Discontinuance of electric streetcar service along University Avenue

Significant Persons

N/A

Architect (Designer)

James R. Comly, C.E.

Builder

Edward T. Hale

Cultural Affiliation

N/A

Narrative Statement of Significance
(Explain the significance of the property on one or more continuation sheets.)

✧ See attached Continuation Sheets

9. Major Bibliographical References

Bibliography
(Cite the books, articles, and other sources used on one or more continuation sheets.)

✧ See attached 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
  # ____________________

Primary location of additional data:

- [ ] State Historic Preservation Office
- [ ] Other State Agency
- [ ] Federal Agency
- [x] Local government
- [ ] University
- [ ] Other

Name of repository:
City of San Diego
Dept. of Long-Range Planning
202 C Street
San Diego, CA 92101

Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls
San Diego, CA

10. Geographical Data

Acreage of Property 2.30 acres

UTM References
(Place additional UTM references on a continuation sheet.)

	Zone	Easting	Northing
1	11	486416	3623207
2			
3			
4			

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

❖ See Attached Continuation Sheets.

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

❖ See Attached Continuation Sheets.

11. Form Prepared By

name/title Alexander D. Bevil

organization University Heights Historical Society date June 5, 1998

street and number 4752 Mt. Longs Drive telephone 619-569-1486

city or town San Diego state CA zip code 92117

Additional Documentation

(Submit the following items with the completed form.)

■ Continuation Sheets

❖ See attached Continuation Sheets

Maps
■ A USGS map (7.5 or 15 minute series) indicating the property's location.
■ A sketch map showing the boundaries of the property, footprints and locations of all counted resources, and an indication of important landscape resources. Please make sure to provide a scale and north arrow.

Photographs
■ Two sets of black and white photographs representative of the property.

❖ See attached Continuation Sheets

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

■ Two copies of the completed National Register form.
■ One to five color slides picturing the major elevation(s) and significant featurres of the property.
■ Names and complete mailing addresses of all fee simple owners of the property.

❖ See attached Continuation Sheets

NARRATIVE DESCRIPTION

The Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls comprise three interrelated structures. The first is a open-spandrel single-span reinforced concrete ribbed arch bridge across the University Avenue Grade Separation Cut midway between Park Boulevard to the west and Florida Street to the east. The bridge's 69-foot long by 30-foot wide asphalt-covered reinforced concrete deck permits two lanes of automobile traffic across the University Avenue Grade Separation Cut.[1] Cantilevered sidewalks extending out laterally beyond the roadway some 5 feet allowing pedestrians to use the bridge to travel between two moderately built-up residential districts along Georgia Street. Solid reinforced concrete closed panel railings protect those walking along the sidewalks from falling into the roadway below.

Constructed in 1914 by the City of San Diego's Engineering Department, the bridge replaced an earlier wooden arch bridge when the University Avenue Grade Separation Cut was widened to accommodate a projected increase in electric streetcar and automobile traffic. The bridge's design and constriction reflect innovative engineering and architectural standards of the day. For example, its use of cantilevered sidewalks projecting off the deck was also used on the reinforced concrete ribbed arch Colorado Street Bridge (1913) in Pasadena, and the Black Canyon Road Bridge (1913) over the Santa Ysabel Creek and the San Louis Rey River Bridge (1915) near Oceanside, both in San Diego County.[2]

However, the bridge's most distinguishing design feature is the set of three parabolic reinforced concrete ribbed arches beneath its deck. Hinged at either end and at mid-span, the thick concrete arches support a series of columns that are joined at the top by smaller semi-circular spandrel arches. The ribs and arches support the roadway's concrete deck above. Rising at a point some 8 feet above a concrete sidewalk on either side of University Avenue, the base of the ribs travel upward in a symmetrical parabolic curve to a point some 30 feet above the roadway at mid-span.[3] Viewed from a distance, the ribbed arches, open-spandrel arched arcade, as well as the closed rail deck combine to give the bridge the appearance of a monumental gateway to the communities east of the grade separation cut.

The Georgia Street Bridge also appears to be the only thing keeping the twin reinforced concrete retaining walls flanking either side of the University Avenue Grade Separation Cut from crashing down upon the roadway below. Each wall runs approximately 680 feet between Park Boulevard and Florida Street along the respective north and south perimeters of University Avenue's 80-foot wide asphalt-covered roadway. The truncated parabolic walls range in height from approximately 1 foot at either end to 34 feet where it reaches the Georgia Street Bridge.[4] Adding stability and strength to the wall's surface are a series of engaged pilasters running at 10-foot intervals along the wall's surface. Except for three sections on either end, semi-circular arches connect the pilasters' crowns, forming a blind arcade. The pattern of the blind arcade's semi-circular arches mimics those of the bridge. Also, like the bridge, the retaining walls feature a closed panel railing along its upper edges.

Three small but interesting features also adorn the reinforced concrete wall's surface. The first is a pair of metal eyebolts. Once used to anchor the overhead trolley wire running above the roadway, each eyebolt is affixed near the top of the wall approximately 8 feet west of the wall/bridge junction.[5] The second feature is a small bronze plaque beneath the southeast corner parabolic rib/wall junction at eye-level above the sidewalk. Dating from the time of the bridge's completion, the plaque commemorates the work of its designing engineer, James R. Comly and builder, Edward T. Hale. Directly below the plaque is the third and final feature: a brass U. S. Geodetic Survey Benchmark installed in 1927.

Narrative Description (Continued)

Alterations to the bridge and the retaining walls include the following. Sometime after 1947, the panel railings along the bridge and the crown of the retaining walls were filled in with concrete. Photographic evidence indicates that the railings were once of an open arch design, with separate balusters lined up between modified-Doric-style piers. About the same time the bridge and the surface of the retaining walls were spray coating with gunite. A dry mix of sand and cement mixed and shot though a "cement gun," gunite gun by compressed air. As it hits the concrete surface, the gunite impinges with considerable force, ejecting any surplus water. As a result, a dense mortar is produced that is stronger than hand-placed mortar of similar composition. Introduced in 1914, this technique was used to line tunnels, for the encasement of structural steel, and, in the case of the Georgia Street Bridge and University Avenue Grade Separation Cut, for building repair.[6] Although the Gunite obscures the original surface texture, it is still a concrete-like material and, with considerable cost and effort, can be removed.

Other alterations to the bridge include the removal of four 4'6"-tall elephantine columned globe light fixtures from the rail ends at the north and south approaches.[7] Photographic evidence indicates that the lampposts survived well into the mid-1940s.[8] However, there is enough photographic and archival documentation available to facilitate their replication.

Narrative Description (Continued)

Endnotes

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[1] California Department of Transportation, Arch Bridge Rating Sheet for Bridge No. 57C-418 [Georgia Street/University Avenue Separation], Sacramento, 8 May 1986, n.p.

[2] Stephen D. Mikesell, Historic Highway Bridges of California (California Department of Transportation: Sacramento, 1990), 73 and 86.

[3] City of San Diego, Engineering Department, "Reinforced Concrete Bridge to Carry Georgia Street over University Avenue," document no. D5220 [microfilm], December 1912.

[4] City of San Diego, Engineering Department, "Concrete Walls & Rails for University Avenue," document no. D5220-1 [microfilm], December 1912.

[5] Harre W. Demoro, Interurbans Special 100: California's Electric Railways (Glendale, California: Interurban Press, 1986), 192.

[6] Alan W. Pense and Roger G. Slutter, Engineering Materials, vol. 9, Colliers Encyclopedia CD-ROM, 02-28-1996. Obtained from Electronic Library, http://3.elibrary.com.

[7] Ibid.; "Reinforced Bridge to Carry Georgia Street over University Avenue;" and "Street Overpass Being Repaired," San Diego Union, 13 May 1947, 1.

[8] Ibid.; "Reinforced Concrete Bridge to Carry Georgia Street over University Avenue," 1912; and "Concrete Walls & Rails for University Avenue," 1912.

NARRATIVE STATEMENT OF SIGNIFICANCE

Statement of Significance

Completed in 1914, the Georgia Street Bridge and the adjoining retaining walls lining the University Avenue Grade Separation Cut are among the most visible and important manifestations of early 20th century civil engineering projects in San Diego's urban environment. The bridge's three-hinge, open-spandrel reinforced concrete arches, along with the tall blind-arcade-faced reinforced concrete retaining walls, is a unique solution to a difficult local engineering and transportation planning problem. Built in response to the need for improved electric railway and automobile traffic through the University Avenue Grade Separation Cut, the new and wider roadway was directly responsible for the growth of at least nine residential districts in San Diego's northeastern "streetcar suburbs" prior to World War I.

Designed by local civil engineer James R. Comly, the graceful design of the reinforced concrete bridge and retaining walls reflect the growing national trend toward the material's use for its strength, durability, and aesthetic design possibilities. Comly, like other innovative American civil engineers at the time, regarded reinforced concrete as an extraordinarily versatile building material that could be used for utilitarian, ornamental and monumental purposes. The bridge and the deep roadway that it spans are essential components of an emerging public works foundation that supported American transportation networks during the early part of the twentieth century. In addition, they possess high artistic value as local architectural engineer James R. Comly's interpretation of the Beaux-Arts/American City Beautiful Movement's penchant for monumental civic architecture. The 84-year-old bridge and retaining walls serve as a monumental and artistic gateway between the communities east and west of the historic University Avenue Grade Separation Cut.

Historical Background

Donald C. Jackson, writing in his book, Great American Bridges and Dams Bridges, describes bridges as helping to define the built landscape by literally and symbolically bridging the past to the present.[1] Likewise, the Georgia Street Bridge does more than just carry traffic over the University Avenue Grade Separation Cut. Designed by noted San Diego city engineer James R. Comly in 1914, the bridge's unique, reinforced-concrete parabolic arches combine to form an historical as well as a symbolic gateway to some of San Diego's early 20th century streetcar suburbs.

The present Georgia Street Bridge is not the first to carry Georgia Street over University Avenue. In 1907 the City of San Diego initiated the construction of a smaller wooden bridge to allowed street and pedestrian traffic to cross over the newly dug University Avenue Grade Separation Cut. Cut between Park Boulevard and Florida Street, the grade separation cut passed through a steep escarpment overlooking Florida Canyon to the east. Because of the cut's narrow width, the sloping earth sides were left bare. Once completed, it allowed the streetcars of the *San Diego Electric Railway Company* [SDERy] to proceed eastward beyond San Diego's city limits toward City Heights.[2]

The extension of the trolley tracks eastward from Park Boulevard to City Heights represented the citywide expansion of SDERy's streetcar service during this time. Between 1906 and 1910, the traction company, whose underlying philosophy was to "develop . . . a street railway system which would reach out to even the outlying section of the city," initiated the

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

construction or expansion of at least 10 new electric streetcar lines. Radiating out from downtown San Diego, these lines helped to found or improve numerous outlying "streetcar suburbs," including City Heights.[3]

Laid out in 1888, City Heights had originally been serviced by its own steam-powered rail line. However, poor local economic conditions forced the line's abandonment the following year. From that time until the opening of the University Avenue Grade Separation Cut in 1907, the town site stagnated as a sparsely populated semi-rural community.[4] With the opening of the grade separation cut, SDERy was able to extend its streetcar service from University Heights eastward to City Heights. Within the year, the company offered connecting single-track shuttle service between University Heights to City Heights along University Avenue.[5]

Within a few years, the shuttle service proved another adage promoted by SDERy that "transportation determines the flow of population." By 1911, City Heights' population had increased dramatically from 400 to over 4,000 residents. As a result, on November 7, 1911, it incorporated into the City of East San Diego, and remained so until its eventual annexation by the City of San Diego in 1926.[6] In addition to East San Diego's phenomenal growth, between 1906 and 1914, no fewer than nine residential additions sprang up along the University Avenue shuttle line. Among these was the present community of North Park. Laid out on April 8, 1912, the former site of a lemon orchard developed into a major suburban commercial center around a trolley transfer point at the intersection of 30th Street and University Avenue.[7]

The resulting increase in population along University Avenue east of Park Boulevard caused a converse demand for improved streetcar service. So much so that in 1912 SDERy negotiated with the City of San Diego to widen and pave the grade separation cut between Park Boulevard and Florida Street. This would facilitate the eventual laying down of an additional set of tracks along University Avenue between Park Boulevard and the 30th Street intersection in North Park.[8] The widening and paving of University Avenue was also due in part to the growing popularity of automobiles in San Diego. Privately owned cars were now starting to compete with the streetcars for space along University Avenue.[9]

The newly widened grade separation cut posed a particular problem from an engineering viewpoint. Thirty-one feet deep at mid-center, the University Avenue Grade Separation Cut was actually an artificial canyon. Left bare, the perpendicular earthen sides of the approximately 680-foot long cut would collapse onto the roadbed without proper vertical support. The solution, developed by City of San Diego designing engineer James R. Comly, would be an exercise of engineering ability and ingenuity. To prevent the walls of the grade separation cut from collapsing, Comly designed two reinforced concrete retaining walls. Done in conjunction with the paving of University Avenue, the approximately two-foot thick truncated parabolic arch-shaped walls ran along the entire length of the grade separation cut, from Park Boulevard to Florida Street. A series of T-shaped reinforced-concrete strutted anchors, set into the earthen walls along the top of the embankment, held their crowns securely in place.[10]

Assigned to the project by City Engineer William R. Rumsey, Comly had only been with the City of San Diego for about two years. However, he had seven years prior experience as a civil engineer. Born in Helena, Montana, in 1885, Comly moved with his family to San Diego where he enrolled at San Diego High School. After graduating in 1903, he was hired by the United States Reclamation Service and took part in the design and construction of the Yuma and Pitt river projects in the Arizona Territory. Between 1905 and 1906, he held a number of civil engineering jobs in San Diego. Among these were with the *Bay*

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

Shore & Pacific Railroad, and the *Southern California Mountain Water Company*. In 1906 Comly went north to work as a member of the engineering staff of the Mare Island Naval Yard. Six years later, the returned to San Diego where he found a position in the City's Engineering Department as a designing engineer under Rumsey.[11]

Based on his experience and engineering skill, Comly was assigned to design and supervise construction of three important bridge projects. All three were designed in response to the expansion of San Diego's urban infrastructure into outlying areas. From 1910 to World War I, San Diego experienced a tremendous amount of growth due to several factors. One was the announcement of the building of the Panama Canal. It was speculated that San Diego, with its large natural harbor, would become a major seaport. Second, local capitalist John D. Spreckels announced that he would finance the building of a short line railroad from the harbor to a connection with a transcontinental railroad line near Yuma, Arizona Territory. Guaranteed a direct link to eastern markets brought a wave of speculative growth along the harbor front. Likewise, the increase in investors and workers brought about an increase in speculative real estate development in San Diego's suburban communities. Soon, electric streetcar and automobile traffic led inexorably into the suburbs east of downtown San Diego.[12]

As mentioned previously, the Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls were designed to carry expanded electric streetcar and automobile traffic eastward into City Heights. The second was a reinforced concrete bridge to carry an extension of H Street over 24th Street. The third was another reinforced concrete bridge to carry an extension of Woolman Avenue over Chollas Creek. Both were located in the southeastern section of San Diego, and, like the Georgia Street Bridge, both featured reinforced concrete retaining walls to hold back earthen embankments.[13]

The bridges' unique design and construction highlighted Comly's expertise as a master civil engineer. For example, the H Street Bridge was an approximately 80-foot long reinforced concrete girder type roadway bridge across 28th Street. An important outlet from the Brooklyn Heights section south to San Diego Bay, 28th Street ran through a deep canyon. Its 20-foot depth would ordinarily have called for a high embankment on either side of the bridge's abutments and the approaches to the bridge. Like the University Avenue Grade Separation Cut, Comly solved the problem by designing a high reinforced concrete retaining walls under the bridge, with curved wing-walls extending out along the bottom of the roadway from the abutments. A series of narrow piers, extending 5 feet from the abutment's inner walls, supported the span over 28th Street. Concrete sidewalks between the piers and the abutments, and along the bridge's 40-foot wide roadway, allowed for pedestrian traffic.[14]

Crossing a broad dry wash, which turned into torrential flood waters during the rainy season, the Wollman Avenue Bridge's 50-foot closed-spandrel span affording safe passage over Chollas Creek. Like the H Street Bridge, Comly designed spreading wing walls to keep the embankments on either side of the abutments from washing out. Also, like the H Street and Georgia Street Bridges, the bridge featured an ornamental open-baluster paneled concrete rail. Viewed from below, the general architectural effect given by the bridges was that of massiveness and strength, set off by the ornamental balustrade along the railing.[15]

After the completion of all three bridge projects, Comly had to quit his position as Designing Engineer at the City of San Diego Engineering Department. In 1915, a lack of funds forced the City to vacate his position. Comly then became assistant engineer for the *Sweetwater Water Company* of San Diego. Two years later, he worked as a civil engineer for the *San Diego & Arizona Railway Company*. This was cut short by America's entry into World War I, when Comly immediately volunteered for duty in

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

the U. S. Army's Corps of Engineers. Commissioned a first lieutenant, he reached the rank of Captain and was responsible for organizing two companies and commanded three. While stationed at Fort Myer, Virginia, Captain Comly organized Company C of the 76th Engineer Battalion. Scheduled to go overseas to France, it never reached its destination due to the signing of the Armistice in 1918. Mustered out of the service, Comly returned to San Diego where he resumed his position with the railroad. Two years later, he returned to the City Engineering Department. Employed as a draftsman, senior draftsman, and later as a investigator for the City Planning Department, Comly was unable to reach the status of his former position as Designing Engineer. In 1925 he left the City for the last time and entered the private sector as a Civil Engineer.[16]

During his tenure as both a municipal and private civil engineer, Comly was involved in a number of important engineering and city planning projects. Among these was the design of a bridge on 6th Avenue over another deep canyon north of Ivy Lane [demolished]. An active member of "The San Diegans," a hospitality and recreation committee of the San Diego Chamber of Commerce, he drafted a plan for the conversion of parts of Balboa Park into recreational centers. Comly also made a comprehensive city plan that, with modifications, was later adopted by the City of San Diego. Sometime before his untimely death on October 6, 1931, Comly proposed a design for a reinforced concrete bridge that would replace a wooden viaduct known as the "Thirtieth Street Bridge" spanning Switzer Canyon in North Park. Although never built, the design of the four-span open-spandrel arched bridge was similar to his 1912 design for the Georgia Street Bridge.[17]

Reviewing Comly's short, yet productive career, has established his position as an innovative designer of reinforced concrete bridges in San Diego. It also places his work within the larger picture of contemporary reinforced bridge building in California and throughout the rest of the United States. By the time of Comly's 1912 designs for the Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls, reinforced concrete, except for extremely long spans, had superceded steel in bridge construction. While the initial cost of the former was greater, it was more than offset by reinforced concrete's longer life span and lower maintenance costs. According to local newspaper reports, the City of San Diego regarded the introduction of reinforced concrete bridges as representative of a modern and progressive city. Concrete also lent itself well to artistic treatment of a bridge and retaining wall's surface. This was an important factor of growing concern in American cities at this time. Tired of "ugly" utilitarian steel girder bridges, city planners now considered beauty and harmony as essential features of modern bridge design. This was best summarized by engineering professor J. A. L. Waddell, who, in the March 1918 issue of American City, stated that "a structure must be in harmony with its environment and not appear as an intrusion thereon. Waddell and others noted that the "main portion of the improvement in architectural effect in American bridge engineering which has taken place in the last decade has come through the extensive building of reinforced concrete structures." During the first two decades of the 20th century, many believed that bridges, as well as other public buildings and structures, should serve as monumental focal points in the urban landscape.[18]

Reinforced-concrete bridges and retaining walls were the product of technological and engineering innovations made during the late 19th century. Building engineers had first used reinforced concrete as a building material in Europe during the 1840s. Consisting of steel rods, embedded and bonded in poured and formed concrete, reinforced-concrete produced structures high in tensile as well as in compression strength. Introduced into the United States in the mid-1870s, reinforced concrete was first used in the construction of large residences, warehouses and sidewalks.[19] The first use of reinforced concrete in bridge design and construction also originated in Europe. Two styles developed during the mid-1880s--the "Melan System," concrete reinforced by

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

steel I-beams, or the "Monier System" of concrete poured over wire mesh. The first use of reinforced concrete in American bridge building was in the 1889 construction of the closed-arch Lake Alvord bridge in San Francisco's Golden Gate Park. Instead of either the Melan or the Monier systems, the bridge featured twisted reinforcement bars imbedded in the concrete. Developed by San Francisco engineer, Ernest L. Ransome, his innovative design pioneered the use of expansion joints, and concrete mixers for pouring concrete into pre-formed molds.[20] California bridge historian Stephen D. Mikesell acknowledges that, within the larger historical context of reinforced concrete bridges built in America, California's would become both typical and atypical. According to Mikesell, by 1900, most American bridge designers who came to work in California had completely diverged from following original European designs. The latter were wont to design thin and elegant bridges after the work of Robert Mailart, Eugene Freyssinet, and others. In America, however, reinforced concrete bridge design began to reflect the work of civil engineer George S. Morison, whose designs featured bulkier arches decorated with details borrowed from Neoclassical architecture.[21]

Morison's use of Neoclassical details was directly associated with design esthetics derived from the late 1890s/early 1900s Beaux-Arts Classicism of the American City Beautiful Movement. Introduced to this country at the 1893 Chicago World's Columbian Exhibition by a new generation of American architects trained at Paris' école Des Beaux-Arts, it exemplified the school's Neo-Baroque-like fascination with Roman Imperial, as well as Italian Renaissance architecture. In this country, the movement would merge with the concurrent Neoclassical and Renaissance Revival architectural movements. As an architectural and city planning style, the Beaux-Arts/City Beautiful Movement attempted to adorn American cities with monumental buildings, structures, and boulevards ending in broad vistas. In the case of the Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls, the Beaux Arts/City Beautiful Movement stressed that their form should fit into and enhance the fabric of a community. In a 1913 article in *The Architect and Engineer of California*, H. G. Tyrell argued that, like post offices or city halls, bridges should be treated and decorated as public monuments.[22]

The concept of the "City Beautiful bridge" had been promoted four years earlier by Charles Mulford Robinson. In his 1909 report, *The City Beautiful*, presented to the Los Angeles Municipal Art Commission, he criticized that city for erecting iron or steel truss bridges at every major river crossing. According to Robinson, these bridges were ". . . about as ugly as they can be." He called for their eventual replacement with ". . . handsome structures . . . ," which, according to Robinson, meant concrete bridges.[23]

While a few were designed by a number of well-known out of state engineers, the majority of California's reinforced concrete bridges were "home-grown," designed and built by Californians using local materials. Because of the high cost of steel on the west coast, and the ready availability of concrete from local sources, reinforced concrete construction was more feasible cost-wise than that of steel. Therefore, because of these and other factors, reinforced-concrete structures appear to be more numerous in California than in any other state. By the early 1900s, California's reinforced concrete bridges began to have a distinctively regional imprint on the landscape. Most were designed by engineers, who, like James R. Comly, were employed by state or local governments. Technically innovative, these bridge engineers would developed a comprehensive design aesthetic unique to the state.[24]

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

Comly's design solution for the Georgia Street Bridge was the use of a three-hinge, open-spandrel reinforced concrete arch.[25] Developed by Los Angeles bridge designer William Thomas, the "Thomas Three-Hinge Arch" of the "Thomas System" featured an arch with steel hinges at the crown and each abutment. Although the three-hinge system originated in Europe, Thomas innovated the use of arch rings precast in molds formed on the ground. The precursor of modern-day pre-cast structural members, the arches were then hoisted into place and fixed onto the hinges. Thomas designed dozens of such structures, chiefly in Southern California. While there are no available historical photographs of the Georgia Street Bridge under construction, it can be assumed that this is how it was done. While dozens of these types of bridges were constructed in California between 1911 and 1917, few have survived into modern times.[26]

The Georgia Street Bridge is what is generally referred to as a "deck arch" bridge, its roadway lying on top of its arch. First introduced in America by Fritz Von Emperger and Edwin Thacher in the 1890s, deck arches became extremely popular by the early 1900s. What makes Comly's design of the Georgia Street Bridge's unique that its roadbed lies on an open spandrel arch. Typically, most reinforced concrete bridges less than 100 feet were of the closed-spandrel arch. Introduced to California by Ransome in his design of the Lake Alvord bridge, a closed-spandrel arch bridge consisted of a roadway resting on a solid barrel form arch, with vertical side, or "spandrel" walls, filled in with material found on-site.[27] Open-spandrel arch bridges, on the other hand, differed radically in both appearance and in the way in which they carried their deck over. In order to reduce the weight of the span, the area between the deck and the main arch was opened up by a series of struts or supports. The "open-spandrel" design allowed for a considerable saving in the amount of concrete placed between the arch proper and the deck above. In addition to the open spandrel area, the design of the main arch itself resulted in a substantial weight loss. Instead of having a solid barrel arch, the bridge's arch consisted of a series of parallel arch rings, or "ribs," that functioned as separate arches. Horizontal struts placed in-between the ribs added lateral stability.[28]

Considered the most aesthetically pleasing of all reinforced concrete bridges, the open-spandrel arch bridge was first introduced in California with 1910 completion of the Buena Vista Viaduct in Los Angeles. One of its most daring designs was Pasadena's 153-foot-long Colorado Street Bridge. Completed in 1913, the curving of its span, in order to take advantage of a more solid footing, resembles the Roman aqueduct at Segovia, Spain.[29] Constructed one year after the Colorado Street Bridge, the Georgia Street Bridge is one of a large number of such bridges built in California before World War I. Although supplanted by precast concrete bridge construction, after the war several notable open-spandrel-arch bridges were still built. These include the 1918 Arroyo Hondo bridge near Gaviota, several over the Los Angels River built between 1926 and 1931, and the 1926 Bonsall Bridge in north San Diego County. The type reached its highest technological and aesthetic expression in the 1936 design of the Bixby Creek Arch in Monterey County's Big Sur region.[30]

The overall design of the Georgia Street Bridge follows closely the principles of the Beaux Arts/American City Beautiful Movement. Its graceful, yet massive arch acts as a monumental gateway straddling the University Avenue Grade Separation Cut. The view from either of the bridge's cantilevered balustrades offer sweeping vistas in the best tradition of Renaissance Revival and neo-Baroque city planning. For example, an approximately 4-foot tall open-arched concrete railing ran along the bridge's cantilevered sidewalks and along the twin retaining walls entire upper length. In addition, the retaining walls' dull concrete surfaces was broken up by blind arcades composed of semi-circular arches, modeled after the bridge's open-spandrel arches, set between tall engaged pilasters resembling stretched modified Doric capitals.[31]

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

Structurally, the Georgia Street Bridge and the adjacent retaining walls represented innovative civil engineering techniques. In order to secure the ends of the bridge's three 66-foot long arch rings, they were attached by hinges to six triangular-shaped reinforced-concrete abutments. Each abutment was countersunk and back-filled into the earthen embankment on either side of the bridge. The upper deck of the bridge was firmly secured to the ridge along the grade separation cut by four T-shaped reinforced-concrete strutted anchor rods and six rectangular abutments. Rising some 20 feet above the roadway at their crowns, the extrados of each arch ring supported ten vertical rectangular columns. These in turn, linked by curving spandrel arches, supported the bridge's 69-foot long, reinforced concrete deck. Above the deck was laid an approximately 22-inch thick by 26-foot wide roadway. Similar to the Colorado Street Bridge, on either side of the two-lane roadway were 5-foot wide cantilevered pedestrian sidewalks, protected by 4-foot tall modified baluster bridge railings. Divided into 11 sections, each section was divided by a modified Doric-capped concrete post.[32]

The completion of the Georgia Street Bridge/University Avenue Grade Separation Cut allowed for a much greater flow of both automobile and electric streetcar traffic along University Avenue. This was represented by a program of intensive laying of new tracks and the realignment of old streetcar lines at the intersection of University Avenue and Park Boulevard. In 1916, the SDERy laid double tracks along University Avenue from Normal Avenue to Park Boulevard, and north from University Avenue along Park Boulevard to El Cajon Boulevard, where they connected to an already existing line to Adams Avenue. The following year, the company extended a new set of double tracks from the eastern terminus of Laurel Street in Balboa Park north to University Avenue. Northbound streetcars could now turn eastward through the University Avenue Grade Separation Cut and under the Georgia Street Bridge to 30th Street in North Park. With the addition of the new track, the shuttle service between University Heights and East San Diego was discontinued. Riders could now travel directly to downtown San Diego, through the University Avenue Grade Separation Cut, to downtown San Diego without having to transfer streetcars. They could also catch connecting trolleys to other nearby streetcar communities to the west and northeast.[33]

As a result of high amount of trolley service passing though the area, by the 1920's the intersection of Park Boulevard and University Avenue became an important and busy trolley transfer point. Taking advantage of the situation were a number of real estate developers and entrepreneurs who transformed the area around the intersection into a viable commercial hub. Between 1922 and 1930, at least 10 mixed-use commercial and residential buildings were built within a two-block area along Park Avenue, between University and Robinson avenues.[34]

It wasn't trolley traffic alone that influenced the area's growth. The buildings also represent the development of the area as a major automobile thoroughfare. Park Boulevard (originally named "Midland Drive") had been installed through Balboa Park north from downtown San Diego prior to the opening of the 1915 California-Panama Exposition. The new road helped to facilitate access to the Exposition's attractions from the eastern terminus of today's Laurel Street. By 1920, the road extended northward to University Avenue. Here it continued north on either side of the trolley tracks to El Cajon Boulevard. Besides providing access to Mission Valley and the inland highway to San Bernardino, El Cajon Boulevard played an important role in the development of San Diego's interstate highway system.[35]

The early 1920s had seen the transference of mass production techniques learned during World War I into the production of cheap, mass-produced consumer goods. Among these were vast numbers of relatively inexpensive automobiles, which became

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

available to the general public. A healthy post-war economy also contributed to raising the standards of living of the American middle class, which now found itself with more leisure time. Capitalizing on this, articles written by the Automobile Club of Southern California and the Los Angeles and San Diego Chambers of Commerce extolled the Southern California's balmy Mediterranean climate, beaches, and historic attractions.[36]

Between 1923 and 1926, the final link of a transcontinental highway between Savannah, Georgia and San Diego was completed. Joined by two other major highway routes from New York and St. Augustine, respectively, the *Lee Highway* provided an all-weather southern route to San Diego and the rest of Southern California. This, and the paving of the Coast Highway from Los Angeles to San Diego, plus the development of Tijuana as a tourist Mecca in Prohibition-era California, accelerated San Diego's role as an automobile-oriented recreation center in the 1920s. Motorists travelling the final link of Highway 80 (as it was named in 1926) along El Cajon Boulevard, could choose between continuing west along Washington Street down the grade to Pacific Highway or south along Park Boulevard. Thus, Park Boulevard became a major junction in the southern route of the first all-weather transcontinental highway to San Diego, offering direct access to downtown San Diego through the heart of Balboa Park. Likewise, the roadway along the University Avenue Grade Separation Cut became an important gateway for automobile traffic traveling east and west along University Avenue.[37]

The roadway along the University Avenue Grade Separation Cut remained an important electric streetcar and automobile thoroughfare for the next 23 years. It lost its importance as a streetcar thoroughfare on April 24, 1949. On that day the SDERy ceased operations in San Diego. Many of the former streetcar routes, like those along Park Boulevard and University Avenue, were taken over by bus lines of the new *San Diego Transit System*.[38] However, even though Highway 80 no longer travels along El Cajon Boulevard [supplanted by a new interstate freeway through Mission Valley during the 1950s], University Avenue still serves as an important automobile corridor linking the communities of Uptown, Mid-City and East San Diego.[39]

With the lessening of the importance of the University Avenue Grade Separation Cut, it, and the Georgia Street Bridge overhead, fell into a state of disrepair. Two year prior to the abandonment of the streetcar line, the City of San Diego had done some cosmetic repairs to their timeworn exterior surfaces. Corroded exposed steel rebars were replaced along with the filling in of chipped cement abutments. The whole structure was then re-surfaced in concrete [It is not know if it was during this time that the bridge and retaining walls' open-arch railings were filled in].[40] Subsequent coatings of gunite merely serve to camouflage serious repair problems. Discussions are currently underway by state and local officials that will decide the 84-year-old landmark's future [the bridge was declared a local historic landmark by the San Diego Historical Site Board in 1994]. While the bridge and walls along the grade separation cut are reportedly not in any imminent danger of collapse, their present rate of deterioration necessitates a plan for their replacement or retrofitting to meet current seismic standards.[41] Regardless, the Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls still retain a large part of their historical integrity and still serves as a monumental and artistic gateway to the communities east and west of the historic University Avenue Grade Separation Cut.

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

Evaluation Of The Structures' Historic Integrity
Despite the filling in of the railings, the coatings of gunite, and the definite need of replacing rusted rebar and spalling concrete, the Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls have kept all seven aspects of their historic integrity. They convey this significance by their location, setting and feeling, giving an understanding of why they were built in the first place 84 years ago. The bridge and the retaining walls reinforced concrete construction also convey the historic materials that went into their construction and the workmanship of San Diego's early concrete masons. Finally, the bridge's ribbed arch design, as well as the blind arcade along the flanking retaining walls, combine to create a form, plan, and unique structure reflecting a local example of early 20th century American reinforced concrete bridge design and construction.

National Register Criteria Considerations
The Georgia Street Bridge and the University Heights Grade Separation Cut Retaining Walls are eligible for designation to the National Register according to the following criteria:

1. A **Association With Events That Have Made A Significant Contribution To The Broad Patterns Of Our History**
Completed in 1914, the Georgia Street Bridge and the adjoining retaining walls lining the University Avenue Grade Separation Cut are among the most visible and important manifestations of early 20th century civil engineering projects in San Diego's urban environment. The Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls are directly associated with the expansion of San Diego's early streetcar and automobile highway systems. Built in response to the need for improved electric railway and automobile traffic through the University Avenue Grade Separation Cut, the new and wider roadway was directly responsible for the growth of at least nine residential districts in San Diego's northeastern "streetcar suburbs" prior to World War I. The bridge and the deep roadway that it spans also represent an emerging public works foundation that supported American transportation networks during the early part of the twentieth century.

2. C **Design/Construction**
The Georgia Street Bridge and the University Avenue Grade Separation Cut Retaining Walls embody the distinctive characteristics of a particular type, period, and method of American bridge design and construction. Together, they are a unique design solution to a difficult local engineering and transportation planning problem. Designed by local civil engineer James R. Comly, the graceful design of the reinforced concrete bridge and retaining walls reflect the growing statewide and national trend toward the material's use for its strength, durability, and aesthetic design possibilities. Comly, like other innovative American civil engineers at the time, regarded reinforced concrete as an extraordinarily versatile building material that could be used for utilitarian, ornamental and monumental purposes. Both the bridge's graceful open spandrel arches and the tall, blind-arcade retaining walls, exhibit the innovative use of reinforced concrete in their construction. In addition, they possess high artistic value as local architectural engineer James R. Comly's interpretation of the Beaux-Arts/City Beautiful Movement's penchant for monumental civic architecture.

3. D **Information Potential**
The Georgia Street Bridge is a rare local variation on a state and nationwide standard for the design and construction of a reinforced concrete open-spandrel arch bridge. Its associative retaining walls, with their massive anchor abutments

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

and anchors, contribute to the study of a unique design solution for the containment of the University Avenue Grade Separation Cut and the availability materials and the expertise of early 20th century civil engineers like James R. Comly.

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

Endnotes

[1] Donald C. Jackson, Great American Bridges and Dams (Washington, D. C.: National Trust for Historic Preservation, 1988), 11.

[2] Dodge, Richard V., Rails of the Silvergate: the Spreckels San Diego Empire (San Marino: Golden West Books, 1960), 43; and "San Diego County History," This Week in San Diego (September 25-October 3, 1958): n.p. On file at San Diego Public Library—California Room, vertical file: University Heights—San Diego (City).

[3] Dodge, 42-43.

[4] Ibid., 20-21.

[5] Ibid., 43.

[6] Ibid.; and "San Diego County History," n.p.

[7] Clarence McGrew, The City of San Diego and San Diego County: the Birthplace of California, vol. 1 of 2 (Chicago: The American Historical Society, 1922), 396; Richard F. Pourade, The Rising Tide: Southern California in the Twenties and Thirties (San Diego: The Union-Tribune Publishing Company, 1967), 66; and Union Title Insurance and Trust Company, Catalog of Recorded Plats in San Diego County (Author: San Diego, 1948), 7, 9, 12, 42 and 45.

[8] Dodge, 131 and 143. By 1912, the tracks along University Avenue between 30th Street in North Park and Fairmont Avenue had already been doubled.

[9] I. E. Quastler, "Transportation in San Diego County," in San Diego: An Introduction to the Region, Philip R. Pryde, ed. (Dubuque: Kendall/Hunt Publishing Company, 1984), 180.

[10] "Plans Prepared for City Bridges; Topography is Feature of Beauty," San Diego Union, 4 January 1914, 8; and City of San Diego, Engineering Department, "Concrete Walls & Rails for University Avenue," document no. D5220-1 [microfilm], December 1912.

[11] "James R. Comly Dies Suddenly at Rowing Club," San Diego Union, 7 October 1931, II1; and "Plans Prepared for City Bridges . . . , 8.

[12] Raymond Starr, San Diego, a Pictorial History (Norfolk, Virginia: The Donning Company, 1986), 115-118.

[13] "Plans Prepared for City Bridges . . . ," 8.

[14] Ibid.

[15] Ibid.

[16] "James R. Comly Dies Suddenly at Rowing Club," II1.

[17] SDHS photograph collection: photograph #6969, "Suggested Design of the 30th St. Bridge by J. R. Comly, Civil Engineer," ca. 1931.

[18] "Plans Prepared for City Bridges . . . ," 8; Stephen D. Mikesell, Historic Highway Bridges of California (California Department of Transportation: Sacramento, 1990), 86; and J. A. L. Waddell, "Esthetics in Bridge Design," American City [Town & Country Edition] 18 (March 1918), 209.

[19] Mikesell, 71; and Jackson, 35.

[20] Mikesell, 71 and 72.

[21] Ibid., 71.

NARRATIVE STATEMENT of SIGNIFICANCE (continued)

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[22] Ibid., 71 and 86; David Gebhard and Robert Winter, A Guide to Architecture in Los Angeles and Southern California (Santa Barbara: Peregrine Smith, Inc., 1977), 694; and same authors, Architecture in Los Angeles: a Compleat [sic] Guide (Layton, Utah: Gibbs M. Smith, Inc. Peregrine Smith Books, 1985), 478.

[23] Mikesell, 76.

[24] Ibid.

[25] City of San Diego, Engineering Department, "Reinforced Concrete Bridge to Carry Georgia Street over University Avenue," document no. D5220 [microfilm], December 1912.

[26] Mikesell, 72 and 79; and California Department of Transportation, Arch Bridge Rating Sheet for Bridge No. 57C-418 [Georgia Street/University Avenue Separation], Sacramento, 8 May 1986, n.p.; and Mikesell, 104.

[27] Jackson, 36; and Mikesell, 76-78.

[28] Jackson, 36-37; and Mikesell, 78

[29] Jackson, 274-275; Mikesell, 86; Gebhard and Winter, Architecture in Los Angeles & Southern California, 322; and "Pasadena's Beautiful Bridge," Scientific American 109 (December 6, 1913): 423.

[30] Jackson, 264; Mikesell, 71, 92 and 98; and Bob White and Art Halloran, North County People and Places (Fallbrook, California: Aero Publishers, 1996), 26.

[31] "Concrete Walls & Rails for University Avenue," December 1912; Arch Bridge Rating Sheet for Bridge No. 57C-418, n.p.; SDHS photograph collection: Photograph #1651, "University Avenue from Georgia Street Bridge," 1928; Photograph #6852-2, "University Avenue and Park Boulevard—Looking Northeast," ca. 1927; Photograph #20254-113, "University Avenue East From Georgia Street, 1923; Photograph #6852, "North Park, University Avenue, Looking East under Georgia Street Bridge," 1929; Photograph #20254-127A, "Looking East from Viaduct Crossing University Avenue at Georgia Street," ca. 1927; and Photograph #Sensor 8-133, "Looking Northwest on University at Park Boulevard [from Georgia Street Bridge]," ca. 1930.

[32] "Pasadena's Beautiful Bridge," 423; Arch Bridge Rating Sheet for Bridge No. 57C-418, n.p.; "Reinforced Concrete Bridge to Carry Georgia Street over University Avenue;" and California Department of Transportation, Bridge Report of Bridge No. 57C-418 [Georgia Street/ University Avenue Separation], revised (Sacramento, 27 June 1990), 76.

[33] Dodge, 65, 133, and 141.

[34] Alexander D. Bevil, Historic Survey of the Bush Egyptian Theatre (11 May 1998): 10. Report on file at the Environmental Analysis Section of the City of San Diego's Office of Development Services.

[35] Ibid.

[36] Ibid., 12.

[37] Ibid.

[38] Dodge, 111 and 133.

[39] Quastler, 182.

[40] "Street Overpass Being Repaired," San Diego Union, 13 May 1947, 1.

[41] City of San Diego, Office of the City Clerk, Resolution No. R-9409281. Designation of Georgia Street Bridge as San Diego Historic Landmark No. 325, 28 September 1994; and Ed Jahn, "Landmark Span's Backers Rally," San Diego Union, 30 May 1998, B1.

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"Pasadena's Beautiful Bridge." Scientific American 109 (December 6, 1913): 423.

Waddell, J. A. L. "Esthetics in Bridge Design." American City [Town & Country Edition] 18 (March 1918, 201

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Newspaper Articles

"James R. Comly Dies Suddenly at Rowing Club." San Diego Union, 7 October 1931, II1.

Jahn, Ed. "Landmark Span's Backers Rally." San Diego Union, 30 May 1998, B1.

"Plans Prepared for City Bridges; Topography is Feature of Beauty." San Diego Union, 4 January 1914, 8.

"Street Overpass Being Repaired." San Diego Union, 13 May 1947, 1.

Other Sources

Bevil, Alexander D. Historic Survey of the Bush Egyptian Theatre (11 May 1998): 10. Report on File at the Environmental Analysis Section of the City of San Diego's Office of Development Services.

California Department of Transportation. Arch Bridge Rating Sheet for Bridge No. 57C-418 [Georgia Street/University Avenue Separation], Sacramento, 8 May 1986, n.p.

_______. Bridge Report of Bridge No. 57C-418 [Georgia Street/ University Avenue Separation], revised (Sacramento, 27 June 1990.

City of San Diego. Office of the City Clerk. Resolution No. R-9409281. Designation of Georgia Street Bridge as San Diego Historic Landmark No. 325, 28 September 1994.

_______. Engineering Department. "Concrete Walls & Rails for University Avenue." Document No. D5220-1 [Microfilm], December 1912.

_______. "Reinforced Concrete Bridge to Carry Georgia Street over University Avenue." Document No. D5220 [Microfilm], December 1912.

Pense Alan W., and Roger G. Slutter, Engineering Materials. Vol. 9. Colliers Encyclopedia CD-ROM, 02-28-1996. Obtained from Electronic Library, http://3.elibrary.com.

"San Diego County History." This Week in San Diego (September 25-October 3, 1958): n.p. On File at San Diego Public Library—California Room, Vertical File: University Heights—San Diego (City).

San Diego Historical Society—Photograph Collection
Photograph #6852. "North Park, University Avenue, Looking East under Georgia Street Bridge," 1929.
Photograph #6852-2. "University Avenue and Park Boulevard-- Looking Northeast," ca. 1927.
Photograph #6969. "Suggested Design of the 30th St. Bridge by J. R. Comly, Civil Engineer," ca. 1931.

National Register of Historic Places Continuation Sheet

Major Bibliographic References (continued)

Photograph #20254-113. "University Avenue East From Georgia Street, 1923.
Photograph #20254-127A. "Looking East from Viaduct Crossing University Avenue at Georgia Street," ca. 1927.
Photograph #Sensor 8-133. "Looking Northwest on University at Park Boulevard [from Georgia Street Bridge]," ca. 1930.

Union Title Insurance and Trust Company, Catalog of Recorded Plats in San Diego County. Author: San Diego, 1948.

BOUNDARY DESCRIPTION

The nominated property's northern boundary follows the reinforced concrete retaining wall beginning at a point near the northeast corner of Park Boulevard and University Avenue and traveling eastward some 680 feet along the north side of University Avenue to a point terminating near the northwest corner of University Avenue and Florida Street. nominated property's southern boundary follows the opposite reinforced concrete retaining wall beginning at a point near the southeast corner of Park Boulevard and University Avenue and traveling eastward some 680 feet along the south side of University Avenue to a point terminating near the southwest corner of University Avenue and Florida Street. Included in the north and south boundaries are the north and south openings of the Georgia Street Bridge's north/south-oriented span. The nominated property's western boundary runs approximately 80 feet due south from the northwestern most terminus of the north retaining wall to the southwestern most terminus of the south retaining wall near the intersection of University Avenue and Park Boulevard. The nominated property's eastern boundary runs approximately 80 feet due south from the northeastern most terminus of the north retaining wall to the southeastern most terminus of the south retaining wall near the intersection of University Avenue and Florida Street.

BOUNDARY JUSTIFICATION

The nominated property's boundary is limited to the length of the retaining walls facing the north and south sides of the University Avenue Grade Separation Cut [including the north and south openings of the Georgia Street Bridge's north/south-oriented span] and its respective eastern and western termini at Florida Street and Park Boulevard.

NAMES AND MAILING ADDRESS OF THE FEE SIMPLE OWNER OF THE PROPERTY

City of San Diego
Office of the City Clerk
202 C Street
San Diego, CA 92117

(8-86)
NPS form 1024-0018

OMB Approval No. 1024-0018

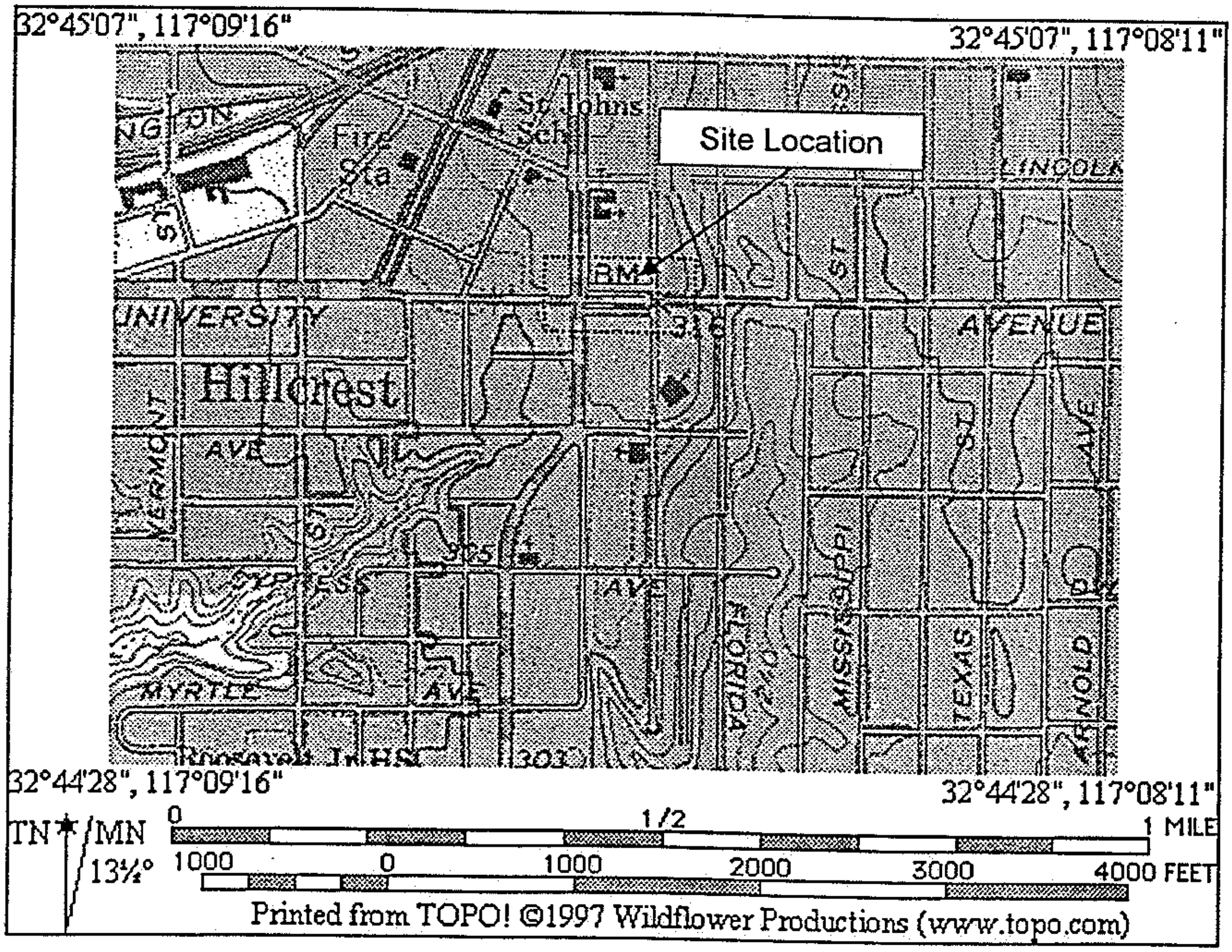
United States Department of the Interior
National Park Service

National Register of Historic Places Continuation Sheet

Section number Additional Documentation Page 1

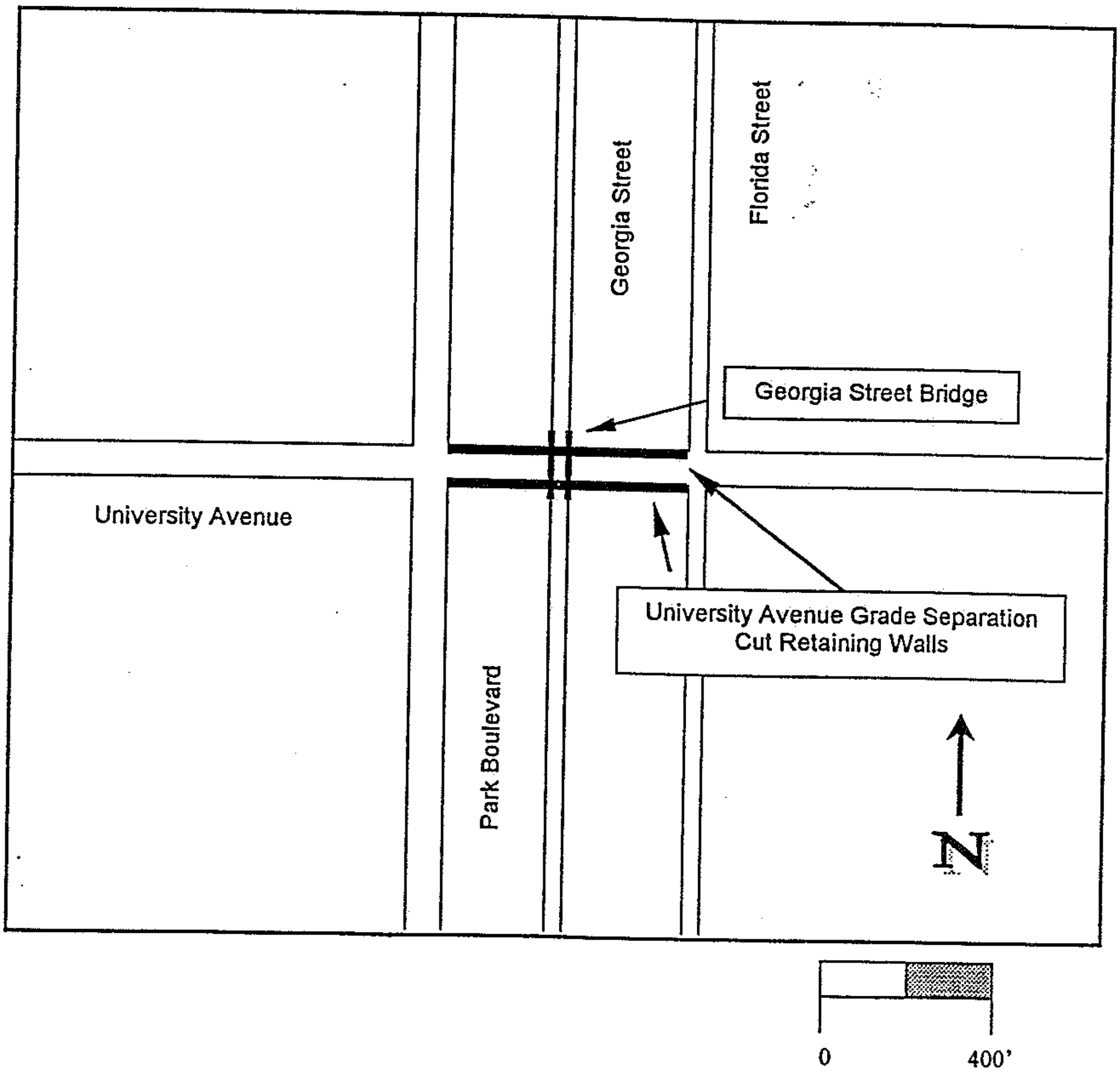
Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA

SKETCH MAP 1

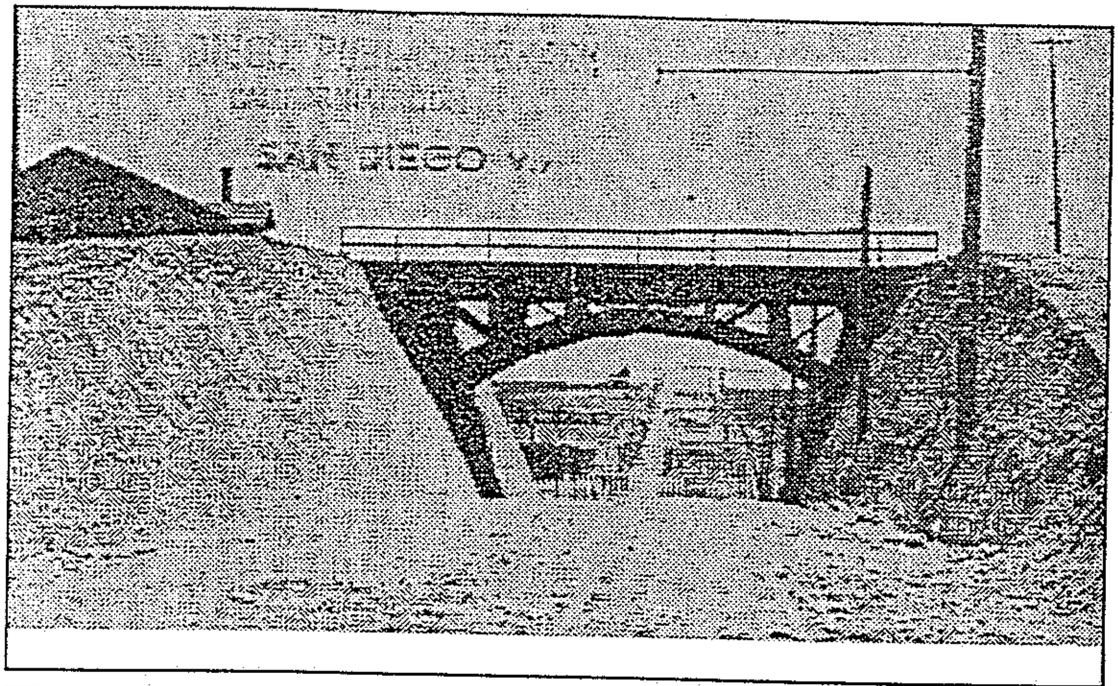


Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA

SKETCH MAP 2

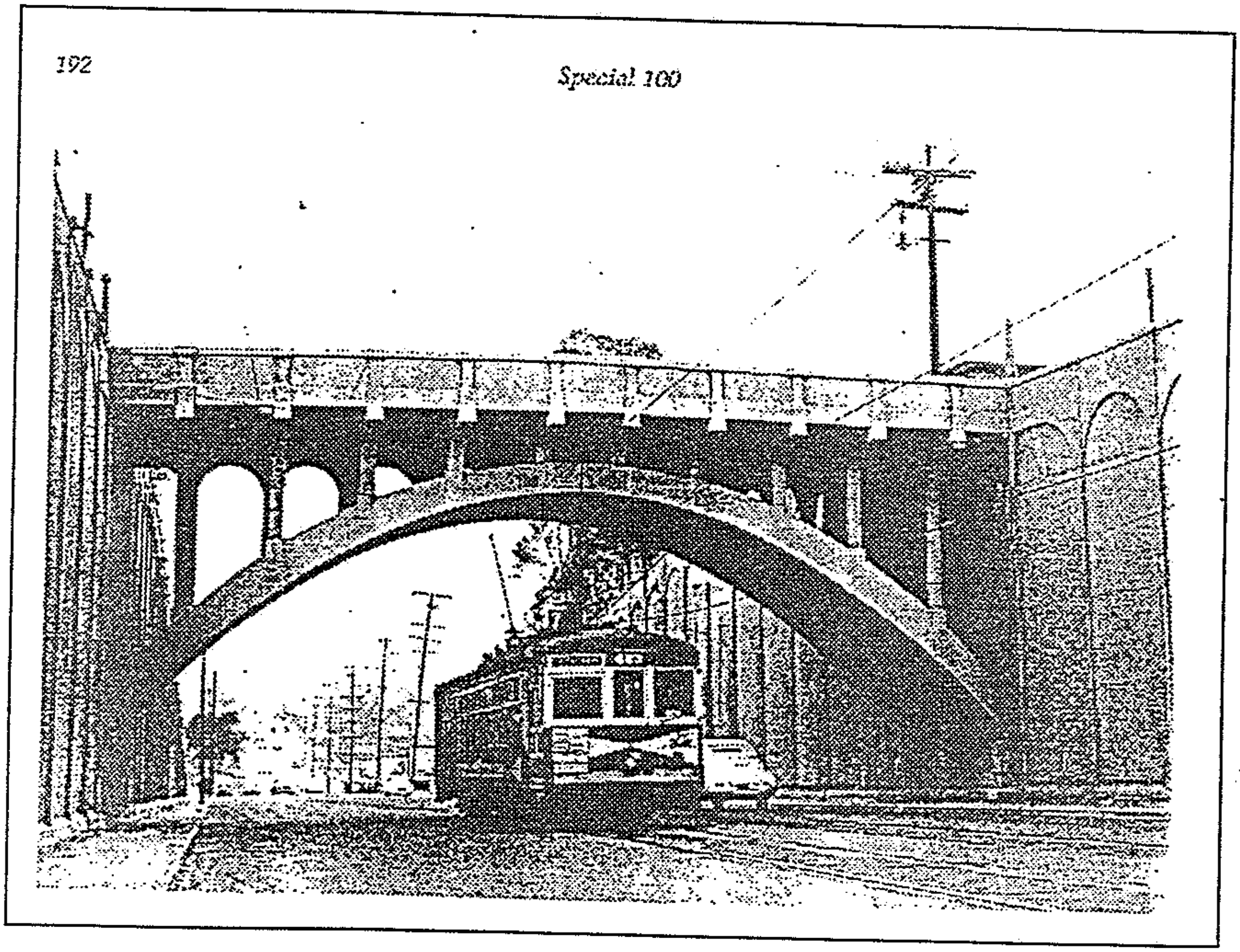


HISTORIC PHOTOGRAPHS



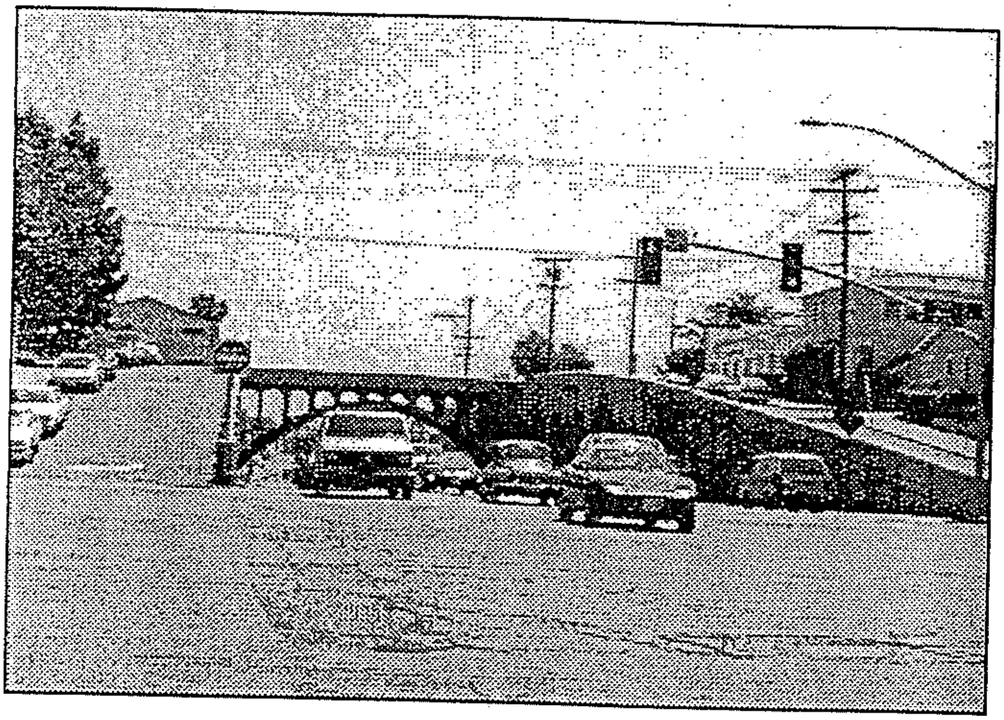
Historic Photograph of Original Wooden Arch Georgia Street Bridge and University Avenue Grade Separation Cut with Trolley Tracks
Photograph Taken ca. 1907
View of Western Approach Looking East along University Avenue toward North Park and East San Diego.
Source: "San Diego County History," This Week in San Diego (September 25-October 3, 1958): n.p. On file at San Diego Public Library—California Room, vertical file: University Heights—San Diego (City).

HISTORIC PHOTOGRAPHS (Continued)



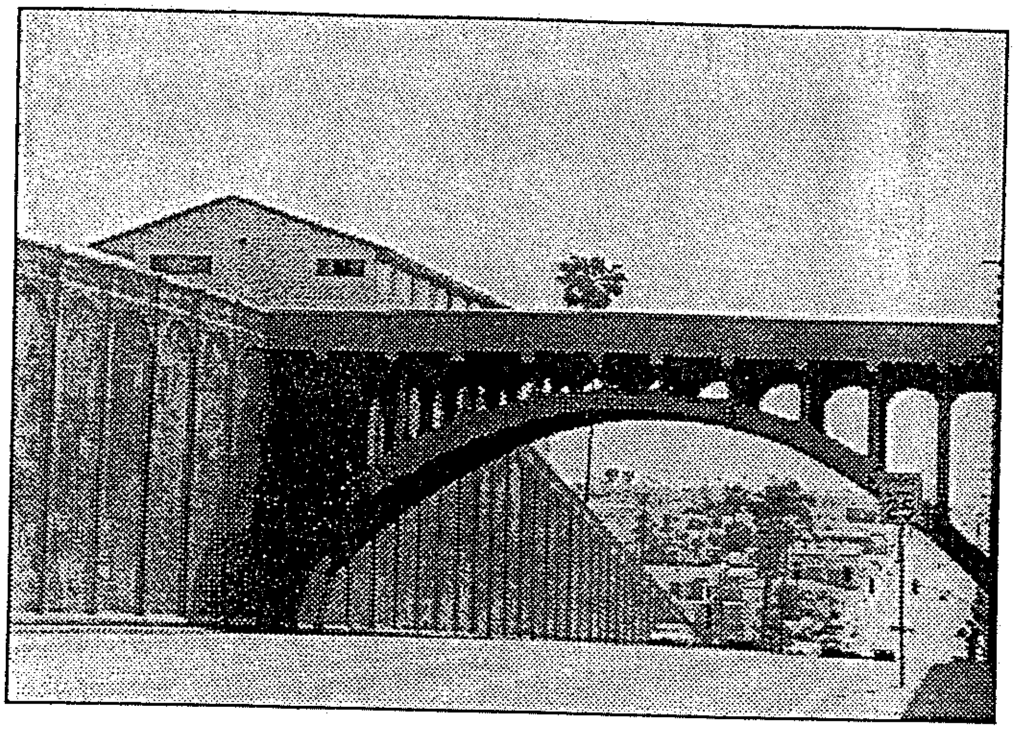
Historic Photograph of SDERy Trolley No. 423 Heading West from under Georgia Street Bridge Showing Position of Double Trolley Tracks
Photograph Taken ca. 1948
View of Western Approach to Bridge Looking East along University Avenue toward North Park and East San Diego.
Source: Harre W. Demoro, Interurbans Special 100: California's Electric Railways (Glendale, California: Interurban Press, 1986), 192.

CURRENT PHOTOGRAPHS



Photograph #1
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative in Possession of Photographer
View of Western Approach to Grade Separation Cut, Looking East along University Avenue from Intersection of University Avenue and Park Boulevard

CURRENT PHOTOGRAPHS (Continued)

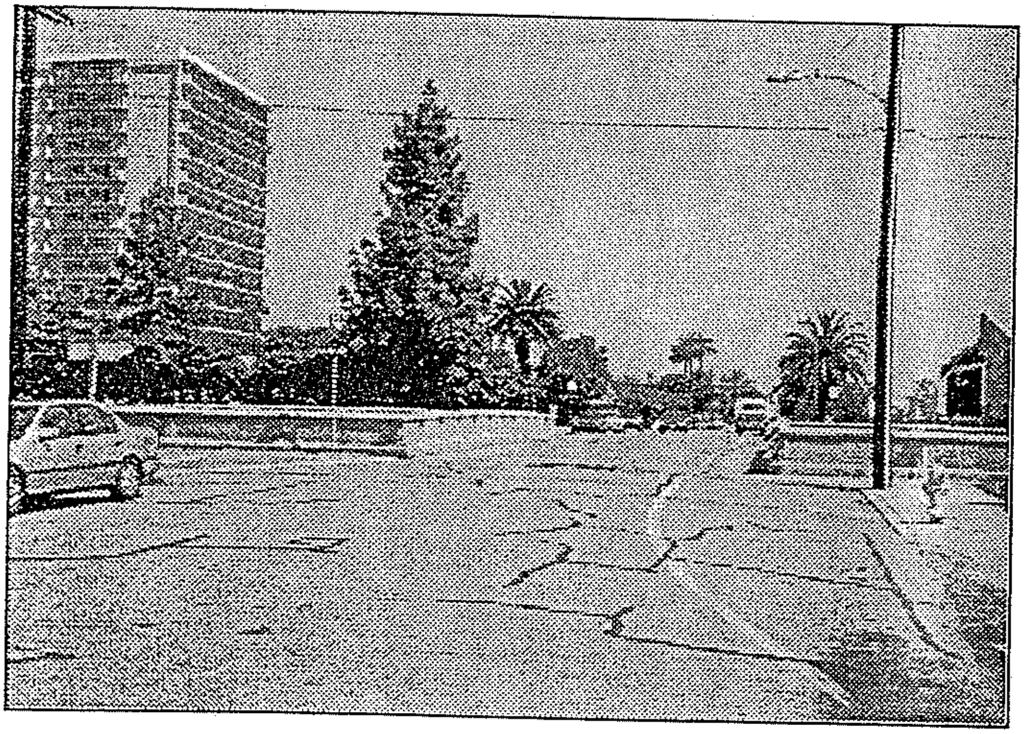


Photograph #2
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative in Possession of Photographer
Close-up View of Western Approach to Bridge, Looking East along University Avenue toward North Park and East San Diego

National Register of Historic Places Continuation Sheet

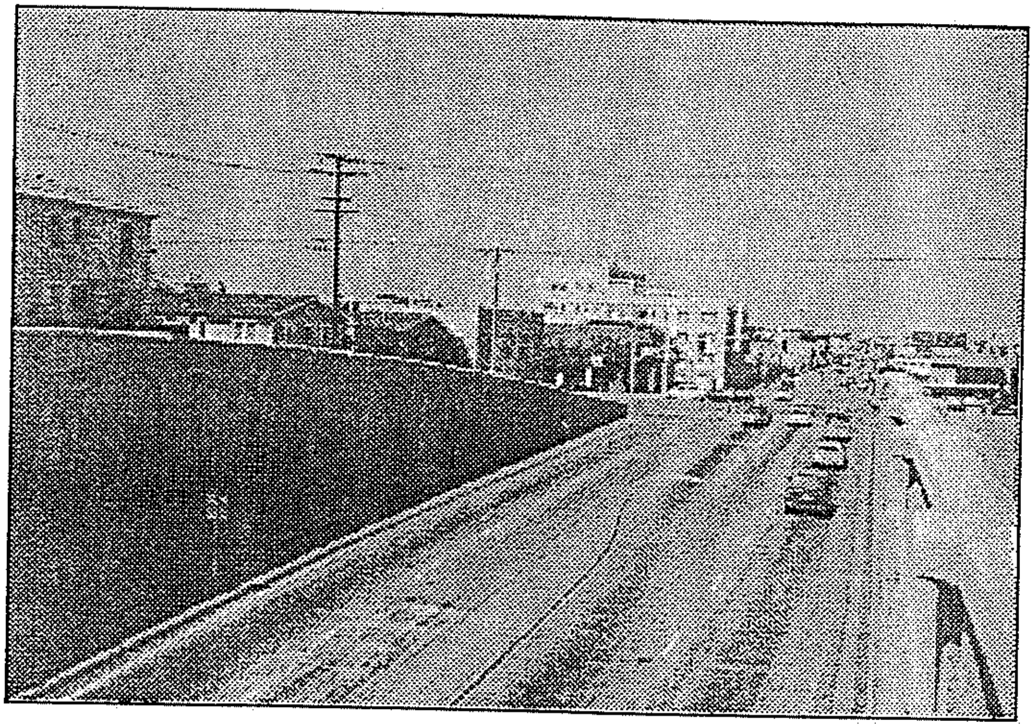
Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA

CURRENT PHOTOGRAPHS (Continued)



Photograph #3
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative in Possession of Photographer
View of Southern Approach to Bridge Deck, Looking North along Georgia Street toward University Heights

CURRENT PHOTOGRAPHS (Continued)

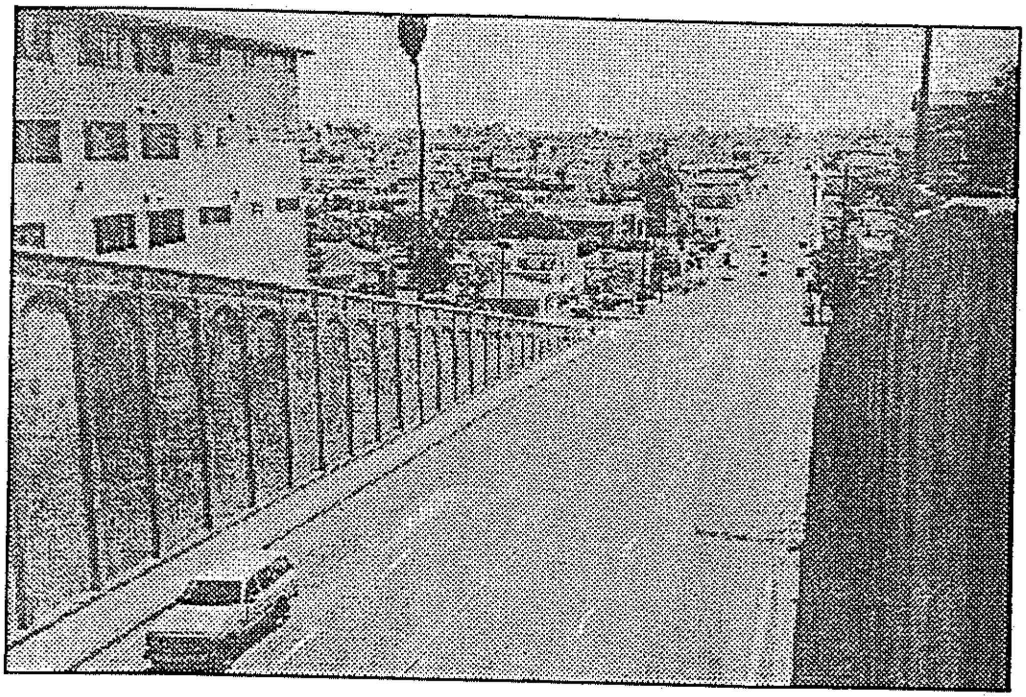


Photograph #4
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative in Possession of Photographer
View of Western Approach to Bridge, Looking West from the Bridge's Deck toward Intersection of Park Boulevard and University Avenue

National Register of Historic Places Continuation Sheet

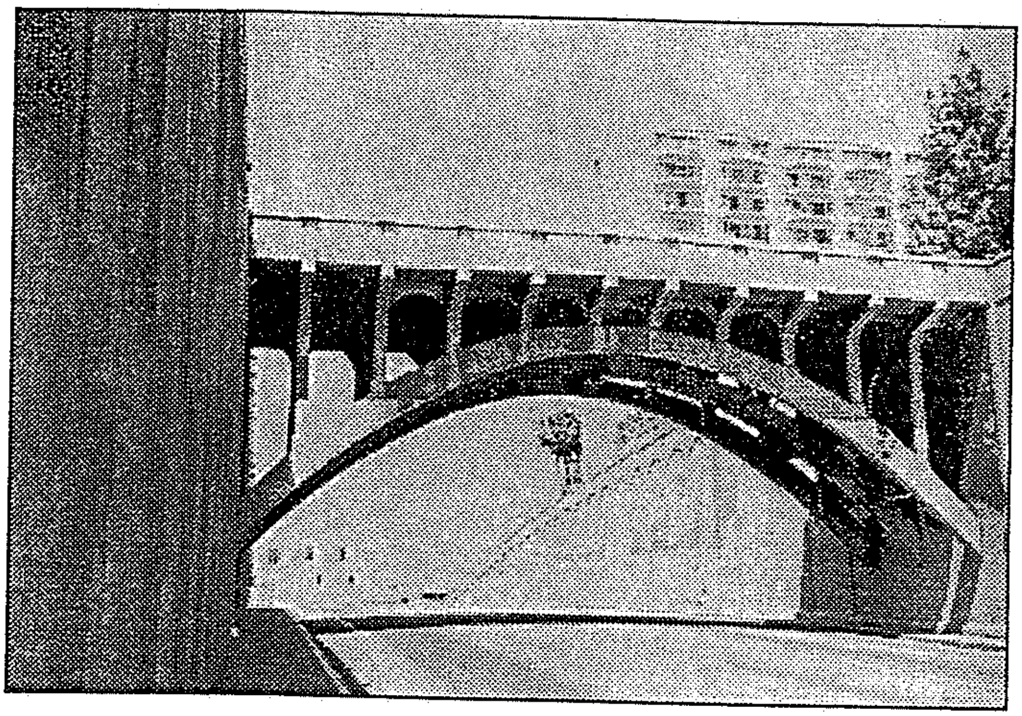
Georgia Street Bridge and University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA

CURRENT PHOTOGRAPHS (Continued)



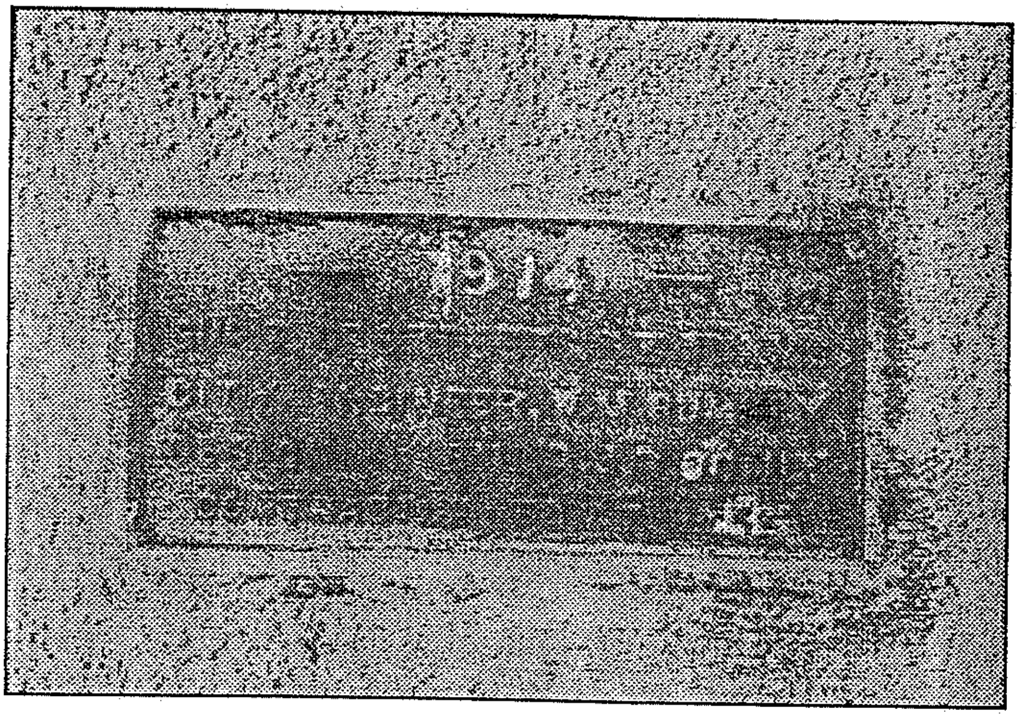
Photograph #5
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative in Possession of Photographer
View of Eastern Approach to Bridge, Looking East from the Bridge's Deck toward the Intersection of University Avenue and Florida Street

CURRENT PHOTOGRAPHS (Continued)



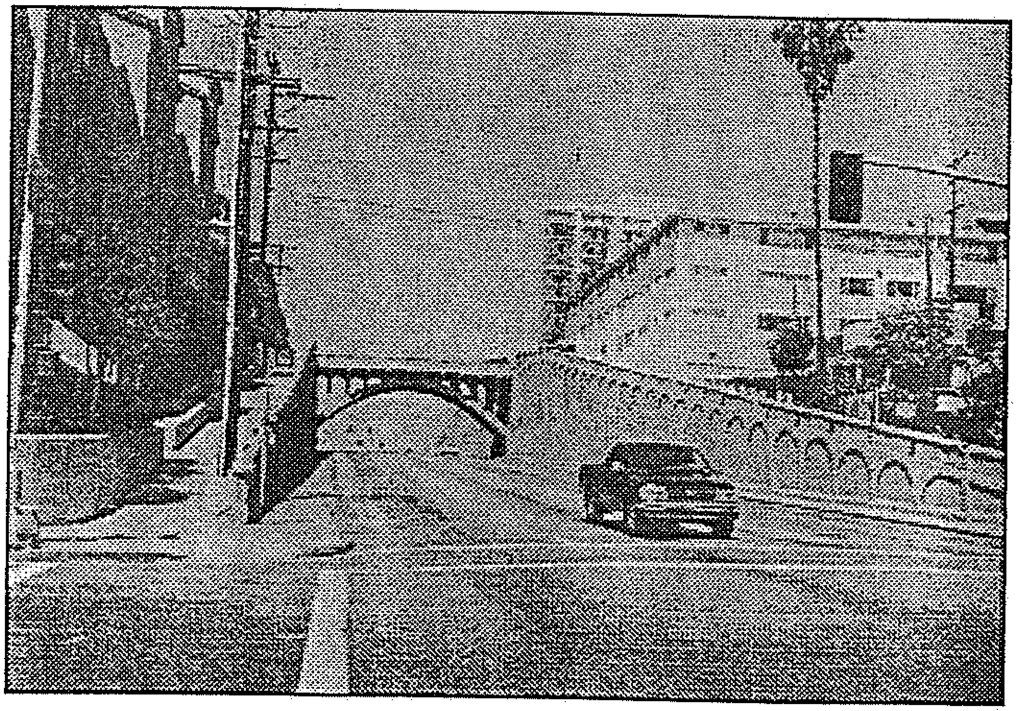
Photograph #6
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative in Possession of Photographer
Close-up View of Eastern Approach to Bridge, Looking West toward the Intersection of University Avenue and Park Boulevard

CURRENT PHOTOGRAPHS (Continued)



Photograph #7
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative in Possession of Photographer
View of Historic Plaque Commemorating Bridge and Retaining Wall's Completion in 1914, Looking South from under Bridge's Southeast Arch/Retaining Wall Junction

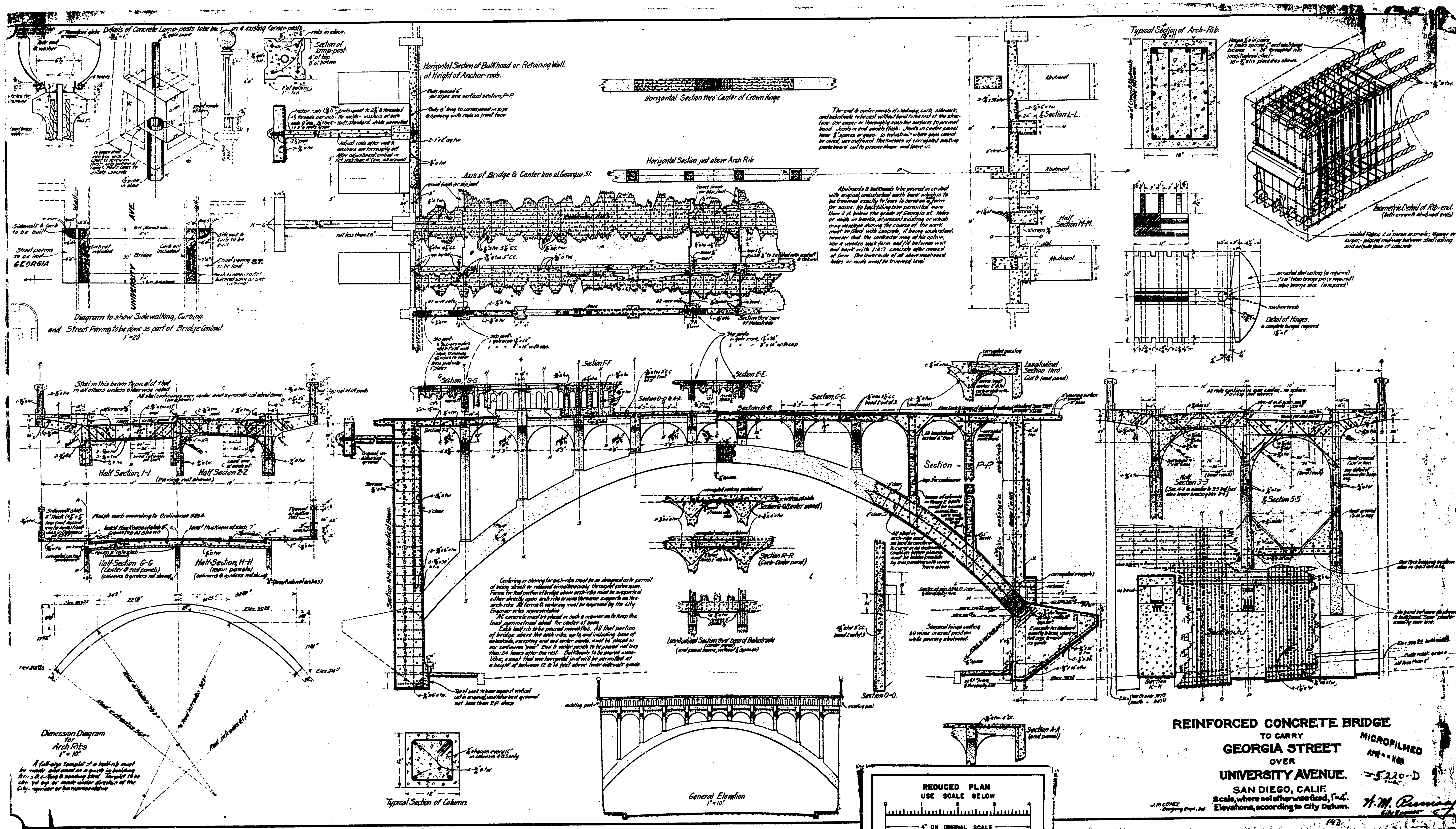
CURRENT PHOTOGRAPHS (Continued)



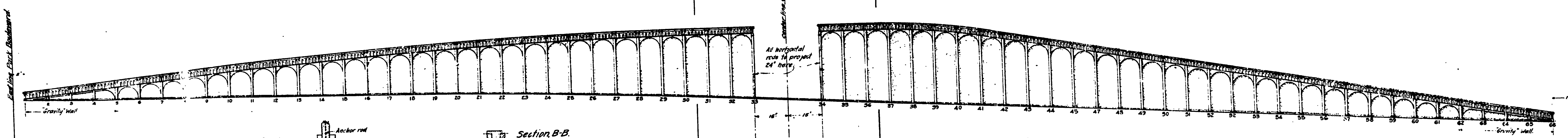
Photograph #8
Georgia Street Bridge/University Avenue Grade Separation Cut Retaining Walls
San Diego County, CA
Photograph Taken by Alex D. Bevil
May 1998
Original Negative Located in Possession of Photographer
View of Eastern Approach to Grade Separation Cut, Looking West from Intersection of University Avenue and Florida Street

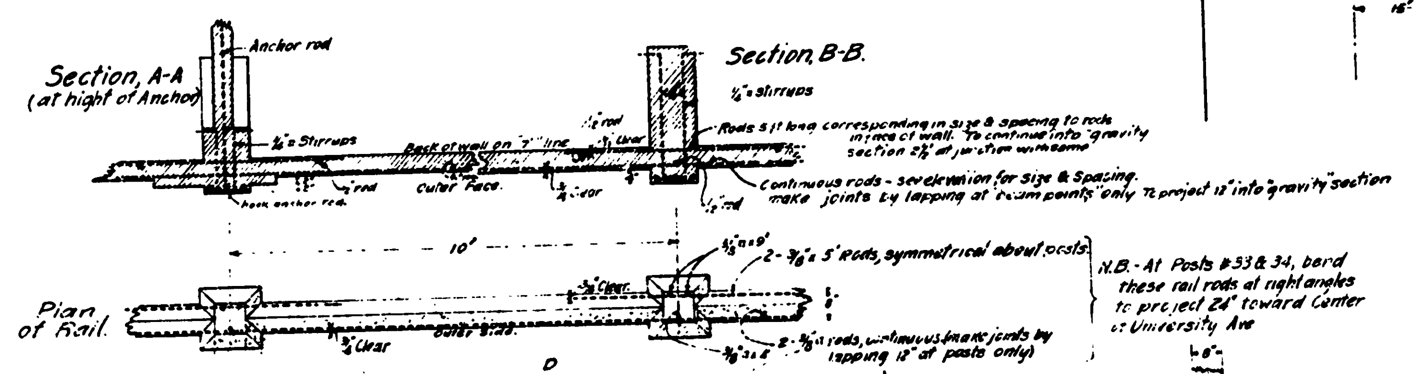
Appendix B

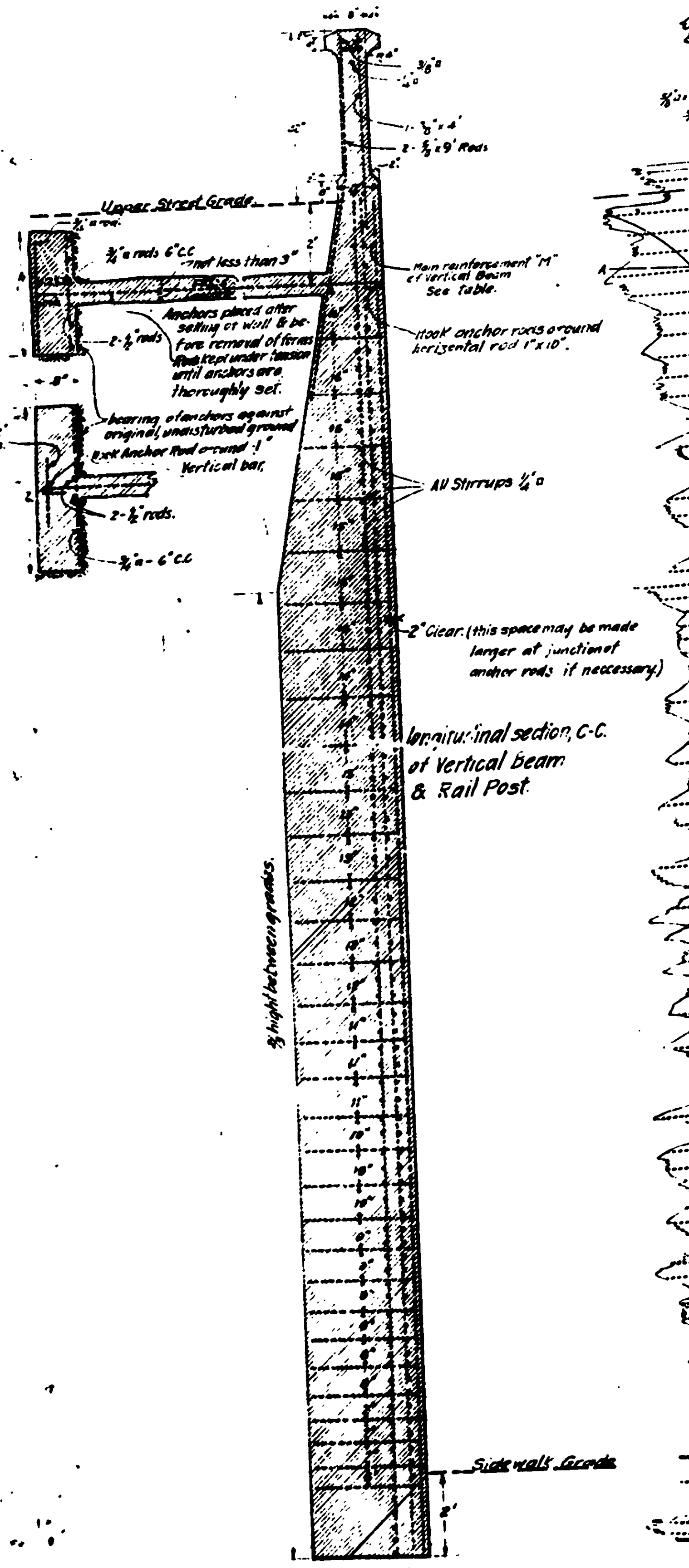
Original Drawings by J.R. Comly

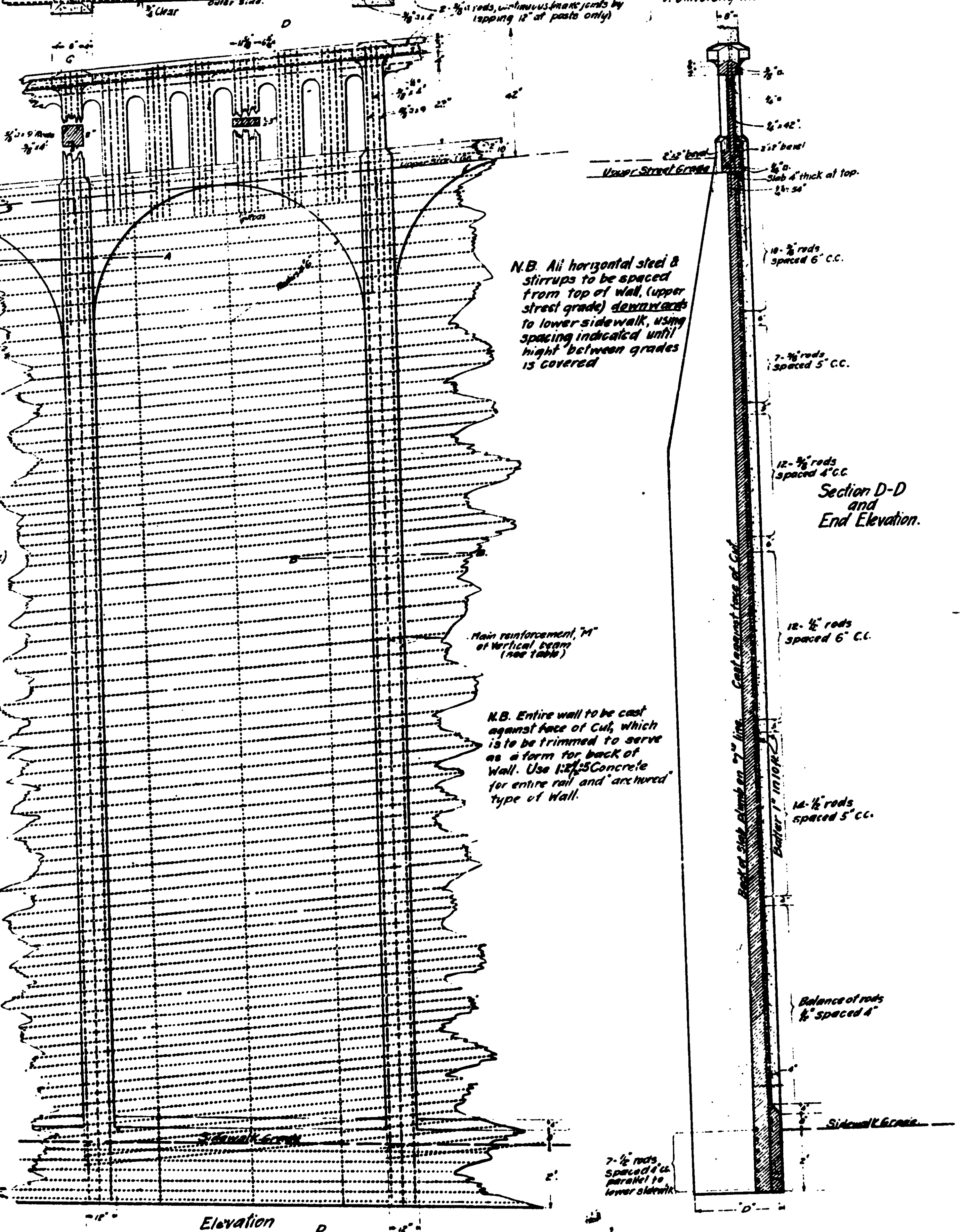


Details of Concrete Lamp-posts to be built on 4 existing corner-posts.
Horizontal Section of Bulkhead or Retaining Wall at Height of Anchor-rods.
Horizontal Section thro' Center of Crown Hinge
Horizontal Section just above Arch Rib
Axis of Bridge & Center line of Georgia St.
Typical Section of Arch-Rib.
Isometric Detail of Rib-end. (both crown & abutment ends)
Detail of Hinges.
Diagram to show Sidewalking, Curbing, and Street Paving to be done as part of Bridge Contract 1"=20'
GEORGIA
UNIVERSITY
AVE.
ST.
Half Section I-I
Half Section 2-2
Half-Section G-G
Half-Section H-H
Section P-P
Section O-O
Section K-K
Section R-R
Section E-E
Section B-B
Section C-C
Section A-A
Section 5-5
Section 3-3
Section L-L
Half Section M-M
Longitudinal Section thro' type of Balustrade
Dimension Diagram for Arch Ribs 1"=10'
Typical Section of Column.
General Elevation 1"=10'
REDUCED PLAN
USE SCALE BELOW
4" ON ORIGINAL SCALE
REINFORCED CONCRETE BRIDGE
TO CARRY
GEORGIA STREET
OVER
UNIVERSITY AVENUE.
SAN DIEGO, CALIF.
Scale, where not otherwise fixed, 1"=4'.
Elevations, according to City Datum.
MICROFILMED
5220-D
City Engineer





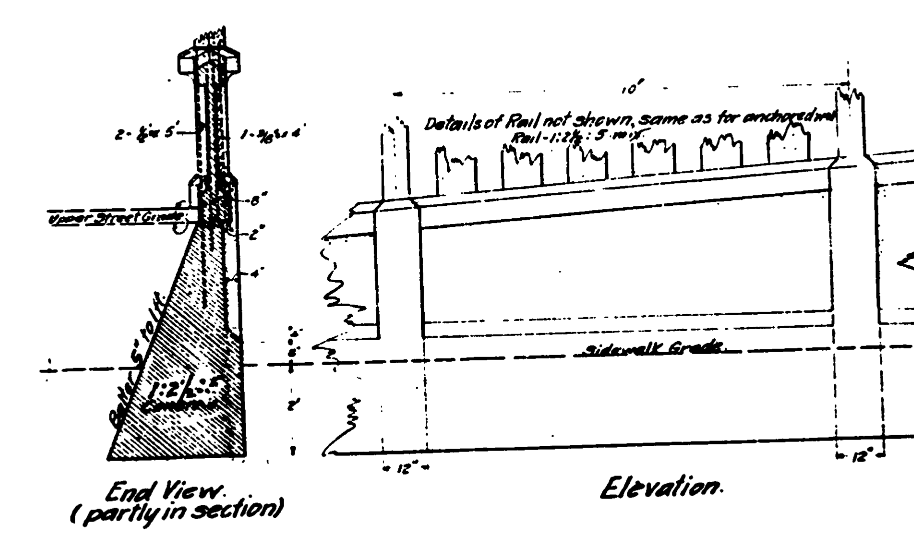




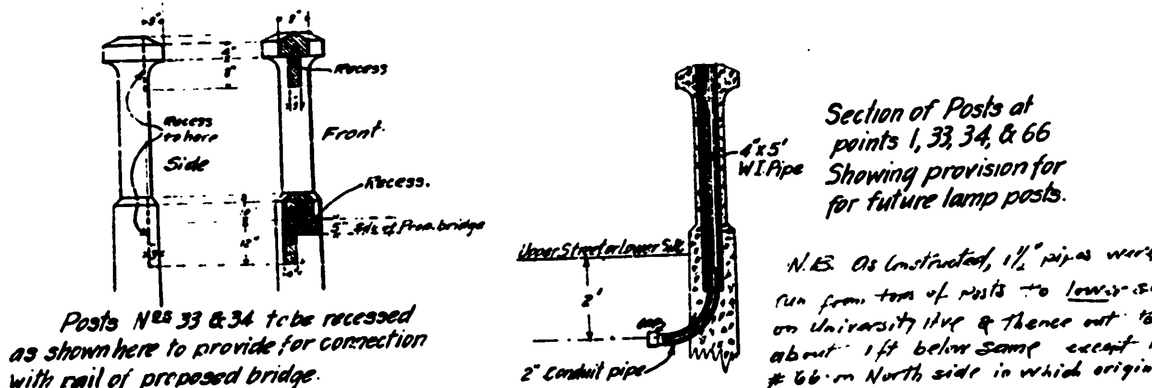
Typical "Anchored" Wall to be used for both walls excepting 40' at each end of both North & South Walls.
3/8" = 1'.

No. of Point	NORTH WALL Grades: Upper Street	Lower Sidewalk	Hight bet. Grades	Vert. Beam: Anchor Depth "D"	Rods "M" No.	Rods "M" Size	Anchors: Ft. Hight "h"	Ft. Lgth. "l"	Tie Rod: Ft. Length	Tie Rod: In. Size	SOUTH WALL Grades: Upper Street	Lower Sidewalk	Hight bet. Grades	Vert. Beam: Anchor Depth "D"	Rods "M" No.	Rods "M" Size	No. of Point
1	317.25	317.29	0	–	–	–	–	–	–	–	316.29	316.29	0	–	–	–	1
2	318.24	317.06	1.18	–	–	–	–	–	–	–	317.67	316.60	1.07	–	–	–	2
3	319.22	316.93	2.29	–	–	–	–	–	–	–	318.63	316.52	2.11	–	–	–	3
4	320.22	316.78	3.35	–	–	–	–	–	–	–	319.64	316.39	3.21	–	–	–	4
5	321.11	316.64	4.74	–	–	–	–	–	–	–	320.56	316.29	4.27	–	–	–	5
6	322.43	316.58	5.85	12"	3	1/2"	1'	2'		1/2"	321.53	316.18	5.35	12"	3	1/2"	6
7	323.47	316.36	7.11	12	·	·	1'	2'	8	·	322.40	316.08	6.42	12"	·	·	7
8	324.50	316.22	8.28	12	·	·	1'	2'	9	·	323.48	315.98	7.48	12"	·	·	8
9	325.55	316.09	9.46	12	·	·	1'	2'	11	·	324.42	315.87	8.55	12"	·	·	9
10	326.54	315.94	10.60	12	·	·	1'	2'	12	·	325.50	315.77	9.73	12	·	·	10
11	327.42	315.80	11.62	12	·	·	·	2'	13	·	326.38	315.66	10.72	12	·	·	11
12	328.39	315.66	12.73	12	3	5/8"	1'	3'	14	3/4"	327.32	315.56	11.76	12	3	5/8"	12
13	329.34	315.52	13.82	12	·	·	·	·	15	·	328.27	315.46	12.81	12	·	·	13
14	330.05	315.38	14.67	12	·	·	·	·	16	·	329.19	315.35	13.84	12	·	·	14
15	330.81	315.24	15.57	12	·	·	·	·	17	·	330.05	315.24	14.81	12	·	·	15
16	331.52	315.10	16.42	13	·	·	1½	3'	18	·	330.88	315.10	15.78	13	·	·	16
17	332.10	314.96	17.14	14"	3	3/4"	·	·	19	·	331.61	314.94	16.67	14	3	3/4"	17
18	332.81	314.76	18.05	15	·	·	·	·	19	7/8"	332.31	314.75	17.56	15	·	·	18
19	333.38	314.63	18.75	16	·	·	·	·	20	·	332.98	314.54	18.44	16	·	·	19
20	333.93	314.48	19.45	17	3	7/8"	·	·	21	·	333.64	314.40	19.24	17	3	7/8"	20
21	334.37	314.44	20.23	18	·	·	·	·	22	1"	334.28	314.24	20.04	18	·	·	21
22	334.72	313.78	21.04	19.	·	·	·	·	22	·	334.56	313.75	20.81	19	·	·	22
23	335.12	313.44	21.73	20	·	·	·	·	23	·	334.99	313.44	21.55	20	·	·	23
24	335.52	313.10	22.42	21	·	·	·	4'	24	·	335.37	313.10	22.27	21	·	·	24
25	335.78	312.74	23.04	22	3	1"	·	·	24	1⅛"	335.62	312.74	22.88	22	3	1"	25
26	336.08	312.35	23.67	23	·		·	·	25	·	335.88	312.38	23.41	23	·	·	26
27	336.21	311.94	24.27	23	·	·	·	·	26	·	336.17	311.94	24.23	23	·	·	27
28	336.38	311.49	24.89	24	·	·	·	·	26	·	336.32	311.51	24.83	24	·	·	28
29	336.46	311.04	25.41	25	·	·	2	·	27	·	336.44	311.04	25.40	25	·	·	29
30	336.42	310.58	25.84	26	·	·	·	·	27	1¼	336.49	310.55	25.94	26	·	·	30
31	336.39	310.05	26.40	26	·	·	·	·	28	·	336.49	310.05	26.44	26	·	·	31
32	·	309.50	27.00	27	3	1⅛"	·	·	29	·	·	309.50	27.00	27	3	1⅛"	32
33	·	308.94	27.59	28	·	·	·	·	29	·	·	308.94	27.59	28	·	·	33
34	·	307.13	29.38	31	·	·	2½	·	31	·	·	307.13	29.37	31	·	·	34
35	·	306.60	29.90	32	·	·	·	·	31	·	·	306.51	29.97	32	·	·	35
36	·	306.08	30.42	32	·	·	·	·	32	·	·	305.98	30.49	33	·	·	36
37	336.48	305.48	31.00	34	·	·	·	·	32	·	336.44	305.21	31.13	34	·	·	37
38	336.20	304.88	31.32	34	·	·	·	·	33	·	335.87	304.67	31.20	34	·	·	38
39	335.37	304.27	31.10	34	·	·	·	·	28	·	335.02	304.06	30.96	34	·	·	39
40	334.29	303.68	30.61	33	·	·	·	·	28	·	333.60	303.42	30.18	32	·	·	40
41	332.82	303.16	29.66	32	·	·	·	·	28	·	331.86	302.84	29.02	31	·	·	41
42	331.13	302.51	28.61	30	·	·	·	·	28	·	330.12	302.22	27.90	29	·	·	42
43	329.23	301.93	27.45	28	·	·	2	·	28	·	328.39	301.61	26.77	27	·	·	43
44	327.63	301.34	26.28	26	3	1"	·	·	28	·	326.43	301.00	25.43	25	3	1"	44
45	325.68	300.78	25.10	24	·	·	1½	·	27	1⅛"	324.66	300.38	24.49	24	·	·	45
46	324.10	300.13	23.88	23	·	·	·	·	25	·	323.10	299.77	23.33	22	·	·	46
47	322.24	299.69	22.75	21	·	·	·	·	24	·	321.34	299.16	22.18	20	·	7/8"	47
48	320.68	299.41	21.27	20	3	7/8"	·	3'	23	1"	319.58	298.64	21.04	19	·	·	48
49	318.82	298.42	20.40	18	·	·	·	·	22.	·	317.82	297.90	19.92	18	·	·	49
50	317.00	297.64	19.36	17	·	·	·	·	21.	·	316.00	297.32	18.78	16	3	3/4"	50
51	315.22	297.28	18.04	15	3	3/4"	·	·	20	·	314.29	296.70	17.59	15	·	·	51
52	313.33	296.67	16.66	14	·	·	·	·	18	3/4"	312.68	296.09	16.44	13	·	·	52
53	311.27	296.09	15.18	13	·	·	·	·	17	·	310.77	295.49	15.28	12"	·	·	53
54	310.21	295.50	14.71	12	3	5/8"	1'	·	16	·	309.21	294.87	14.14	12	3	5/8"	54
55	308.26	294.92	13.32	12	·	·	·	·	15	·	307.26	294.26	13.00	12	·	·	55
56	306.48	294.33	12.15	12	·	·	·	2'	13	·	305.23	293.64	11.59	12	·	·	56
57	304.72	293.73	10.99	12	3	1/2"	·	·	12	1/2"	303.73	293.03	10.70	12	3	1/2"	57
58	302.27	293.15	9.12	12	·	·	·	·	11	·	301.77	292.41	9.36	12	·	·	58
59	301.29	292.67	8.62	12	·	·	·	·	10	·	300.29	291.80	8.49	12	·	·	59
60	299.46	292.00	7.46	12	·	·	·	·	9	·	298.65	291.19	7.46	12	·	·	60
61	297.68	291.41	6.27	12	·	·	·	·	8	·	296.58	290.47	6.11	12	·	·	61
62	295.78	290.78	5.00	–	–	–	–	–	–	–	294.82	289.86	4.96	–	–	–	62
63	294.19	290.26	3.93	–	–	–	–	–	–	–	293.16	289.85	3.31	–	·	–	63
64	292.48	289.66	2.82	–	–	–	–	–	–	–	291.48	288.76	2.72	–	·	–	64
65	290.98	289.27	1.71	–	–	–	–	–	–	–	289.64	288.18	1.46	–	·	–	65
66	288.88	288.59	0.29	–	–	–	–	–	–	–	287.88	287.51	0.37	–	·	–	66

N.B. Lengths of anchor rods given above are minimum lengths before bending to form hooks. Hooks to be 6" long.



Typical "Gravity" Wall, to be used for 40' at each end of both walls.
3/8" = 1'.



Posts Nos. 33 & 34 to be recessed as shown here to provide for connection with rail of proposed bridge.

Section of Posts at points 1, 33, 34, & 66 Showing provision for for future lamp posts.

N.B. As constructed, 1½" pipes were run from top of rails to lower sdwk on University Ave & thence out ½ (in.) about 1 ft below same except Post # 66 on North side in which original p. was followed.
J.R.C. 9-12-14.

CONCRETE WALLS & RAILS FOR UNIVERSITY AVENUE.

BEING SHEET No. 4 OF PAVING PLANS FOR UNIVERSITY AVENUE.

J.R.C. - Dec. 1912.

H. M. [signature]
City Engineer

MICROFILMED
APR - - 1963

5221-1-D

REDUCED PLAN
USE SCALE BELOW
0 1 2 3 4
4" ON ORIGINAL SCALE

Appendix C

DPR Forms

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

HISTORIC RESOURCES INVENTORY

HABS ____ HAER ____ NR ____ SHL ____ Loc ____ No. ____
UTM: A ____ B ____
C ____ D ____

IDENTIFICATION

1. Common name: Georgia Street Bridge
2. Historic name: ____
3. Street or rural address: Georgia Street & University Avenue
   City San Diego Zip 92103 County San Diego
4. Parcel number: ____
5. Present Owner: City of San Diego Address: 202 "C" Street
   City San Diego Zip 92101 Ownership is: Public X Private ____
6. Present Use: bridge Original use: bridge

DESCRIPTION

7a. Architectural style: Mission Revival

7b. Briefly describe the present *physical description* of the site or structure and describe any major alterations from its original condition:

This reinforced concrete bridge is 28 feet high, has a span of 65 feet and a 30 foot wide deck. The deck is supported by a single span of three parallel bow arches. Ten bents, at five feet intervals with arches in between, support the deck above the three main arches. Two arches, running perpendicular to the bridge, link the three main arches together at each bent. The bridge spans University Avenue between two 670 feet long retaining walls with decorative arched pilasters at ten feet intervals.

8. Construction date:
   Estimated ____ Factual 1914
9. Architect J. R. Comly
10. Builder Edward T. Hale
11. Approx. property size (in feet)
    Height ~~Frontage~~ 30' Length ~~Depth~~ 30'
    or Width ~~approx. acreage~~ 65'
12. Date(s) of enclosed photograph(s)
    Aug. 1988

13. Condition: Excellent X Good ___ Fair ___ Deteriorated ___ No longer in existence ___

14. Alterations: ___

15. Surroundings: (Check more than one if necessary) Open land ___ Scattered buildings ___ Densely built-up ___
Residential X Industrial ___ Commercial X Other: ___

16. Threats to site: None known ___ Private development ___ Zoning ___ Vandalism X
Public Works project X Other: ___

17. Is the structure: On its original site? ___ Moved? ___ Unknown? ___

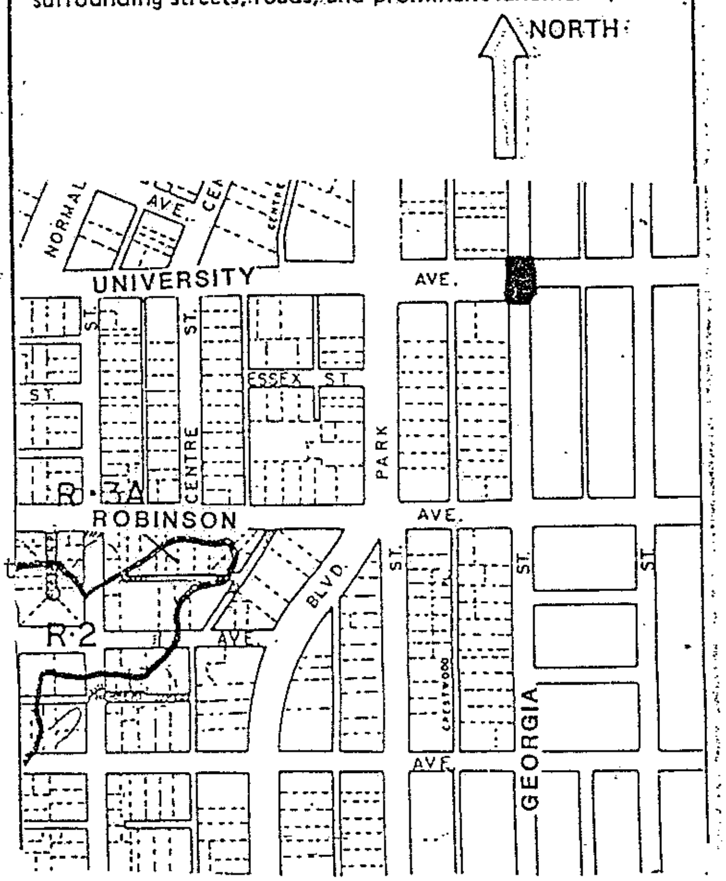
18. Related features: retaining walls

SIGNIFICANCE

19. Briefly state historical and/or architectural importance (include dates, events, and persons associated with the site.)

This bridge was built in 1914 by the City of San Diego as a public works project. J. R. Comly designed the bridge under the supervision of W. M. Rumser, the City Engineer. The Mission Revival style of this bridge was popular in the early part of this century. It was part of an architectural trend at that time of using traditional forms and styles from the past. This trend was particularly popular in public buildings and projects because of the sense of order and planning they represented from earlier periods in history.

Locational sketch map (draw and label site and surrounding streets, roads, and prominent landmarks):



20. Main theme of the historic resource: (If more than one is checked, number in order of importance.)
Architecture 1. Arts & Leisure ___
Economic/Industrial ___ Exploration/Settlement ___
Government ___ Military ___
Religion ___ Social/Education 2.

21. Sources (List books, documents, surveys, personal interviews and their dates).

VII, XIV

22. Date form prepared December 1988
By (name) C. Braun
Organization City of San Diego/Planning Dept
Address: 202 "C" Street
City San Diego Zip 92101
Phone: (619) 236-6819

Appendix D

Preparer(s)' Qualifications

Appendix D

IONE R. STIEGLER, ARCHITECT, FAIA, NCARB – PRINCIPAL ARCHITECT

The primary investigator from IS Architecture, Ione R. Stiegler, FAIA, meets the National Park Service, qualifications for “Architectural History”, “Architecture” and “Historic Architecture,” as published in the Code of Federal Regulations, 36 CFR Part 61. IS Architecture served as a historic preservation consultant to HELIX Environmental Planning, Inc. (HELIX), represented by Bruce McIntyre, a Senior Project Manager with HELIX. HELIX served as a consultant directly to the City of San Diego.

Ione R. Stiegler, FAIA has established IS Architecture as an award-winning firm dedicated to the preservation and renewal of our built environment. Over the last 27 years, Ms. Stiegler has studied, authored reports on, and preserved a dozen of California’s rare and fragile historic resources. Many of these date to the Spanish occupation of California in the early 1800s. Her interdisciplinary methodology unearths a multitude of architectural details, making it possible to reach back in time to scientifically and authentically recreate previously lost architectural elements. Her comprehensive documentation fosters historically accurate reconstruction, preserves our historically significant architectural heritage, and provides disaster recovery records.

IS Architecture is an award-winning firm with extensive technical experience not only in historic preservation. Our firm has considerable experience both preparing the many reports and studies required for historic resources, as well as the architectural design and construction documentation for historic resources. The firm specializes in applying the *Secretary of the Interior’s Standards for the Treatment of Historic Resources* and has completed projects implementing all four approved treatments, Restoration, Preservation, Rehabilitation and Reconstruction. Many of the firm’s projects have applied the California Historic Building Code. Drawing on this expertise, IS Architecture has restored/rehabilitated 45 historic residences, 17 institutional historic structures, and 15 historic adobe structures. IS Architecture has completed 47 historic assessment/historic nomination reports. The firm has also been published 53 times and has received 38 awards for both its custom residential and historic preservation architecture.

<u>Education</u>
Bachelor of Architecture – 1983
Master of Architecture I – 1983
    Tulane University, New Orleans, Louisiana
Master of Architecture II, Historic Preservation Specialization - 1986
    Tulane University, New Orleans, Louisiana

<u>Architectural License</u>
California License C19425

<u>Certifications</u>
Small Business Enterprise (SBE)
Disadvantaged Business Enterprise (DBE)
State Women Business Enterprise (SWBE)
Small Local Business Enterprise (SLBE)

<u>Summarized Project List</u>

Historic Structure Reports

2011 Goldfield High School, Goldfield, NV
2011 Wisteria Cottage and Balmer Annex, La Jolla

2011 Torrey Pines Lodge, Torrey Pines State Park, San Diego
2011 Mohnike Adobe Barn, Los Peñasquitos Preserve, San Diego
2008 Sikes Adobe Farmhouse and Creamery, San Diego
Reconstruction and Restoration after the 2007 Witch Creek Fire
2006 Guy and Margaret Fleming House, Torrey Pines State Park, San Diego
2005 Warner-Carrillo Adobe Ranch House and Barn, Warner Springs
2004 Casa de Bandini/Cosmopolitan Hotel (adobe), Old Town, San Diego
2004 Casa de Pico Motor Court, Old Town, San Diego
2004 Sikes Adobe Farmhouse and Creamery, San Diego
2004 Rancho Peñasquitos Preserve, Wing 'C' Adobe, San Diego
2004 Verna House, Old Town, San Diego

Historic Restorations

2010 University of California, San Diego Chancellor's House – Rehabilitation (estimated completion in 2013)
2010 Sikes Adobe Farmhouse and Creamery, San Diego
Reconstruction and Restoration after the 2007 Witch Creek Fire
2010 Warner-Carrillo Adobe Ranch House and Barn Phase 2, Warner Springs
2010 Blas Aguilar Adobe, San Juan Capistrano – Restoration
2009 Casa Montanez Adobe, San Juan Capistrano – Restoration
2005 Warner-Carrillo Adobe Ranch House and Barn Phase 1, Warner Springs
2004 Sikes Adobe Farmhouse and Creamery, San Diego
2004 Rancho Peñasquitos Preserve, Wing 'C' Adobe, San Diego
2004 Verna House, Old Town, San Diego

Historic Condition Assessment Reports

2009 University of California, San Diego Chancellor's House – Rehabilitation
2008 Casa de Machado y Stewart (adobe), Old Town, San Diego
2008 Casa de Estudillo (adobe), Old Town, San Diego
2007 Edgemoor Farm, Santee
2007 Olin Bailey Earthen Structure, Borrego Springs
2004 Casa de Pico Motor Court and Hotel, Old Town, San Diego
2006 Camp Lockett, Campo

Historic Assessment, Vertical Archaeology and/or Construction Observation

2012 Georgia Street Bridge – Historic Assessment, San Diego
2012 Fleet Weather Center Building 14 – Historic Assessment, Naval Base Coronado
2012 SDG&E Undergrounding – Historic Assessment, San Diego
2011 San Diego Mission Architectural Improvements, San Diego
2008 Cosmopolitan Hotel (adobe), Old Town, San Diego
2000 Santa Margarita Ranch House (adobe), Camp Pendleton

Historic American Building Survey (HABS)

2006 Half Round Building, Escondido
2004 Hi Hope Ranch, Vista
2004 Oceanside Athletic Club, Oceanside
1999 SANBAG State Route 30 – Isle Center Residence, Bethlehem Temple, Lageschulte Residence, Goerlitz Residence, San Bernadino
1998 T.M. Cobb Warehouse, San Diego
1998 Warner-Carrillo Adobe Ranch House and Barn, Warner Springs