

# APPENDIX B

## THE ISLAND OF OAHU

1. Oahu 2024 Updated State Bridge Matrix
2. Oahu 2013 State Bridge Matrix
3. Oahu 2013 County Bridge Matrix

## OAHU HISTORY

With an area of 607.7 square miles, Oahu (also known as The Gathering Place) is the third largest island. It is formed of two mountain ranges, the Koolau on the east and the Waianae on the west. Lava flows from both have joined to create a central plain, the Leilehua Plateau, and a raised coral reef forms the south shore of the island and parts of the remaining coast. In both mountain ranges are amphitheater-headed valleys and spectacular cliffs. The island has no active volcanoes but many extinct craters, notably Diamond Head, Koko Head, and Punchbowl.

As the seat of state government and business, the island of Oahu led the islands in road and bridge construction due to its greater population and tax base. After World War I, Oahu became an essential component of the strategic role the United States played in the Pacific. After the 1941 bombing of Pearl Harbor and Hawaii's subsequent entry into World War II, construction of highways and bridges deemed vital for National Defense accelerated. Today, Oahu is primarily urban and contains some of Hawaii's most expensive and technologically complex road construction projects, including a major highway system (H-1 and H-2), and three tunnels (Wilson, Likelike, and the H-3) through the Koolau Mountains. Although Oahu had the earliest and greatest number of bridges constructed in the islands, intensive development has led to the destruction and reconstruction of many early examples.



**FIGURE 1. MAP OF OAHU (SOURCE: [HTTPS://HISTATEGIS.MAPS.ARCGIS.COM/](https://histategis.maps.arcgis.com/)).**

# Oahu 2024 Updated State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003009301101728	Farrington Highway-Waialua Plantation Road	Farrington Highway	Plantation Road	1940	Steel Stringer	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>• Good example of a 1940s reinforced concrete and steel stringer bridge</li> <li>• Bridge is not publicly accessible</li> </ul>
003000830302169	Hauula Stream	Hauula Stream	Kamehameha Highway	1932	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003000830302903	Kaaawa Stream	Kaaawa Stream	Kamehameha Highway	1927	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>
003000830303575	Kaalaea Stream	Kaalaea Stream	Kamehameha Highway	1923	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>
003000830301785	Kahawainui Stream-Lalewai	Kahawainui Stream	Kamehameha Highway	1933	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003000990402053	Kalauao Springs (Eastbound)	Kalauao Springs	Kamehameha Highway	1936	Concrete Girder	Concrete Open Greek Cross	No	Not Eligible**	• Loss of integrity due to bridge widening
003000990402054	Kalauao Springs (Westbound)	Kalauao Springs	Kamehameha Highway	1945	Concrete Girder	Concrete Open Greek Cross	No	Not Eligible**	• Loss of integrity due to bridge widening
003000830302282	Kaluani Stream	Kaluani Stream	Kamehameha Highway	1926	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>
003000800300071	Kaukonahua Bridge-Karsten Thot	Wahiwa Reservoir	Kamehameha Highway	1932	Steel Truss	Metal Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Excellent example of a late-period steel through-deck Warren truss bridge that was constructed during the depression era</li> <li>• One of three metal truss bridges remaining in the state</li> <li>• Associated with public works efforts by the City and County of Honolulu during the Territorial period in Hawaii</li> <li>• Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>• Contributed to the economic development of central Oahu by providing reliable vehicular access from Honolulu to the north shore of the island</li> <li>• Commemorative plaque dedicated to Karsten Thot</li> </ul>
003009300501748	Kaukonahua Stream	Kaukonahua Stream	Farrington Highway	1940	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1940s reinforced concrete bridge</li> </ul>
003000610401061	Kawainui Stream (Inbound)	Kawainui Stream	Kailua Road	1940	Concrete Slab	Concrete Open Greek Cross	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1940s reinforced concrete bridge</li> <li>• Associated with the Kailua area development</li> </ul>
003000610401060	Kawainui Stream (Outbound)	Kawainui Stream	Kailua Road	1940	Concrete Slab	Concrete Open Greek Cross	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1940s reinforced concrete bridge</li> <li>• Associated with the Kailua area development</li> </ul>
003000830301970	Koloa Stream-Laiemaloo	Koloa Stream	Kamehameha Highway	1933	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003000830301255	Kuilima-Oio Stream	Kuilima-Oio Stream	Kamehameha Highway	1931	Concrete Tee Beam	Concrete Solid Panel with Metal Railing	No	Not Eligible	• Lost integrity due to replacement of original Concrete Solid Panel with Cap parapet with Concrete Solid Panel parapet with metal railing parapet in 2018.
003000830300339	Lauhulu Stream	Lauhulu Stream	Kamehameha Highway	1937	Concrete Slab	Concrete Open Greek Cross	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design</li> </ul>
003000830302151	Maakua Stream-Muliwai Bridge	Maakua Stream	Kamehameha Highway	1932	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003009300501436	Makalena Stream	Makalena Stream	Farrington Highway	1940	Concrete Slab	Concrete Open Greek Cross	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1940s reinforced concrete bridge</li> </ul>
003000830302791	Makaua Stream	Makaua Stream	Kamehameha Highway	1927	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>
003009300501823	North (Lower) Poamoho Stream	North Poamoho Stream	Kaukonahua Road	1934	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003000830302412	North Punaluu Stream	North Punaluu Stream	Kamehameha Highway	1926	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

Greyed-out cells have no form.

# Oahu 2024 Updated State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000830300043	Opaelua-Waialua Twin B	Opaelua Stream	Joseph P. Leong Highway	1928	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Good example of reinforced concrete deck girder construction</li> <li>• Associated with public works efforts by the Territorial government and as important civic structures associated with the development of Haleiwa</li> <li>• Located within the County-designated Haleiwa Special Design District and contribute significantly to the historic character of the town</li> </ul>
003000610300616	Pali Bridge No. 4 (Inbound)	Mountain (Pali Bridge No. 4)	Pali Highway	1956	Concrete Girder	Concrete Open Horizontal	No	Eligible, Contributing***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000830300869	Paumalu Stream	Paumalu Stream	Kamehameha Highway	1930	Concrete Slab	Concrete Solid Panel with Cap	No	Not Eligible**	<ul style="list-style-type: none"> <li>• Loss of integrity due to erosion</li> </ul>
003000610400064	Pauoa Road Overpass	Pauoa Road	Pali Highway	1961	Concrete Girder	Concrete and Metal	No	Eligible, Contributing***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003090001400114	Railroad Crossing (Highway Overpass)	Railroad Crossing	Farrington Highway	1939	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with plantation industry; last major accommodation built by the FHWA for the railroad before it went out of business</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003000640400150	Sand Island Bascule Bridge	Harbor (Bascule Bridge)	Sand Island Parkway	1962	Steel Stringer	Concrete Solid	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Longest steel bridge with the longest steel span built postwar (1945) on the island of Oahu in the historic study period prior to 1977</li> <li>• Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>• Good example of a 1960s steel stringer and reinforced concrete bridge</li> </ul>
003000830302637	South Kahana Stream	South Kahana Stream	Kamehameha Highway	1927	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>
003000830303459	Waiahole Stream (County)	Waiahole Stream	Kamehameha Highway	1922	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>
003000830301059	Waialea Stream	Waialea Stream	Kamehameha Highway	1931	Concrete Tee Beam	Concrete Solid with Cap and Incised Arches	No	Not Eligible**	<ul style="list-style-type: none"> <li>• Loss of integrity due to unsympathetic replacement original Concrete Open Arched parapets with Concrete Solid with Cap and incised arches in 2017</li> </ul>
003009300501794	Waialua Plantation Road	Farrington Highway	Plantation Road	1941	Concrete Slab	Metal Thrie Beam	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Associated with plantation industry in Hawaii</li> <li>• Good example of a 1940s reinforced concrete slab bridge</li> </ul>
003000830300041	Waialua Twin A (Helemano)	Helemano Stream	Joseph P. Leong Highway	1928	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible***	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Good example of reinforced concrete deck girder construction</li> <li>• Associated with public works efforts by the Territorial government and as important civic structures associated with the development of Haleiwa</li> <li>• Located within the County-designated Haleiwa Special Design District and contribute significantly to the historic character of the town</li> </ul>
003000830302242	Waimanana Stream	Waimanana Stream	Kamehameha Highway	1926	Concrete Slab	Concrete Solid Panel with Cap	No	Not Eligible**	<ul style="list-style-type: none"> <li>• Loss of integrity</li> </ul>
003000830300573	Waimea Stream	Waimea Stream	Kamehameha Highway	1930	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Contributed to the fields of engineering and transportation in Hawaii</li> <li>• Associated with public works efforts by the Territorial government and as an important link in the island's belt road system</li> <li>• Good representative example of tee-beam bridge construction in the late 1920s</li> <li>• Contributes significantly to the historic character of the area</li> </ul>
003000830302112	Waipilopilo Stream	Waipilopilo Stream	Kamehameha Highway	1932	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• NRHP/HRS 6E Criteria A/a, C/c</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.


\*\*\* Formerly "High Preservation Value."

Greyed-out cells have no form.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003009301101728		<b>TMK:</b> 167010001 (adjacent)	
<b>Common Name:</b> Farrington Highway-Waialua Plantation Road			
<b>Historic Name:</b> Farrington Highway-Waialua Plantation Road			
<b>Feature Crossed:</b> Farrington Highway/Route 930			
<b>Feature Carried:</b> [Waialua] Plantation Road/Cane Haul Road			
<b>Island:</b> Oahu		<b>Milepost:</b> 5.95	
<b>Latitude:</b> 21.56646		<b>Longitude:</b> -158.1233	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Steel Stringer Multi-Girder Bridge	<b>Construction Date:</b> 1940
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 62.0 ft.	<b>Total Length:</b> 62.0 ft.	<b>Deck Width:</b> 33.1 ft.
<b>Superstructure:</b> Steel Stringer Multi-Girder			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Other Features:</b> Murals of surfing and aquatic life painted on abutments			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-04-08053	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1940		
<b>Narrative Description:</b>  The Farrington Highway-Waialua Plantation Road carries the -Waialua Plantation Road over the Farrington Highway. This single-span steel stringer multi-girder bridge rests on concrete abutment walls. The reinforced concrete deck, paved in asphalt concrete (AC) overlay, carries the Waialua Plantation Road. Flanking the roadway are concrete open horizontal railings. At an unknown date, murals of surfing and aquatic life have been painted on the abutments.		

## Bridge Inventory Form

### Statement of Significance:

The Farrington Highway, named after Territorial Governor Wallace Farrington, who drafted the Territory's 1924 Bill of Rights, was integral to constructing an effective transportation system on Oahu by 1941. The Farrington Highway-Waialua Plantation Road Bridge resulted from a 1940 Federal Aid Project to bolster National Defense by connecting Schofield Barracks to Dillingham Air Field. Since the bridge carried the tracks of the Waialua Agricultural Company, it was also part of a Federal grade separation project and appears in plans as Federal Aid Grade Crossing Project No. F.A.G.H. 35-B(1). The Farrington Highway-Waialua Plantation Road Bridge is a rare example of a steel bridge as well as an early example of an open horizontal railing that would become more common following World War II. Following World War II, the railroad was abandoned and the tracks removed.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge's steel construction is an example of a distinctive and rare structural type, as the extreme marine environment of Hawaii precluded widespread use of steel. Its parapets are an early example of a concrete open horizontal railing that would become more common after World War II. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a highway. It retains integrity of design, materials, and workmanship. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1940s.

Therefore, the Farrington Highway-Waialua Plantation Road Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawai'i's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

Hungerford, John B. *Hawaiian Railroads: A Memoir of the Common Carriers of the Fiftieth State*. Reseda, California: Hungerford Press, 1963.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

"Waialua-Kaena Point Road, Thompson Corner to Vicinity of Waialua High School." Federal Aid Grade Crossing Project No. F.A.G.H.35-B(1). <http://162.221.244.142:8080/As-Built/res/Oahu/Route%200930/0930-005/0930-005.htm>.

## Bridge Inventory Form



Image 1. General view of bridge, facing west.



## Bridge Inventory Form



Image 2. View of bridge, facing east.



## Bridge Inventory Form




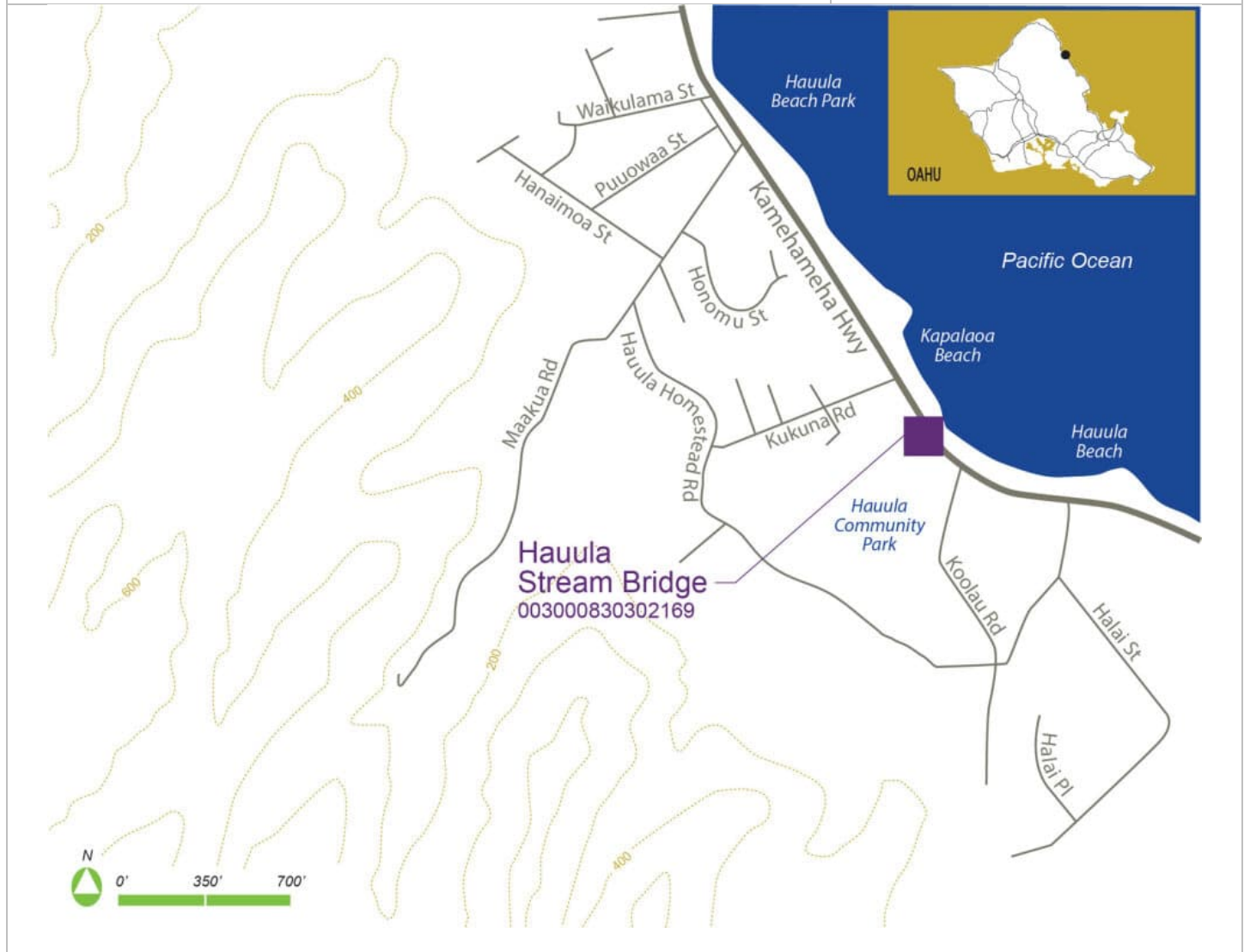
Image 3. Bridge deck, facing south. Note abandoned railroad right-of-way.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302169	<b>TMK:</b> 154001038 (adjacent)	
<b>Common Name:</b> Hauula Stream Bridge		
<b>Historic Name:</b> Hauula Stream Bridge		
<b>Feature Crossed:</b> Hauula Stream		
<b>Feature Carried:</b> Kamehameha Highway/Route 83		
<b>Island:</b> Oahu	<b>Milepost:</b> 21.69	
<b>Latitude:</b> 21.60837	<b>Longitude:</b> -157.9089	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1932
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> Unknown, 2016, 2020.	
<b>Alterations:</b> Wood pedestrian bridge added on mauka side of bridge at an unknown date. In 2016, new coating was applied to the wood gangway and railing, and in 2020 all girders were repaired full length with concrete.	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 22.0 ft.	<b>Total Length:</b> 25.9 ft.	<b>Deck Width:</b> 27.6 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Walls			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-05-08056	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b>	<b>Historic Function:</b>	
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1932		
<b>Supplemental Documentation:</b> HAER No. HI-124		
<b>Narrative Description:</b>  The Hauula Stream Bridge carries the Kamehameha Highway over the Hauula Stream. This concrete tee beam bridge rests on concrete abutments. The concrete deck is supported by concrete tee beams and carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are concrete solid panel with cap railings and end posts. The parapet caps and end posts appear to have been painted white at one point. Along the bridge is a wood pedestrian		

## Bridge Inventory Form

walkway with wood horizontal railings that was added to the mauka side of the bridge at an unknown date. Thrie beams have been attached to the end posts.

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with solid railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through the addition of a wood walkway and use of thrie beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, the Hauula Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

- Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.
- Ruzicka, Dee. "Waipilopilo Bridge, Kamehameha Highway (Route 83) and Waipilopilo Stream, Hauula, Honolulu County, Hawaii, HAER No. HI-124." Historic American Engineering Record, National Park Service, U.S. Department of the Interior, San Francisco, 2015.
- State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.
- U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.



## Bridge Inventory Form



Image 1. General view of bridge, facing southwest.



## Bridge Inventory Form



Image 2. Northeast parapet, facing southwest.

## Bridge Inventory Form




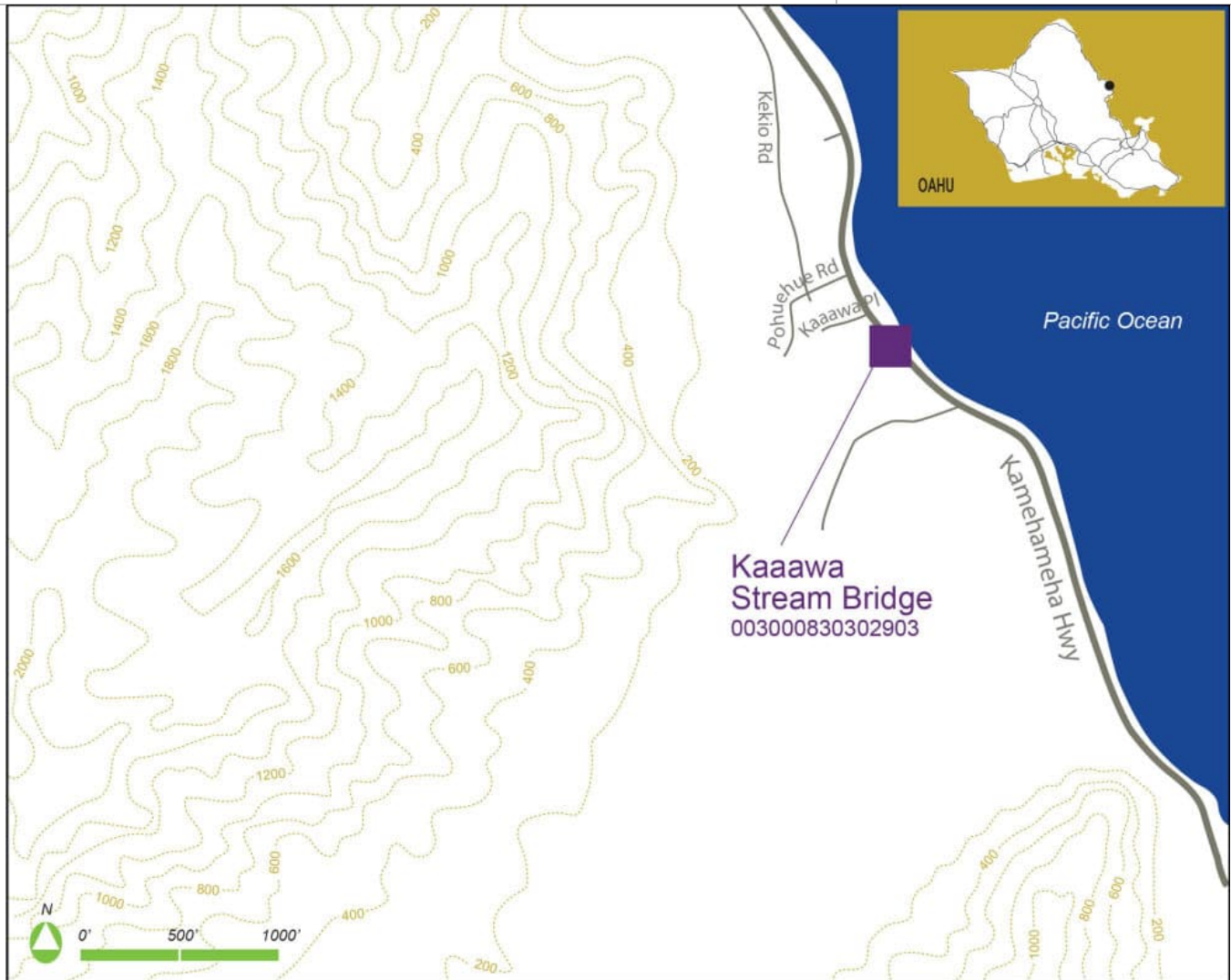
Image 3. Roadway and northeast parapet, facing north.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302903		<b>TMK:</b> 151001001 (adjacent)	
<b>Common Name:</b> Kaaawa Stream			
<b>Historic Name:</b> Kaaawa Stream			
<b>Feature Crossed:</b> Kaaawa Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 29.029	
<b>Latitude:</b> 21.54449		<b>Longitude:</b> -157.8456	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1927
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1964, 2018, 2020	
<b>Alterations:</b> Wood pedestrian bridge added in 1964. In 2018 all four concrete fenders were replaced. In 2020, the pedestrian catwalk was rehabilitated.	

## Design Information

<b>Number of Spans:</b> 7	<b>Max Span:</b> 18 ft.	<b>Total Length:</b> 126.0 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Reinforced Concrete Slab			
<b>Substructure:</b> Reinforced Concrete Column, Reinforced Concrete Abutment, Reinforced Concrete Pier Cap			
<b>Floor/Decking:</b> Concrete Solid Panel with Cap			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-06-08059	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1927		
<b>Narrative Description:</b>  The Kaaawa Stream Bridge carries the Kamehameha Highway over the Kaaawa Stream. It is a seven-span reinforced concrete continuous slab bridge. Reinforced concrete piers (columns) and abutments support the reinforced concrete slab road deck and timber pedestrian deck. Two road lanes and one pedestrian walkway make up the bridge's superstructure. Roadway parapets are concrete solid panels with caps and end posts painted white. Metal horizontal railings have been added to the makai side of the parapets. The bridge's construction date is engraved in two locations, one on the north bound makai side and the other on the south bound mauka side. In 1964, the structure was modified		

## Bridge Inventory Form

with a wooden deck pedestrian walkway featuring metal horizontal railings, while the roadway end posts were extended and had three beams attached.

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a continuous concrete slab with solid concrete panels with caps was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a reinforced concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite alterations to improve pedestrian and vehicular safety through the addition of a wood walkway with metal horizontal railings and use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1920s.

Therefore, the Kaaawa Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing southwest.



## Bridge Inventory Form



Image 2. Approach road and northeast parapet, facing north.

## Bridge Inventory Form



Image 3. Pedestrian walkway and bridge piers, facing northeast.



## Bridge Inventory Form



Image 4. Detail of bridge pier.

## Bridge Inventory Form




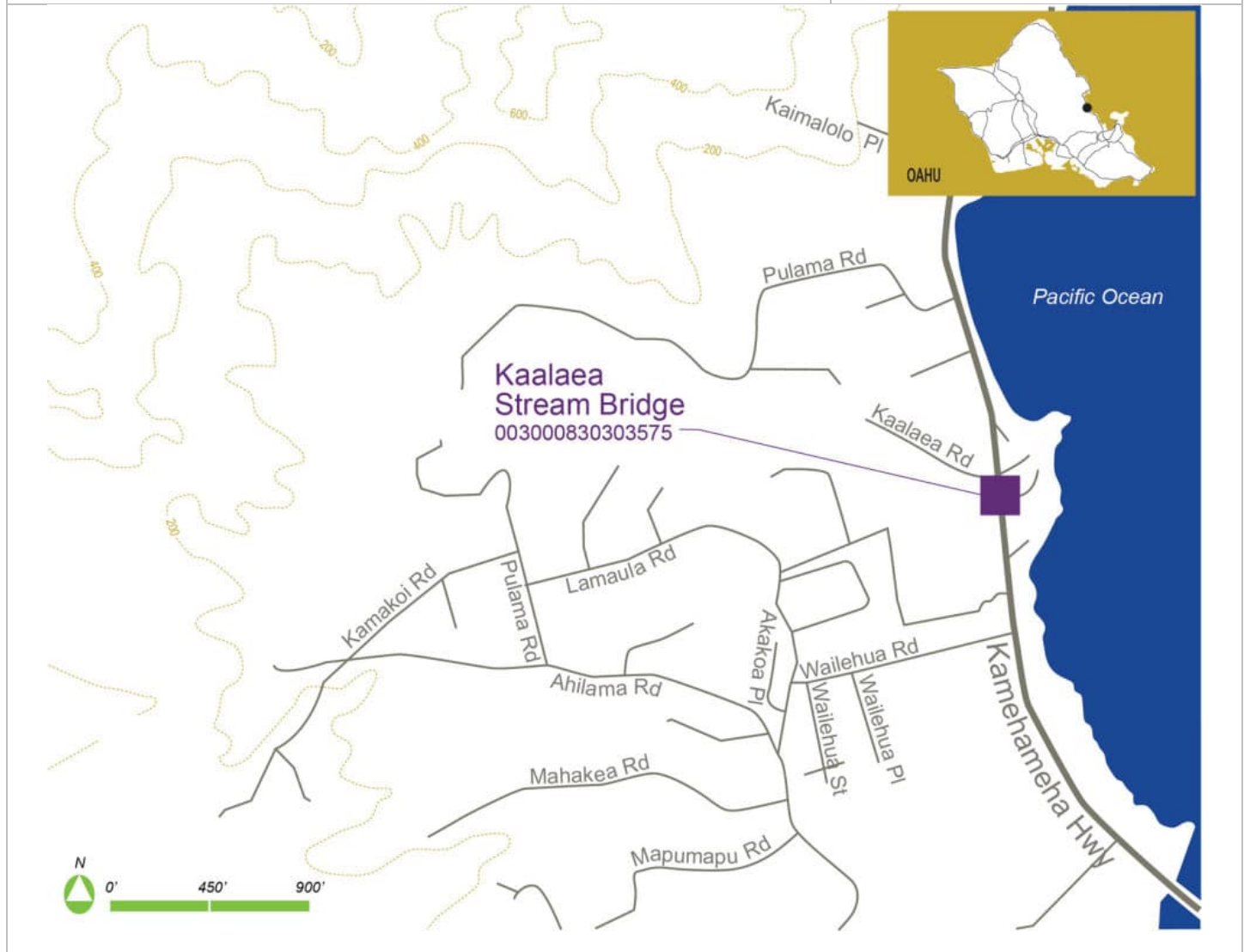
Image 5. Northwest abutment, facing west.



# Bridge Inventory Form

## General Information

Bridge Number: 003000830303575		TMK: 147014026 (adjacent)	
Common Name: Kaalaea Stream Bridge			
Historic Name: Kaalaea Stream Bridge			
Feature Crossed: Kaalaea Stream			
Feature Carried: Kamehameha Highway/Route 83			
Island: Oahu	Milepost: 35.749		
Latitude: 21.46648	Longitude: -157.8436		
Ownership: State			Image Date: 08/31/2011



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1923
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1974, 1992, 2016, 2020.	
<b>Alterations:</b> Yes. Wood pedestrian bridges added to both sides of the bridge in 1974 and replaced in 1992. In 2016, the deck and railings of the pedestrian walkway were repainted. In 2020, the wooden catwalk was rehabilitated.	

## Design Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 19.0 ft.	<b>Total Length:</b> 41.0 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Timber Deck, Reinforced Concrete Slab, Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid with Cap			
<b>Other Features:</b> Bridge name and date of construction incised on end posts			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-10-08060	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1923		
<b>Narrative Description:</b>  The Kaalaea Stream Bridge carries the Kamehameha Highway over the Kaalaea Stream. This double-span concrete continuous slab bridge rests on concrete abutment walls and one concrete wall pier. The timber deck rests on a reinforced concrete slab and carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are concrete solid with cap railings and end posts with the bridge name and date on construction incised on them. Along both sides of the bridge are two wood pedestrian walkways with wood horizontal railings added in 1974 and replaced in 1992. Other additions include three beams that have been bolted to the mauka end posts.		

# Bridge Inventory Form

## Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with solid railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1920s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through construction of two wood walkways and use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remains. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1920s.

Therefore, Kaalaea Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Figure 1. Kaalaea Stream Bridge, general view facing north. Source: Google Street View August 2011.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830301785	<b>TMK:</b> 155009010 (adjacent)	
<b>Common Name:</b> Kahawainui Stream-Laiewai		
<b>Historic Name:</b> Kahawainui Stream-Laiewai		
<b>Feature Crossed:</b> Kahawainui Stream		
<b>Feature Carried:</b> Kamehameha Highway/Route 83		
<b>Island:</b> Oahu	<b>Milepost:</b> 17.849	
<b>Latitude:</b> 21.654	<b>Longitude:</b> -157.9299	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1933
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1991	
<b>Alterations:</b> Wood pedestrian bridge added to the mauka side of bridge	

## Design Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 90.9 ft.	<b>Deck Width:</b> 27.2 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-02-08061	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1933		
<b>Supplemental Documentation:</b> HAER No. HI-124		
<b>Narrative Description:</b>  The Kahawainui Stream-Laiewai Bridge carries the Kamehameha Highway over the Kahawainui Stream. This concrete continuous slab bridge features concrete solid panel parapets with caps and curved, wide end posts. The concrete deck is supported by four reinforced concrete piers and reinforced concrete abutments. The parapet caps and end posts were painted white at one point. There is a pedestrian bridge walkway with wood horizontal railings, which was		

## Bridge Inventory Form

added on the mauka side of the bridge in 1991. Other additions include three beams that have been bolted to all end posts.

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with ornamental railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid capped parapets represents a typical rail pattern used by the Territorial Highway Department. The bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through construction of a wood walkway and the addition of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, Kahawainui Stream-Laiewai Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

- Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.
- Ruzicka, Dee. "Waipilopilo Bridge, Kamehameha Highway (Route 83) and Waipilopilo Stream, Hauula, Honolulu County, Hawaii, HAER No. HI-124." Historic American Engineering Record, National Park Service, U.S. Department of the Interior, San Francisco, 2015.
- State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.
- U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.



## Bridge Inventory Form



Image 1. General view of bridge, facing east.



## Bridge Inventory Form



Image 2. Bridge deck and parapets, facing east.

## Bridge Inventory Form





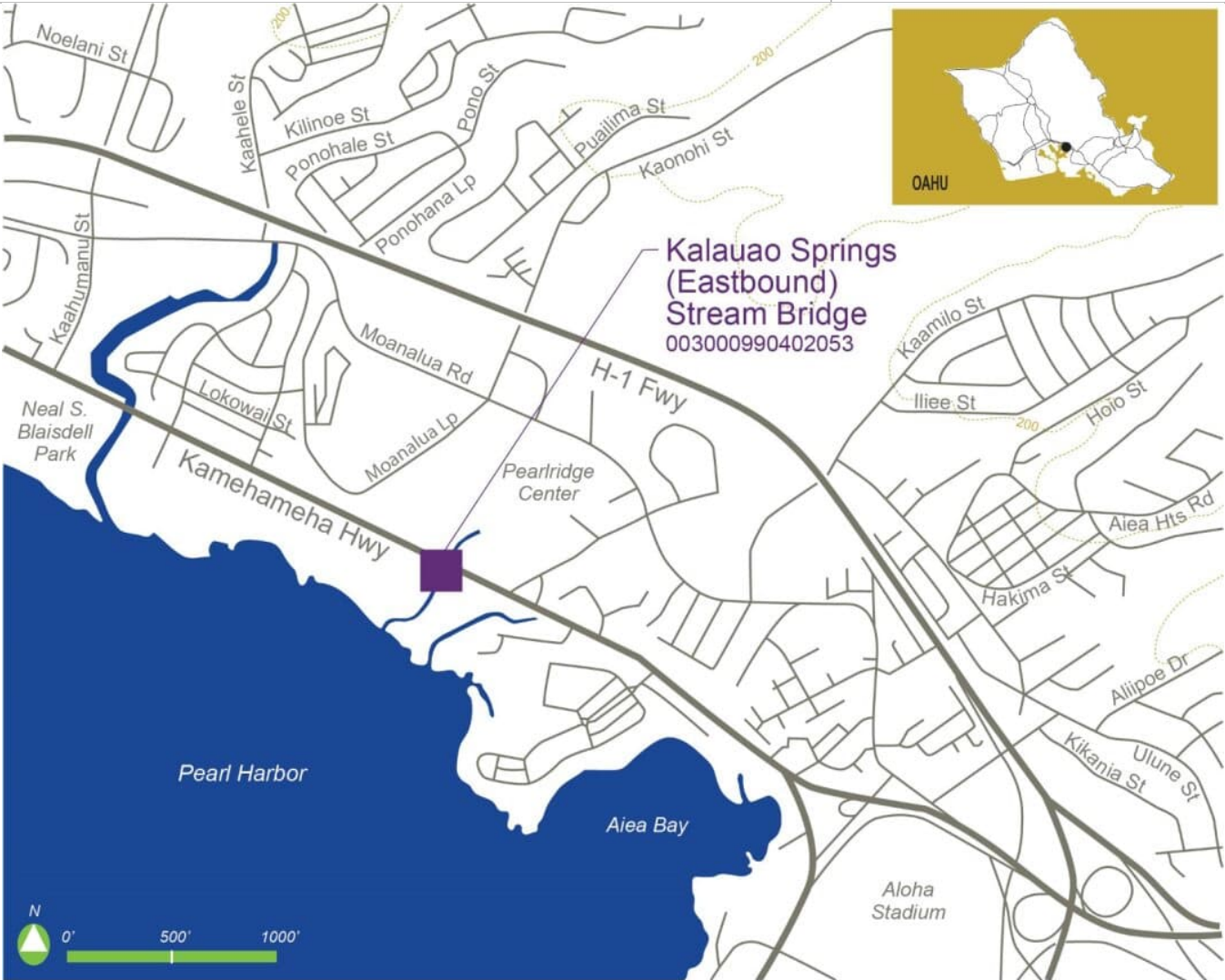
Image 3. Bridge piers, facing southwest.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000990402053		<b>TMK:</b> 198014006 (adjacent)	
<b>Common Name:</b> Kalauao Springs (Eastbound)			
<b>Historic Name:</b> Kalauao Springs (Eastbound)			
<b>Feature Crossed:</b> Kalauao Springs			
<b>Feature Carried:</b> Kamehameha Highway/Route 99			
<b>Island:</b> Oahu		<b>Milepost:</b> 20.51	
<b>Latitude:</b> 21.38198		<b>Longitude:</b> -157.9432	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023	



**Kalauao Springs (Eastbound) Stream Bridge**  
003000990402053



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Reinforced Concrete Girder, Prestressed Reinforced Concrete Stringer/Multi-Beam or Girder	<b>Construction Date:</b> 1936
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b> Walker and Oland, Ltd. (1936); Territorial Contractors (1965)	
<b>Alteration Date(s):</b> 1966, 2021	
<b>Alterations:</b> Bridge widened in 1966, addition of girders, replacement of abutments, one new parapet added to replace original; Asphalt concrete wearing surface was repaved.	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 43.0 ft.	<b>Total Length:</b> 44.9 ft.	<b>Deck Width:</b> 47.9 ft.
<b>Superstructure:</b> Prestressed Concrete Girder/Beam, Reinforced Concrete Girder/Beam			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross mauka side and Solid Concrete with Metal Horizontal makai			
<b>Other Features:</b> Bridge name and construction dates incised on end posts			

## Historic Information

<b>NRHP Status:</b> Not Eligible	Criteria: A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-09-08063	
<b>6E Status:</b> Not Significant	Criteria: a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input type="checkbox"/> Setting <input type="checkbox"/> Materials <input type="checkbox"/> Workmanship <input type="checkbox"/> Feeling <input type="checkbox"/> Association <input type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge		<b>Historic Function:</b> Bridge
<b>Areas of Significance:</b>		
<b>Period of Significance:</b>		
<b>Supplemental Documentation:</b> HAER No. HI-115, HAER No. HI-116, HAER No. HI-117		
<b>Narrative Description:</b>		
<p>The Kalauao Springs (Eastbound) Bridge carries the Kamehameha Highway over Kalauao Springs and is paired with the Kalauao Springs (Westbound) Bridge (003000990402054). This single-span hybrid reinforced concrete and prestressed reinforced concrete girder beam bridge rests on reinforced concrete abutments. The reinforced concrete</p>		

## Bridge Inventory Form

deck rests on five reinforced concrete tee beams and two prestressed I-beams and carries a three-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are two different railings. On the mauka side of the bridge features the original concrete open Greek Cross railings with curved, stepped end post dating from 1936 and on the makai side of the bridge features concrete solid parapets with metal horizontal railings dating from 1966. A third beam has been attached to the makai end post that partially obscures the 1966 widening date but the bridge name "Kalauao Springs Bridge" remains visible.

### Statement of Significance:

The Kalauao Springs (Eastbound) Bridge crosses one of the five large springs that form the north shore of Pearl Harbor on the outskirts of Aiea. The area was characterized by settlement in support of the Naval Base and economic activity along the Oahu Railway and Land Company's (OR&L) right-of-way. The bridge is also part of the Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, and formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on the Oahu by 1941. The Kalauao Springs Bridge (Eastbound) used money from the National Recovery Highway Fund (NRH) for project NRH 9-C that built a new alignment of the Kamehameha Highway through Aiea offering connections between Honolulu and rapidly growing community of Wahiawa. The original design of the Kalauao Springs (Eastbound) Bridge, indicated in plans as "Kalauao Springs Bridge No. 7," was a two-lane concrete tee beam with ornamental railing, and a typical bridge of this era. Located at the western edge of Aiea, the 1930s design included landscaping with willow and coconut trees along the right-of-way to create a more rural character to the road once motorists left built-up areas.

However, naval support facilities like the Aiea Naval Hospital and Aiea receiving barracks, in addition to the onset of World War II, brought traffic congestion to this stretch of the Kamehameha Highway. This resulted in the 1945 widening project that added two additional lanes to the Kamehameha Highway, divided between the roadway (project number DA-WR 10(2)) and structures (project number DA-WR 10(3)) that resulted in the Kalauao Springs Bridge (Westbound). With the construction of this second bridge, the original bridge accommodated the "inbound" (to Honolulu) traffic while the new bridge accommodated "outbound" (from Honolulu) traffic.

The postwar suburbanization and subsequent mass motorization of Oahu, particularly in this area of the island, brought single-family housing and shopping centers designed around the automobile and increased congestion, and Aiea expanded out of its original boundaries. HDOT responded with a third widening project (U-090-1(9)) in 1965-1966 that turned this stretch of highway into three lanes in each direction. With the widening of this road in the original bridge was modified by the removal of its original makai railing, the addition of an expansion joint, and an additional traffic lane, and a new makai concrete solid parapet with metal horizontal railings; a widening of nearly 14 feet. The original reinforced concrete girder deck remained, as well as the original mauka parapet, though two new prestressed reinforced concrete girders supported the widened portion, and the original abutments were replaced. Ewa district's development continued unabated through the rest of the twentieth century and into the twenty-first; the Honolulu High-Capacity Transit Corridor Project (Honolulu Rail Transit Project) project follows the Kamehameha Highway alignment over the bridge on a viaduct.

The 2013 SHBIE determined the Kalauao Springs (Eastbound) Bridge to be NRHP-eligible for its association with postwar community development (Criterion A). As a result of further research, the bridge has been determined to be not eligible.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge with ornamental railing that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete open Greek Cross parapets with curved

## Bridge Inventory Form

end posts represents a typical rail pattern used by the Territorial Highway Department. However, the widening of the bridge in 1966 that replaced the makai concrete open Greek Cross parapet and abutments has compromised the original character-defining features of the bridge. The concrete solid parapet with metal horizontal railings utilize standardized postwar bridge designs that would otherwise be exempted under the Program Comment if it was a standalone bridge. For these reasons, the bridge is not significant under Criterion C.

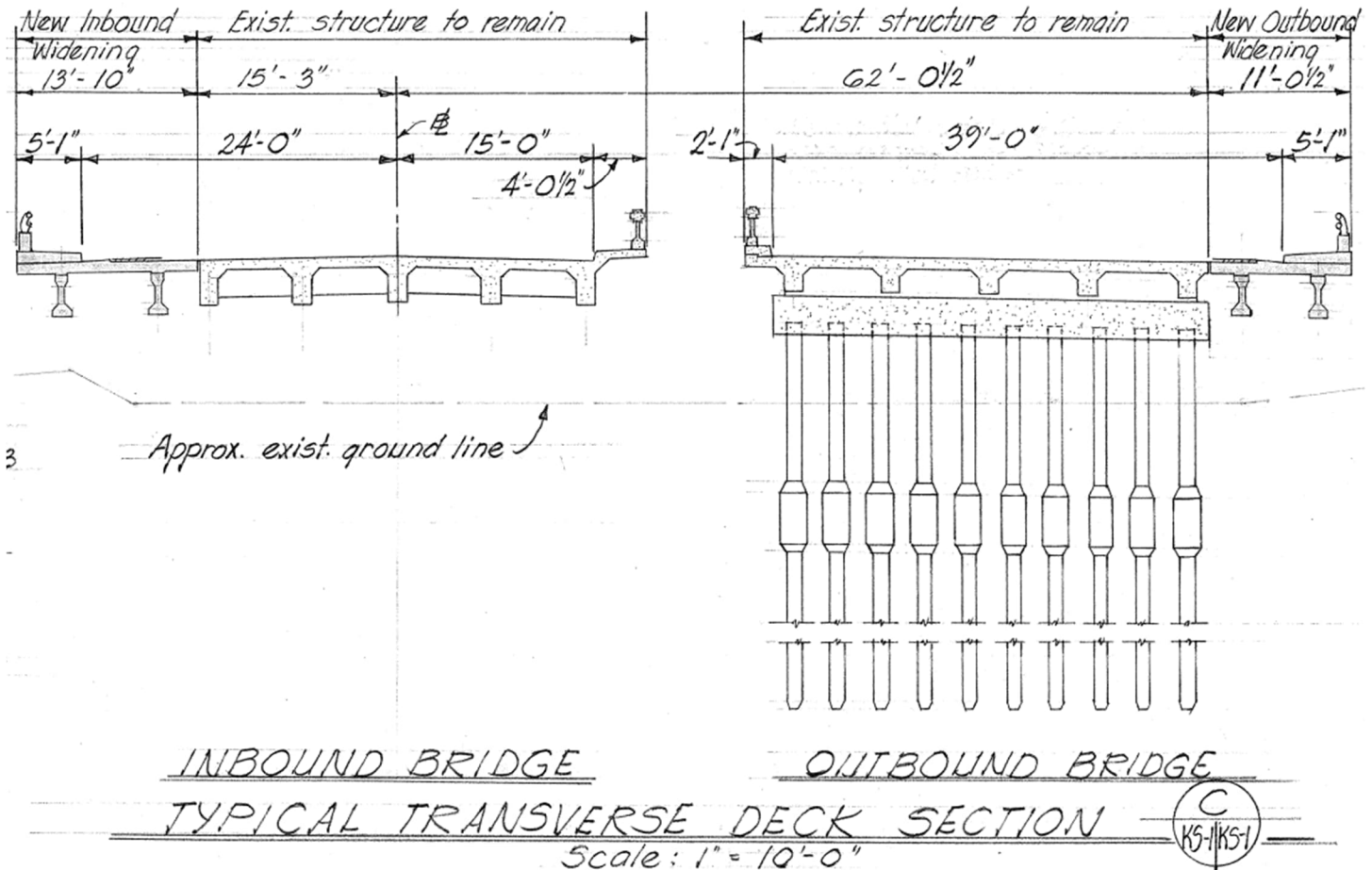
The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over the Kalauao Springs. Due to the road widening project in 1966, the bridge no longer retains integrity of design, materials, and workmanship. Alterations to the parapet, deck, and abutments significantly and negatively affected the bridge's integrity of workmanship, though it is not entirely lost due to the original deck girders and makai parapet remain from the 1936 bridge. The rapid suburbanization of Ewa and Aiea, and traffic congestion, meant that the former rural setting has lost integrity as well as its association with Territorial roadway improvements before World War II.

Therefore, the Kalauao Springs (Eastbound) Bridge is not eligible for the NRHP.

# Bridge Inventory Form

## Historic Images and Drawings



Above: Kalauao Springs (Eastbound) Bridge widening, note that it is called "Inbound Bridge" and the addition is called "New Inbound Widening." Note the original girders and parapet to the additional I-beams and parapet. (Source: State of Hawaii. Department of Transportation. Highways Division. "Kalauao Springs Bridge Widening, Inbound and Outbound," in "As Built" Plans of Kamehameha Highway Widening, Honomanu Street to Moanalua Road, Federal Aid Project No. U-090-1(9), District of Ewa, Island of Oahu. Approved July 22, 1965. Checked June 5, 1967. Sheet 67. Accessed May 16, 2023. <http://162.221.244.142:8080/As-Built/res/Oahu/Route%200099/0099-075/BRIDGE%20DETAILS.pdf>.)



# Bridge Inventory Form

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U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National Register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing northeast.



## Bridge Inventory Form




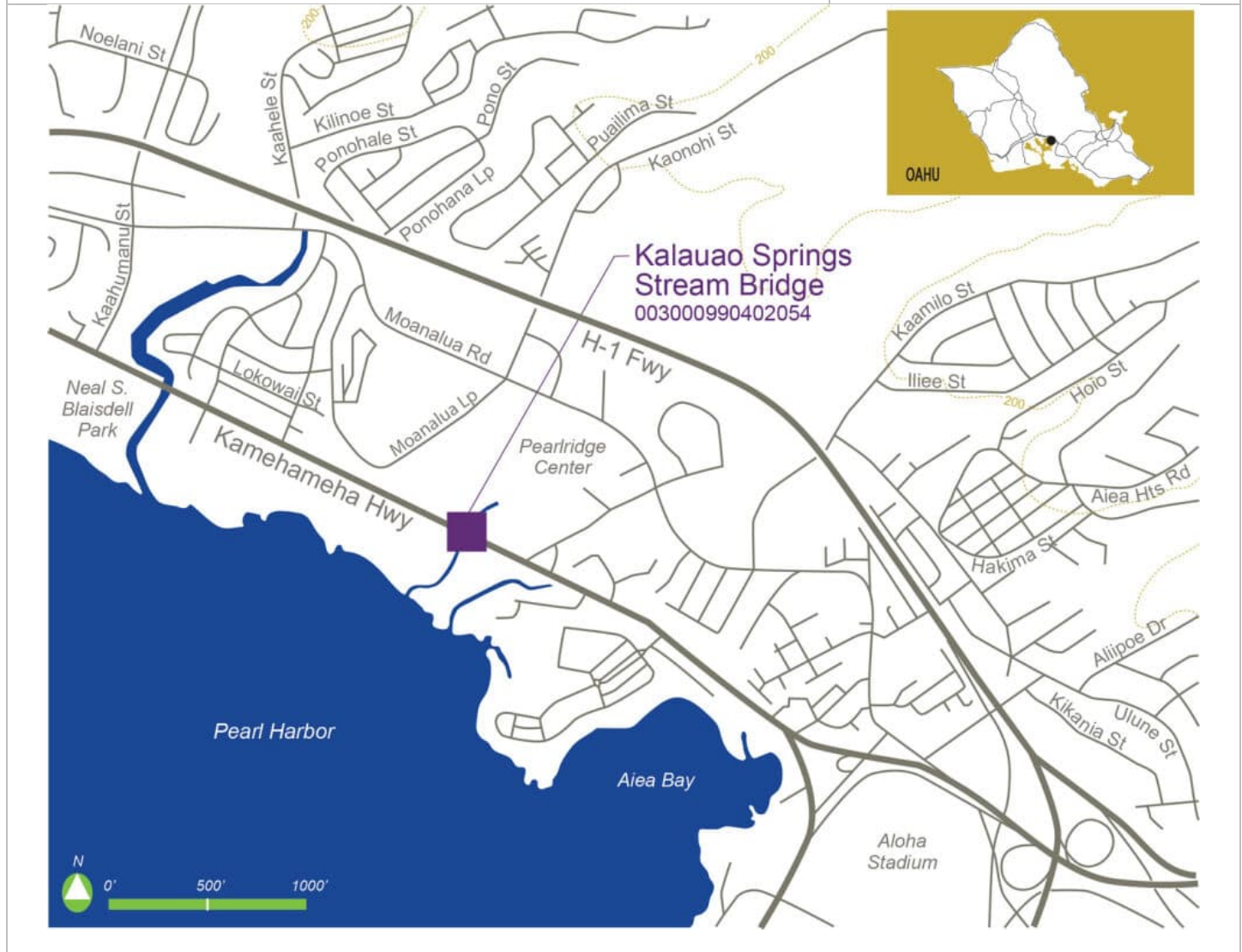
Image 2. Roadway, original parapet (left), and altered parapet (right), facing south.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000990402054		<b>TMK:</b> 198016045 (adjacent)	
<b>Common Name:</b> Kalauao Springs (Westbound)			
<b>Historic Name:</b> Kalauao Springs (Westbound)			
<b>Feature Crossed:</b> Kalauao Springs			
<b>Feature Carried:</b> Kamehameha Highway/Route 99			
<b>Island:</b> Oahu		<b>Milepost:</b> 20.52	
<b>Latitude:</b> 21.3821		<b>Longitude:</b> -157.9431	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023	



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Reinforced Concrete Girder, Prestressed Reinforced Concrete Stringer/Multi-beam or Girder	<b>Construction Date:</b> 1945
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b> E.E. Black, Ltd. (1945); Territorial Contractors (1965)	
<b>Alteration Date(s):</b> 1966, 2021	
<b>Alterations:</b> Bridge widened in 1966, addition of girders, replacement of abutments, one new parapet added to replace original; Asphalt Concrete surface repaved in 2021.	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 26.9 ft.	<b>Total Length:</b> 54.1 ft.	<b>Deck Width:</b> 46.3 ft.
<b>Superstructure:</b> Prestressed Concrete Girder/Beam, Reinforced Concrete Girder/Beam			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross (makai side) and Solid Concrete with Metal Horizontal (mauka side)			
<b>Other Features:</b> Bridge name and construction dates incised on end post			

## Historic Information

<b>NRHP Status:</b> Not Eligible	Criteria: A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-09-08064	
<b>6E Status:</b> Not Significant	Criteria: a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input type="checkbox"/> Setting <input type="checkbox"/> Materials <input type="checkbox"/> Workmanship <input type="checkbox"/> Feeling <input type="checkbox"/> Association <input type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge		<b>Historic Function:</b> Bridge
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b>		
<b>Supplemental Documentation:</b> HAER No. HI-115, HAER No. HI-116, HAER No. HI-117		
<b>Narrative Description:</b>  The Kalauao Springs (Westbound) Bridge carries the westbound lanes Kamehameha Highway over Kalauao Springs and is paired with the Kalauao Springs (Eastbound) Bridge (003000990402053). This single-span hybrid reinforced concrete and prestressed reinforced concrete girder beam bridge rests on reinforced concrete abutments. The three-		

## Bridge Inventory Form

lane reinforced concrete deck paved in Asphalt Concrete (AC) overlay rests on five reinforced concrete tee beams and two prestressed reinforced concrete I-beams and features two different railings. The makai side of the bridge features the original concrete open Greek Cross railings with straight stepped end posts, dating from 1945, while the mauka side of the bridge features concrete solid parapets with metal horizontal railings, dating from 1966. The bridge's name "Kalauao Springs Bridge" and 1966 construction date is visible on the easternmost end post on the mauka side.

### Statement of Significance:

The Kalauao Springs (Westbound) Bridge crosses one of the five large springs that form the north shore of Pearl Harbor on the outskirts of Aiea. The area was characterized by settlement in support of the Naval Base and economic activity along the Oahu Railway and Land Company's (OR&L) right-of-way. The bridge is also part of the Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, and it formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu. The Kalauao Springs (Eastbound) Bridge was built in 1936 as part of a new Kamehameha Highway alignment in National Recovery Highway Fund (NRH) project NRH 9-C. This stretch of highway was located at the edge of Aiea and landscaped to emphasize the sparsely settled area outside of town.

However, naval support facilities like the Aiea Naval Hospital and Aiea receiving barracks, in addition to the onset of World War II, brought traffic congestion to this stretch of the Kamehameha Highway. This resulted in the 1945 widening project that added two additional lanes to the Kamehameha Highway, divided between the roadway (project number DA-WR 10(2)) and structures (project number DA-WR 10(3)) that resulted in the Kalauao Springs Bridge (Westbound). With the construction of this second bridge, the eastbound bridge accommodated the "inbound" (to Honolulu) traffic while the new bridge accommodated "outbound" (from Honolulu) traffic.

The postwar suburbanization and subsequent mass motorization of Oahu, particularly in this area of the island, brought single-family housing and shopping centers designed around the automobile and increased congestion, and Aiea expanded out of its original boundaries. HDOT responded with a third widening project (U-090-1(9)) in 1965-1966 that turned this stretch of highway into three lanes in each direction. With the widening of this road in the original bridge was modified by the removal of its original mauka railing, the addition of an expansion joint, and an additional traffic lane, and a new makai concrete solid parapet with metal horizontal railings; a widening of just over 11 feet. The original reinforced concrete girder deck remained, as well as the original makai parapet, though two new prestressed reinforced concrete girders supported the widened portion, and the original abutments were replaced. Ewa district's development continued unabated through the rest of the twentieth century and into the twenty-first; the Honolulu High-Capacity Transit Corridor Project (Honolulu Rail Transit Project) follows the Kamehameha Highway alignment over the bridge on a viaduct.

The 2013 SHBIE determined the Kalauao Springs (Eastbound) Bridge to be NRHP-eligible for its association with postwar community development (Criterion A). As a result of further research, the bridge has been determined to be not eligible.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period and World War II, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge not significant under Criterion B.

The bridge is a result of developments in concrete bridge design and construction in Hawaii. It is a good example of a prestressed reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete open Greek Cross parapets with stepped end posts represents a typical rail pattern used by the Territorial Highway Department. However, the widening of the bridge in 1966 that replaced the original mauka concrete open Greek Cross parapet and abutments has compromised the original character-defining features of the bridge. The addition of prestressed reinforced concrete girders and

## Bridge Inventory Form

replacement concrete solid parapet with metal horizontal railings utilize standardized postwar bridge designs that would otherwise be exempted under the Program Comment if it was a standalone bridge. For these reasons, the bridge is not significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

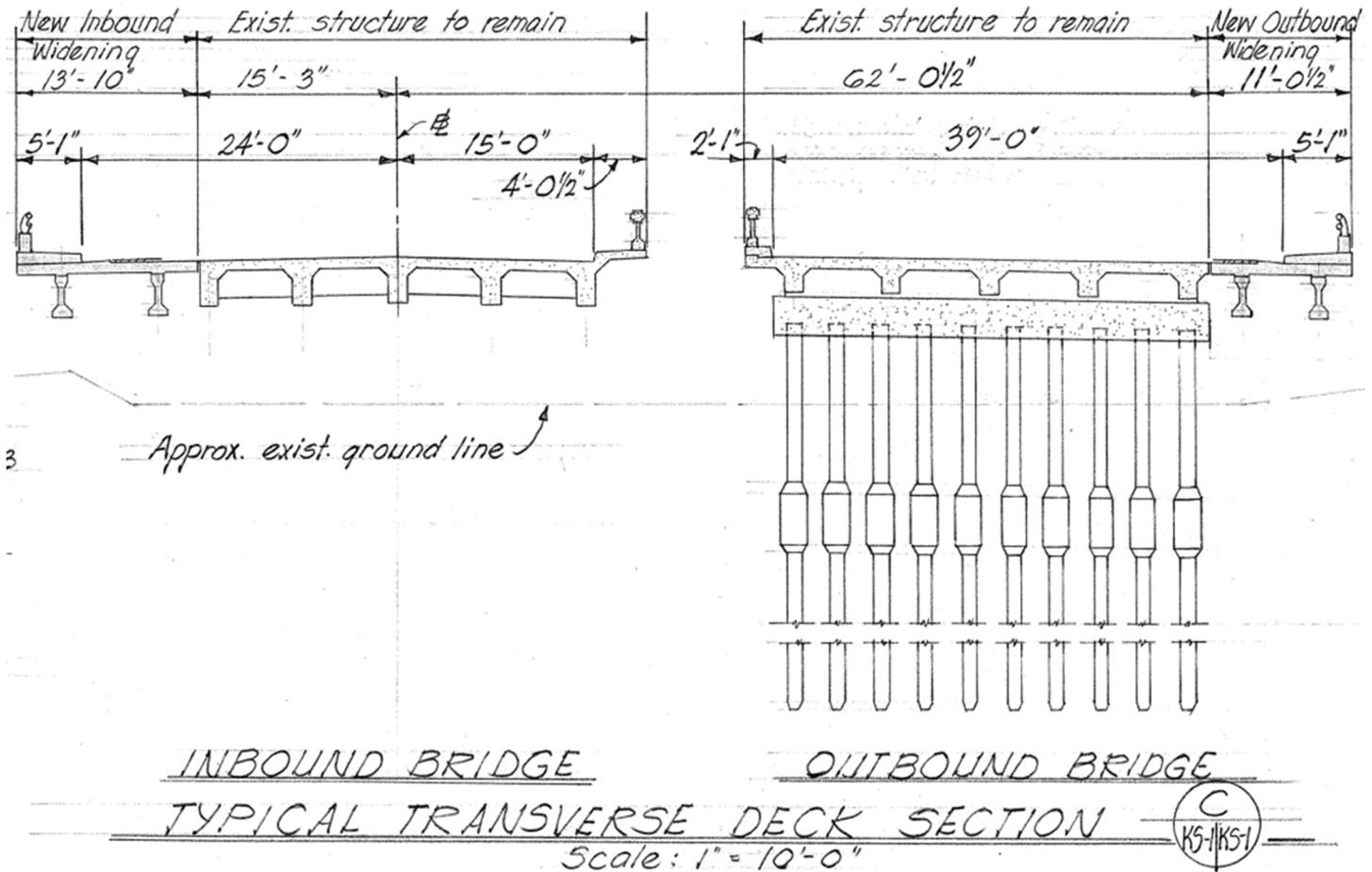
The bridge remains in its original location, situated over Kalauao Springs. Due to the road widening project in 1966, the bridge no longer retains integrity of design, materials, and workmanship. Alterations to the parapet, deck, and abutments significantly and negatively affected the bridge's integrity of workmanship, though it is not entirely lost due to the original deck girders and mauka parapet remaining from the 1945 bridge. The rapid suburbanization of Ewa and Aiea, and traffic congestion, meant that the former setting has lost integrity as well as its association with Territorial roadway improvements during and after World War II.

Therefore, the Kalauao Springs (Westbound) Bridge is not eligible for the NRHP.



# Bridge Inventory Form

## Historic Images and Drawings



Above: Kalauao Springs (Westbound) Bridge widening, note that it is called "Outbound Bridge" and the addition is called "New Outbound Widening." Note the original girders and parapet to the additional I-beams and parapet. (Source: State of Hawaii. Department of Transportation. Highways Division. "Kalauao Springs Bridge Widening, Inbound and Outbound," in "As Built" Plans of Kamehameha Highway Widening, Honomanu Street to Moanalua Road, Federal Aid Project No. U-090-1(9), District of Ewa, Island of Oahu. Approved July 22, 1965. Checked June 5, 1967. Sheet 67. Accessed May 16, 2023. <http://162.221.244.142:8080/As-Built/res/Oahu/Route%200099/0099-075/BRIDGE%20DETAILS.pdf>.)

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## References

- Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.
- Ruzicka, Dee. "Waimalu Bridge, Waimalu Stream Eastbound Bridge & Waimalu Stream Westbound Bridge, Kamehameha Highway and Waimalu Stream, Pearl City, Honolulu County, Hawaii, HAER No. HI-115." Historic American Engineering Record, National Park Service, U.S. Department of the Interior, Oakland, 2012.
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- U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National Register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing south.



## Bridge Inventory Form



Image 2. Roadway facing east. Note the original parapet (right) and altered parapet (left) from road widening.



## Bridge Inventory Form



Image 3. Detail of southwest parapet, facing north.

# Bridge Inventory Form

## General Information

Bridge Number: 003000830302282	TMK: 153009047	
Common Name: Kaluanui Stream		
Historic Name: Kaluanui Stream		
Feature Crossed: Kaluanui Stream		
Feature Carried: Kamehameha Highway/Route 83		
Island: Oahu	Milepost: 22.819	
Latitude: 21.59798	Longitude: -157.897	
Ownership: State		Image Date: 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1926
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2016, 2019, 2020	
<b>Alterations:</b> New coating was applied to the pedestrian walkway wood deck and rails in 2016. New galvanized steel outrigger supports were installed in June 2019 and below timber pedestrian walkway in 2020. Concrete soffit repaired throughout with 6-inch-thick layer of concrete in February 2020.	

## Design Information

<b>Number of Spans:</b> 7	<b>Max Span:</b> 18.0 ft	<b>Total Length:</b> 126.0 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	Criteria: A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> N/A	
<b>6E Status:</b> Significant Historic Property	Criteria: a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge		<b>Historic Function:</b> Bridge
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1926		
<b>Narrative Description:</b>		
<p>The Kaluanui Stream Bridge carries Kamehameha Highway across the Kaluanui Stream. This reinforced concrete tee beam is in its original location but in poor condition. The bridge has concrete solid panel parapets with flat caps and end posts. The reinforced concrete deck with gunnite sprayed at the bottom is supported by the concrete abutments and columns. Only the parapet caps have been painted white. A large utility pipe was added on the upstream side of the parapet. Thrie beams were bolted to the end posts, but the simple design of the parapet retains its historic feeling.</p>		

## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with solid railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete solid panel with cap parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve vehicular safety through the addition of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, the Kalauani Stream Bridge is eligible for the NRHP.



# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing west.

## Bridge Inventory Form



Image 2. Roadway and parapets, facing south.



## Bridge Inventory Form



Image 3. West parapet (left) and east parapet (right), facing north.



## Bridge Inventory Form



Image 4. East parapet, facing south.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000800300071		<b>TMK:</b> 171001017	
<b>Common Name:</b> Karsten Thot Bridge			
<b>Historic Name:</b> Kaukonahua Bridge			
<b>Feature Crossed:</b> North Fork of Kaukonahua Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 80			
<b>Island:</b> Oahu		<b>Milepost:</b> 0.67	
<b>Latitude:</b> 21.50088		<b>Longitude:</b> -158.0295	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023	



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Steel Truss	<b>Construction Date:</b> 1932
<b>Designer/Engineer:</b> G. K. Dawson	
<b>Builder/Contractor:</b> J. L. Young Engineering	
<b>Alteration Date(s):</b> 2015, 2017, 2021, 2022	
<b>Alterations:</b> Repair work. Bridge steel elements have been cleaned of corrosion and repainted. Corroded rivets were replaced with high strength bolts at top chord gusset plate connections. Repairs were made to above-deck truss elements.	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 210.0 ft.	<b>Total Length:</b> 213.9 ft.	<b>Deck Width:</b> 40.0 ft.
<b>Superstructure:</b> Steel Stringer, Steel Truss, Steel Floor Beam, Steel Gusset Plate			
<b>Substructure:</b> Reinforced Concrete Abutment, Reinforced Concrete Pile Cap/Footing			
<b>Floor/Decking:</b> Reinforced Concrete Deck			
<b>Parapets/Railings:</b> Metal Horizontal			
<b>Other Features:</b> Pedestrian walkways on both sides of the bridge and commemorative plaques			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-04-08068	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1932		
<b>Narrative Description:</b>  The Kaukonahua Bridge-Karsten Thot Bridge carries the Kamehameha Highway over the North Fork of Kaukonahua Stream. It is a through-deck Warren truss steel bridge. Its single span supports a two-lane roadway and two pedestrian walkways and sits on reinforced concrete abutments. Horizontal metal railings line the bridge deck, and commemorative plates clearly indicate the bridge's construction and association with Karsten Thot.		

# Bridge Inventory Form

## Statement of Significance:

The Kamehameha Highway, named after conqueror of the Hawaiian Islands King Kamehameha I, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. The Karsten Thot Bridge, a unique through-deck Warren truss design, is only one of two remaining 20<sup>th</sup>-century truss bridges in the state and is the only steel truss erected in Hawaii during the Depression-era. The bridge's construction was authorized by the City and County of Honolulu, despite the Territorial Highway Department's policy against the use of metal bridges due to saltwater corrosion problems. The Kaukonahua Stream required a relatively long span (210 feet), consequently steel must have been selected over concrete for cost considerations. The bridge was built by the John L. Young Construction and Engineering Company. The company merged with another construction company, and, upon completion of the bridge, called itself the Hawaiian-American Construction Co. The designer was, G. K. Dawson, an engineer with the City and County of Honolulu.

The bridge was an important transportation link for the central Oahu region and contributed to the growth of Wahiawa. Kamehameha Highway was the major artery between Honolulu and the rural communities on the North Shore until the H-2 Interstate was built in the 1970s. The Karsten Thot Bridge was constructed at a major crossing, the North Fork of the Kaukonahua Stream, north of Wahiawa, a sugar plantation town in central Oahu. The bridge is named after Karsten Thot, a supervisor for the Hawaiian Pineapple Company, who was very active in community affairs. Mr. Thot was born in Schleswig-Holstein, Germany on February 12, 1889, and moved to Hawaii in 1904. Upon his death in 1932, the Honolulu Board of Supervisors voted to name the new bridge after him. In 1974, a memorial plaque was finally placed on the bridge by the family. Between 2015 and 2022, repairs to the bridge's superstructure were made to maintain its structural integrity.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past. National Register Bulletin 15, *How to Apply the National Register Criteria for Evaluation*, provides additional guidance for evaluating individuals under Criterion B. While the bridge is associated with G. K. Dawson and J. L. Young, master engineers are represented by their works and evaluated under Criterion C. Additionally, the bridge's name is commemorative in nature, and it does not best represent Karsten Thot's productive life. Therefore, the bridge is not significant under Criterion B.

The bridge's steel construction is an example of a distinctive and rare structural type, as the extreme marine environment of Hawaii precluded widespread use of steel. The bridge is also associated with masters G. K. Dawson and J. L. Young. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The Karsten Thot Bridge remains in its original location. The bridge's setting has retained its rural character; however, Kamehameha Highway – once the primary road – was bypassed by the construction of the H-2 Interstate in the 1970s. The bridge's original Warren truss design and riveted steel materials remain intact, with no major alterations. In January 1996, the bridge was cleaned and repainted and some of the steel cross braces were repaired. The bridge retains its integrity of feeling as a Depression-era truss bridge and its integrity of association with major transportation improvements on the Kamehameha Highway during that time.

Therefore, the Karsten Thot Bridge is eligible for the NRHP.



# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing south.

## Bridge Inventory Form



Image 2. Bridge deck and trusses, facing south.



## Bridge Inventory Form




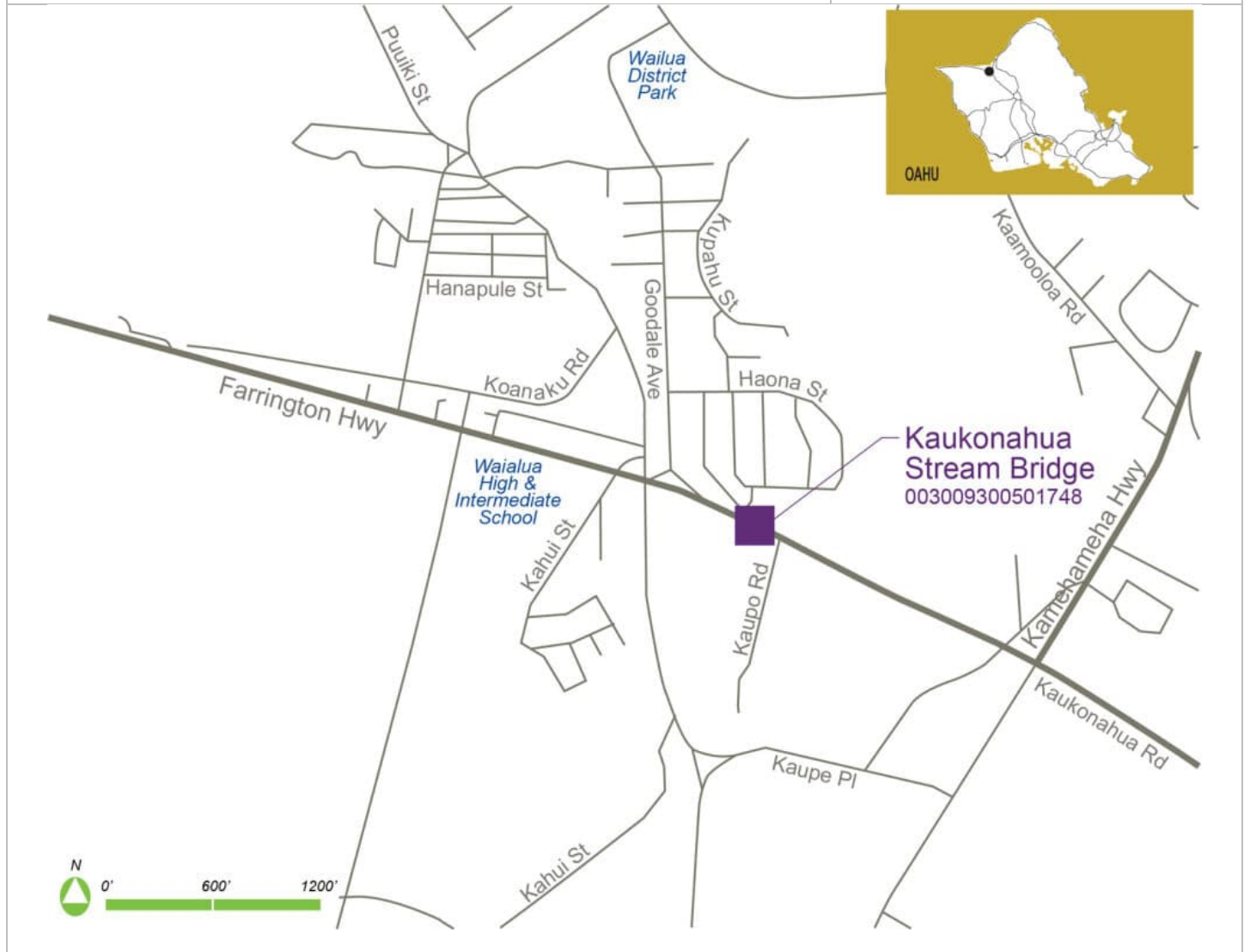
Image 3. View of pedestrian walkway and trusses, facing south.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003009300501748		<b>TMK:</b> 166025007 (adjacent)	
<b>Common Name:</b> Kaukonahua Stream Bridge			
<b>Historic Name:</b> Kaukonahua Stream Bridge			
<b>Feature Crossed:</b> Kaukonahua Stream			
<b>Feature Carried:</b> Farrington Highway/Route 930			
<b>Island:</b> Oahu	<b>Milepost:</b> 6.15		
<b>Latitude:</b> 21.56527	<b>Longitude:</b> -158.1203		
<b>Ownership:</b> State			<b>Image Date:</b> 07/31/2019



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Tee Beam	<b>Construction Date:</b> 1940
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 54.1 ft.	<b>Total Length:</b> 148.0 ft.	<b>Deck Width:</b> 37.4 ft.
<b>Superstructure:</b> Concrete Continuous Tee Beam			
<b>Substructure:</b> Concrete Abutment, Concrete Pier Wall			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Other Features:</b> Bridge name and construction date incised on end posts			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-04-08070	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1940		
<b>Narrative Description:</b>  The Kaukonahua Stream Bridge carries the Farrington Highway across the Kaukonahua Stream. This two-span concrete continuous tee beam bridge rests on concrete abutments and one pier wall. The reinforced concrete deck carries a two-lane roadway paved in asphalt-concrete overlay. Flanking the roadway are two concrete open Greek Cross railings with caps and squared end posts that feature the bridge name and construction date. The original approach walls have been widened and have three beams attached to them.		

# Bridge Inventory Form

## Statement of Significance:

The Farrington Highway, named after Territorial Governor Wallace Farrington, who drafted the Territory's 1924 Bill of Rights, was integral to an effective transportation system on Oahu by 1941. The Kaukonahua Stream Bridge resulted from a 1940 Federal Aid Project to bolster National Defense by connecting Schofield Barracks to Dillingham Air Field. The Kaukonahua Stream Bridge is a typical reinforced concrete bridge with ornamental railing commonly found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1940s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of open Greek Cross parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve vehicular safety through the use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1940s.

Therefore, the Kaukonahua Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.



## Bridge Inventory Form



Figure 1. Kaukonahua Stream Bridge, general view facing west. Source: Google Street View July 2019.

## Bridge Inventory Form




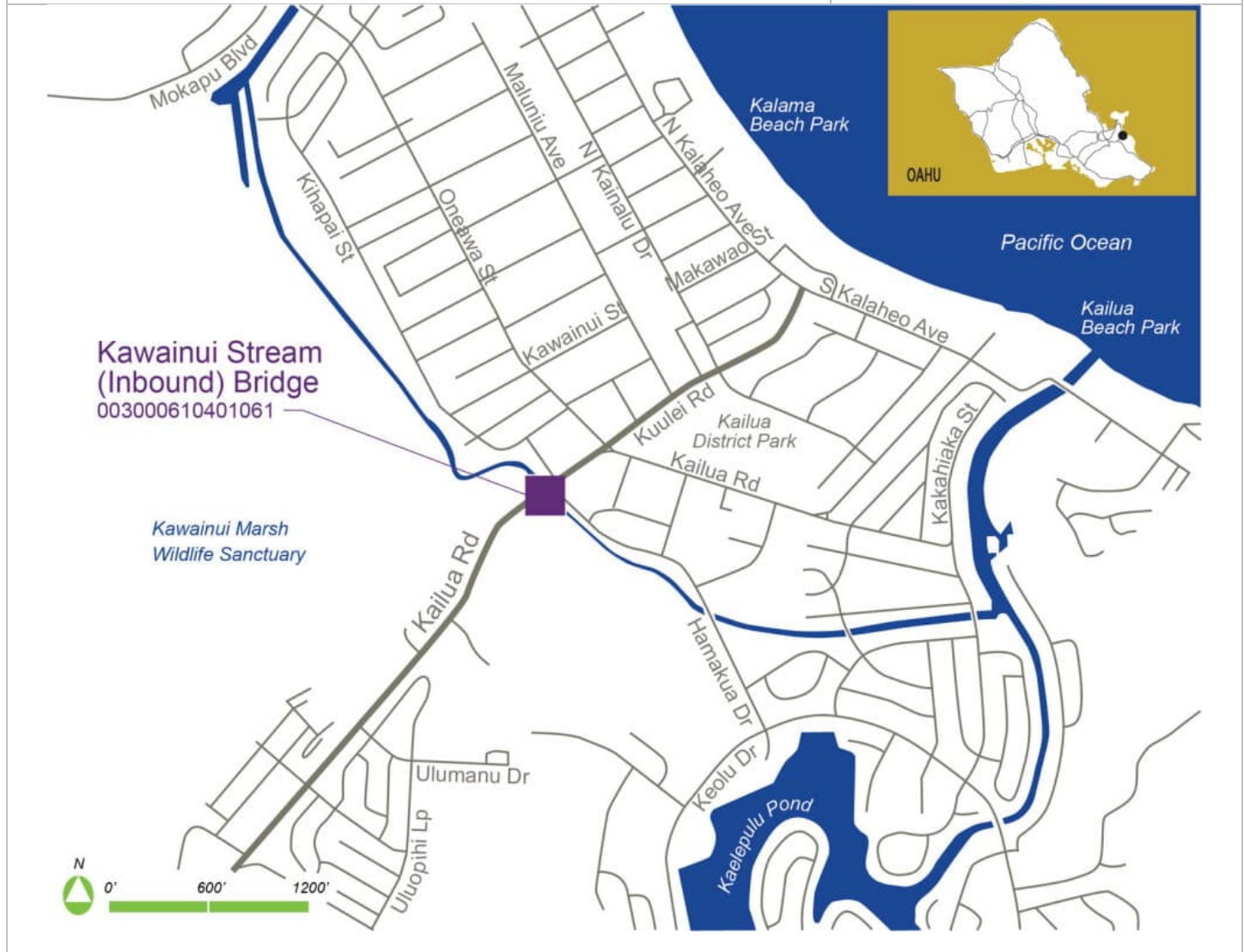
Figure 2. Kaukonahua Stream Bridge, detail of north parapet. Source: Google Street View July 2019.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000610401061	<b>TMK:</b> 142016013 (adjacent)	
<b>Common Name:</b> Kawainui Stream (Inbound)		
<b>Historic Name:</b> Kawainui Stream (Inbound)		
<b>Feature Crossed:</b> Kawainui Stream		
<b>Feature Carried:</b> Kailua Road/Route 61		
<b>Island:</b> Oahu	<b>Milepost:</b> 10.61	
<b>Latitude:</b> 21.39309	<b>Longitude:</b> -157.7455	
<b>Ownership:</b> State		<b>Image Date:</b> 110/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1940
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 57.1 ft.	<b>Deck Width:</b> 30.2 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Other Features:</b> Bridge name incised on end posts.			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-11-08071	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1940		
<b>Narrative Description:</b>  The Kawainui Stream (Inbound) Bridge carries the Kailua Road over the Kawainui Stream. This bridge is paired with the Kawainui Stream (Outbound) Bridge (003000610401060) for travel in the opposite direction. The Kawainui Stream (Inbound) is a concrete slab bridge that is carried over 3 spans and rests on reinforced concrete pile bents and abutment walls. The two-lane roadway is paved in asphalt concrete overlay and is flanked by concrete open Greek cross railings and solid stepped end posts, all painted white. The bridge name is incised on the southbound end posts.		



## Bridge Inventory Form

### Statement of Significance:

The Kawainui Stream (Inbound) Bridge links the Kailua Road with the Pali Highway, an important connection between Honolulu and the windward side of Oahu, though it does predate the highway's construction. Prior to the Pali Highway's construction in 1959, the Nuuanu Pali Drive connected Honolulu with the windward side of Oahu. Rapid population growth in Kailua, increased automobile use, and military transportation needs all contributed to the bridge's construction in 1940.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1940s reinforced concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete open Greek Cross parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1940s.

Therefore, the Kawainui Stream (Inbound) Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing southwest.



## Bridge Inventory Form



Image 2. Overhead view of bridge, facing southwest.



## Bridge Inventory Form



Image 3. View of northwest (right) and southeast (left) parapets, facing southwest.

## Bridge Inventory Form



Image 4. View of southwest abutment and bridge pier, facing west.



## Bridge Inventory Form

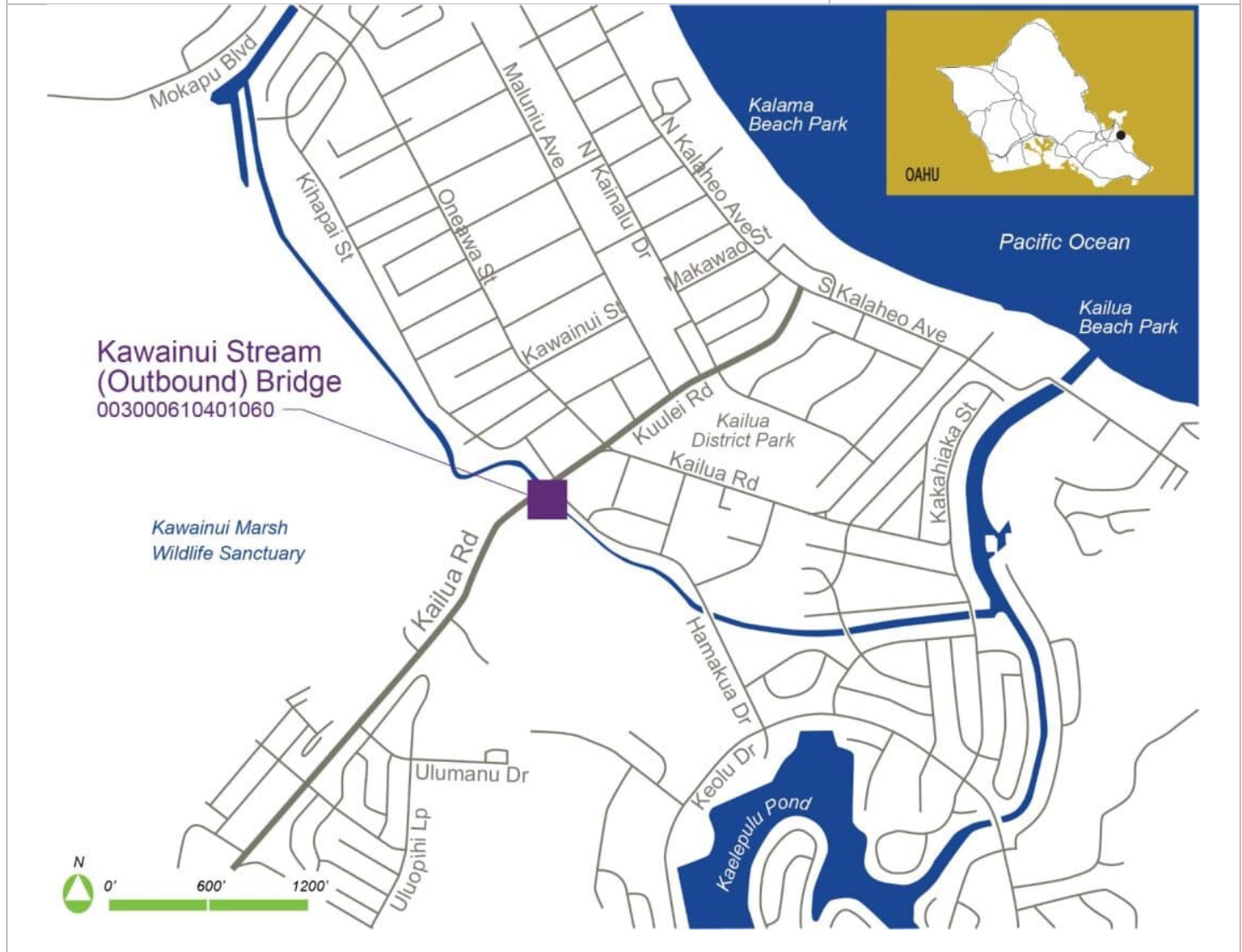


Image 5. Northeast abutment and bridge pier, facing north.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000610401060		<b>TMK:</b> 142003030	
<b>Common Name:</b> Kawainui Stream (Outbound)			
<b>Historic Name:</b> Kawainui Stream (Outbound)			
<b>Feature Crossed:</b> Kawainui Stream			
<b>Feature Carried:</b> Kailua Road/Route 61			
<b>Island:</b> Oahu		<b>Milepost:</b> 10.6	
<b>Latitude:</b> 21.39299		<b>Longitude:</b> -157.7454	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023





# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1940
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2014	
<b>Alterations:</b> Newly painted parapet	

## Design Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 17.1 ft.	<b>Total Length:</b> 54.1 ft.	<b>Deck Width:</b> 30.8 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Other Features:</b> Bridge name and construction date incised on end posts			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-11-08072	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1941		
<b>Narrative Description:</b>  The Kawainui Stream (Outbound) Bridge carries the Kailua Road over the Kawainui Stream. This bridge is paired with the Kawainui Stream (Inbound) Bridge (003000610401061) for travel in the opposite direction. The Kawainui Stream (Outbound) Bridge is a three-span structure that rests on concrete abutments and two concrete pile bents. The concrete deck carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are concrete open Greek Cross railings and solid, stepped end posts, all painted white. The end posts have the bridge name and construction date incised on them.		

## Bridge Inventory Form

### Statement of Significance:

The Kawainui Stream (Outbound) Bridge links the Kailua Road with the Pali Highway, an important connection between Honolulu and the windward side of Oahu, though it does predate the highway's construction. Prior to the Pali Highway's construction in 1959, the Nuuanu Pali Drive connected Honolulu with the windward side of Oahu. Rapid population growth in Kailua, increased automobile use, and military transportation needs all contributed to the bridge's construction in 1940.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1940s reinforced concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete open Greek Cross parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1940s.

Therefore, Kawainui Stream (Outbound) Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. East elevation, facing northwest.



## Bridge Inventory Form



Image 2. Overhead view of bridge, facing northwest.

## Bridge Inventory Form



Image 3. Northwest parapet and roadway, facing north. Note bridge name incised on west parapet end pier.



## Bridge Inventory Form



Image 4. View of southwest parapet, facing east,



## Bridge Inventory Form



Image 5. Southwest abutment, bridge piers, and northwest parapet, facing south.




## Bridge Inventory Form

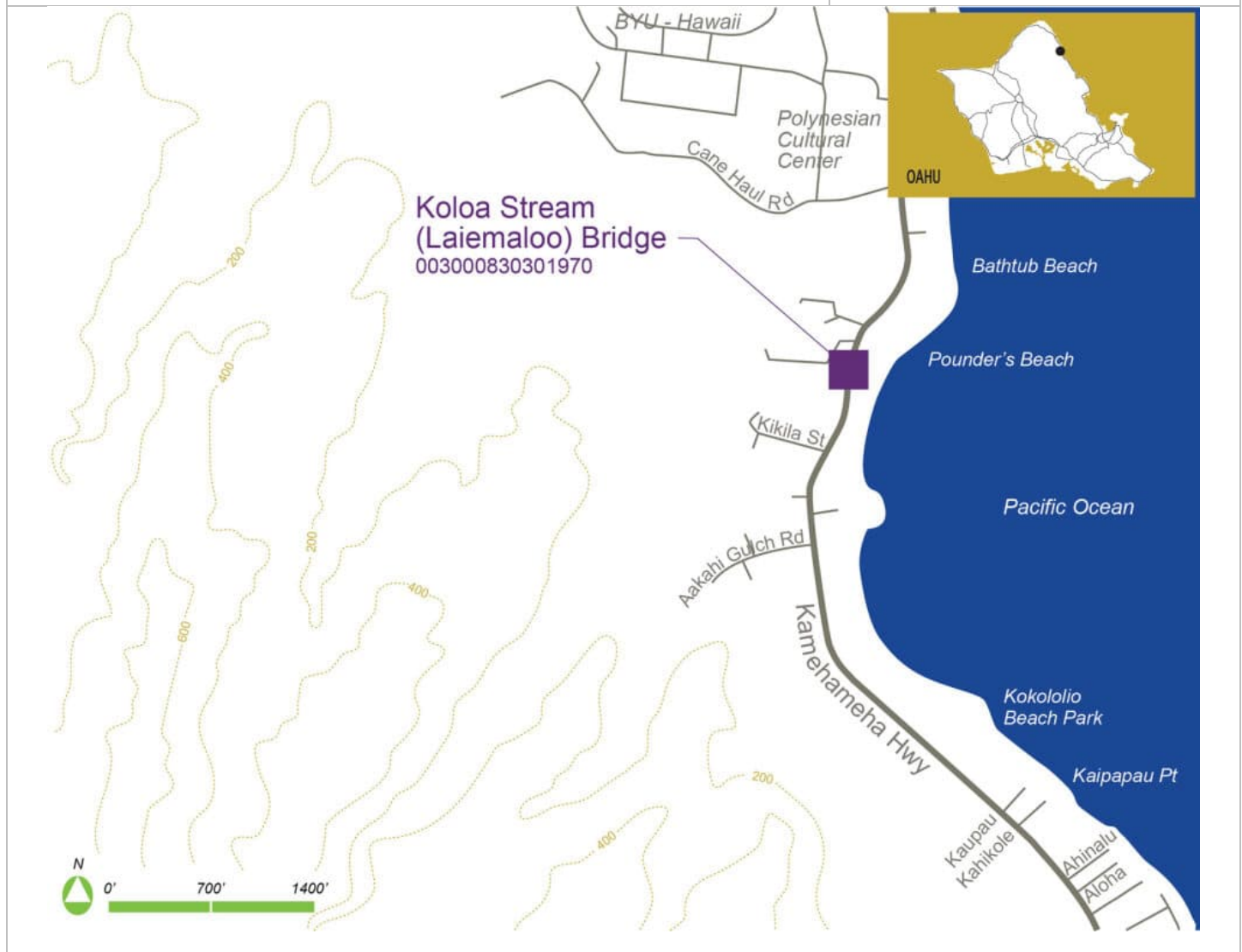


Image 6. View of pier, and northeast abutment, facing north.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830301970	<b>TMK:</b> 155001048 (adjacent)	
<b>Common Name:</b> Koloa Stream-Laiemaloo Bridge		
<b>Historic Name:</b> Koloa Stream-Laiemaloo Bridge		
<b>Feature Crossed:</b> Koloa Stream-Laiemaloo		
<b>Feature Carried:</b> Kamehameha Highway/Route 83		
<b>Island:</b> Oahu	<b>Milepost:</b> 19.699	
<b>Latitude:</b> 21.63274	<b>Longitude:</b> -157.9213	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1933
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1986	
<b>Alterations:</b> Wood pedestrian bridge added in 1986.	

## Design Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 89.9 ft.	<b>Deck Width:</b> 27.2 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Reinforced Concrete Slab, Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-02-08077	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b>	<b>Historic Function:</b>	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1933		
<b>Supplemental Documentation:</b> HAER No. HI-124		
<b>Narrative Description:</b>  The Koloa Stream-Laiemaloo Bridge carries the Kamehameha Highway over the Koloa Stream. This concrete slab bridge rests on reinforced concrete piers and abutments. The concrete slab deck carries a two-lane roadway and is flanked by solid concrete railings with caps and curved end piers. At one point, the railings were painted white for increased visibility, but the paint has faded. In 1986, a wooden pedestrian walkway was added to the mauka side of the bridge. Metal thrie beams have been attached to the end posts.		



# Bridge Inventory Form

## Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete slab with ornamental railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete parapets and curved end posts represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through construction of a wood walkway and the addition of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, the Koloa Stream-Laiemaloo Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing northwest.



## Bridge Inventory Form



Image 2. Bridge approach, parapets, and pedestrian walkway, facing south.



## Bridge Inventory Form



Image 3. Bridge piers and pedestrian walkway, facing northeast.

## Bridge Inventory Form




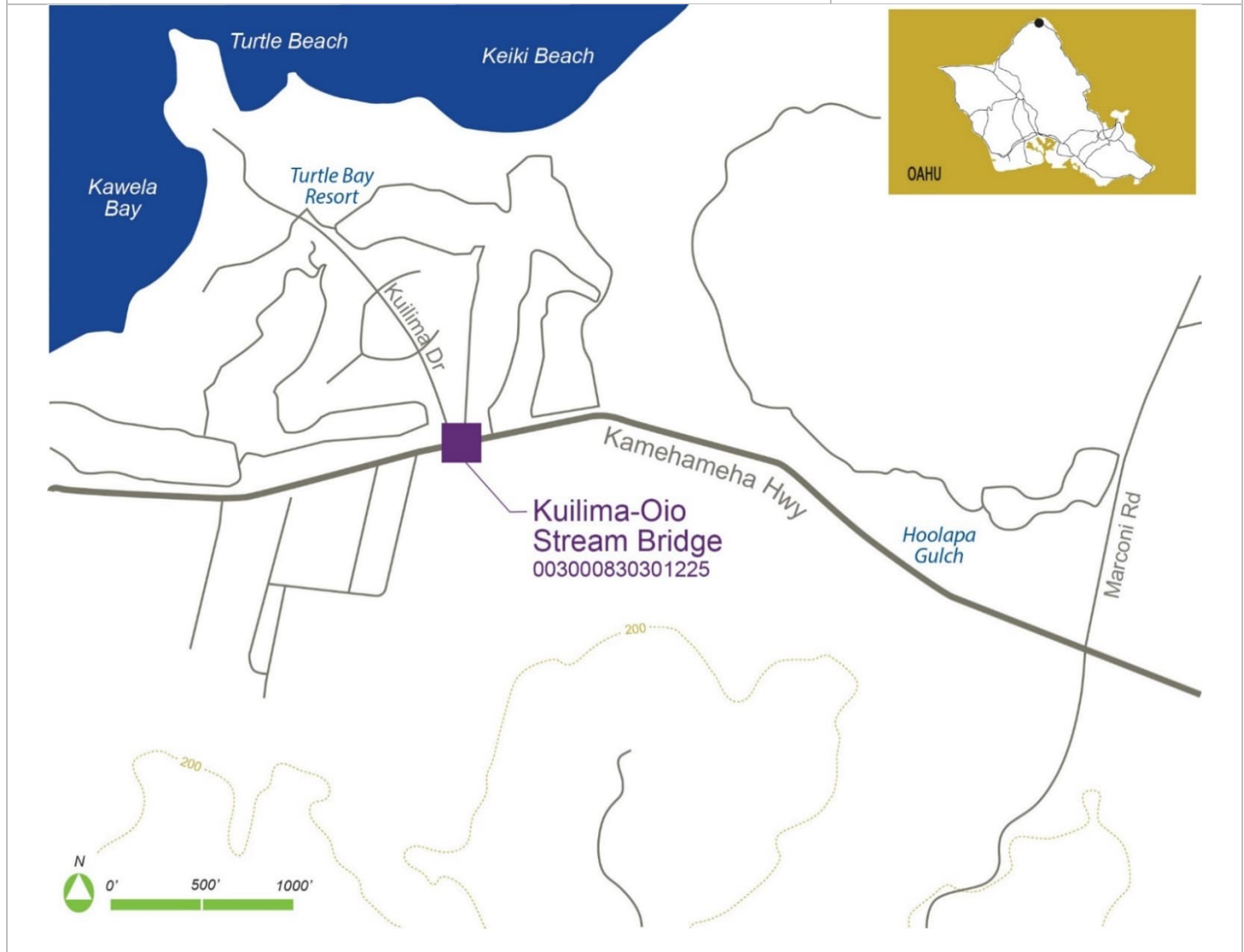
Image 4. South abutment, facing south.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830301255		<b>TMK:</b> 157001052 (adjacent)	
<b>Common Name:</b> Kuilima-Oio Stream Bridge			
<b>Historic Name:</b> Kuilima-Oio Stream Bridge			
<b>Feature Crossed:</b> Kuilima-Oio Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 12.55	
<b>Latitude:</b> 21.697598		<b>Longitude:</b> -157.99217	
<b>Ownership:</b> State		<b>Image Date:</b> 12/27/2023	





# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1931
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2016, 2018	
<b>Alterations:</b> Replacement parapets, painting on top portion of railings, new vehicle restraint systems (VRS) along both sides of bridge	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 21.0 ft.	<b>Total Length:</b> 24.9 ft.	<b>Deck Width:</b> 27.6 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Metal Railing			
<b>Other Features:</b> Bridge Name and Original Construction Date Incised on End Posts			

## Historic Information

<b>NRHP Status:</b> Not Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-02-08078	
<b>6E Status:</b> Not Significant	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input type="checkbox"/> Setting <input type="checkbox"/> Materials <input type="checkbox"/> Workmanship <input type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b>		
<b>Period of Significance:</b>		
<b>Narrative Description:</b>  The Kuilima-Oio Stream Bridge carries the Kamehameha Highway over the Kuilima-Oio Stream. This single-span concrete tee beam bridge rests on concrete abutments. A concrete deck paved in AC overlay is flanked by non-original concrete solid panel parapets with metal railings above, with end posts that feature the bridge name and construction date incised on them. Thrie beams have been attached to the end posts.		

## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. The Kuilima-Oio Stream Bridge was built as part of Federal Aid Project No. 3C and listed as "Bridge No. 2" in construction plans. Its design, a concrete tee beam with solid railing and curved end posts, was a common type of bridge found in Hawaii prior to World War II. Between 2015 and 2020, Federal Project No. NH-083-1(072) saw the resurfacing of the Kamehameha Highway in the area. In 2018, the original concrete solid panel with cap parapets and curved end posts were replaced by concrete solid panel parapets with no cap and metal railing and straight end posts. The parapets also feature the 1931 construction date but do not indicate a replacement date. While reflecting the original design intent, the replacement parapets appear as bulky, contemporary replacements.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid parapets represents a typical rail pattern used by the Territorial Highway Department. Their replacement in 2018 means the bridge is no longer significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway, and it retains its association with Territorial roadway improvements during the 1930s. Due to work undertaken in 2018 that resulted in significant alterations to the original parapets, the bridge no longer retains integrity of design, materials, workmanship, and feeling. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain.

Therefore, the Kuilima-Oio Stream Bridge is not eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

"Kamehameha Highway, Federal Aid Project No. 3C." <http://162.221.244.142:8080/As-Built/res/Oahu/Route%200083/0083-009/0083-009.htm>.

"Kamehameha Highway Resurfacing, Dairy Road to Laiewai Bridge, Federal Aid Project No. NH-083-1(072)." <http://162.221.244.142:8080/As-Built/res/Oahu/Route%200083/0083-1054-D1C1/0083-1054-D1C1.htm>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.



## Bridge Inventory Form



Figure 1. Kuilima-Oio Stream Bridge general view facing south.



## Bridge Inventory Form



Figure 2. Kuilima-Oio Stream Bridge view of abutment and bridge deck.



## Bridge Inventory Form



Figure 3. Kuilima-Oio Stream Bridge view of parapets and road, facing west. Note bridge name (left) and original construction date (right) incised onto parapets.




## Bridge Inventory Form

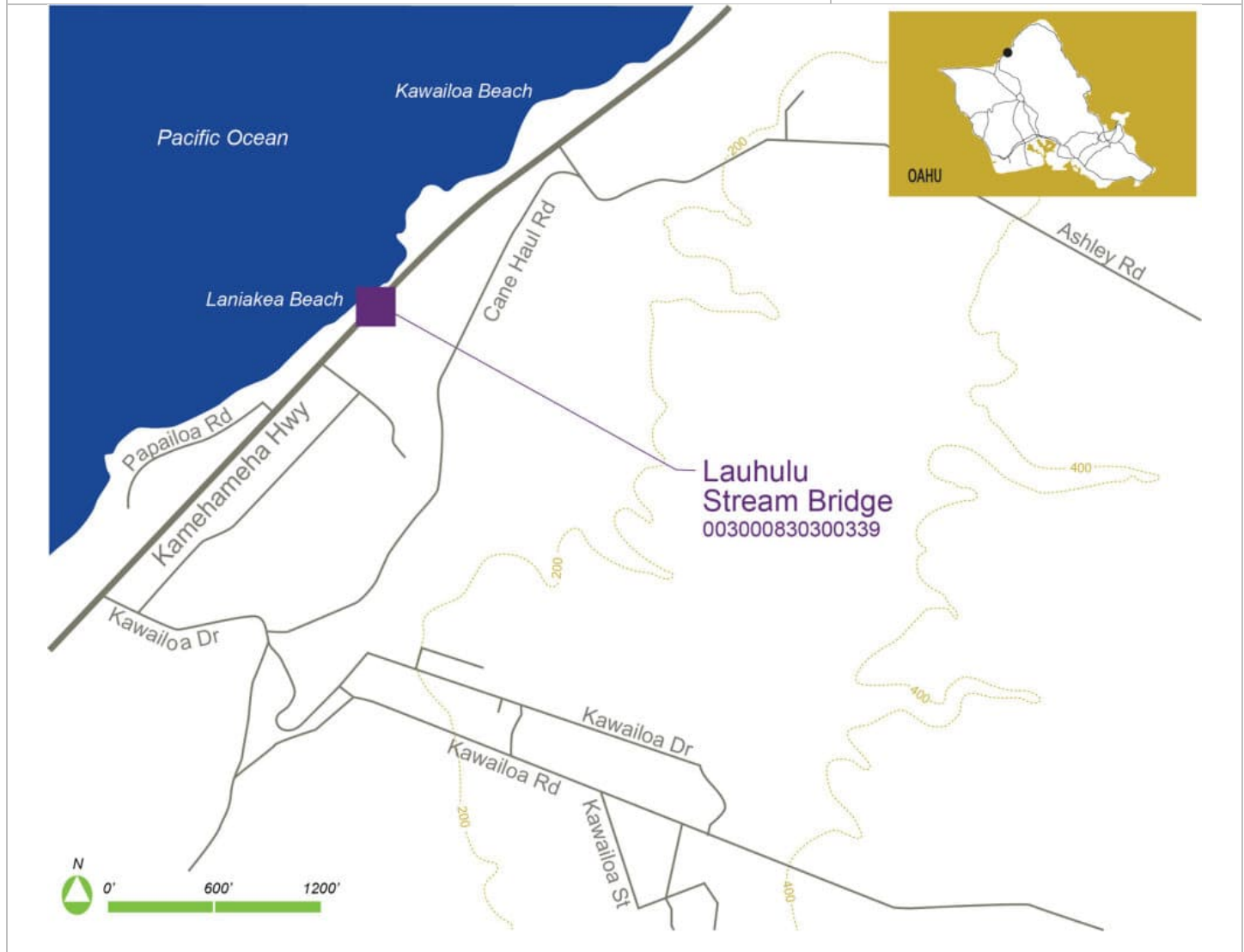


Figure 4. Kuilima-Oio Stream Bridge view of original parapets and road, facing west, August 2011 image. Source: Google Street View.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830300339		<b>TMK:</b> 161010020 (adjacent)	
<b>Common Name:</b> Lauhulu Stream Bridge			
<b>Historic Name:</b> Lauhulu Stream Bridge			
<b>Feature Crossed:</b> Lauhulu Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 3.39	
<b>Latitude:</b> 21.61713		<b>Longitude:</b> -158.0867	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1937
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> c. 2005, 2014	
<b>Alterations:</b> In c. 2005, sections of substructure were sprayed to cover areas of spalling or exposed rebar; additional maintenance activities in 2014 to repair spalls and cracks; installation of thrie beams, date unknown.	

## Design Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 33.1 ft.	<b>Total Length:</b> 69.9 ft.	<b>Deck Width:</b> 32.2 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Reinforced Concrete Pier Wall, Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Slab with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Other Features:</b> Bridge name incised on end posts			

## Historic Information

<b>NRHP Status:</b> Eligible	Criteria: A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Listed	<b>SIHP No.:</b> 50-80-04-08080	
<b>6E Status:</b> Significant Historic Property	Criteria: a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1937		
<b>Narrative Description:</b>  <p>The Lauhulu Stream Bridge carries the Kamehameha Highway over the Lauhulu Stream. This concrete continuous slab bridge rests on reinforced concrete piers and abutments. The slab deck carries a two-lane roadway paved with AC overlay. Flanking the roadway are concrete open Greek cross railings with curved end posts. The bridge name has been incised on two of four end posts. Thrie beams were bolted to the end posts, and small triangular concrete blocks were attached to the posts to create a flat surface. The thrie beam partially covers the bridge name engravings. A</p>		



## Bridge Inventory Form

utilities conduit is also affixed to the mauka side of the bridge, though it is unseen from the deck. Overall, the bridge remains in good condition with minor spalling. The bridge appears largely unchanged since its prior evaluation in 2013.

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with ornamental railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete open Greek cross parapets represents a typical rail pattern used by the Territorial Highway Department. The bridge retains its character-defining features, with only minor spalling and spalling repairs and the bridge name engravings on the railing end posts partially obstructed by three beams. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over the Lauhulu Stream. It retains integrity of design, materials, and workmanship despite modest changes to improve vehicular safety through use of three beams and reinforcement to its substructure through the use of a concrete spray. As a result, the bridge's character-defining features remain visible and the use of unsympathetic materials to increase vehicular safety are minor. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, Lauhulu Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing northwest.



Image 2. Bridge deck and parapets, facing northeast.




## Bridge Inventory Form

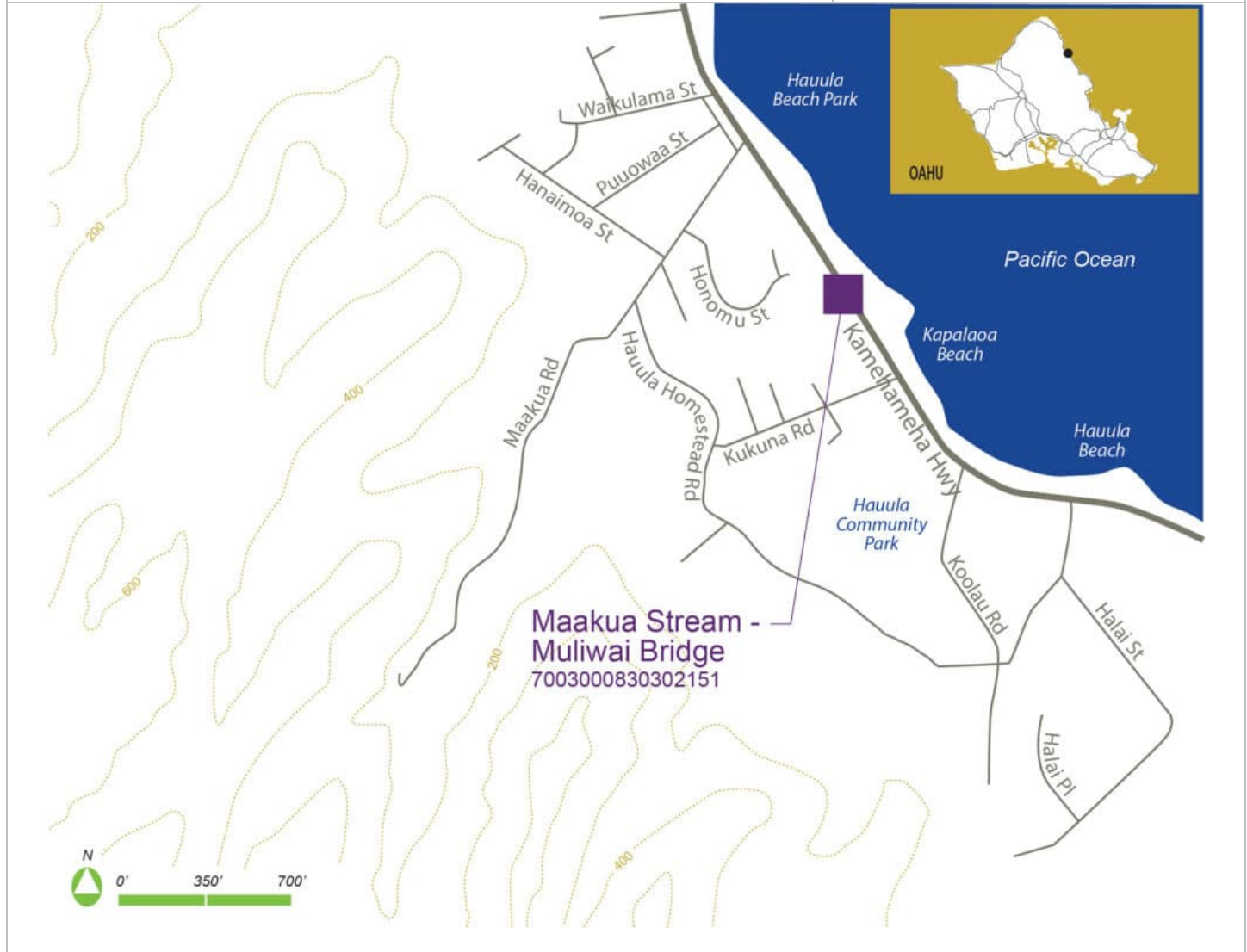


Image 3. Northeast abutment, bridge pier, and northwest parapet, facing east.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302151		<b>TMK:</b> 154001025 (adjacent)	
<b>Common Name:</b> Maakua Stream-Muliwai Bridge			
<b>Historic Name:</b> Maakua Stream-Muliwai Bridge			
<b>Feature Crossed:</b> Maakua Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 21.509	
<b>Latitude:</b> 21.61054		<b>Longitude:</b> -157.9103	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1932
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1997, 2016	
<b>Alterations:</b> Pedestrian Bridge added on Mauka Side in 1997, new coating applied to wood gangway and railings in 2016.	

## Design Information

<b>Number of Spans:</b> 6	<b>Max Span:</b> 19.0 ft.	<b>Total Length:</b> 109.9 ft.	<b>Deck Width:</b> 26.9 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-05-08081	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1932		
<b>Supplemental Documentation:</b> HAER No. HI-124		
<b>Narrative Description:</b>  The Maakua Stream-Muliwai Bridge carries the Kamehameha Highway over the Maakua Stream. This six-span concrete continuous slab rests on concrete abutments and concrete pile bents. The concrete deck carries a two-lane roadway paved in asphalt-concrete (AC) overlay and is flanked by concrete solid panel with cap railings and curved end		



## Bridge Inventory Form

posts. Thrie beams have been attached to the end posts, and a wood pedestrian walkway with wood horizontal railings was added to the mauka side of the bridge in 1997.

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete continuous slab with solid concrete with cap railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete with cap parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through the addition of a wood walkway and use of thrie beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, the Maakua Stream-Muliwai Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

- Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.
- Ruzicka, Dee. "Waipilopilo Bridge, Kamehameha Highway (Route 83) and Waipilopilo Stream, Hauula, Honolulu County, Hawaii, HAER No. HI-124." Historic American Engineering Record, National Park Service, U.S. Department of the Interior, San Francisco, 2015.
- State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.
- U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing west.



## Bridge Inventory Form



Image 2. General view of bridge, facing east.



## Bridge Inventory Form



Image 3. Bridge approach and parapets, facing south.



## Bridge Inventory Form




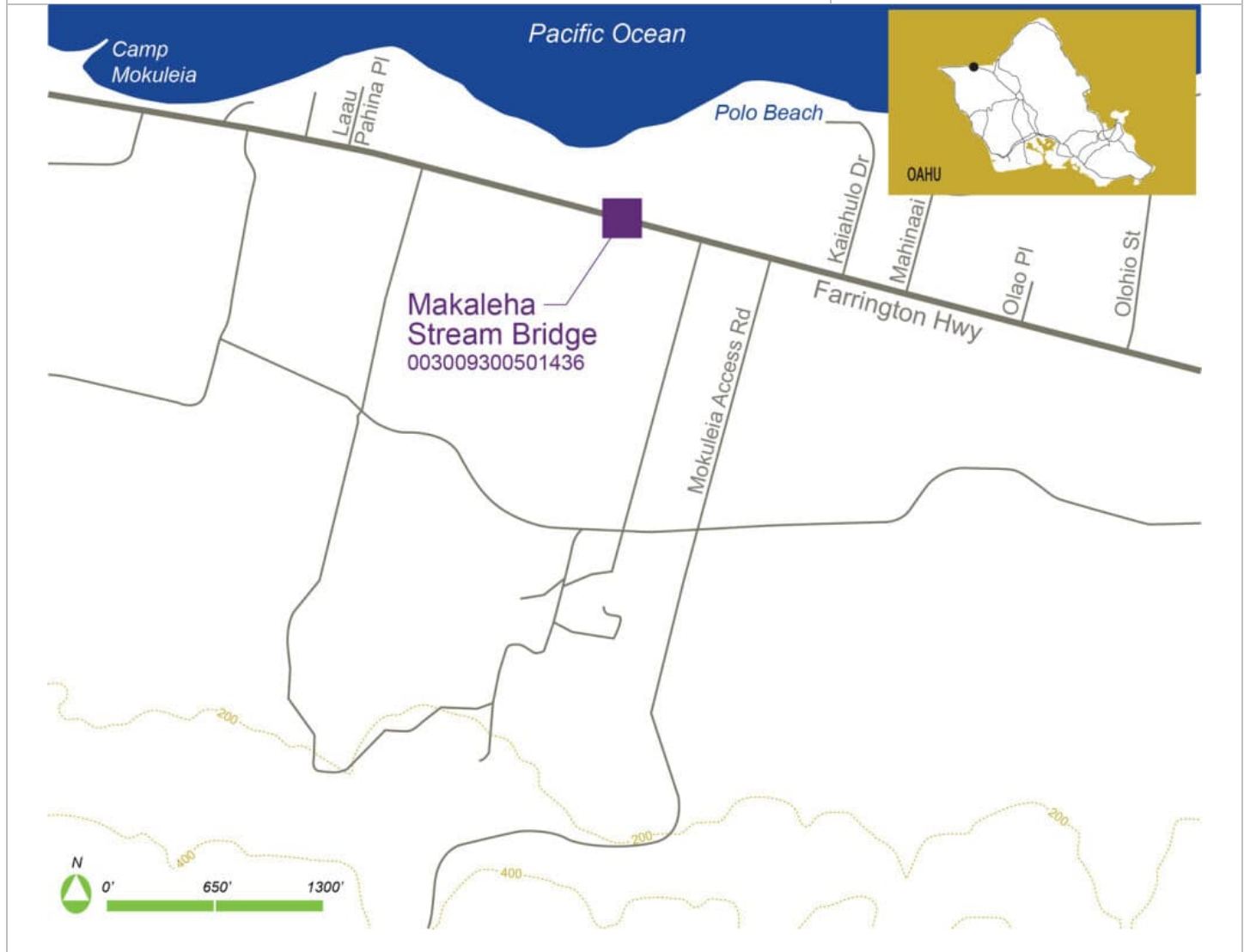
Image 4. Detail of northeast parapet and bridge piers, facing south.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003009300501436	<b>TMK:</b> 168003035 (adjacent)	
<b>Common Name:</b> Makalena Stream Bridge		
<b>Historic Name:</b> Makalena Stream Bridge		
<b>Feature Crossed:</b> Makalena Stream		
<b>Feature Carried:</b> Farrington Highway/Route 930		
<b>Island:</b> Oahu	<b>Milepost:</b> 3.03	
<b>Latitude:</b> 21.57712	<b>Longitude:</b> -158.1669	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1940
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 24.0 ft.	<b>Total Length:</b> 49.9 ft.	<b>Deck Width:</b> 31.8 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-03-08083	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1940		
<b>Narrative Description:</b>  The Makalena Stream Bridge carries the Farrington Highway across the Makalena Stream. This double-span concrete continuous span bridge rests on concrete abutments and one concrete pile bent. The concrete deck carries a two-lane roadway paved in asphalt concrete overlay. Flanking the roadway are concrete open Greek Cross parapets with curved end posts to which thrie beams have been attached.		

# Bridge Inventory Form

## Statement of Significance:

The Farrington Highway, named after Territorial Governor Wallace Farrington, who drafted the Territory's 1924 Bill of Rights, and was integral to an effective transportation system on Oahu by 1941. The Makalena Stream Bridge resulted from a 1940 Federal Aid Project to bolster National Defense by connecting Schofield Barracks to Dillingham Air Field. The Makalena Stream Bridge is a typical reinforced concrete bridge with ornamental railing commonly found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1940s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of open Greek Cross parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve vehicular safety through the use of thrie beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1940s.

Therefore, the Makalena Stream Bridge is eligible for the NRHP.



# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of roadway and parapets, facing west.



## Bridge Inventory Form



Image 2. North parapet, facing northeast.



## Bridge Inventory Form

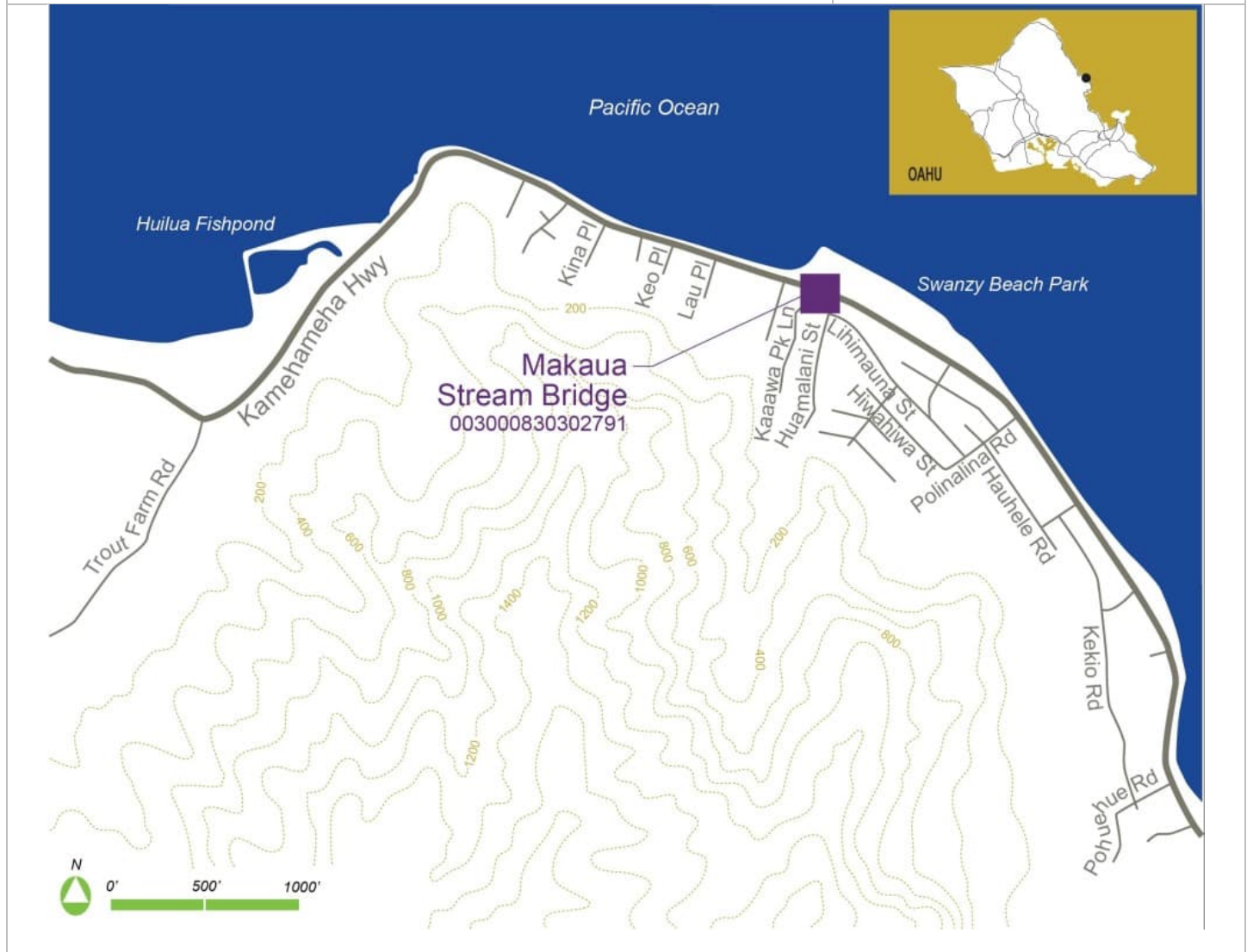


Image 3. Detail of west abutment and south parapet, facing northwest.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302791		<b>TMK:</b> 151012014 (adjacent)	
<b>Common Name:</b> Makaua Stream Bridge			
<b>Historic Name:</b> Makaua Stream Bridge			
<b>Feature Crossed:</b> Makaua Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 27.909	
<b>Latitude:</b> 21.55704		<b>Longitude:</b> -157.855	
<b>Ownership:</b> State			<b>Image Date:</b> 07/31/2019



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1927
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1964, 2020	
<b>Alterations:</b> Wood pedestrian bridge added in 1964. In 2020, boulders, rubble, and earth was removed from the channel.	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 42.0 ft.	<b>Total Length:</b> 44.0 ft.	<b>Deck Width:</b> 26.6 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Deck			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b> Bridge name and construction date incised on end piers			

## Historic Information

<b>NRHP Status:</b> Eligible	Criteria: A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-06-08084	
<b>6E Status:</b> Significant Historic Property	Criteria: a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1927		
<b>Narrative Description:</b>  The Makaua Stream Bridge carries the Kamehameha Highway over the Makaua Stream. It is a concrete tee beam bridge, featuring concrete, closed and capped parapets as well as squared and capped end posts. These end posts have the bridge name and construction date incised on them. Thrie beams have been attached to all end posts. At one point the parapet caps and end posts appear to have been painted white. The concrete deck is supported by reinforced concrete abutments and carries a two-lane roadway with AC overlay. A wooden pedestrian bridge with metal horizontal railings has been added to the mauka side of the bridge.		



## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with solid concrete railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete with cap parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship despite modest alterations to improve pedestrian and vehicular safety through construction of a wood walkway and use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remains. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, the Makaua Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form




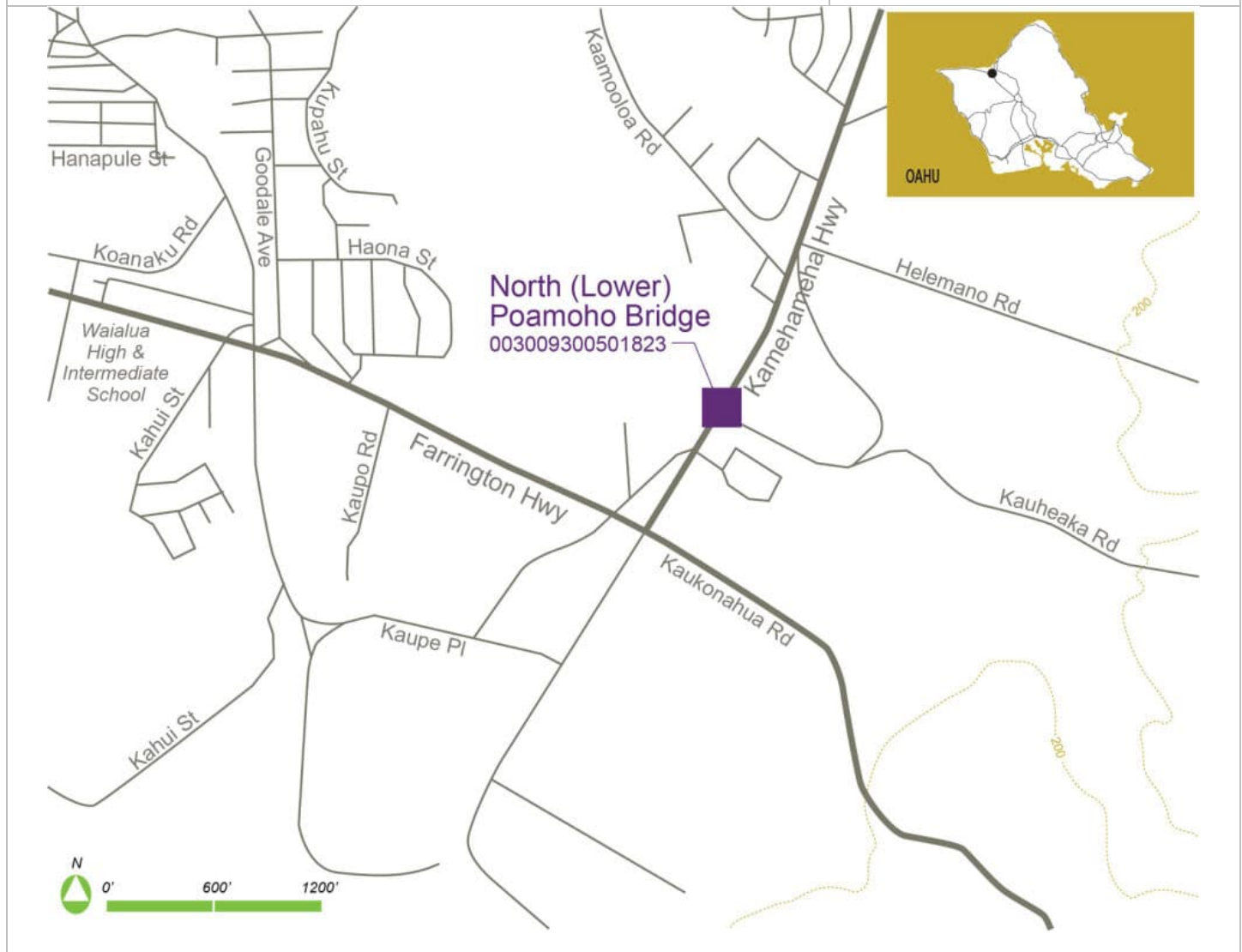
Figure 1. Makaua Stream Bridge general view facing west. Source: Google Street View July 2019.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003009300501823		<b>TMK:</b> 165005005 (adjacent)	
<b>Common Name:</b> North (Lower) Poamoho Stream			
<b>Historic Name:</b> North (Lower) Poamoho Stream			
<b>Feature Crossed:</b> North Poamoho Stream			
<b>Feature Carried:</b> Kaukonahua Road/Route 930			
<b>Island:</b> Oahu		<b>Milepost:</b> 6.9	
<b>Latitude:</b> 21.56484		<b>Longitude:</b> -158.1112	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023	



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1934
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 62.0 ft.	<b>Total Length:</b> 164.0 ft.	<b>Deck Width:</b> 27.6 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Double Column Pier			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-04-08085	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1934		
<b>Narrative Description:</b>  The North (Lower) Poamoho Stream Bridge carries the Kaukonahua Road over the North Poamoho Stream. This triple-span concrete tee beam bridge rests on concrete abutments and two concrete double column piers. The concrete deck is supported by concrete tee beams and carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are concrete open Greek Cross railings with curved end posts to which three beams have been attached.		

## Bridge Inventory Form

### Statement of Significance:

Constructed in 1934, the North (Lower) Poamoho Stream Bridge was a common type of bridge found in Hawaii prior to World War II, featuring a typical design of a concrete tee beam with ornamental railing.

Research did not indicate that the bridge is associated with major transportation improvements on Oahu during the Territorial period, and, therefore, it is not significant under Criterion A.

Likewise, research did not indicate an association with the lives of persons significant in our past, and the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of open Greek-Cross parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve vehicular safety through the use of thrie beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, the North (Lower) Poamoho Stream Bridge is eligible for the NRHP.



# Bridge Inventory Form

## References

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing north.



## Bridge Inventory Form



Image 2. Bridge deck and parapets, facing southwest.



## Bridge Inventory Form



Image 3. Detail of southeast parapet, facing southwest.




## Bridge Inventory Form



Image 4. Bridge pier, facing southwest.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302412		<b>TMK:</b> 153005070 (adjacent)	
<b>Common Name:</b> North Punaluu Stream			
<b>Historic Name:</b> North Punaluu Stream			
<b>Feature Crossed:</b> North Punaluu Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 24.119	
<b>Latitude:</b> 21.58253		<b>Longitude:</b> -157.8869	
<b>Ownership:</b> State			<b>Image Date:</b> 07/31/2019





# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1926
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2016, 2018, 2020, 2021	
<b>Alterations:</b> Concrete fill injected at west end due to erosion by high tidal surf (2016). In 2018, new asphalt concrete (AC) was placed along deck, RTN Note 7/13/20: None MON Note 9/7/21: new guard rails have been installed on the south upstream and downstream ends of the bridge (2020).	

## Design Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 18 ft.	<b>Total Length:</b> 37.1 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Reinforced Concrete Slab			
<b>Substructure:</b> Reinforced Concrete Abutment, Reinforced Concrete Pile, Reinforced Concrete Pier Cap			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Solid Concrete Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-06-08086	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1926		
<b>Narrative Description:</b>  The North Punaluu Stream Bridge carries Kamehameha Highway across the Punaluu Stream. It is a two-span reinforced concrete continuous slab bridge. Reinforced concrete abutments and piers support the main deck, over which a two-lane roadway is carried. Roadway parapets and end posts are concrete solid panels with caps with parapet tops and end posts painted white, though the paint has faded. Thrie beams have been added to the endposts on both sides and both directions of travel.		

# Bridge Inventory Form

## Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with solid concrete panels with caps was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a reinforced concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship despite slight alterations to improve vehicular safety through the use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remains. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1920s.

Therefore, the North Punaluu Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.



## Bridge Inventory Form



Figure 1. North Punaluu Stream Bridge general view, facing south. Source: Google Street View July 2019.

## Bridge Inventory Form




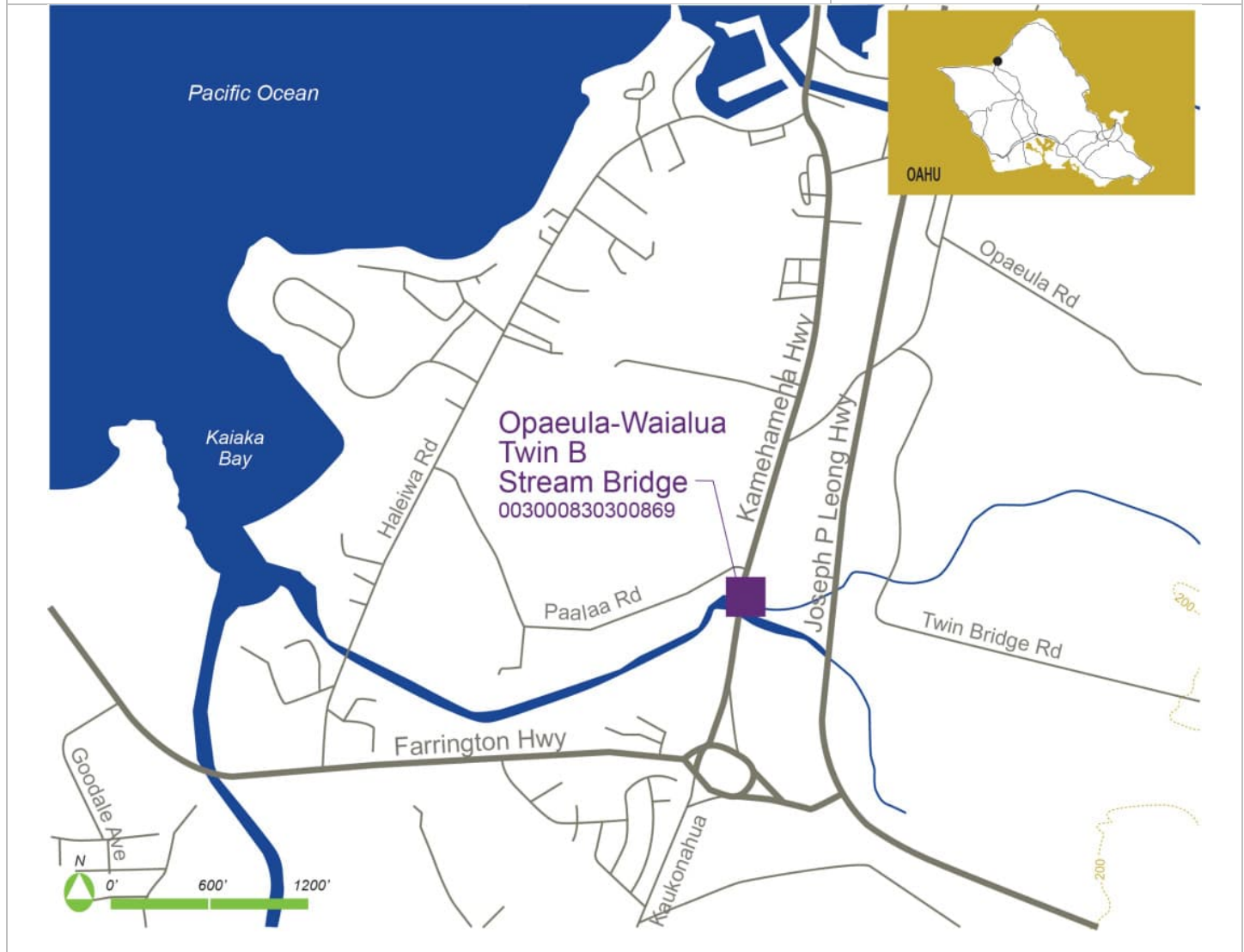
Figure 2. North Punaluu Stream Bridge detail of west parapet facing west. Source: Google Street View July 2019.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830300043		<b>TMK:</b> 162006000 (adjacent)	
<b>Common Name:</b> Opa'eula-Waialua Twin B			
<b>Historic Name:</b> Opa'eula-Waialua Twin B			
<b>Feature Crossed:</b> Opa'eula Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 0.43	
<b>Latitude:</b> 21.58018		<b>Longitude:</b> -158.1052	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023	





# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1928
<b>Designer/Engineer:</b> U. S. Department of Agriculture, Bureau of Public Roads, San Francisco, CA	
<b>Builder/Contractor:</b> John McCandless	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 60.0 ft.	<b>Total Length:</b> 65.0 ft.	<b>Deck Width:</b> 29.9 ft.
<b>Superstructure:</b> Reinforced Concrete Girder/Beam			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Deck			
<b>Parapets/Railings:</b> Solid Concrete Panel with Cap			
<b>Other Features:</b> Bridge name and date of construction incised on end piers; sidewalks on both sides of roadway			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-04-08089	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1928		
<b>Narrative Description:</b>  The Opaepala-Waialua Twin B Bridge is grouped with [Opaepala]-Waialua Twin A (003000830300041), and the pair of identical bridges carry the Kamehameha Highway over the adjacent Helemano and Opaepala Streams. Opaepala-Waialua Twin B is a single-span Concrete Tee Beam bridge that rests on reinforced concrete abutments. The 2-lane roadway, laid in a reinforced concrete deck, is flanked by pedestrian walkways and features concrete solid panel with cap railings. The bridge name and construction date are incised on the end piers. Thrie beams have been attached to the end piers on both sides of the bridge.		

## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with concrete solid panel with cap railings, was a common type of bridge found in Hawaii prior to World War II.

The bridge and its twin are associated with major transportation improvements on Oahu during the Territorial period. The bridges are located within the County-designated Haleiwa Special Design District and contribute significantly to the historic character of the town. The bridges were inadvertently involved in an important preservation battle for the nearby Anahulu Bridge, a rare remaining example of a "rainbow" or Marsh arch (through deck) bridge. The State Department of Transportation planned to replace the structure, however, concerned citizens rallied to preserve the picturesque bridge. The alternative plan preserved the historic bridge by bypassing it with a new highway and modern four-lane bridge upstream. The Waialua Twin Bridges were also bypassed, thus relieving them from modern traffic pressures.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete panel with cap parapets was a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve vehicular safety through the use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, Opaepa-Waialua Twin B is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.



## Bridge Inventory Form



Image 1. General view of bridge, facing southwest.



Image 2. Bridge deck and parapets, facing northeast.




## Bridge Inventory Form

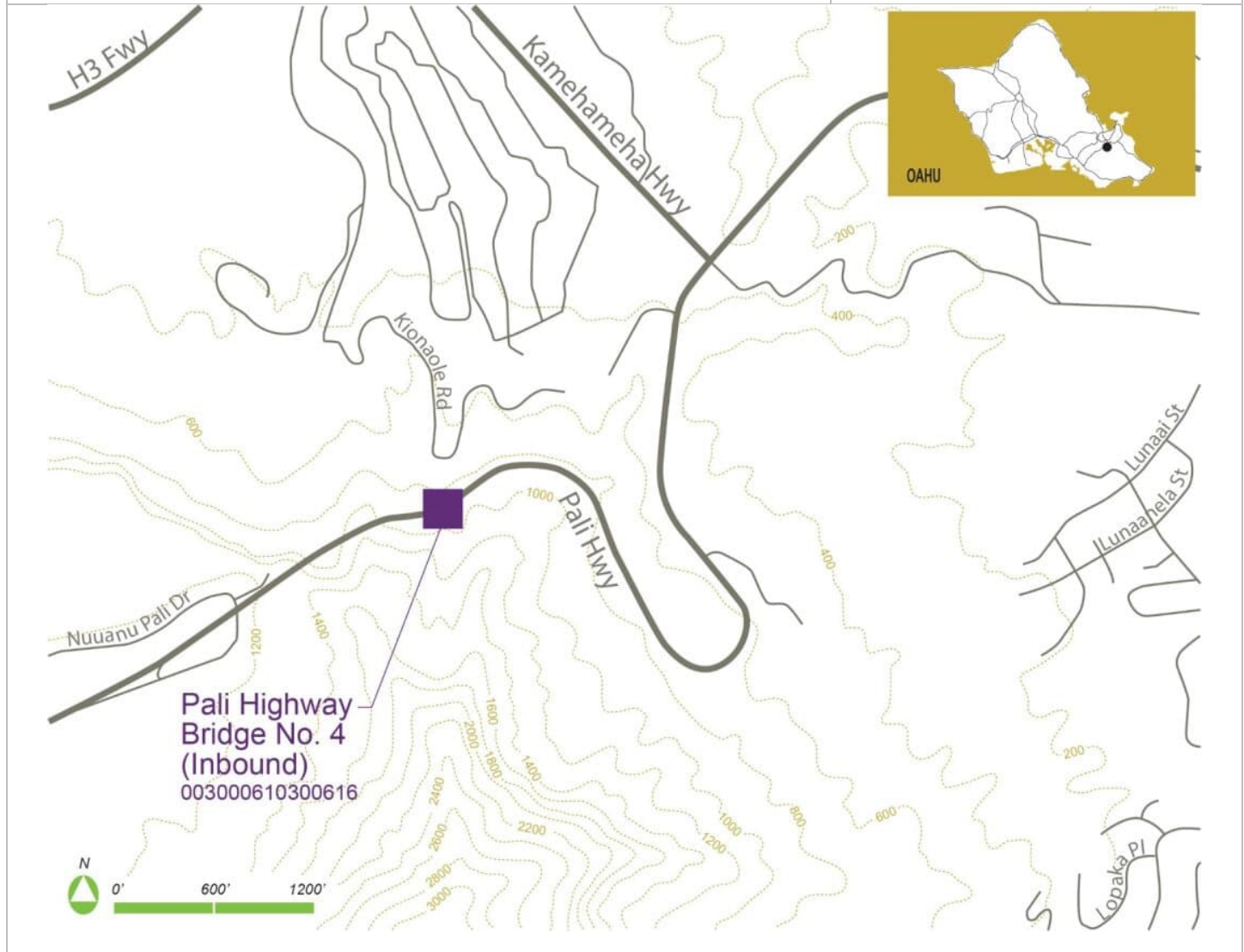


Image 3. Southern abutment and deck girders, facing southwest.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000610300616		<b>TMK:</b> 142010003	
<b>Common Name:</b> Pali Bridge No. 4 (Inbound)			
<b>Historic Name:</b> Pali Bridge No. 4 (Inbound)			
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 4 (Inbound))			
<b>Feature Carried:</b> Pali Highway/Route 61			
<b>Island:</b> Oahu		<b>Milepost:</b> 6.16	
<b>Latitude:</b> 21.36877		<b>Longitude:</b> -157.7882	
<b>Ownership:</b> State		<b>Image Date:</b> 08/31/2011	





# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1956
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2014, 2016, 2020	
<b>Alterations:</b> Patch minor spalls on railing (2014, 2016); complete rehabilitation performed throughout concrete railing system; new asphalt concrete (AC) overlay applied during Pali Highway landslide project (2020).	

## Design Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 105.0 ft.	<b>Total Length:</b> 379.9 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Reinforced Concrete Girder			
<b>Substructure:</b> Reinforced Concrete Abutment, Reinforced Concrete T-Shaped Pier			
<b>Floor/Decking:</b> Reinforced Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> 0000000000
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-14-08121 (bridge), 50-80-14-08143 (district)	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b> Pali Highway Historic District		<b>Contributing:</b> Yes
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1956		
<b>Narrative Description:</b>  Pali Bridge No. 4 (Inbound) carries the Pali Highway over a mountain. This four-span reinforced concrete girder bridge rests on reinforced concrete abutments and reinforced concrete T-shaped piers. The reinforced concrete deck carries a two-lane roadway paved in AC overlay. Flanking the roadway are concrete open horizontal railings.		

## Bridge Inventory Form

### Statement of Significance:

The Pali Highway is the third roadway connecting Honolulu with the windward side of Oahu. The first footpath from the pre-contact era was widened to a carriageway in 1898. Following the introduction of the automobile and its increasing popularity from the 1920s onwards, the 1898 roadway was replaced by the four-lane Pali Highway in 1961. Plans for a highway connection with tunnels had been discussed prior to World War II, though construction began after the war and continued into 1961. Following the highway's completion, windward Oahu rapidly suburbanized. The Pali Highway Historic District was identified in the 2013 SHBIE as an NRHP-eligible historic district comprising the highway's length from Pacific Heights Road to Kamehameha Highway. The district's contributing resources include its bridges, culverts, and tunnels.

Because the bridge is associated with major transportation improvements on Oahu, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of developments in prestressed concrete bridge design and construction in Hawaii. It is a good example of a 1960s prestressed concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the concrete open horizontal railing represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge contributes to the Pali Highway Historic District and remains in its original location. It retains integrity of design, materials, and workmanship because repairs made to the bridge after 2014 followed the Secretary of the Interior's Standards for the Treatment of Historic properties and are consistent in appearance with the bridge's original construction. Its integrity of setting is intact as development surrounding the bridge remains lush and undeveloped. The bridge retains integrity of feeling and integrity of association as a post-World War II bridge type associated with major roadway improvements during the 1950s.

Therefore, the Pali Bridge No. 4 (Inbound) is eligible for the NRHP as a contributing resource to the Pali Highway Historic District.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.




## Bridge Inventory Form

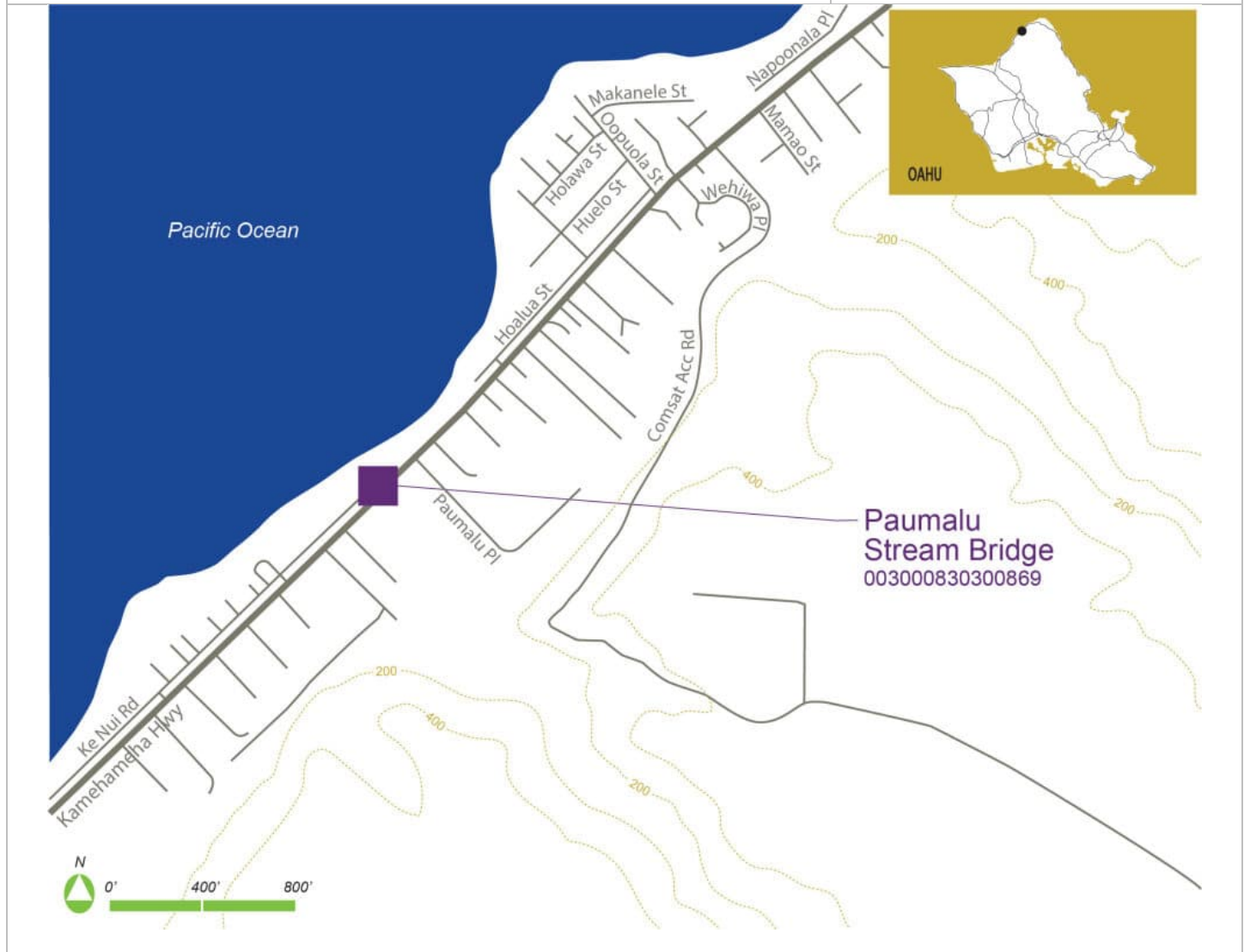


Figure 1. Pali Bridge No. 4 (Inbound), facing west. Source: Google Street View August 2011.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830300869		<b>TMK:</b> 159006032 (adjacent)	
<b>Common Name:</b> Paumalu Stream Bridge			
<b>Historic Name:</b> Paumalu Stream Bridge			
<b>Feature Crossed:</b> Paumalu Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 8.69 mi.	
<b>Latitude:</b> 21.67265		<b>Longitude:</b> -158.0416	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1930
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1984, after 2011, 2013, 2016	
<b>Alterations:</b> Wood pedestrian bridge with metal railings added in 1984 on makai side; pedestrian bridge metal railings partially removed after 2011 and replaced with metal fencing; utility pipes affixed to piers; tapered concrete railing extensions added after 2011 that connect to existing and original concrete railings; concrete barriers are fastened to the tapered railing; at an unknown date, sixteen of the bridge's squared columns forming the substructure's bents have been modified through removal of the top half and replacement with round concrete casts beneath the deck; at an unknown date, new concrete abutments; three beams removed after 2013; expedited structural repair work completed in 2016 installed a temporary Acrow steel support structure until a formal repair is scheduled.	

## Design Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 89.9 ft.	<b>Deck Width:</b> 26.9 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b> Bridge name and construction date incised on end piers			

## Historic Information

<b>NRHP Status:</b> Not Eligible	Criteria: A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-01-08092	
<b>6E Status:</b> Not Significant	Criteria: a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input type="checkbox"/> Workmanship <input type="checkbox"/> Feeling <input type="checkbox"/> Association <input type="checkbox"/>		
<b>Historic District:</b> N/A		<b>Contributing:</b> N/A
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation		
<b>Period of Significance:</b> 1930		



## Bridge Inventory Form

### Narrative Description:

The Paumalu Stream Bridge carries the Kamehameha Highway across the Paumalu Stream. The concrete continuous slab bridge rests on concrete abutments and four multicolumn pile bent piers. The concrete deck carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are two concrete solid panel with flat cap railings with end posts. The bridge name and construction date are incised on the end posts and connected to the end posts are solid tapered concrete railings that are not original. In 1984, a pedestrian walkway with metal horizontal railings was added on the makai side of the bridge. The bridge was also later heavily altered through modifications to its bent columns, extension of its concrete railing, and construction of new abutments. In 2016, an inspection found damage to the support columns, which resulted in a temporary Acrow steel structure being erected around the Paumalu Stream Bridge to keep the roadway open to traffic. Overall, the bridge is in poor condition with areas of concrete spalling exposing its interior rebar.

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete continuous slab with solid railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is an example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete with cap railings represents a typical rail pattern used by the Territorial Highway Department. However, the bridge has been heavily modified since its construction, with major alterations to its character-defining features, including its bents, abutments, and railing. Therefore, the bridge is not significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over Paumalu Stream adjacent to Sunset Beach. Due to extensive alterations, the bridge no longer retains integrity of design, materials, and workmanship. The bridge was later substantially altered through a series of reinforcement measures including modifications to bent columns for added structural support, which required removal of the top half of each squared column and replacement with rounded concrete casts to support the deck; new concrete abutments; extensions of the bridge's concrete railing with a tapered concrete railing connecting to removeable concrete barriers; and installation of an Acrow structure for support. Changes to the bents, railings, and abutments, and the addition of the pedestrian walkway have resulted in a loss of integrity of design and obscured or eliminated original character-defining features to an extent that the bridge no longer retains integrity of workmanship. Similarly, the use of unsympathetic materials for structural support or additions to the bridge results in a loss of integrity of materials. Its integrity of setting is diminished through the presence of nearby buildings constructed in the 1960s through 1980s; however, surrounding the bridge is a lush environment and nearby beach, which remain generally unchanged since the bridge's construction in 1930. Due to substantial alterations, the bridge no longer retains its integrity of feeling and association as a pre-World War II bridge along Kamehameha Highway or its association with Territorial roadway improvements during the 1930s.

Therefore, Paumalu Stream Bridge is not eligible for the NRHP.

# Bridge Inventory Form

## References

"Acrow Bridge Furnishes Special Steel Structure to Support the Failing Paumalu Stream Bridge on Oahu's North Shore." Acrow. 13 December 2016. <https://acrow.com/acrow-bridge-furnishes-special-steel-structure-to-support-the-failing-paumalu-stream-bridge-on-oahus-north-shore/>.

Duensing, Dawn E. *Hawai'i's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

"Paumalu Case Study: Hawaii DOT Uses Special Acrow Steel Structure to Support the Failing Paumalu Stream Bridge on Oahu's North Shore." Acrow. Accessed October 25, 2022.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

## Bridge Inventory Form



Image 1. General view of bridge, facing east.





## Bridge Inventory Form

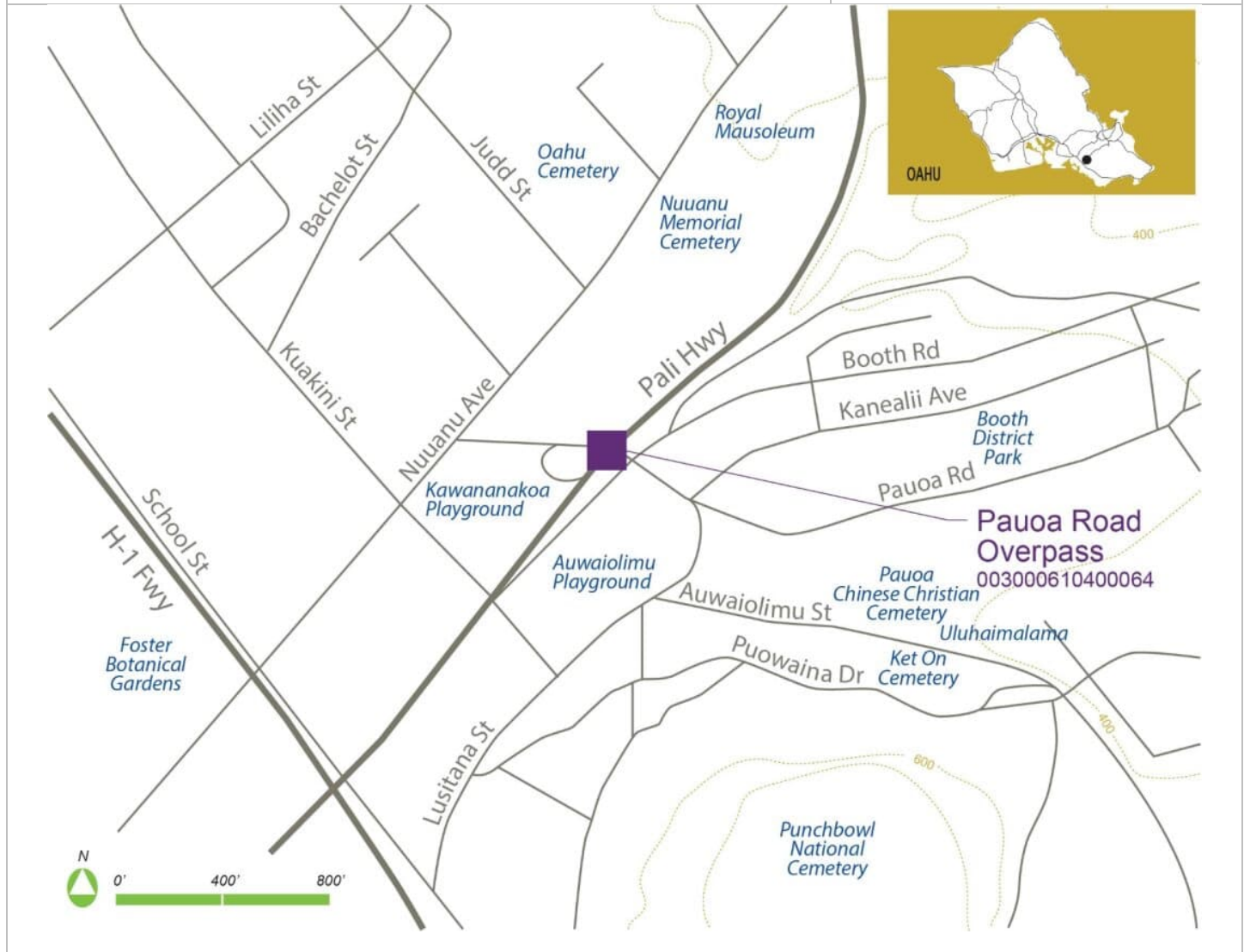


Image 2. Bridge deck and parapets, facing southwest.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000610400064		<b>TMK:</b> 122010007 (adjacent)		
<b>Common Name:</b> Pauoa Road Overpass				
<b>Historic Name:</b> Pauoa Road Overpass				
<b>Feature Crossed:</b> Pauoa Road				
<b>Feature Carried:</b> Pali Highway/Route 61				
<b>Island:</b> Oahu		<b>Milepost:</b> 0.61		
<b>Latitude:</b> 21.32004		<b>Longitude:</b> -157.8499		
<b>Ownership:</b> State				<b>Image Date:</b> 06/30/2019



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Prestressed Concrete Stringer/Multi-Beam	<b>Construction Date:</b> 1961
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 63.0 ft.	<b>Total Length:</b> 68.9 ft.	<b>Deck Width:</b> 82.3 ft.
<b>Superstructure:</b> Prestressed Concrete Girder			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete and Metal			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-14-08143	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b> Pali Highway Historic District		<b>Contributing:</b> Yes (?)
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1961		
<b>Narrative Description:</b>  The Pauoa Road Overpass carries the Pali Highway over Pauoa Road. This single-span prestressed concrete stringer bridge rests on reinforced concrete abutments. The reinforced concrete deck, supported by eleven prestressed concrete girders, carries a four-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are concrete and metal railings.		



## Bridge Inventory Form

### Statement of Significance:

The Pali Highway is the third roadway connecting Honolulu with the windward side of Oahu. The first footpath from the pre-contact era was widened to a carriageway in 1898. Following the introduction of the automobile and its increasing popularity from the 1920s onwards, the 1898 roadway was replaced by the four-lane Pali Highway in 1961. Plans for a highway connection with tunnels had been discussed prior to World War II, though construction began after the war and continued into 1961. Following the highway's completion, windward Oahu rapidly suburbanized.

Because the bridge is associated with major transportation improvements on Oahu, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B

The bridge is a result of developments in prestressed concrete bridge design and construction in Hawaii. It is a good example of a 1960s prestressed concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the concrete and metal represent a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge contributes to the Pali Highway Historic Bridge District and remains in its original location. It retains integrity of design, materials, and workmanship. Its integrity of setting is intact, as development surrounding the bridge is urban in character. The bridge retains integrity of feeling and association as a post-World War II bridge type and its association with roadway improvements during the 1960s.

Therefore, the Pauoa Road Overpass is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Figure 1. Pauoa Road Overpass facing west. Source: Google Street View June 2019.



## Bridge Inventory Form



Figure 2. Pauoa Road Overpass, detail of north abutment and deck girders, facing northwest. Source: Google Street View June 2019.



## Bridge Inventory Form



Figure 3. Pauoa Road Overpass, bridge deck view facing southwest.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003090001400114		<b>TMK:</b> 194011046 (adjacent)	
<b>Common Name:</b> Railroad Crossing (Highway Overpass)			
<b>Historic Name:</b> Railroad Crossing (Highway Overpass)			
<b>Feature Crossed:</b> Railroad Crossing			
<b>Feature Carried:</b> Farrington Highway/Route 7101			
<b>Island:</b> Oahu		<b>Milepost:</b> 1.17	
<b>Latitude:</b> 21.38285		<b>Longitude:</b> -158.0101	
<b>Ownership:</b> State			
			<b>Image Date:</b> 11/01/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1939
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2016, 2020	
<b>Alterations:</b> Thrie beams have been attached at an unknown date. Rail project has performed several repairs to the existing roadway and slope erosion on both sides of the bridge and new asphalt concrete (AC) overlay applied throughout in 2016, 2020.	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 42.0 ft.	<b>Total Length:</b> 48.9 ft.	<b>Deck Width:</b> 32.2 ft.
<b>Superstructure:</b> Reinforced Concrete Girder			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-09-08094	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Agriculture, Transportation, Engineering		
<b>Period of Significance:</b> 1939		
<b>Supplemental Documentation:</b> HAER No. HI-99, HAER No. HI-100		
<b>Narrative Description:</b>  The Railroad Crossing (Highway Overpass) carries the Farrington Highway over the former Oahu Railway & Land Company (OR&L) right-of-way, now abandoned. This single-span reinforced concrete tee beam bridge rests on reinforced concrete abutments and carries a two-lane roadway, paved in asphalt concrete (AC) overlay. Flanking the		

## Bridge Inventory Form

roadway are concrete open Greek Cross railings with curved end posts in a stepped profile. Thrie beams have been attached to the end posts at an unknown date.

### Statement of Significance:

The Farrington Highway, named after Territorial Governor Wallace Farrington, who drafted the Territory's 1924 Bill of Rights, was integral to an effective transportation system on Oahu by 1941. The Railroad Crossing (Highway Overpass) was the last major accommodation built by the Territorial Highway Department (THD) for the OR&L before it went out of business. In 2016, the Honolulu Rail Transit Project performed several repairs to the existing roadway and slope erosion on either side of the bridge while also repaving the roadway with new AC overlay.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial Period as well as the plantation economy, it is therefore significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the concrete open Greek Cross parapets represent a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location. It retains integrity of design, materials, and workmanship, despite alterations to improve vehicular safety through the use of thrie beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its semi-urban surroundings remain. The Honolulu Rail Transit Project does not alter the setting as it is grade separated from the bridge. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1940s.

Therefore, the Railroad Crossing (Highway Overpass) is eligible for the NRHP.

# Bridge Inventory Form

## References

- Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.
- Ruzicka, Dee. "Honouliuli Bridge, Honouliuli Stream Bridge, Farrington Highway and Honouliuli Stream, Ewa Beach Vicinity, Honolulu County, Hawaii, HAER No. HI-99." Historic American Engineering Record, National Park Service, U.S. Department of the Interior, Oakland, 2012.
- Ruzicka, Dee. "Waikele Canal Bridge and Highway Overpass, Waikele Stream Bridge and OR&L Bridge, Farrington Highway and Waikele Stream, Waipahu, Honolulu County, Hawaii, HAER No. HI-100." Historic American Engineering Record, National Park Service, U.S. Department of the Interior, Oakland, 2012.
- State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.
- U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.



## Bridge Inventory Form




Figure 1. Railroad Crossing (Highway Overpass), general view facing southeast. Source: Google Street View, July 2019.

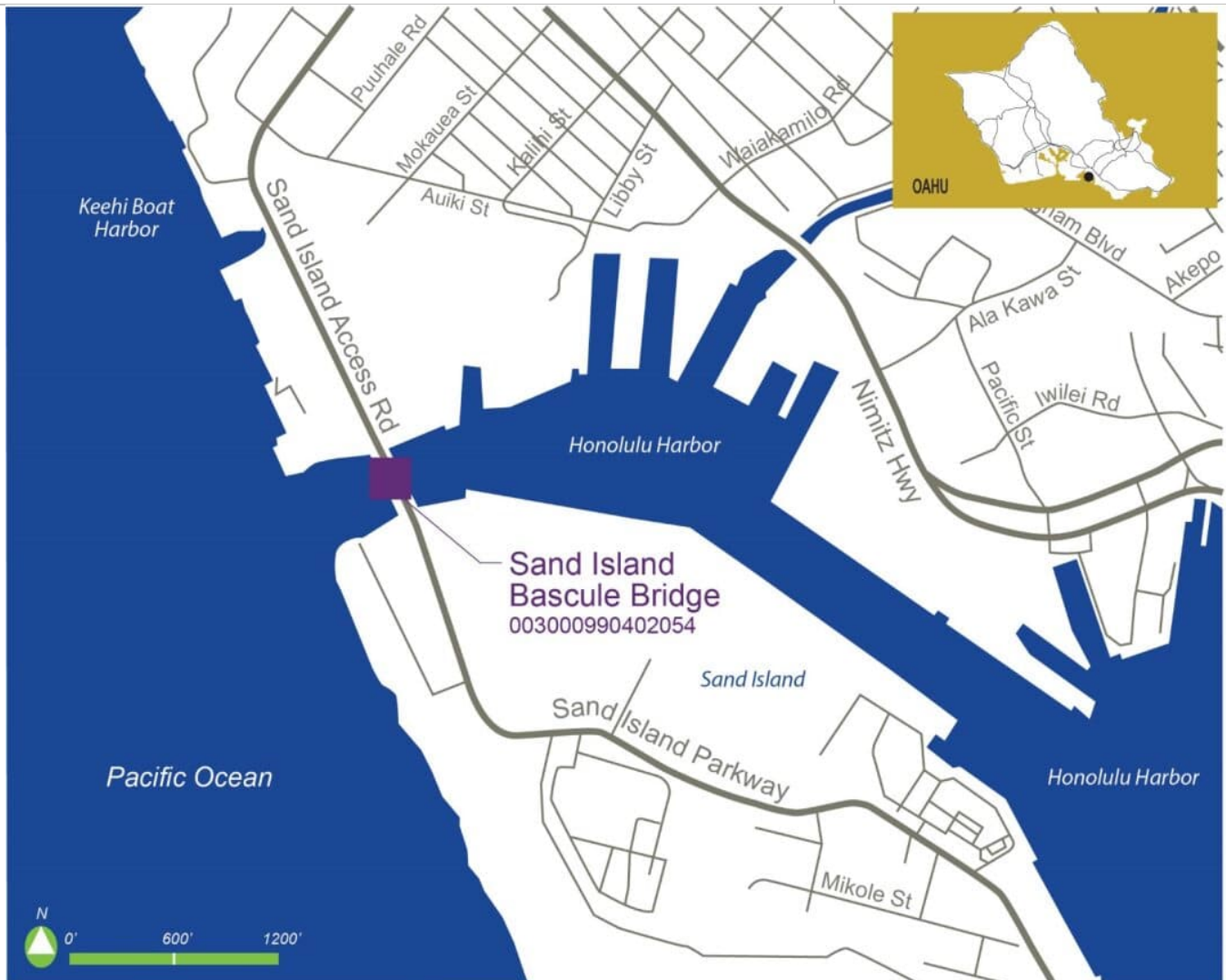


Figure 2. Railroad Crossing (Highway Overpass), view of bridge deck and parapets, facing northeast. Source: Google Street View July 2019.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000640400150	<b>TMK:</b> 115041130	
<b>Common Name:</b> Sand Island Bascule Bridge		
<b>Historic Name:</b> Sand Island Bascule Bridge, Kalihi Channel Bridge		
<b>Feature Crossed:</b> Harbor (Bascule Bridge)		
<b>Feature Carried:</b> Sand Island Parkway/Route 64		
<b>Island:</b> Oahu	<b>Milepost:</b> 1.41	
<b>Latitude:</b> 21.31439	<b>Longitude:</b> -157.8879	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Steel Girder and Floorbeam System	<b>Construction Date:</b> 1962
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2020, 2022	
<b>Alterations:</b> All electronic monitoring equipment at equipment house has been removed	

## Design Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 299.9 ft.	<b>Total Length:</b> 692.9 ft.	<b>Deck Width:</b> 35.4 ft.
<b>Superstructure:</b> Steel Stringer, Steel Floor Beam			
<b>Substructure:</b> Concrete Abutment Wall, Concrete Pier Wall			
<b>Floor/Decking:</b> Reinforced Concrete Deck with Asphalt Concrete (AC) Overlay, Steel Deck Open Grid			
<b>Parapets/Railings:</b> Concrete Solid with Horizontal Metal			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-14-08095	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1962		
<b>Narrative Description:</b>  The Sand Island Bascule Bridge carries the Sand Island Parkway over the Kahili Channel of Honolulu Harbor. This five-span steel girder double-leaf bascule bridge rests on reinforced concrete abutment and concrete pier walls. The concrete deck on either side of the center span carries a two-lane roadway paved in asphalt concrete (AC) overlay, while the double-leaf bascule center spans are steel deck open grid. Flanking the roadway are concrete solid railings with three beams bolted to the approach parapets.		



# Bridge Inventory Form

## Statement of Significance:

The Sand Island Parkway connects Sand Island (also known as Anuenue) with Honolulu via the Sand Island Bascule Bridge. Sand Island is linked with the development of Honolulu's Harbor as it emerged from a mixture of coral and silt deposits from the Nuuanu Valley as well as dredging projects undertaken throughout the nineteenth century that resulted in the island sheltering the harbor. Originally known as Quarantine Island, Sand Island housed quarantine facilities for arriving ships carrying people with potentially infectious diseases. By the turn of the twentieth century and with changes in quarantine procedures, Sand Island's function became more military in focused with the Sand Island Military Reservation being established in 1916 and is the site of the present-day Coast Guard Base. During World War II, the island housed an internment camp built at the historic quarantine station in 1942. It was during this time that Sand Island was connected to the mainland via a dirt causeway to the west of the island. Following World War II, the U.S. Army Corps of Engineers created a second channel entrance to Honolulu Harbor with the digging of the Kalihi Channel. This channel replaced the causeway with the present two-lane double-leaf bascule bridge to permit the passage of deep-sea shipping. Since the 1960s, Sand Island became a major container port for both U.S. Lines and Matson Navigation. The rise in container traffic resulted in greatly increased truck circulation on Sand Island, and the bascule motors were removed and the bridge locked in 1988. An additional two-lane bridge – Sand Island Bridge No. 2 – was completed in 1989 and provided two inbound lanes to Sand Island while the 1962 bridge was converted to two outbound lanes.

Because the bridge is associated with major transportation improvements on Oahu, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past. Therefore, the bridge is not significant under Criterion B.

The bridge's steel construction is an example of a distinctive and rare structural type, as the extreme marine environment of Hawaii precluded widespread use of steel. It is also a noteworthy example of postwar bridge construction. For these reasons, the bridge is significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship. The structure retains its association with the Sand Island Parkway. Its integrity of setting is intact, as development surrounding the bridge is reflective of urban areas. The bridge retains integrity of feeling and association with postwar bridge developments.

Therefore, the Sand Island Bascule Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

- State of Hawaii. Department of Transportation. *1988 Report to the Governor*. N.p., n.d. Accessed December 30, 2022. Retrieved from <https://catalog.hathitrust.org/Record/010623628>.
- State of Hawaii. Department of Transportation. Harbors Division. *Oahu Commercial Harbors 2020 Master Plan*. May 1997. Accessed December 29, 2022, <https://hidot.hawaii.gov/harbors/files/2013/01/Oahu-2020-Master-Plan.pdf>.
- State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.
- U.S. Army Corps of Engineers. The Board of Engineers for Rivers and Harbors. *Ports of the Hawaiian Islands*, Part 2, *Honolulu, Oahu, Hilo, Hawaii, Kawaihae, Hawaii, Kahului, Maui, Nawiliwili, Kauai, Port Allen, Kauai*. Port Series No. 50. Washington, D.C.: United States Government Printing Office, 1970. Accessed December 29, 2022, <https://catalog.hathitrust.org/Record/011245335>.
- U.S. Army Engineer District. Pacific Ocean Division. Fort Shafter, Hawaii. *Defense Environmental Restoration Program for Formerly Used Defense Sites: Sand Island Military Reservation, Sand Island, Honolulu, Island of Oahu, Hawaii, Site No. H09HI032400*. Site Summary Sheet. August 5, 1994. Accessed December 29, 2022, [https://hiepro.ehawaii.gov/resources/102594/SISRA\\_DERP%20FUDS\\_SandIsland\\_1994.pdf](https://hiepro.ehawaii.gov/resources/102594/SISRA_DERP%20FUDS_SandIsland_1994.pdf).
- U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National Register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing west.



Image 2. View of bridge deck, facing south.



## Bridge Inventory Form



Image 3. General view of bridge pier, facing southeast.

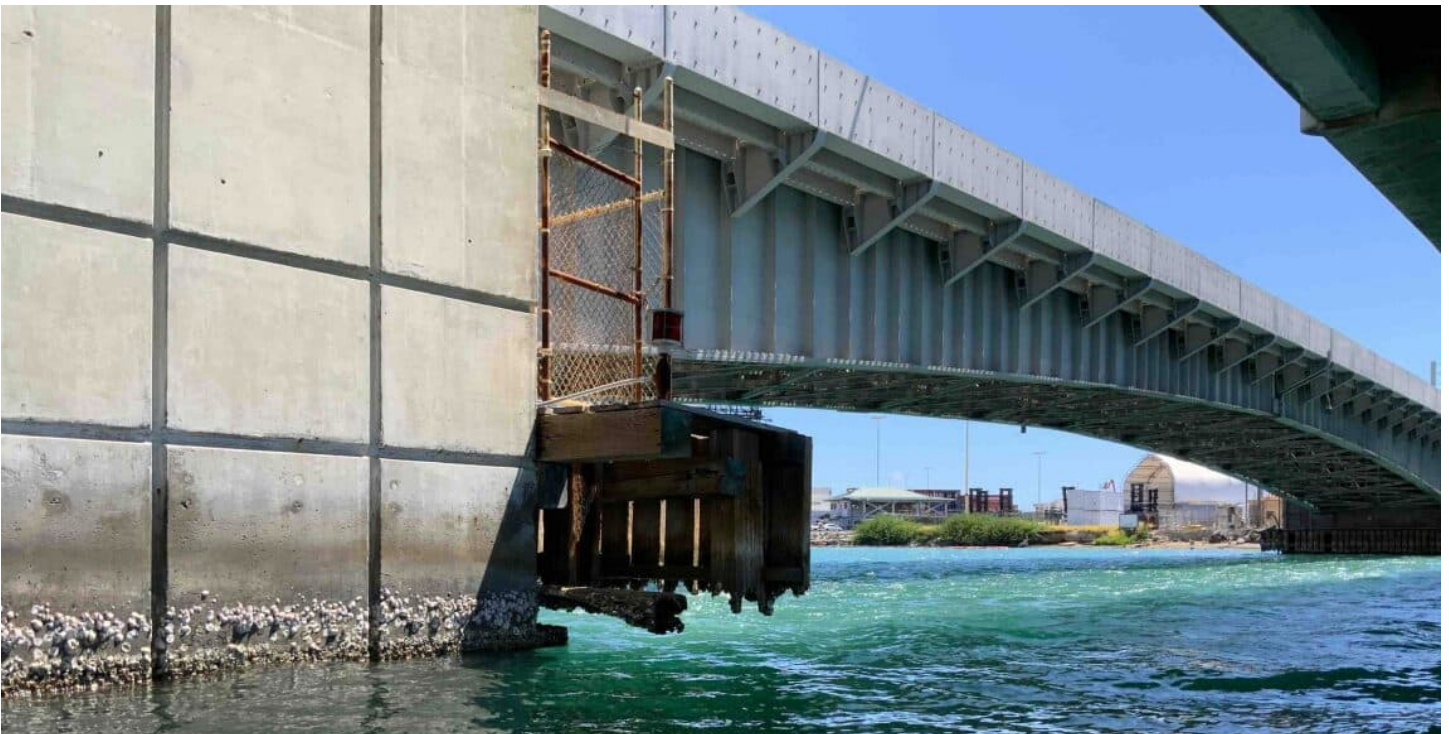


Image 4. Detail of bridge pier and maintenance shaft adjacent to bridge bascule, facing east.

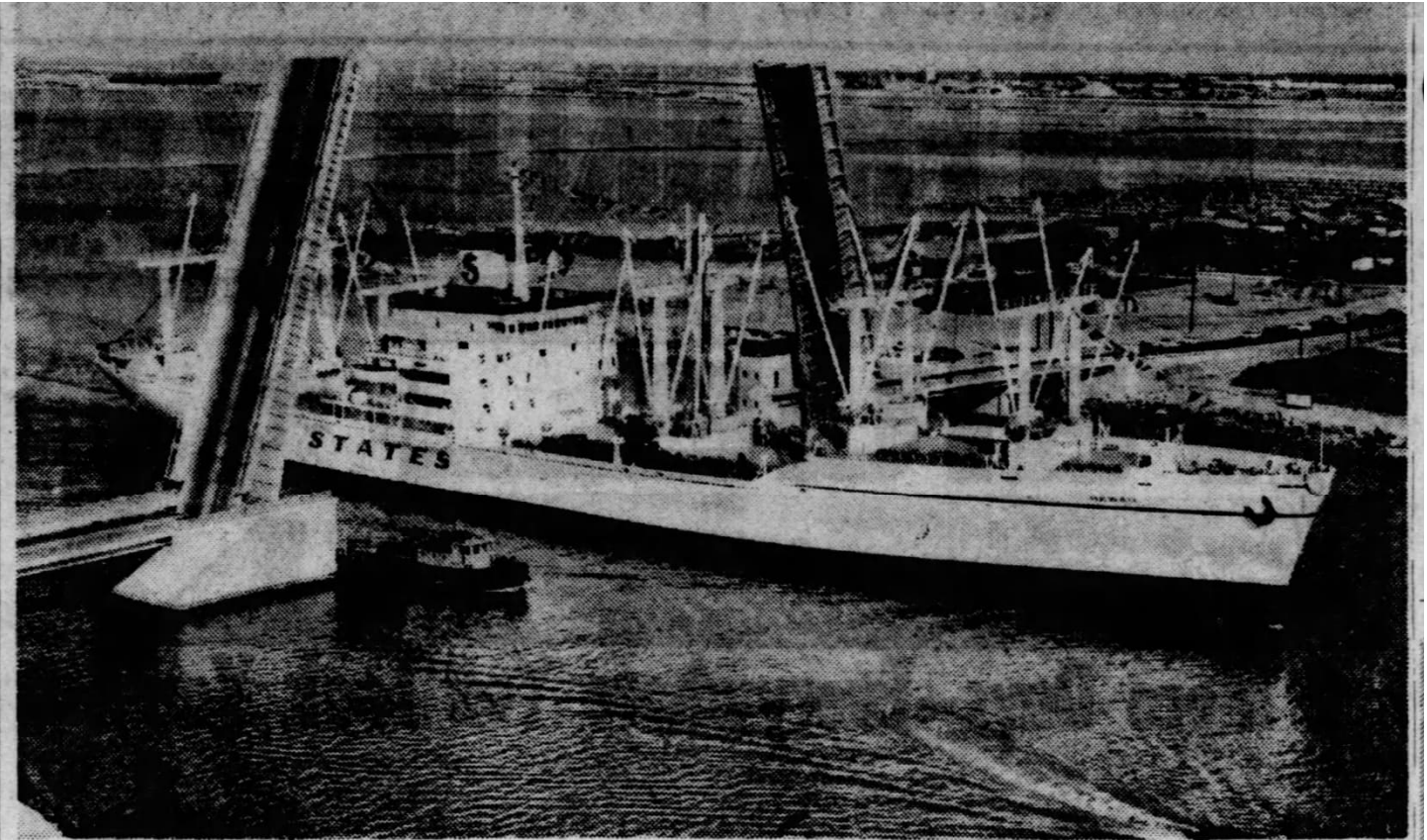


## Bridge Inventory Form



Image 5. Bridge bascule, facing southeast.

## Bridge Inventory Form




States Steamship Company's brand new \$11 million 20-knot cargo liner S.S. Hawaii this morning became the first ship of her type to use the western entrance to Honolulu Harbor. The vessel is shown passing the upraised arms of the new Sand Island bascule bridge. The Hawaii will be open to the public at Pier 2 from 1 to 5 p.m. tomorrow.—Photo Hawaii Photo.

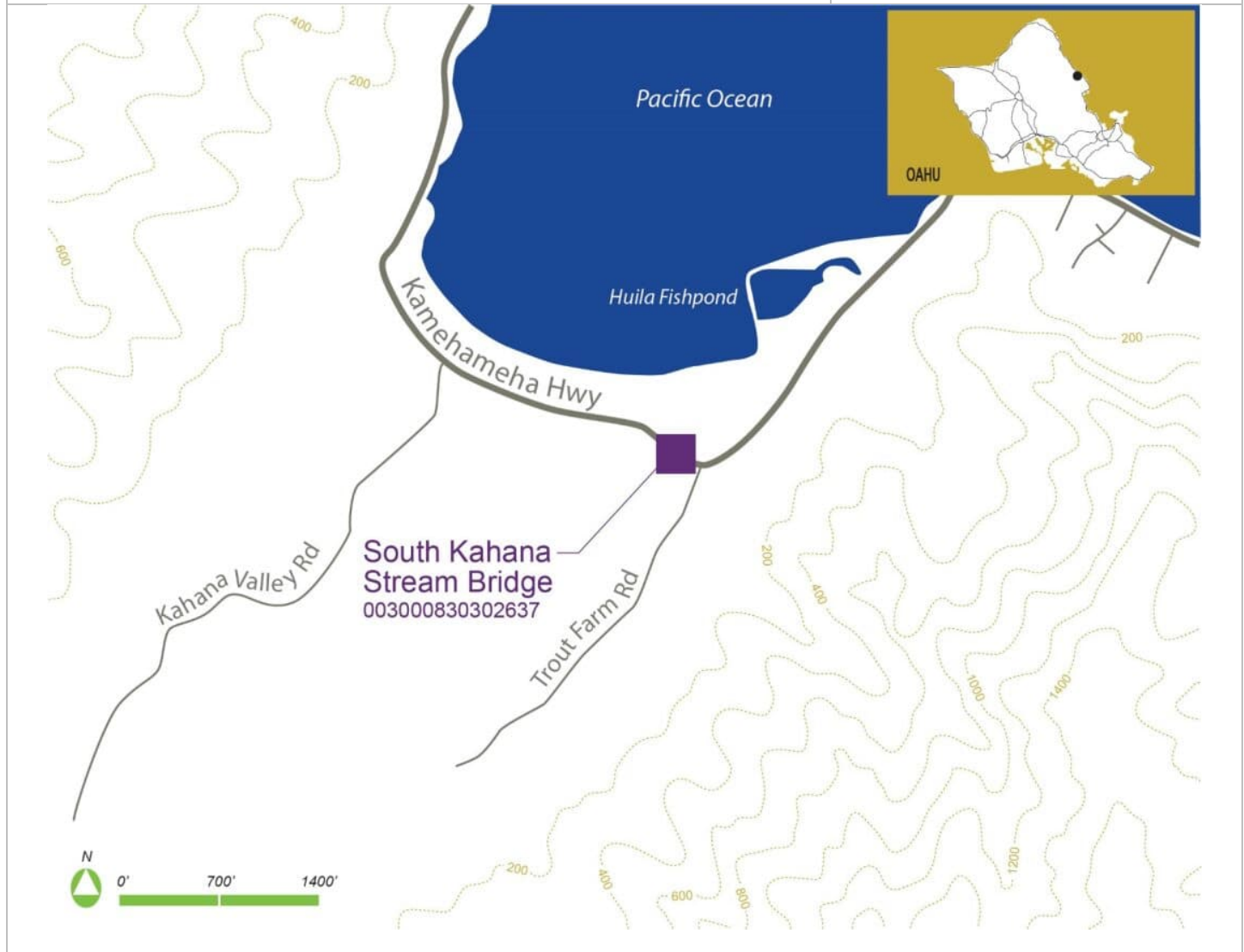
Image 6. 1962 photograph showing newly completed Sand-Island Bascule Bridge. Source: *Honolulu Star-Bulletin*, September 13, 1962, 1-B, accessed September 23, 2024, <https://www.newspapers.com/image/269529206/>.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302637		<b>TMK:</b> 152005021 (adjacent)	
<b>Common Name:</b> South Kahana Stream Bridge			
<b>Historic Name:</b> South Kahana Stream Bridge			
<b>Feature Crossed:</b> South Kahana Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 26.649	
<b>Latitude:</b> 21.55444		<b>Longitude:</b> -157.8707	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1927
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1972, 2016	
<b>Alterations:</b> Wood pedestrian bridge added to the mauka side in 1972. In 2016, a cover coat was applied to all wooden surfaces.	

## Design Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 89.9 ft.	<b>Deck Width:</b> 26.2
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment, Concrete Multi-Column Pier			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b> Bridge name and construction date incised on northbound end posts			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-06-08096	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1927		
<b>Narrative Description:</b>  The South Kahana Stream Bridge carries the Kamehameha Highway across the South Kahana Stream. This five-span, concrete continuous slab bridge rests on reinforced concrete abutments and four reinforced concrete multi-column piers. The reinforced concrete deck carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are concrete solid panel with cap railings with the bridge name and construction date incised on the northbound end posts. On the mauka side of the bridge, a wood pedestrian walkway with wood horizontal railings was added in 1972. Three beams have also been attached to the end posts.		

## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete continuous slab bridge with solid concrete panel with cap railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1920s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete solid panel with cap parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through the addition of a wood walkway and use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1920s.

Therefore, the South Kahana Stream Bridge is eligible for the NRHP.



# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing south.



## Bridge Inventory Form



Image 2. Approach road and parapets, facing east.



Image 3. Fisheye image of northeast parapet, facing southwest.




## Bridge Inventory Form



Image 4. Bridge piers and pedestrian walkway, facing north.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830303459		<b>TMK:</b> 148008018	
<b>Common Name:</b> Waiahole Stream (County)			
<b>Historic Name:</b> Waiahole Stream (County)			
<b>Feature Crossed:</b> Waiahole Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 34.589	
<b>Latitude:</b> 21.48154		<b>Longitude:</b> -157.8449	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Tee Beam	<b>Construction Date:</b> 1922
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1968	
<b>Alterations:</b> Wood pedestrian bridge added in 1968.	

## Design Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 32.2 ft.	<b>Total Length:</b> 65.9 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Reinforced Concrete Girder/Beam			
<b>Substructure:</b> Reinforced Concrete Column, Reinforced Concrete Abutment, Reinforced Concrete Pier Cap			
<b>Floor/Decking:</b> Reinforced Concrete Deck (roadway) Timber Deck (pedestrian walkway)			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap (roadway) Horizontal Timber Bridge Rail (pedestrian walkway)			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-10-08100	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1922		
<b>Narrative Description:</b>  The Waiahole Stream (County) Bridge carries Kamehameha Highway across the Waiahole Stream. This reinforced concrete continuous tee beam bridge carries two spans that sit on reinforced concrete abutments and central pier. The reinforced concrete deck carries two road lanes and features solid concrete panel railings with caps. End posts on the mauka side of the bridge are flat, while end posts on the makai side of the bridge are curved. The bridge name and construction date feature on the makai end posts as well. Thrie beams have been attached to the roadway end posts. A wood pedestrian walkway with horizontal wood railings was added to the mauka side of the bridge in 1968.		



## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Though the Waiahole Stream (County) Bridge predates the passage of 1924-25 legislation, its inclusion in the belt and defense road system signifies the importance of legislation in accelerating road construction programs. Its design, a concrete tee beam with solid concrete panel railings and caps, indicates future standardization of bridge design as road construction progressed.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1920s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete panel railings and caps represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through the addition of a wood walkway and use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1920s.

Therefore, the Waiahole Stream (County) Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing northwest.



## Bridge Inventory Form



Image 2. East parapet, facing northeast.



## Bridge Inventory Form



Image 3. Roadway, pedestrian bridge, and parapets, facing north.

## Bridge Inventory Form



Image 4. North abutment and deck girders, facing north.





## Bridge Inventory Form

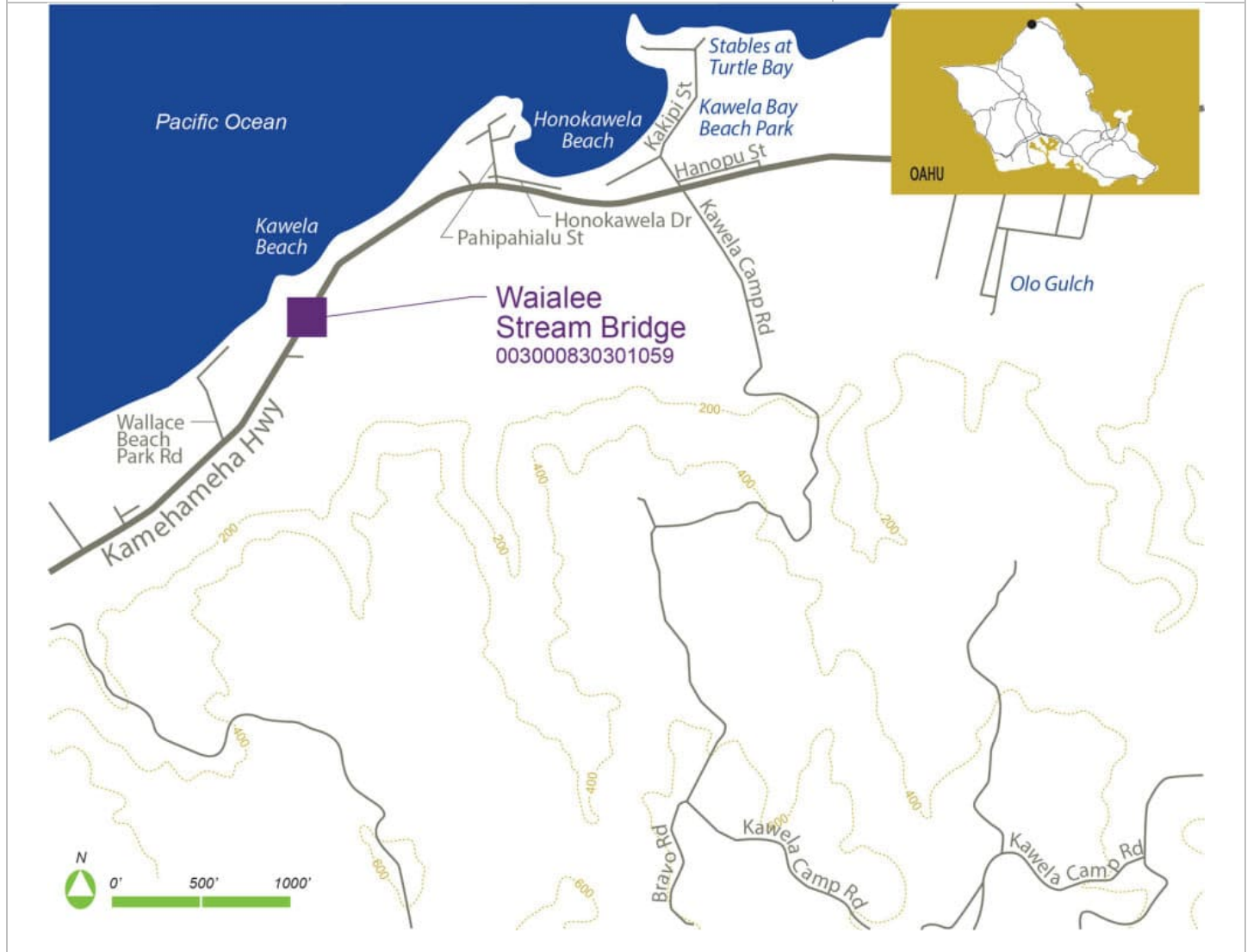


Image 5. Bridge pier and deck girders, facing north.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830301059		<b>TMK:</b> 158001043 (adjacent)	
<b>Common Name:</b> Waialeale Stream Bridge			
<b>Historic Name:</b> Waialeale Stream Bridge			
<b>Feature Crossed:</b> Waialeale Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 10.589	
<b>Latitude:</b> 21.69124		<b>Longitude:</b> -158.0203	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1931
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 2017, 2018, 2020	
<b>Alterations:</b> Railings replaced and new concrete slabs installed (2017), new work along shoulders (2018), and bridge widened (2020).	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 32.2 ft.	<b>Total Length:</b> 35.8 ft.	<b>Deck Width:</b> 27.9
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid with Incised Arches			
<b>Other Features:</b> Bridge Name and Original Construction Date Incised on End Posts			

## Historic Information

<b>NRHP Status:</b> Not Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-02-08101	
<b>6E Status:</b> Not Significant	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input type="checkbox"/> Setting <input type="checkbox"/> Materials <input type="checkbox"/> Workmanship <input type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b>		
<b>Period of Significance:</b>		
<b>Narrative Description:</b>  The Waialeale Stream Bridge carries the Kamehameha Highway over the Waialeale Stream. This single-span concrete tee beam bridge rests on concrete abutments. The concrete deck carries a two-lane roadway paved in asphalt-concrete (AC) overlay. Flanking the roadway are non-original concrete solid with cap railings with incised arches, with curved end posts with the bridge name and original construction date incised on them. Thrie beams have been attached to the end posts.		



## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. The Waialeale Stream Bridge was built as part of Federal Aid Project No. 3C and listed as "Bridge No. 2-B" in construction plans. Its design, a concrete tee beam with ornamental railing, was a common type of bridge found in Hawaii prior to World War II. Between 2015 and 2020, Federal Project No. NH-083-1(072) saw the resurfacing of the Kamehameha Highway in the area. In 2017, the original concrete open arched parapets were replaced with solid parapets featuring an incised arched pattern similar to the original bridge parapets. The curved end posts have been replaced by squared end posts that have the bridge's name and 1931 construction date incised on them but do not indicate the replacement date.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of open arch parapets represents a typical rail pattern used by the Territorial Highway Department. Their replacement in 2017 means the bridge is no longer significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway, and it retains its association with Territorial roadway improvements during the 1930s. Due to work undertaken in 2017 that resulted in significant alterations to the original parapets, the bridge no longer retains integrity of design, materials, and workmanship. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain.

Therefore, Waialeale Stream Bridge is not eligible for the NRHP.

# Bridge Inventory Form

## References

- Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.
- "Kamehameha Highway, Federal Aid Project No. 3C." <http://162.221.244.142:8080/As-Built/res/Oahu/Route%200083/0083-009/0083-009.htm>.
- "Kamehameha Highway Resurfacing, Dairy Road to Laiewai Bridge, Federal Aid Project No. NH-083-1(072)." <http://162.221.244.142:8080/As-Built/res/Oahu/Route%200083/0083-1054-D1C1/0083-1054-D1C1.htm>.
- State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.
- U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.
- "Weekend Roadwork Scheduled for the Kamehameha Highway Resurfacing Project on Oahu's North Shore." HDOT, January 26, 2017, <https://hidot.hawaii.gov/administration/weekend-roadwork-scheduled-for-the-kamehameha-highway-resurfacing-project-on-oahus-north-shore/>.

## Bridge Inventory Form



Image 1. General view of bridge, facing west.



## Bridge Inventory Form



Image 2. Bridge deck and 2017 parapets, facing northeast.



## Bridge Inventory Form

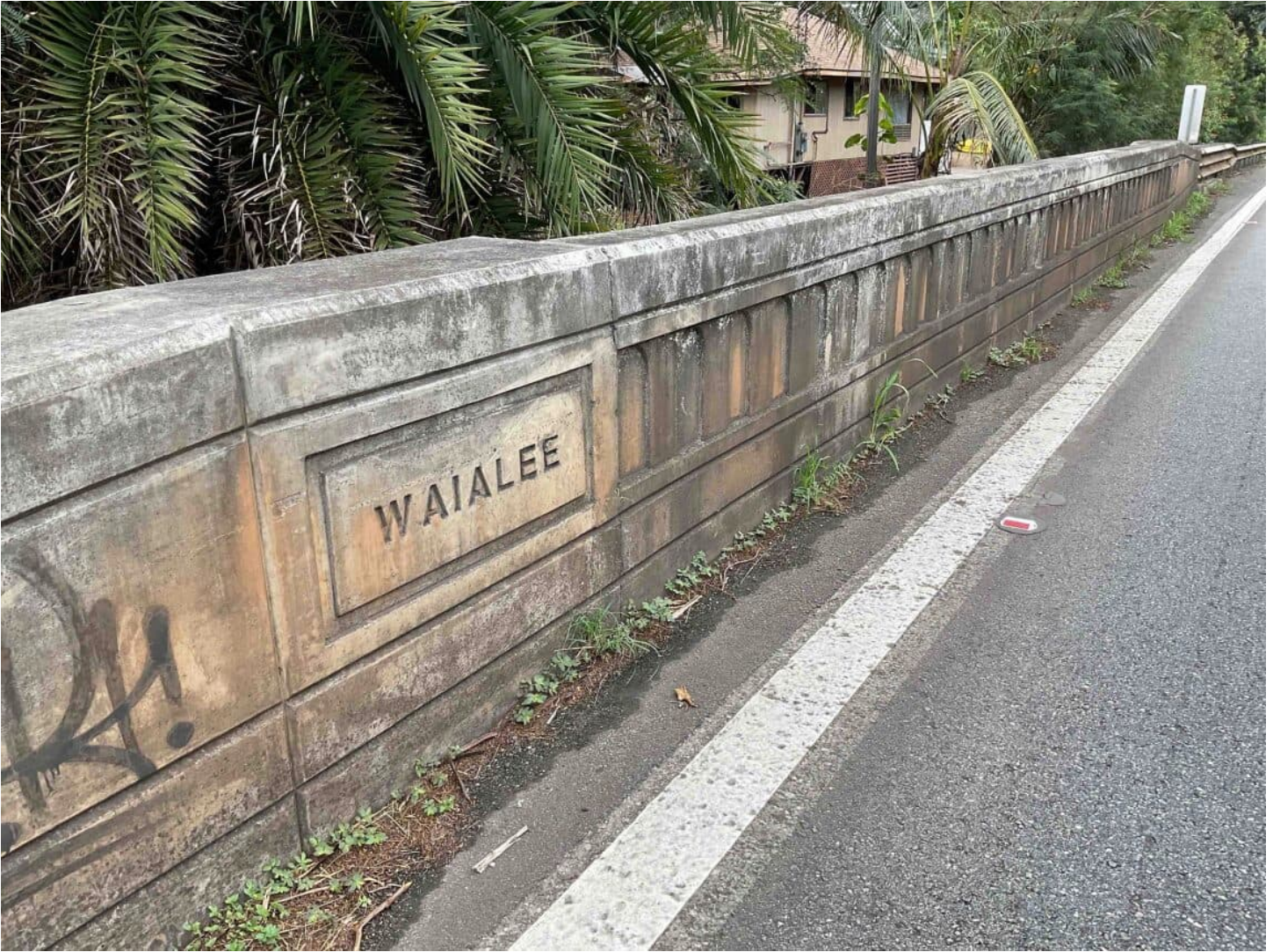


Image 3. Southeast replacement parapet, facing south. Note bridge name incised on replacement parapet end post.



## Bridge Inventory Form



Image 4. Southeast replacement parapet end post with 1931 construction date, facing east. Source: Google Maps, July 2019.




## Bridge Inventory Form



Image 5. Original southeast parapet with north end post (left) featuring bridge name and south end post (right) featuring construction date, facing southeast. Source: Google Maps August 2011.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003009300501794		<b>TMK:</b> 166025013	
<b>Common Name:</b> Waialua Plantation Road Bridge			
<b>Historic Name:</b> Waialua Plantation Road Bridge			
<b>Feature Crossed:</b> Farrington Highway/Route 930			
<b>Feature Carried:</b> Waialua Plantation Road			
<b>Island:</b> Oahu		<b>Milepost:</b> 6.61	
<b>Latitude:</b> 21.5624		<b>Longitude:</b> -158.1139	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1941
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 22.0 ft.	<b>Total Length:</b> 24.0 ft.	<b>Deck Width:</b> 38.1 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid and Metal Thrie Beam			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-04-08102	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1941		
<b>Narrative Description:</b>  The Waialua Plantation Road Bridge carries the Waialua Plantation Road over the Farrington Highway. This single-span concrete slab bridge rests on concrete abutments. The concrete deck carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are concrete solid railings. Thrie beams were added to the whole length of the bridge at a later date and run in front of the concrete railing.		



# Bridge Inventory Form

## Statement of Significance:

The Farrington Highway, named after Territorial Governor Wallace Farrington, who drafted the Territory's 1924 Bill of Rights, was integral to an effective transportation system on Oahu by 1941. The Waialua Plantation Road Bridge resulted from a 1940 Federal Aid Project to bolster National Defense by connecting Schofield Barracks to Dillingham Air Field. The Waialua Plantation Road Bridge is a typical reinforced concrete bridge with solid railing commonly found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1940s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the solid parapets represent a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite alterations to improve vehicular safety through the use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1940s.

Therefore, the Waialua Plantation Road Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing southwest.




## Bridge Inventory Form

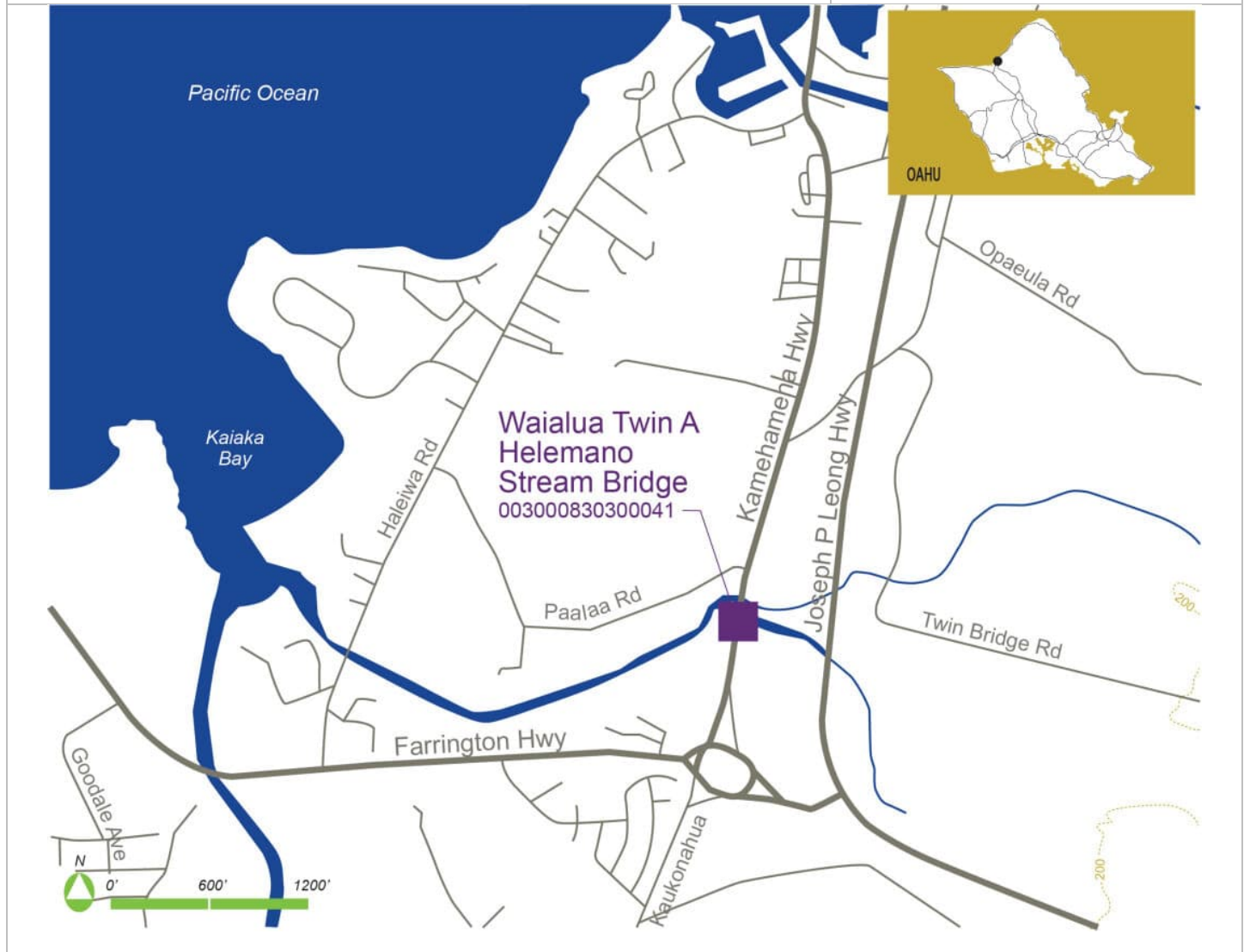


Image 2. Bridge roadway, facing southeast.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830300041		<b>TMK:</b> 162007003 (adjacent)	
<b>Common Name:</b> Waialua Twin A (Helemano)			
<b>Historic Name:</b> Waialua Twin A (Helemano)			
<b>Feature Crossed:</b> Helemano Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 0.41	
<b>Latitude:</b> 21.57984		<b>Longitude:</b> -158.1052	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1928
<b>Designer/Engineer:</b> U. S. Department of Agriculture, Bureau of Public Roads, San Francisco, CA	
<b>Builder/Contractor:</b> John McCandless	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 60.0 ft.	<b>Total Length:</b> 65.0 ft.	<b>Deck Width:</b> 30.2 ft.
<b>Superstructure:</b> Reinforced Concrete Girder/Beam			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Deck			
<b>Parapets/Railings:</b> Reinforced Concrete Solid Panel with Cap			
<b>Other Features:</b> Bridge name and construction date incised on end piers; sidewalks on both sides of roadway			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-04-08103	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1928		
<b>Narrative Description:</b>  The [Opaeula]-Waialua Twin A Bridge carries the Kamehameha Highway over the Helemano Stream. The bridge is grouped with the Opaeula-Waialua Twin B (003000830300043), and the pair of identical bridges carry the Kamehameha Highway over the closely-spaced Helemano and Opaeula Streams. Waialua Twin A is a single-span Concrete Tee Beam bridge that rests on reinforced concrete abutments. The 2-lane roadway, laid in a reinforced concrete deck, is flanked by pedestrian walkways and features concrete solid panels with cap railings. The bridge name and construction date are incised on the end piers. Thrie beams have been attached to the end piers on both sides of the bridge.		



## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with concrete solid panel and cap railings, was a common type of bridge found in Hawaii prior to World War II.

The bridge and its twin are associated with major transportation improvements on Oahu during the Territorial period. The bridges are located within the County-designated Haleiwa Special Design District and contribute significantly to the historic character of the town. The bridges were inadvertently involved in an important preservation battle for the nearby Anahulu Bridge, a rare remaining example of a "rainbow" or Marsh arch (through deck) bridge. The State Department of Transportation planned to replace the structure, however, concerned citizens rallied to preserve the picturesque bridge. The alternative plan preserved the historic bridge by bypassing it with a new highway and modern four-lane bridge upstream. The Waialua Twin Bridges were also bypassed, thus relieving them from modern traffic pressures.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete panel with cap parapets was a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve vehicular safety through the use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, Waialua Twin A Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing east.



Image 2. Bridge deck and parapets, facing south.



## Bridge Inventory Form



Image 3. Bridge deck and parapets, facing northwest.




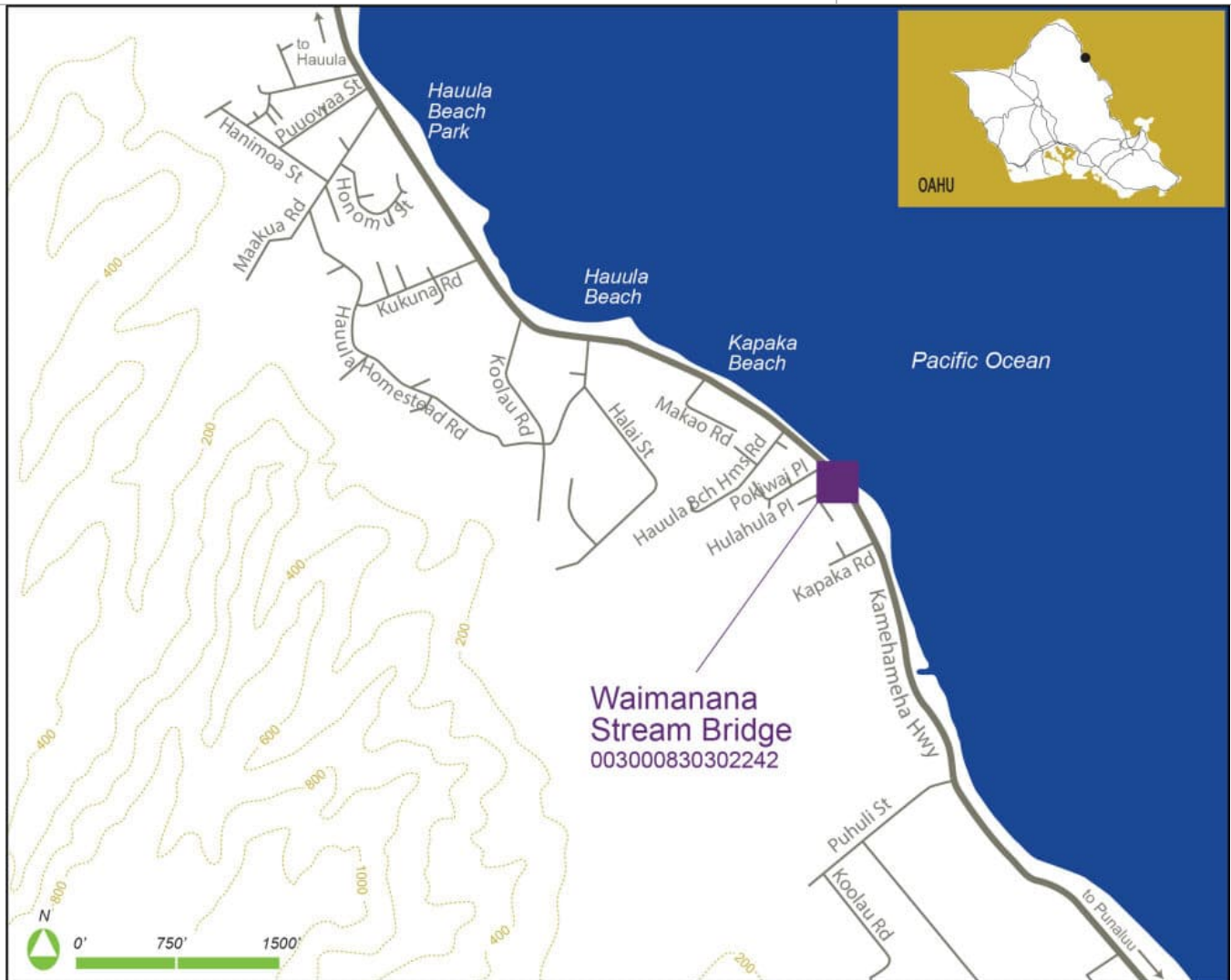
Image 4. Northern abutments and deck girders, facing northwest.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302242		<b>TMK:</b> 153014003 (adjacent)	
<b>Common Name:</b> Waimanana Stream Bridge			
<b>Historic Name:</b> Waimanana Stream Bridge			
<b>Feature Crossed:</b> Waimanana Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 22.42	
<b>Latitude:</b> 21.60329		<b>Longitude:</b> -157.8992	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Slab	<b>Construction Date:</b> 1926
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1990, 2016, 2019, 2020.	
<b>Alterations:</b> Wood pedestrian bridge with wood railings added in 1990 on the mauka side. New coating was applied to the pedestrian walkway wood deck and rails in 2016. New galvanized steel outrigger supports installed in June 2019 and below timber pedestrian walkway in 2020. New metal thrie beam guardrails installed on makai side of bridge in 2019. Concrete soffit repaired throughout with 6-inch-thick layer of concrete in February 2020.	

## Design Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 71.9 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Concrete Continuous Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Not Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>HRHP No.:</b> 50-80-06-08110	
<b>6E Status:</b> Not Significant	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input type="checkbox"/> Association <input type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge		<b>Historic Function:</b> Bridge
<b>Areas of Significance:</b> Engineering, Transportation		
<b>Period of Significance:</b> 1926		
<b>Narrative Description:</b>		
<p>The Waimanana Stream Bridge carries the Kamehameha Highway across the Waimanana Stream. This concrete continuous slab bridge rests on concrete abutments and three concrete piers. The reinforced concrete slab deck carries a two-lane roadway paved in asphalt concrete (AC) overlay. Flanking the roadway are two solid concrete with cap railings, featuring end posts with the bridge's name and date of construction incised on them. Thrie beams have been</p>		



## Bridge Inventory Form

attached to the end posts. In 1990, a pedestrian walkway with wooden horizontal railings was added on the mauka side of the bridge. In 2016, the wood walkway and railings received a new coating. In April 2019, coastal erosion led HDOT to stabilize the undermined roadway with concrete blocks, concrete mix, and boulders, and new metal thrie beam guardrails were installed on the bridge's makai side, connecting to non-original concrete barriers that flank the railing. In June 2019, new galvanized steel outrigger supports were installed underneath the bridge, with the pedestrian walkway receiving a similar treatment in 2020. In February 2020, the bridge underwent further repairs with the application of a new six-inch layer of concrete applied over the soffit. Overall, the bridge is in poor condition due to coastal erosion.

### Statement of Significance:

The Kamehameha Highway, named after conqueror of the Hawaiian Islands King Kamehameha I, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete continuous slab with solid railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is an example of a 1920s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of solid concrete parapets with caps represents a typical rail pattern used by the Territorial Highway Department. However, the bridge continues to deteriorate and has been heavily compromised through coastal erosion that has led to the degradation of character-defining features, including its piers, abutments, and railing. This bridge is therefore not significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over Waimanana Stream adjacent to the former Makao Beach. Due to coastal erosion and subsequent repairs, the bridge no longer retains integrity of design, materials, and workmanship. While they are relatively minor changes, alterations to improve pedestrian and vehicular safety through the addition of a wood walkway and use of thrie beams have negatively affected the bridge's integrity of workmanship. Integrity of workmanship is not entirely lost and is still visible through the bridge's railings and general construction, which demonstrate craftsmanship from the 1920s; however, further measures to safeguard the bridge from erosion and ensure user safety may eventually result in a total loss of integrity of workmanship. A series of reinforcement measures, including new outrigger supports and new concrete, coupled with the prior installation of guardrails and a pedestrian bridge, have resulted in a loss of integrity of design. Similarly, the use of unsympathetic materials for structural support and the application of concrete to repair the bridge soffit has resulted in a loss of integrity of materials. The bridge's integrity of setting is diminished through coastal erosion, the loss of Makao Beach, and development that has encroached into the former rural setting. Due to extensive alterations and loss of setting, the bridge no longer retains integrity of feeling as a pre-World War II bridge type or its integrity of association with Territorial roadway improvements during the 1920s. As a result, the bridge lacks sufficient integrity to convey its significance.

Therefore, Waimanana Stream Bridge is not eligible for the NRHP.

# Bridge Inventory Form

## References

- Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.
- "Eroding Highway in Hauula Being Repaired." KHON2 News, April 15, 2019, <https://www.khon2.com/local-news/eroding-highway-in-hauula-being-repaired/>.
- "HDOT Crews Complete Stabilization of Kamehameha Highway in Hauula." HDOT, April 15, 2019, <https://hidot.hawaii.gov/highways/hdot-crews-complete-stabilization-of-kamehameha-highway-in-hauula/>.
- "HDOT Crews Repair Section of Kamehameha Highway in Hauula." HDOT, April 13, 2019, <https://hidot.hawaii.gov/highways/hdot-crews-repair-section-of-kamehameha-highway-in-hauula/>.
- State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.
- "Waimana [Stream] Bridge Repair Hauula." KHON2 News, April 15, 2019. Accessed February 27, 2023, <https://www.youtube.com/watch?v=GpenWWe7Gq8>.

## Bridge Inventory Form



Image 1. General view of bridge, facing south.



## Bridge Inventory Form



Image 2. View of pedestrian bridge, facing east.

## Bridge Inventory Form



Image 3. Bridge parapets and roadway, facing west.



## Bridge Inventory Form




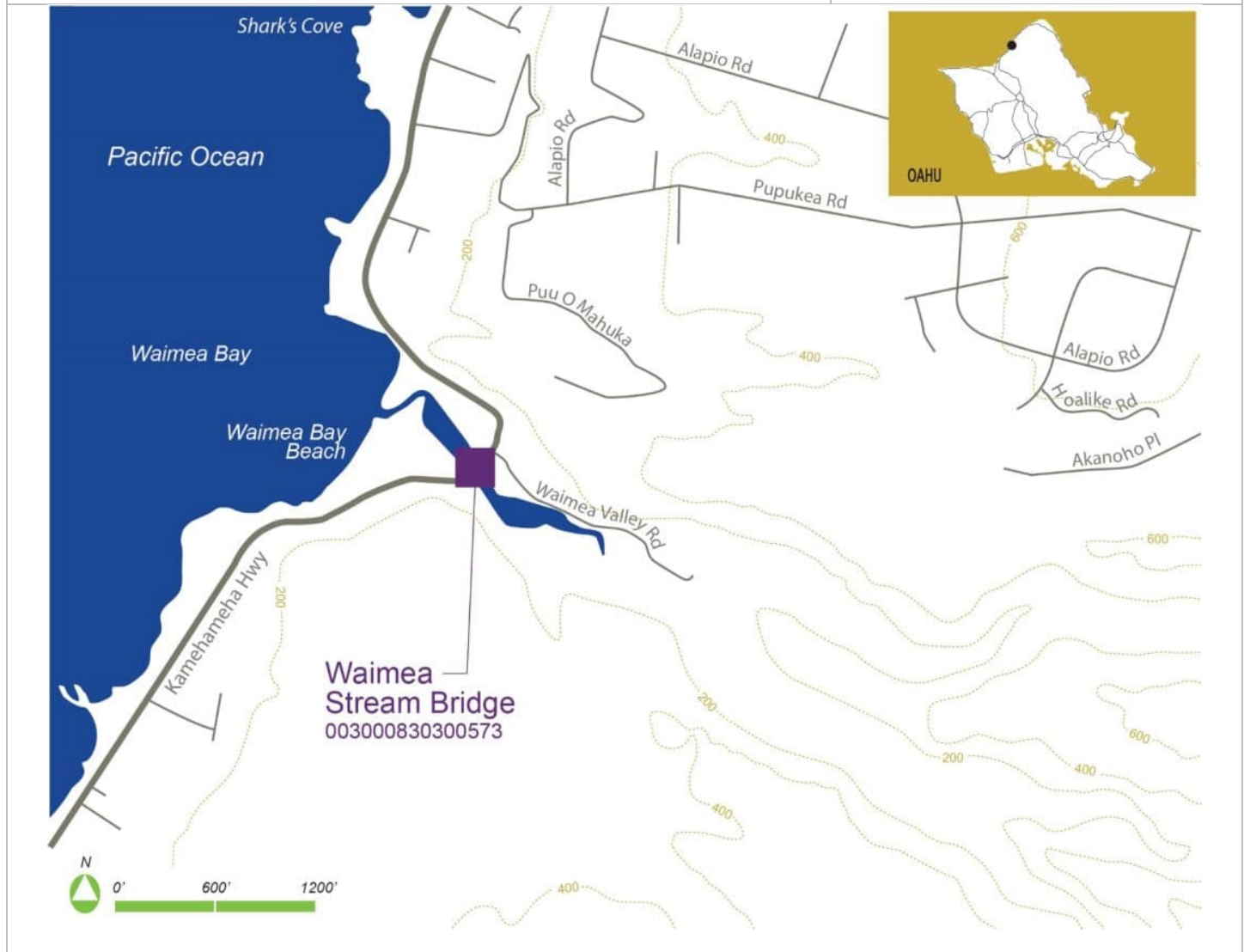
Image 4. Northeast parapet, facing northwest.



# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830300573		<b>TMK:</b> 161001003 (adjacent)	
<b>Common Name:</b> Waimea Stream Bridge			
<b>Historic Name:</b> Waimea Stream Bridge			
<b>Feature Crossed:</b> Waimea Stream			
<b>Feature Carried:</b> Kamehameha Highway/Route 83			
<b>Island:</b> Oahu		<b>Milepost:</b> 5.73	
<b>Latitude:</b> 21.63926		<b>Longitude:</b> -158.0608	
<b>Ownership:</b> State			<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Continuous Tee Beam	<b>Construction Date:</b> 1930
<b>Designer/Engineer:</b> U. S. Department of Agriculture, Bureau of Public Roads, San Francisco, CA	
<b>Builder/Contractor:</b> John L. Young (National Construction Company)	
<b>Alteration Date(s):</b>	
<b>Alterations:</b>	

## Design Information

<b>Number of Spans:</b> 6	<b>Max Span:</b> 51.8 ft.	<b>Total Length:</b> 268.0 ft.	<b>Deck Width:</b> 27.2 ft.
<b>Superstructure:</b> Reinforced Concrete Girder/Beam			
<b>Substructure:</b> Reinforced Concrete Column, Pier Wall, Abutment, and Pier Cap			
<b>Floor/Decking:</b> Reinforced Concrete Deck with Asphalt Concrete (AC) Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b> Bridge name and construction date incised on end posts			

## Historic Information

<b>NRHP Status:</b> Eligible	<b>Criteria:</b> A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-01-08111	
<b>6E Status:</b> Significant Historic Property	<b>Criteria:</b> a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1930		
<b>Narrative Description:</b>  The Waimea Stream Bridge carries the Kamehameha Highway over the Waimea Stream. This six-span concrete continuous tee beam bridge features concrete solid concrete panel parapets with caps as well as curved end posts. The bridge's name and construction date are incised on these end posts. The structure rests on reinforced concrete columns and reinforced concrete abutments. The reinforced concrete deck is covered with asphalt concrete (AC) overlay. The bridge consists of a two-lane roadway with no provision for pedestrian walkways, which are present on an adjacent and separate structure. Thrie beams have been added to the end posts to enhance vehicular safety.		

## Bridge Inventory Form

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with ornamental railing, was a common type of bridge found in Hawaii prior to World War II.

The Waimea Bridge was constructed as part of the general upgrading of the belt road around Oahu to service the sugar lands on the North Shore. It was part of a larger contract that included the Waimea bridge, three smaller bridges (perhaps the Paumalu, Kaunala and Kawailoa bridges), two culverts, and five miles of roadway. The bridges and roadway contributed to the economic development of the region by providing reliable vehicular access, as well as an alternative to rail, between the north shore and Honolulu. The plans were prepared by the U.S. Department of Agriculture's Bureau of Public Roads in San Francisco, California. The contract for the bridge was awarded to John L. Young, owner of the National Construction Company, who filed for bankruptcy during its construction. The Territory of Hawaii hired a construction superintendent to complete the bridge.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the capability of reinforced concrete is demonstrated through the bridge's fifty-two-foot span as well as the use of solid concrete parapets with caps and curved end posts represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve vehicular safety through the use of three beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, Waimea Stream Bridge is eligible for the NRHP.



# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing north.



## Bridge Inventory Form



Image 2. Bridge deck and piers, facing southwest.



## Bridge Inventory Form



Image 3. Southwest abutment and bridge piers, facing southwest.

# Bridge Inventory Form

## General Information

<b>Bridge Number:</b> 003000830302112	<b>TMK:</b> 154017021	
<b>Common Name:</b> Waipilopilo Stream		
<b>Historic Name:</b> Waipilopilo Stream		
<b>Feature Crossed:</b> Waipilopilo Stream		
<b>Feature Carried:</b> Kamehameha Highway/Route 83		
<b>Island:</b> Oahu	<b>Milepost:</b> 21.119	
<b>Latitude:</b> 21.61493	<b>Longitude:</b> -157.9132	
<b>Ownership:</b> State		<b>Image Date:</b> 11/06/2023



# Bridge Inventory Form

## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1932
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	
<b>Alteration Date(s):</b> 1964, 2018	
<b>Alterations:</b> Wood pedestrian bridge added in 1964. New coated ¾-inch plywood applied to pedestrian walkway in 2018.	

## Design Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 22.0 ft.	<b>Total Length:</b> 24.9 ft.	<b>Deck Width:</b> 27.2 ft.
<b>Superstructure:</b> Reinforced Concrete Girder/Beam			
<b>Substructure:</b> Reinforced Concrete Abutment			
<b>Floor/Decking:</b> Reinforced Concrete Top Flange			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Other Features:</b>			

## Historic Information

<b>NRHP Status:</b> Eligible	Criteria: A <input checked="" type="checkbox"/> B <input type="checkbox"/> C <input checked="" type="checkbox"/> D <input type="checkbox"/>	<b>NRHP No.:</b> N/A
<b>HRHP Status:</b> Not Listed	<b>SIHP No.:</b> 50-80-05-08112	
<b>6E Status:</b> Significant Historic Property	Criteria: a <input checked="" type="checkbox"/> b <input type="checkbox"/> c <input checked="" type="checkbox"/> d <input type="checkbox"/> e <input type="checkbox"/>	
<b>Integrity:</b> Location <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Setting <input checked="" type="checkbox"/> Materials <input checked="" type="checkbox"/> Workmanship <input checked="" type="checkbox"/> Feeling <input checked="" type="checkbox"/> Association <input checked="" type="checkbox"/>		
<b>Historic District:</b>		<b>Contributing:</b>
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Areas of Significance:</b> Transportation, Engineering		
<b>Period of Significance:</b> 1932		
<b>Supplemental Documentation:</b> HAER No. HI-124		
<b>Narrative Description:</b>  The Waipilopilo Stream Bridge carries the Kamehameha Highway across the Waipilopilo Stream. The reinforced concrete top flange deck rests on reinforced concrete abutments. This concrete tee beam bridge features concrete solid panel parapets with flat caps and curved, wide end posts. The parapet cap and end posts have been painted		



## Bridge Inventory Form

white. A wood pedestrian walkway with wood horizontal railings has been added to the mauka side of the bridge. Thrie beams were bolted to the end posts, but the simple design of the parapet retains its historic feeling.

### Statement of Significance:

The Kamehameha Highway, named after King Kamehameha I, the conqueror of the Hawaiian Islands, formed one of the belt and defense roads constructed by the Territorial Highway Department that was established following the passage of the 1924 Bill of Rights and the 1925 Federal Road Program. Built to accommodate military traffic, the completed highway was integral to the development of an effective transportation system on Oahu by 1941. Its design, a concrete tee beam with solid railing, was a common type of bridge found in Hawaii prior to World War II.

Because the bridge is associated with major transportation improvements on Oahu during the Territorial period, it is significant under Criterion A.

Research did not indicate an association with the lives of persons significant in our past, and, therefore, the bridge is not significant under Criterion B.

The bridge is a result of early developments in concrete bridge design and construction in Hawaii. It is a good example of a 1930s reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. In particular, the use of concrete solid panels with cap parapets represents a typical rail pattern used by the Territorial Highway Department. This bridge is therefore significant under Criterion C.

The bridge was not evaluated under Criterion D as part of this assessment.

The bridge remains in its original location, situated over a waterway. It retains integrity of design, materials, and workmanship, despite modest alterations to improve pedestrian and vehicular safety through the addition of a wood walkway and use of thrie beams. Its integrity of setting is intact, as development surrounding the bridge is limited, and its lush, semi-rural surroundings remain. The bridge retains integrity of feeling and association as a pre-World War II bridge type and its association with Territorial roadway improvements during the 1930s.

Therefore, the Waipilopilo Stream Bridge is eligible for the NRHP.

# Bridge Inventory Form

## References

Duensing, Dawn E. *Hawaii's Scenic Roads: Paving the Way for Tourism in the Islands*. Honolulu: University of Hawai'i Press, 2015. <http://www.jstor.org/stable/j.ctt13x1jdz>.

State of Hawaii. Department of Transportation. Highways Division. *Hawaii State Historic Bridge Inventory and Evaluation*. MKE Associates, LLC and Fung Associates, Inc. November, 2013.

U.S. Department of the Interior. National Park Service. Cultural Resources. *National Register Bulletin no. 15: How to Apply the National register Criteria for Evaluation*. Washington, DC: 1997.

## Bridge Inventory Form



Image 1. General view of bridge, facing west.



## Bridge Inventory Form



Image 2. View of bridge deck and approaches, facing southeast.



## Bridge Inventory Form



Image 3. Bridge abutments, deck girders, and pedestrian walkway, facing northeast.

# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000H10002687	19th Avenue Pedestrian Overpass (Fai-H1)	H-1	Pedestrian	1968	Unknown	Unknown	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10201231	2-180In Sect/ PI Culvert	Kalauao Stream	Fai-H1	1970	Steel Culvert	None	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10201116	3-162" Sect/ PI Culvert	3-162" Sect/ PI Culvert	Fai-H1	1970	Steel Culvert	None	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H30201242	3-84" RCP Culvert	3-84" RCP Culvert	Quarry Access Road	1976	Concrete Culvert	No Parapet/Railing	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000830303803	Ahuimanu Stream (Hui Iwa)	Ahuimanu Stream	Kahekili Highway	1963	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000830303738	Ahuimanu Stream	Ahuimanu Stream	Kahekili Hwy	1971	Prestressed Concrete Stringer	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400001	Aiea Interchange No. 2	Kamehameha Highway	Moanalua Freeway	1966	Steel Stringer	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000991202143	Aiea Interchange No. 4	Kamehameha Highway	Aiea Heights Access Road	1965	Steel Stringer	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.
003000780000049	Aiea Interchange Pedestrian Overpass	Moanalua Freeway (Aiea Interchange Pedestrian Overpass)	Pedestrian	1966	Concrete Girder	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990402120	Aiea Stream	Aiea Stream	Kamehameha Highway	1938	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to significant alterations in 1965. The bridge does not reflect the typical characteristics of a 1930s bridge and does not fall under Program Comments due to its construction date in 1938.
003000H10201287	Aiea Stream 15X12 Twin Culvert	Aiea Stream	Fai-H1	1970	Concrete Continuous Slab/Box Culvert	None	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000920400861	Ala Wai Canal	Ala Wai Canal	Ala Moana Boulevard	1939	Concrete Tee Beam	Metal Horizontal	No	Non-Contributing	<ul style="list-style-type: none"> <li>• Associated with the Ala Wai Canal and development of Waikiki district</li> <li>• Located within the Waikiki special district</li> <li>• See National Register of Historic Places Nomination Form on Ala Wai Canal in appendices for related information</li> </ul>
003000H10002255	Alapai Ped Op(Fai-H1)	H-1	Pedestrian	1969	Unknown	Unknown	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000830004118	Anoi Ped Overpass	H-1	Pedestrian	1969	Unknown	Unknown	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H11101095	Austin Bishop Separation-Fai-H1	H-1	Kaahumanu St.	1971	Concrete Continuous Box Beam	Metal Horizontal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000930300071	Awawanui Stream	Awawanui Stream	Old Farrington Highway	1927	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete tee-beam bridge</li> </ul>
003000631100418	Burmeister Overpass	Likelike Highway (Burmeister Overpass)	Private Road	1959	Concrete Girder	Concrete Open Horizontal	No	Eligible	• Built as a result of the Territory refusing to build the mauka entrance to Edward R. Burmeister Kalihi Valley land from the current Likelike Highway
003000H10100707	Cane Haul Rd 414 Inbound	Cane Haul Road 414 Inbound/Paiwa Street	Fai-H1	1968	Concrete Continuous Tee Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10100708	Cane Haul Rd 414 Ob	Cane Haul Road 414 Outbound/Paiwa Street	Fai-H1	1968	Concrete Continuous Tee Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10100775	Cane Haul Road 451 Inbound	Cane Haul Road 451 Inbound	Fai-H1	1968	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10100776	Cane Haul Road 451 Outbound	Cane Haul Road 451 Outbound	Fai-H1	1968	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H20200021	Canehaul Rd & Stream #16	Canehaul Road and Stream	H-2	1973	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H20200024	Canehaul Road & Stream No. 15	Canehaul Road & Stream No. 15	FAI-H2 WIC #15	1974	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003098001400116	Central Intermediate Pedestrian Overpass	Vineyard Boulevard	Pedestrian	1957	Concrete Tee Beam	Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. This pedestrian overpass was constructed to mitigate the extension of North Vineyard Boulevard to connect with the H-1 Freeway. The extension separated Central Intermediate School from its playground area.
003000830304369	Double 12 ft. x 10 ft. Concrete Box Culvert	Unnamed Stream	Kamehameha Highway	1933	Concrete Box Culvert	Metal Thrie Beam	No	Not Eligible	This culvert does not have distinctive engineering or architectural features that depart from standard culvert design.
003090001400038	Double Section Plate Pipe Culvert	Unknown Stream	Farrington Highway	1965	Metal Corrugated Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000720401801	Double-Cell Box Culvert	Unnamed Stream	Kalaniana'ole Highway	1958	Concrete Box Culvert	Metal Horizontal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000H20200745	E Range Road-Wahiawa Interchange Bridge 3	Higgins Road	H-2	1973	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H20200746	E Range Road-Wahiawa Interchange Bridge 4	Higgins Road	H-2	1973	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

Greyed-out cells have no form.



# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000H10201340	FAI-H1 (Halawa Interchange #6)	FAI-H1 (Halawa Interchange #6)	RAMP ES	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10201352	FAI-H1 (Halawa Interchange #8) Stream	FAI-H1 (Halawa Interchange #8) Stream	FAI-H1	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400074	FAI-H1(HIC #2)	FAI-H1(HIC #2)	MOANALUA RD	1974	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H11100677	Fai-H1(Lumiaina St Op)	H-1	Lumiaina St.	1968	Concrete Continuous Box Beam	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10201370	FAI-H1(N LEG VIA)	FAI-H1(N LEG VIA)	FAL-H1(N LEG VIA)	1975	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H11100817	Fai-H1(Waiawa Interchange #12)	H-1	Waipahu St	1968	Concrete Continuous Box Beam	Metal Horizontal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H11201552	FAI-H1-PH INT #6	FAI-H1-PH INT #6	RAMP "NW"	1974	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H30201589	FAI-H3	Twin 21.5 'X6.0' RCB	FAI-H3	1967	Concrete Continuous Culvert	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000780200147	FAI-H3 (HIC #4)	FAI-H3 (HIC #4)	Moanalua Rd	1974	Prestressed Concrete Continuous Box Beam	Reinforced Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000990401724	Farrington Highway-Waiawa Interchange #10A	Farrington Highway	Kamehameha Highway	1969	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000990401725	Farrington Highway-Waiawa Interchange #10B	Farrington Highway	Kamehameha Highway	1969	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003071001400224	Former Halawa Ridge Road	Former Halawa Ridge Road	Halawa Heights Road	1952	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003H1WB1146A019	H-1 Airport Ramp IW-A	H-1 Paiea Street Ramps	Ramp IW-A	1977	Concrete Continuous Box Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
0032110314P0007	H-1 Airport Ramp PF	H-1 Paiea Street Ramps	Ramp PF	1977	Concrete Continuous Box Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
0032110314R0011	H-1 Airport Ramps AW, IW	H-1 Paiea Street Ramps	Ramp IW AW	1977	Concrete Continuous Box Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H20100531	H-2 Outbound Exit 5A Culvert	H-2 Outbound Exit 5A Culvert	H-2 Outbound Exit 5A	1975	Steel Culvert	No Parapet/Railing	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000830303604	Haiaioa Stream-Double 10 ft. x 5 ft. Concrete Box Culvert	Haiaioa Stream	Kamehameha Highway	1922	Concrete Box Culvert	Concrete Solid	No	Not Eligible	This culvert does not have distinctive engineering or architectural features that depart from standard culvert design.
003000830303252	Hakipuu Stream	Hakipuu Stream	Kamehameha Highway	1922	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1920s concrete tee beam bridge
003000H30200022	Halawa Interchange Bridge 13	Halawa Stream	Ulune Extension Off-Ramp "M"	1973	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H30200082	Halawa Interchange Bridge 16	H-3/Halawa Stream	Ulune Extension Off-Ramp	1973	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990402211	Halawa Stream (Eastbound)	Halawa Stream	Kamehameha Highway	1934	Concrete Girder	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to significant alterations. In 2009 the bridge was rehabilitated and widened. The superstructure has been completely replaced however the original piers and pile foundations remain.
003000H302000076	Halawa Interchange Bridge No. 5 (Inbound)	Halawa Stream	H-3	1974	Prestressed Concrete Stringer	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H302000075	Halawa Interchange Bridge No. 5 (Outbound)	Halawa Stream	H-3	1974	Prestressed Concrete Stringer	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H302000030	Halawa Stream (HIC No. 15)	Halawa Stream (HIC No. 15)	Ramp "P"	1974	Prestressed Concrete Stringer	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990402212	Halawa Stream (Westbound)	Halawa Stream	Kamehameha Highway	1945	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1940s reinforced concrete bridge
003000H302000087	Halawa Stream HIC #12	Halawa Stream HIC #12	RAMP HIWB 13B	1974	Prestressed Concrete Stringer	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000780400010	Halawa Stream HIC #14	Halawa Stream HIC #14	Ramp "O"	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400090	Halawa Stream HIC Structure #9	Halawa Stream HIC Structure #9	RAMP 78EB 1A	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003074001400490	Hawaii Kai Marina Bridge	Kuapa Pond	Kalaniana'ole Highway	1969	Concrete Slab	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000830303972	Heeia Stream Culvert	Heeia Stream	Kahekili Highway	1963	Concrete Box Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.

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# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000830301358	Hoolapa Stream-Nanahu	Hoolapa Stream	Kamehameha Highway	2020	Concrete Slab	Reinforced Concrete Bridge Rail	No	Not Eligible	Replaced 1931 Bridge (003000830301357)
003074001400274	Ihihilauakea Stream	Ihihilauakea Stream	Kalanianaʻole Highway	1931	Open Spandrel Arch	Metal Thrie Beam	No	Eligible***	• Arch bridges are an uncommon bridge type • Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930s open spandrel concrete arch bridge in Oahu
003000H21200223	Ka Uka Boulevard Separation	H-2	Millani Mem Pk Rd	1972	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H11101241	Kaamilo Street Separation	FAI-H1	Kaamilo Street	1970	Concrete Girder	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000610300877	Kahanaiki Stream	Kahanaiki Stream	Kalanianaʻole Highway	1951	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000720700285	Kahawai Stream (East)	Kahawai Stream	Kalanianaʻole Highway	1926	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to significant alterations in 1981. The bridge does not reflect the typical characteristics of a 1920s bridge and does not fall under Program Comments due to its construction date in 1926.
003009300500221	Kaiahi Stream (Makua) Double Concrete Box Culvert	Kaiahi Stream	Farrington Highway	1964	Concrete Box Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000H30201373	Kailua Interchange (Inbound)	Mokapu Boulevard	H-3	1971	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H30201374	Kailua Interchange (Outbound)	Mokapu Boulevard	H-3	1971	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H11101303	Kaimakani Street Separation	H-1	Kaimakani Street	1970	Concrete Girder	Metal Horizontal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003074000000432	Kalanianaʻole Highway-Lunalilo Home Road Pedestrian Overpass	Kalanianaʻole Highway	Pedestrian	1968	Concrete Tee Beam	Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990402074	Kalauao Stream (Eastbound)	Kalauao Stream	Kamehameha Highway	1936	Concrete Girder	Concrete Open Greek Cross	No	Eligible	• Associated with postwar developments of the community due to bridge widening in 1966
003000990402075	Kalauao Stream (Westbound)	Kalauao Stream	Kamehameha Highway	1945	Concrete Girder	Concrete Open Greek Cross	No	Eligible	• Associated with postwar developments of the community
003000920400363	Kalihi Stream	Kalihi Stream	Nimitz Highway	1945	Concrete Girder	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003062071400019	Kalihi Stream (Eastbound)	Kalihi Stream	Kamehameha Highway	1926	Concrete Girder	Metal Horizontal	No	Not Eligible	This bridge has lost integrity due to significant alterations. This bridge and Kalihi Stream Bridge (003062071400018) were originally separate bridges but in 1983 both were widened and combined at the median. Consultation is recommended due to long term replacement plans regarding existing view planes.
003000630400167	Kalihi Stream (Inbound)	Kalihi Stream	Likelike Highway	1957	Concrete Tee Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with Likelike Highway. The bridge was also widened in 1986.
003000630400166	Kalihi Stream (Outbound)	Kalihi Stream	Likelike Highway	1957	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003062071400018	Kalihi Stream (Westbound)	Kalihi Stream	Kamehameha Highway	1943	Concrete Girder	Metal Horizontal	No	Not Eligible	This bridge has lost integrity due to significant alterations. This bridge and Kalihi Stream Bridge (003062071400019) were originally separate bridges but in 1983 both were widened and combined at the median. Consultation is recommended due to long term replacement plans regarding existing view planes.
003000630400557	Kalihi Stream 3-Cell Concrete Box Culvert	Kalihi Stream	Likelike Highway	1954	Concrete Box Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000630400087	Kalihi Street Overpass No. 1	H-1 (Kalihi Street Overpass No. 1)	Likelike Highway	1959	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar pedestrian bridge and falls under Program Comments.
003000630400081	Kalihi Street Overpass No. 2	H-1 (Kalihi Street Overpass No. 2)	Likelike Highway	1960	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000630400095	Kalihi Street Overpass No. 3	H-1 (Kalihi Street Overpass No. 3)	Likelike Highway - H-1 On Ramp	1959	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar pedestrian bridge and falls under Program Comments.
003000630000087	Kalihi Street Pedestrian Overpass	H-1 (Kalihi Street Pedestrian Overpass)	Pedestrian	1959	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar pedestrian bridge and falls under Program Comments.
003000H20200771	Kam Hwy-Wahiawa Interchange Bridge 1	Kamehameha Highway	H-2	1973	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H20200772	Kamehameha Highway-Wahiawa Interchange No. 2	Kamehameha Highway-Wahiawa Interchange No. 2	FAI-H2	1974	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000830304273	Kamooalii Stream	Kamooalii Stream	Kamehameha Highway	1968	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000830404123	Kamooalii Stream-Triple 12 ft. x 13 ft.	Kamooalii Stream	Likelike Highway	1959	Concrete Box Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000830004187	Kaneohe Elementary School Pedestrian Overpass	Kamehameha Highway (Kaneohe Elementary School Pedestrian Overpass)	Pedestrian	1968	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.

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# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000830404094	Kaneohe Stream-Double 10 ft. x 8 ft. Concrete Box Culvert	Kaneohe Stream	Likeline Highway	1959	Concrete Box Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000H11101178	Kaonohi Street Separation FAI-H1	FAI-H1	Kaonohi Street	1970	Concrete Continuous Box Beam or Girders	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H30201269	Kapaa Quarry Separation No. 1 (Inbound)	Kapaa Quarry Road	H-3	1976	Prestressed Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H30201268	Kapaa Quarry Separation No. 1 (Outbound)	Kapaa Quarry Road	H-3	1976	Prestressed Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H30201244	Kapaa Quarry Separation No. 2 (Inbound)	Kapaa Quarry Access Road	H-3	1976	Prestressed Concrete Continuous Stringer	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H30201243	Kapaa Quarry Separation No. 2 (Outbound)	Kapaa Quarry Access Road	H-3	1976	Prestressed Concrete Continuous Stringer	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003090001400136	Kapakahi Stream (West)	Kapakahi Stream	Farrington Highway	1964	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10202761	Kapakahi Stream	Kapakahi Stream	Fai-H1	1969	Prestressed Concrete Stringer	Concrete and Chain Link	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003009300501414	Kapalaau Stream	Kapalaau Stream	Farrington Highway	1940	Concrete Slab	Concrete Open Vertical	No	Not Eligible	The bridge has lost integrity due to the replacement of the railings.
003000920400480	Kapalama Canal (Eastbound)	Kapalama Canal	Nimitz Highway	1949	Concrete Slab	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000920400481	Kapalama Canal (Westbound)	Kapalama Canal	Nimitz Highway	1949	Concrete Slab	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10202514	Kapolani Off Ramp (Highway Underpass)	Kapolani Boulevard	Ramp H1-I	1969	Concrete Continuous Box Beam	Metal Horizontal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000990300787	Kaukonahua Stream	Kaukonahua Stream	Wilikina Drive	1944	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible***	<ul style="list-style-type: none"> <li>Associated with the postwar Federal Aid program during buildup of National Defense program; connected Schofield Barracks to Dillingham Air Field in Mokuleia</li> <li>Was constructed to connect Schofield Barracks to the Dillingham Air Field in Mokuleia (via Farrington Hwy)</li> <li>Surrounding rural environment has remained intact and the bridge continues to provide a vital connection between central Oahu and the North Shore</li> </ul>
003000830300939	Kaunala Stream	Kaunala Stream	Kamehameha Highway	1929	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Not Eligible	The bridge has lost integrity due to the addition of the concrete walkway with horizontal railings on one side of the bridge in 1989 and a utility pipe on the other side.
003000930301128	Kaupuni Stream	Kaupuni Stream	Farrington Highway	1937	Concrete Tee Beam	Metal Horizontal	No	Not Eligible	This bridge has lost integrity due to significant alterations in 1965. The bridge does not reflect the typical characteristics of a 1930s bridge and does not fall under Program Comments due to its construction date in 1937.
003063001400065	Kawa Stream	Kawa Stream	Kaneohe Bay Drive	1939	Concrete Tee Beam	Masonry Rock	No	Eligible***	<ul style="list-style-type: none"> <li>Associated with early developments in concrete masonry bridge construction in Hawaii</li> <li>Good example of a 1930s masonry structure bridge</li> <li>High artistic value</li> </ul>
003074001400256	Kawaiakaiea Stream	Kawaiakaiea Stream	Kalanianaʻole Highway	1931	Concrete Tee Beam	Metal Thrie Beam	No	Not Eligible	This bridge has lost integrity due to the replacement of the railings with thrie beams in 1998. The abutments are also undistinguishable.
003009300501254	Kawaihapai Stream	Kawaihapai Stream	Farrington Highway	1941	Concrete Slab	Metal Thrie Beam	No	Not Eligible	The bridge has lost integrity due to the lack of character defining features and removal of the original railings. Along one side of the bridge the original railing remains however, it is obscured by thrie beams.
003000830300456	Kawailoa Stream	Kawailoa Stream	Kamehameha Highway	1929	Concrete Tee Beam	Concrete Solid	No	Not Eligible	The bridge has lost integrity due to the replacement of the parapets and bridge widening in 1985.
003000830301141	Kawela Stream	Kawela Stream	Kamehameha Highway	2020	Concrete Tee Beam	Reinforced Concrete Bridge Rail	No	Not Eligible	Replaced 1931 Bridge (003000830301140)
003000930300346	Keananoio Stream (Inbound)	Keananoio Stream	Farrington Highway	1967	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000930300345	Keananoio Stream (Outbound)	Keananoio Stream	Farrington Highway	1967	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990301447	Kipapa Stream	Kipapa Stream	Kamehameha Highway	1933	Concrete Tee Beam	Concrete Open Arched	No	Eligible***	<ul style="list-style-type: none"> <li>Also known as Roosevelt Bridge</li> <li>Contributes to the fields of engineering and transportation in Hawaii.</li> <li>Excellent example of reinforced concrete tee beam construction with an open concrete rail typical of 1930s bridges</li> <li>Associated with important public works project initiated by the territorial government and constructed with Federal work relief programs funds during the Depression era</li> <li>Associated with William R. Bartels, chief designer for the Territorial Highway Department</li> </ul>
003000H20100425	Kipapa Stream	Kipapa Stream	FAI-H2	1975	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.

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# Oahu 2013 State Bridge Matrix

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00306300000155	Kokokahi Pedestrian Overpass	Kaneohe Bay Drive	Pedestrian	1952	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. It is suspected as the first pedestrian overpass on Oahu. It is associated with the Kokokahi YMCA as it connected the waterfront and its camping cabins with the outdoor amphitheater and the residential community.
00300061000045	Kuakini Street Pedestrian Overpass	Pali Highway (Kuakini Street Pedestrian Overpass)	Pedestrian	1962	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003074001400545	Kuapa Pond-Maunaloa	Kuapa Pond	Kalanianaʻole Highway	1936	Concrete Slab	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to significant alterations. In 1994 the bridge was also widened and the railings were replaced.
003000630000234	Kula Kolea Pedestrian Overpass	Likelike Highway (Kula Kolea Pedestrian Overpass)	Pedestrian	1960	Concrete Girder	Metal Horizontal	No	Program Comments	This is a typical postwar pedestrian bridge and falls under Program Comments.
003000720401307	Kuliouou Stream Bridge	Kuliouou Stream	Kalanianaʻole Highway	1936	Concrete Girder	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to significant alterations which included bridge widening in 1994.
003000830301851	Laieloa Stream	Laieloa Stream	Kamehameha Highway	1932	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930s reinforced concrete bridge
003000780400277	Lakeside #1-Ala Aolani	Ala Napunani Street	Moanalua Rd	1973	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400278	Lakeside No. 2-Ala Aolani	Lakeside No. 2-Ala Aolani	North Frontage Road	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H21100698	Leilehua Golf Course Road Separation	H-2	Leilehua Road (Golf Course Road)	1973	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H11102129	Liliha Access Road Separation	H-1	Liliha Access Road	1965	Concrete Rigid Frame	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.
003000H11102134	Liliha Street Separation	H-1	Liliha Street	1965	Concrete Rigid Frame	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000830302196	Maheiw Stream	Maheiw Stream	Kamehameha Highway	1926	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1920s reinforced concrete bridge
003000H10201256	Mahiko Ped Op Fai-H1	H-1	Pedestrian	1970	Unknown	Unknown	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000930300970	Mailili Stream	Mailili Stream	Farrington Highway	1949	Concrete Slab	Metal Horizontal	No	Not Eligible	This bridge has lost integrity due to bridge widening in 1976.
003000930300832	Maipalaoa Stream	Maipalaoa Stream	Farrington Highway	1967	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	The bridge has lost integrity due to replacement of the railings on one side of the bridge in 1970.
003843001100001	Makaha Stream	Makaha Stream	Huipa Drive	1970	Prestressed Concrete Stringer	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10201425	Makalapa Pedestrian Overpass	H-1	Pedestrian Overpass	1974	Concrete Continuous Box Beam	Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10202293	Makiki via Piikoi Street	Makiki via Piikoi Street	Fai-H1(Highway Overpass)	1969	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003009300500242	Makua Stream-Triple Concrete Box Culvert	Makua Stream	Farrington Highway	1964	Concrete Box Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000H11202486	Manoa-Palolo Stream (Old Waialae Road)	Manoa Palolo Stream	Old Waialae Road	1953	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.
003000H11201522	Mauka Frontage Road Bridge	Pearl Harbor Interchange No. 2	Mauka Frontage Road	1975	Prestressed Concrete Continuous Box Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000610400912	Maunawili Stream	Maunawili Stream	Kalanianaʻole Highway	1951	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H21200527	Meheula Parkway Separation	H-2	Meheula Parkway	1973	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H11201934	Middle Street (H-1) Tunnel	H-1 (Middle Street Tunnel)	Middle Street	1964	Concrete Rigid Frame	No Parapet/Railing	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway. It was designed by Belt-Collins as a part of an early triple grade separation design.
003000H11201937	Middle Street (Outbound)	H-1	Middle Street	1964	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway. It was designed by Belt-Collins as a part of an early triple grade separation design.
003000990001381	Mililani Town Pedestrian Overpass	Mililani Town Pedestrian Overpass	Pedestrian	1974	Unknown	Unknown	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10002233	Miller Ped Op(Fai-H1)	H-1	Pedestrian	1969	Unknown	Unknown	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003066001400012	Moanalua Park Road	Moanalua Park Road	Puuloa Interchange Ramp "C"	1974	Concrete Continuous Box Beam	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400223	Moanalua Rd-Red Hill Sep	Moanalua Road	Ala Kapuna St	1973	Prestressed Concrete Stringer	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400115	Moanalua Road (Hic #10)	Moanalua Road	Halawa Heights Road	1971	Prestressed Concrete Stringer	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400097	Moanalua Road (HIC #7)	Moanalua Road (HIC #7)	RAMP EW	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.

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\*\* Historic resources adjacent to resource.

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# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000780400359	Moanalua Road Puuloa Separation	Moanalua Road Puuloa Separation	Puuloa Road	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003066001400010	Moanalua Stream at Puuloa	Moanalua Stream	Puuloa Interchange Ramp B	1974	Prestressed Concrete Continuous Box Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10201822	Moanalua Stream Bridge	Moanalua Stream	Bikeway, Watermain	1976	Prestressed Concrete Box Beam	Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000780400279	Moanalua Stream	Moanalua Stream	Ala Aolani St	1973	Prestressed Concrete Stringer	Metal Horizontal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H30201525	Mokapu Interchange	Mokapu Interchange	H-3	1967	Concrete Continuous Box Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000930400536	Nanaikapono Stream Bridge	Nanaikapono Stream	Farrington Highway	1969	Concrete Continuous Culvert	None	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000930300481	Nanakuli Stream Bridge	Nanakuli Stream	Farrington Highway	1970	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to the complete replacement of the original 1947 bridge in 1970.
003000720401418	Niu Stream	Niu Stream	Kalanianaʻole Highway	1934	Concrete Slab	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to road widening and the replacement of the railings in 1964. The bridge does not reflect the typical characteristics of a 1930s bridge and do not fall under Program Comments due to its construction date in 1934.
003000830302624	North Kahana Stream	North Kahana Stream	Kamehameha Highway	2011	Concrete Slab	Concrete Open Decorative	No	Not Eligible	This bridge has lost integrity due to the complete replacement of the original 1927 bridge in 2011.
003000920400587	Nuuanu Stream (Eastbound)	Nuuanu Stream	Nimitz Highway	1952	Concrete Tee Beam	Concrete and Metal Decorative	No	Not Eligible	The bridge has lost integrity due to the replacement of the railings in 2002.
003000920400588	Nuuanu Stream (Westbound)	Nuuanu Stream	Nimitz Highway	1932	Concrete Tee Beam	Concrete Solid with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003098001400077	Nuuanu Stream Bridge	Nuuanu Stream	Vineyard Boulevard	1959	Concrete Slab	Concrete Open Horizontal	No	Eligible	<ul style="list-style-type: none"> <li>• Widest concrete bridge built postwar (1945) on the island of Oahu in the historic study period prior to 1977</li> <li>• A part of the channelization of Nuuanu Stream where all the walls of the channel were built with concrete masonry</li> </ul>
003000610400112	Nuuanu Stream Kapena Falls	Nuuanu Stream Kapena Falls	Pali Highway	1962	Concrete Rigid Frame	Concrete and Metal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003090001400245	Oahu Sugar Co. Road	Oahu Sugar Company Road	Farrington Highway	1952	Concrete Slab	Concrete Solid	No	Not Eligible	The bridge has lost integrity due to the replacement of the railings in 2006.
003000H11100006	Palailai Interchange	H-1	Kalaeloa Boulevard	1966	Concrete Girder	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.
003000930300083	Palailai Stream	Palailai Stream	Old Farrington Highway	1927	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1920s reinforced concrete bridge</li> </ul>
003000610300593	Pali Bridge No. 3 (Inbound)	Mountain (Pali Bridge No. 3)	Pali Highway	1956	Concrete Tee Beam	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300615	Pali Bridge No. 4B (Outbound)	Mountain (Pali Bridge No. 4B)	Pali Highway	1961	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300621	Pali Bridge No. 5 (Inbound)	Mountain (Pali Bridge No. 5)	Pali Highway	1956	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300623	Pali Bridge No. 5A (Outbound)	Mountain (Pali Bridge No. 5A)	Pali Highway	1961	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300629	Pali Bridge No. 6 (Inbound)	Mountain (Pali Bridge No. 6)	Pali Highway	1956	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300632	Pali Bridge No. 7 (Inbound)	Mountain (Pali Bridge No. 7)	Pali Highway	1956	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>

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\*\* Historic resources adjacent to resource.

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# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000610300631	Pali Bridge No. 7A (Outbound)	Mountain (Pali Bridge No. 7A)	Pali Highway	1961	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300640	Pali Bridge No. 8 (Inbound)	Mountain (Pali Bridge No. 8)	Pali Highway	1956	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300638	Pali Bridge No. 8A (Outbound)	Mountain (Pali Bridge No. 8A)	Pali Highway	1961	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610400015	Pali Highway Overpass (Inbound)	H-1	Pali Highway	1960	Concrete Rigid Frame	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000610400014	Pali Highway Overpass (Outbound)	H-1	Pali Highway	1960	Concrete Rigid Frame	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000610300591	Pali Partial Bridge No. 1 (Inbound)	Mountain (Pali Partial Bridge No. 1)	Pali Highway	1956	Concrete Tee Beam	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300592	Pali Partial Bridge No. 2 (Inbound)	Mountain (Pali Partial Bridge No. 2)	Pali Highway	1956	Concrete Tee Beam	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300613	Pali Partial Bridge No. 4A (Outbound)	Mountain (Pali Bridge No. 4A)	Pali Highway	1961	Concrete Tee Beam	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300619	Pali Partial Bridge No. 4C (Outbound)	Mountain (Pali Bridge No. 4C)	Pali Highway	1961	Concrete Girder	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300569	Pali Tunnel No. 1 (Inbound)	Mountain (Pali Tunnel No. 1)	Pali Highway	1957	Concrete Arch Culvert	No Parapet/Railing	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300568	Pali Tunnel No. 1A (Outbound)	Mountain (Pali Tunnel No. 1A)	Pali Highway	1959	Concrete Arch Culvert	No Parapet/Railing	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300596	Pali Tunnel No. 2 (Inbound)	Mountain (Pali Tunnel No. 2)	Pali Highway	1957	Concrete Arch Culvert	No Parapet/Railing	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610300595	Pali Tunnel No. 2A (Outbound)	Mountain (Pali Tunnel No. 2A)	Pali Highway	1961	Concrete Arch Culvert	No Parapet/Railing	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610400019	Pali-Lunalilo Overpass	H-1	Pali Highway - H-1 On Ramp	1960	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H20100124	Panakaauhi 3-144" Culvert	Panakaauhi Gulch	H-2	1973	Metal Corrugated Culvert	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H20100103	Panakaauhi 4-144" Culvert	Unnamed Stream	H-2	1973	Metal Corrugated Culvert	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000830302186	Papau Stream-Waipuhi	Papau Stream	Kamehameha Highway	1932	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>

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\*\* Historic resources adjacent to resource.

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# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000610400090	Partial Bridge No. 8	Unnamed Gulch	Pali Highway	1962	Concrete Tee Beam	Concrete and Metal	No	Eligible***	<ul style="list-style-type: none"> <li>• Contributes to Pali Highway Historic Bridge District</li> <li>• See Pali Highway historic context Chapter 2.6</li> <li>• Significant engineering of tunnels and bridges</li> <li>• Connected Windward side and downtown Honolulu</li> <li>• Associated with Windward side community development</li> </ul>
003000610400044	Pauoa Stream Culvert	Pauoa Stream	Pali Highway	1925	Concrete Box Culvert	Concrete and Metal	No	Not Eligible**	This culvert does not have distinctive engineering or architectural features that depart from standard culvert design. However the bridge concrete rubble masonry abutments and adjacent portion of concrete rubble masonry wall channelization project are potentially eligible historic resources.
003000990401871	Pearl City Stream (Eastbound)	Pearl City Stream	Kamehameha Highway	1936	Concrete Girder	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to significant alterations in 1962. The bridge does not reflect the typical characteristics of a 1930s bridge and does not fall under Program Comments due to its construction date in 1936.
003000990401872	Pearl City Stream (Westbound)	Pearl City Stream	Kamehameha Highway	1945	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10200922	Pearl City Viaduct	Pearl City	Fai-H1	1969	Prestressed Concrete Stringer	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H11201485	Pearl Harbor Interchange Structure No. 1	Interstate H-1	Plantation Drive/Radford Drive	1976	Prestressed Concrete Continuous Box Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990402336	Pearl Harbor Ramp WN - Pearl Harbor Interchange No. 3	Pearl Harbor Ramp WN - Pearl Harbor Interchange No. 3	Kamehameha Highway	1975	Prestressed Concrete Continuous Box Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000920400796	Pensacola Relief Drain	Pensacola Relief Drain	Ala Moana Blvd	1973	Concrete Culvert	None	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000920400088	PH MAKAI FR-PH INT #7	PH MAKAI FR-PH INT #7	RAMP 92 EB1A	1975	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10200024	PH RAMP EN-PH INT #4	PH RAMP EN-PH INT #4	Makai Frontage Road	1974	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000930300420	Pili-O-Koe Stream	Pili-O-Koe Stream	Farr Hwy	1969	Concrete Slab	Metal Horizontal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H21100392	Pineapple Road	H-2	Pineapple Road	1973	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990300626	Poamoho Stream	Upper Poamoho Stream	Kamehameha Highway	1936	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of a 1930s reinforced concrete bridge</li> </ul>
003009300501315	Polipoli Stream	Polipoli Stream	Farrington Highway	1940	Concrete Slab	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to the replacement of a railing on one side of the bridge in the 1976.
003009300500272	Punapohaku Stream-Double Concrete Box Culvert	Punapohaku Stream	Farrington Highway	1964	Concrete Box Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003000780400366	Puuloa Interchange A	Moanalua Road	Puuloa Ramp A	1973	Concrete Continuous Box Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
00306000000094	Ramp G and H (Puuloa Interchange)	Puuloa Interchange	Pedestrian Overpass	1974	Prestressed Concrete Continuous Box Beam	Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10201550	RAMP MN EN-PH INT #5	RAMP MN EN-PH INT #5	FAI-H1(O.B.)	1974	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003071001400113	RAMP WE&ES&HA STRM #11	RAMP WE&ES&HA STRM #11	Halawa Heights Road	1974	Prestressed Concrete Stringer	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000780400157	S Halawa Strm-Twn Rc Box	South Halawa Stream	Moanalua Rd	1973	Concrete Culvert	None	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000920400592	Slip Cover No. 1- Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Slab	Concrete and Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000920400603	Slip Cover No. 2- Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Slab	Concrete and Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000920400609	Slip Cover No. 3- Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Slab	Concrete and Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000920400617	Slip Cover No. 4- Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Tee Beam	Concrete and Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000920400580	Slip Cover-Honolulu Harbor	Honolulu Harbor	Nimitz Highway	1952	Concrete Tee Beam	Concrete and Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000780400178	South Halawa Stream	South Halawa Stream	Ramp N	1973	Concrete Continuous Culvert	None	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000830302442	South Punaluu Stream	South Punaluu Stream	Kamehameha Highway	2011	Concrete Tee Beam	Concrete Open Decorative	No	Not Eligible	This bridge has lost integrity due to the complete replacement of the original 1926 bridge in 2011.
003000H10201551	TRISQUITMN PH INT#5-I.B.	TRISQUITMN PH INT#5-I.B.	RAMP KE FAI-H1	1974	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000930400640	Ulehawa Stream	Ulehawa Stream	Farrington Highway	1963	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.

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# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000720000030	Ulupii Pedestrian Overpass	Kalanianaʻole Highway (Ulupii Pedestrian Overpass)	Pedestrian	1967	Concrete Girder	Concrete Solid Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.
003000830303396	Unnamed Stream (North Waiahole)	Unnamed Stream (North Waiahole)	Kamehameha Highway	1928	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1920s reinforced concrete bridge
003000930301279	Unnamed Stream-Makaha No. 2A	Unnamed Stream	Farrington Highway	1937	Concrete Box Culvert	Metal Horizontal	No	Not Eligible	This culvert does not have distinctive engineering or architectural features that depart from standard culvert design.
003000930301404	Unnamed Stream-Makaha No. 3	Unnamed Stream	Farrington Highway	1937	Timber Stringer	Wood	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930s reinforced concrete tee-beam bridge • The bridge is scheduled for replacement; MOA complete as of Summer 2013
003000930301412	Unnamed Stream-Makaha No. 3A	Unnamed Stream	Farrington Highway	1937	Timber Stringer	Wood	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930s reinforced concrete tee-beam bridge • The bridge is scheduled for replacement; MOA complete as of Summer 2013
003000990300562	Upper Poamoho Stream-Brodie Camp 2 Bridge	Upper Poamoho Stream	Kamehameha Highway	1937	Concrete Slab	Concrete and Metal	No	Not Eligible	The bridge has lost integrity due to the replacement of the railings in 1965.
003098001400160	Vineyard Blvd.-Lunalilo No. 2 On Ramp (Ramp B1)	Vineyard Boulevard	Vineyard Boulevard - H-1 On Ramp	1968	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003098001400161	Vineyard Boulevard Off-Ramp	H-1	Vineyard Boulevard	1969	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10202704	Waialae Ave (Off Ramp)	Waialae Ave	Fai-H1(Off Ramp)	1968	Prestressed Concrete Tee Beam	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10202750	Waialae Nui Stream	Waialae Nui Stream	Fai-H1	1968	Concrete Continuous Slab	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H11202503	Waialae Road Separation	H-1	Old Waialae Road	1967	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.
003000H11202476	Waialae Road Separation (Old Waialae Road)	H-1	Old Waialae Road	1953	Concrete Tee Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. The bridge is also associated with the development of H-1 Freeway.
003000H10202706	Waialae via Inbound-Highway Overpass	Waialae	Fai-H1	1969	Prestressed Concrete Tee Beam	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10202705	Waialae via Outbound-Highway Overpass	Waialae	Fai-H1	1969	Prestressed Concrete Tee Beam	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10201059	Waiawa Interchange-Moanalua Road	Moanalua Road	Fai-H1	1970	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H11100913	Waiawa Interchange #1 FAI-H1	Waiawa Interchange #1 FAI-H1	Waiawa Road	1969	Concrete Continuous Box Beam or Girders	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10400875	Waiawa Interchange #3A	H-1	Farrington Highway	1969	Concrete Continuous Box Beam or Girders	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10400877	Waiawa Interchange #3B	Waiawa Interchange #3B FAI-H1	Kamehameha Highway	1969	Concrete Continuous Box Beam or Girders	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10200854	Waiawa Interchange #5 FAI-H1	I-H-1	Fai-H2	1971	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10200865	Waiawa Interchange #6 Old Kamehameha Highway	Old Kamehameha Highway	Fai-H1	1971	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10200832	Waiawa Interchange #8 FAI-H2	FAI-H2	Fai-H1	1970	Concrete Frame	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000990401689	Waiawa Interchange No. 4A	H-1	Kamehameha Highway	1968	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990401688	Waiawa Interchange No. 4B	H-1	Kamehameha Highway	1968	Concrete Girder	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000991201785	Waiawa Interchange Structure #2	Waiawa Interchange Structure #2	Ramp C	1969	Concrete Continuous Box Beam or Girders	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990401815	Waiawa Separation (Highway Underpass)	Kamehameha Highway	Kamehameha Highway	1953	Concrete Tee Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H20200023	Waiawa Stream & Road No. 14	Waiawa Stream & Road No. 14	FAI-H2 WIC #14	1974	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000990401745	Waiawa Stream (Eastbound)	Waiawa Stream	Kamehameha Highway	1949	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990401804	Waiawa Stream (Eastbound)	Waiawa Stream	Farrington Highway	1952	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990401802	Waiawa Stream (Westbound)	Waiawa Stream	Farrington Highway	1933	Concrete Tee Beam	Concrete Open Arched	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930s reinforced concrete bridge
003000990401746	Waiawa Stream (Westbound)	Waiawa Stream	Kamehameha Highway	1953	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

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# Oahu 2013 State Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003000H20100624	Waikakalaua Stream	Waikakalaua Stream	FAI-H2 (Outbound)	1975	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H20100625	Waikakalaua Stream	Waikakalaua Stream	FAI-H2 (Inbound)	1975	Concrete Continuous Box Beam	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000990301164	Waikakalaua Stream (Inbound)	Waikakalaua Stream	Kamehameha Highway	1936	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1930s reinforced concrete bridge
003000990301165	Waikakalaua Stream (Outbound)	Waikakalaua Stream	Kamehameha Highway	1950	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000830303377	Waikane Stream	Waikane Stream	Kamehameha Highway	1928	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	• Associated with early developments in concrete bridge construction in Hawaii • Good example of a 1920s reinforced concrete bridge
003090001400108	Waikele Canal (Inbound)	Waikele Canal	Farrington Highway	1939	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible***	• Associated with plantation industry; last major reaccommodation built by the FHWA for the railroad before it went out of business • Good example of a 1930s reinforced concrete bridge
003090001400113	Waikele Canal (Outbound)	Waikele Canal	Farrington Highway	1963	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H10100635	Waikele Stream Inbound	Waikele Stream	Fai-H1	1968	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000H10100636	Waikele Stream Outbound	Waikele Stream	Fai-H1	1968	Prestressed Concrete Stringer	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000720401504	Wailupe Stream (Inbound)	Wailupe Stream	Kalanianaʻole Highway	1930	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to the replacement of one parapet and bridge widening in 1991.
003000720401505	Wailupe Stream (Outbound)	Wailupe Stream	Kalanianaʻole Highway	1955	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to bridge widening and the replacement of one of the railings in 1991.
003000990401986	Waimalu Stream (Eastbound)	Waimalu Stream	Kamehameha Highway	1936	Concrete Girder	Concrete Open Greek Cross	No	Eligible	• Associated with postwar developments of the community
003000990401987	Waimalu Stream (Westbound)	Waimalu Stream	Kamehameha Highway	1945	Concrete Girder	Concrete Open Greek Cross	No	Eligible	• Associated with postwar developments of the community
003000H10201125	Waimalu Via-Strm/Hwy	Waimalu Stream	Fai-H1	1970	Prestressed Concrete Tee Beam	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003000720700329	Waimanalo Stream	Waimanalo Stream	Kalanianaʻole Highway	1924	Concrete Tee Beam	Concrete and Metal	No	Not eligible	The bridge has lost integrity due to the replacement of the original railings with postwar solid concrete and metal rail parapets.
003090001400174	Waipahu Canal	Waipahu Canal	Farrington Highway	1964	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990401679	Waipahu Overpass (Inbound)	Cane Haul Road	Kamehameha Highway	1953	Steel Stringer	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000990401678	Waipahu Overpass (Outbound)	Cane Haul Road	Kamehameha Highway	1953	Steel Stringer	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003000H11202269	Ward Avenue Separation	H-1	Ward Avenue	1968	Concrete Girder	Concrete Solid	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003074001400058	Wawamalu Canal Bridge	Wawamalu Canal	Kalanianaʻole Highway	1972	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003074001400083	Wawamalu Stream	Wawamalu Stream	Kalanianaʻole Highway	1947	Concrete Girder	Concrete and Metal	No	Eligible	• Intact example of 1940s concrete tee beam bridge • Representative of the work of a master: William R. Bartels • Original Wawamalu Bridge with concrete parapets and cross voids built in 1931 runs alongside this 1947 Wawamalu Bridge
003000630400576	Wilson Tunnel (Inbound)	Mountain (Wilson Tunnel - Inbound)	Likelike Highway	1958	Concrete Arch Culvert	No Parapet/Railing	No	Eligible***	• Associated with transportation and communication between the Windward and Leeward sides of the island • A major engineering feat • Associated with Johnny Wilson, a former mayor • The tunnel relieved traffic on the old Pali Road
003000630400575	Wilson Tunnel (Outbound)	Mountain (Wilson Tunnel - Outbound)	Likelike Highway	1959	Concrete Arch Culvert	No Parapet/Railing	No	Eligible***	• Associated with transportation and communication between the Windward and Leeward sides of the island • A major engineering feat • Associated with Johnny Wilson, a former mayor • The tunnel relieved traffic on the old Pali Road
003000611100124	Wyllie Street Overpass	Pali Highway (Wyllie Street Overpass)	Wyllie Street	1961	Concrete Rigid Frame	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

Greyed-out cells have no form.



# Inventory Form

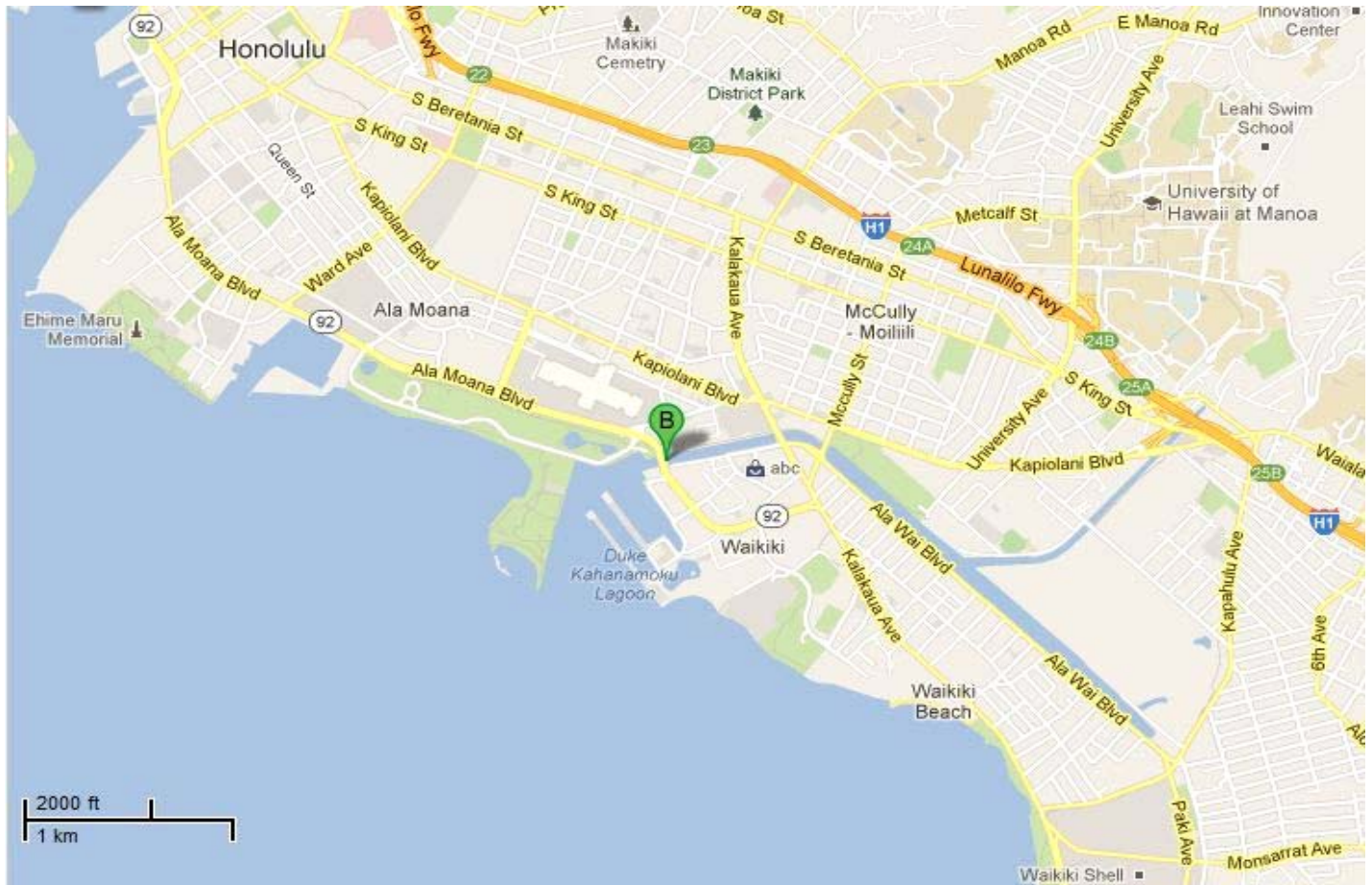
(State)

## General Information

<b>Bridge Number:</b> 003000920400861	<b>Route No:</b> 92
<b>Popular Name:</b> Ala Wai Canal	
<b>Feature Crossed:</b> Ala Wai Canal	
<b>Feature Carried:</b> Ala Moana Boulevard	
<b>Milepost:</b> 8.61 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-50m-24.99s	<b>Latitude:</b> 21d-17m-16.04s
<b>Location:</b> 0.21 Miles West of Hobron Lane	
<b>Historic Name:</b> Ala Wai Canal	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1939	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 67.9 ft.	<b>Total Length:</b> 166.0 ft.	<b>Deck Width:</b> 100.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Metal Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Non-Contributing	<b>Criteria:</b> n/a	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> n/a		
<b>Narrative Description:</b> <p>The Ala Wai Canal Bridge carries Ala Moana Boulevard across the Ala Wai Canal and is located in the Waikiki Special District. This reinforced concrete bridge is in its original location and is generally in good condition. The bridge has metal open horizontal railings with solid concrete end posts. The open railings create a visual relationship with the ocean and Ala Wai Canal. The concrete deck is supported by concrete abutments. Stairs that connect the bridge to the Ala Wai Canal, Ala Wai Boulevard, and the boat harbor are located near the end posts.</p>		

**Significance Statement:**

The bridge is a noncontributing bridge to the Ala Wai Canal. The bridge is located at the beginning of the canal and connects Waikiki and Ala Moana area. It is heavily used by the tourists who visit the Ala Moana Park, Ala Moana Shopping Center and other nearby tourist area from the Waikiki district. It is also located within the Waikiki Special district. The bridge is identified as one of the locations to have ocean views and maintains a visual relationship with the ocean. (1)

See National Register of Historic Places Nomination Form for the Ala Wai Canal.

(1) Department of Planning and Permitting City and County of Honolulu, Land Use Ordinance (April, 2003): 9-51.



# Inventory Form

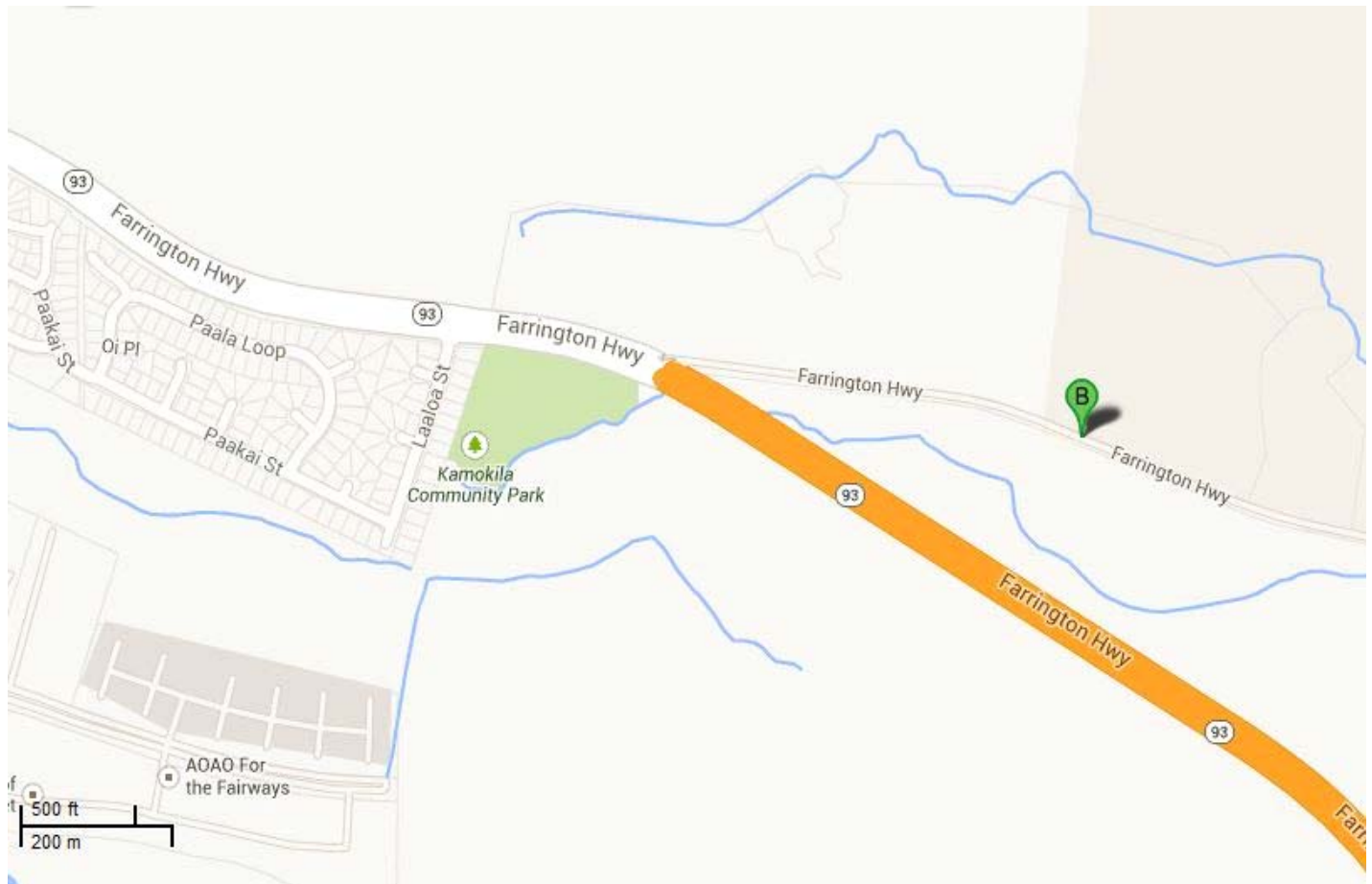
(State)

## General Information

<b>Bridge Number:</b> 003000930300071	<b>Route No:</b> 93
<b>Popular Name:</b> Awawanui Stream	
<b>Feature Crossed:</b> Awawanui Stream	
<b>Feature Carried:</b> Old Farrington Highway	
<b>Milepost:</b> 0.71 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-05m-55.93s	<b>Latitude:</b> 21d-20m-25.44s
<b>Location:</b> 0.83 Miles West of Kalaeloa Boulevard	
<b>Historic Name:</b> Awawanui Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1927	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 28.9 ft.	<b>Total Length:</b> 30.8 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Awawanui Stream Bridge carries Old Farrington Highway across the Awawanui Stream and is not publicly accessible. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete open arched parapets with tapered caps and wide end posts. The bridge name was also engraved on the parapet. The reinforced concrete tee beam deck is supported by the concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs and the simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**


This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



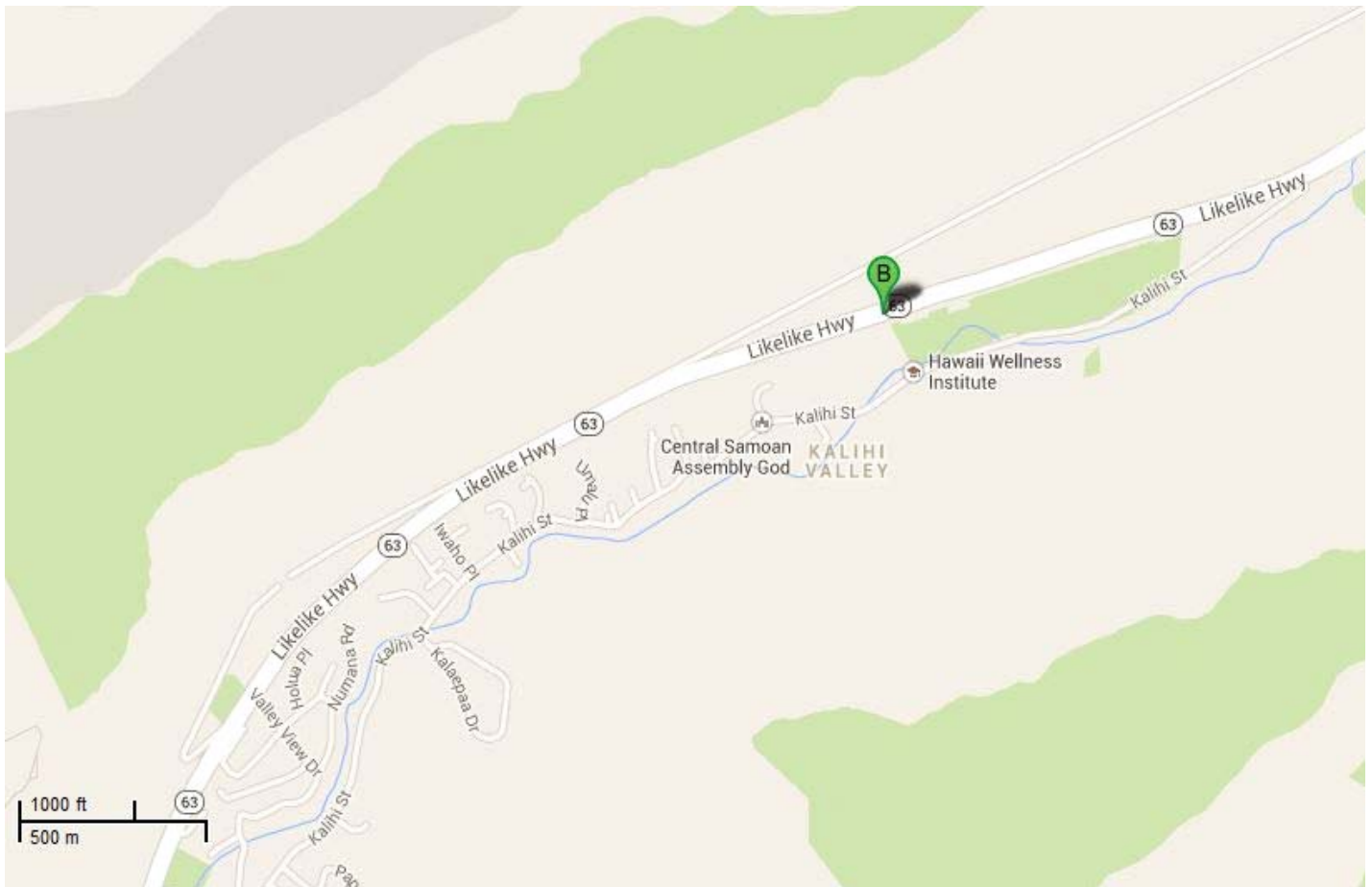
# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000631100418	<b>Route No:</b> 63	
<b>Popular Name:</b> Burmeister Overpass		
<b>Feature Crossed:</b> Likelike Highway (Burmeister Overpass)		
<b>Feature Carried:</b> Private Road		
<b>Milepost:</b> 4.18 mi.	<b>Island:</b> Oahu	
<b>Longitude:</b> 157d-50m-28.29s	<b>Latitude:</b> 21d-22m-01.11s	
<b>Location:</b> 1.25 Miles Northeast of Valley View Drive		
<b>Historic Name:</b> Burmeister Overpass		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1959	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 49.9 ft.	<b>Total Length:</b> 179.1 ft.	<b>Deck Width:</b> 16.4 ft.
<b>Superstructure:</b> Prestressed Concrete I-Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete T-Shaped Pier			
<b>Floor/Decking:</b> Concrete Deck			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> A	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Other, Bridge History		
<b>Narrative Description:</b> <p>The Burmeister Overpass carries private road across the Likelike Highway. This reinforced concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete open horizontal parapets, concrete deck, and concrete piers.</p>		

**Significance Statement:**

This overpass was built as a result of the Territory refusing to build the mauka entrance to Edward R. Burmeister's Kalihi Valley land from the proposed Kalihi Tunnel access road (current Likelike Highway). The 1958 newspaper article leads one to believe that Governor Quinn was planning to build the mauka entrance to Burmeister's land with the assumption that the City would build a matching makai entrance on his property. The article goes on to say that the City claimed the makai entrance was never a part of their plan. Without this second entrance, Federal Aid requirements would not be met, thus resulting in the loss of Federal Aid funds. (1)


(1) "City's Disappearing Road Proves Grade-A Mystery," Honolulu Advertiser, March 12, 1958, page A-4, C1-2.



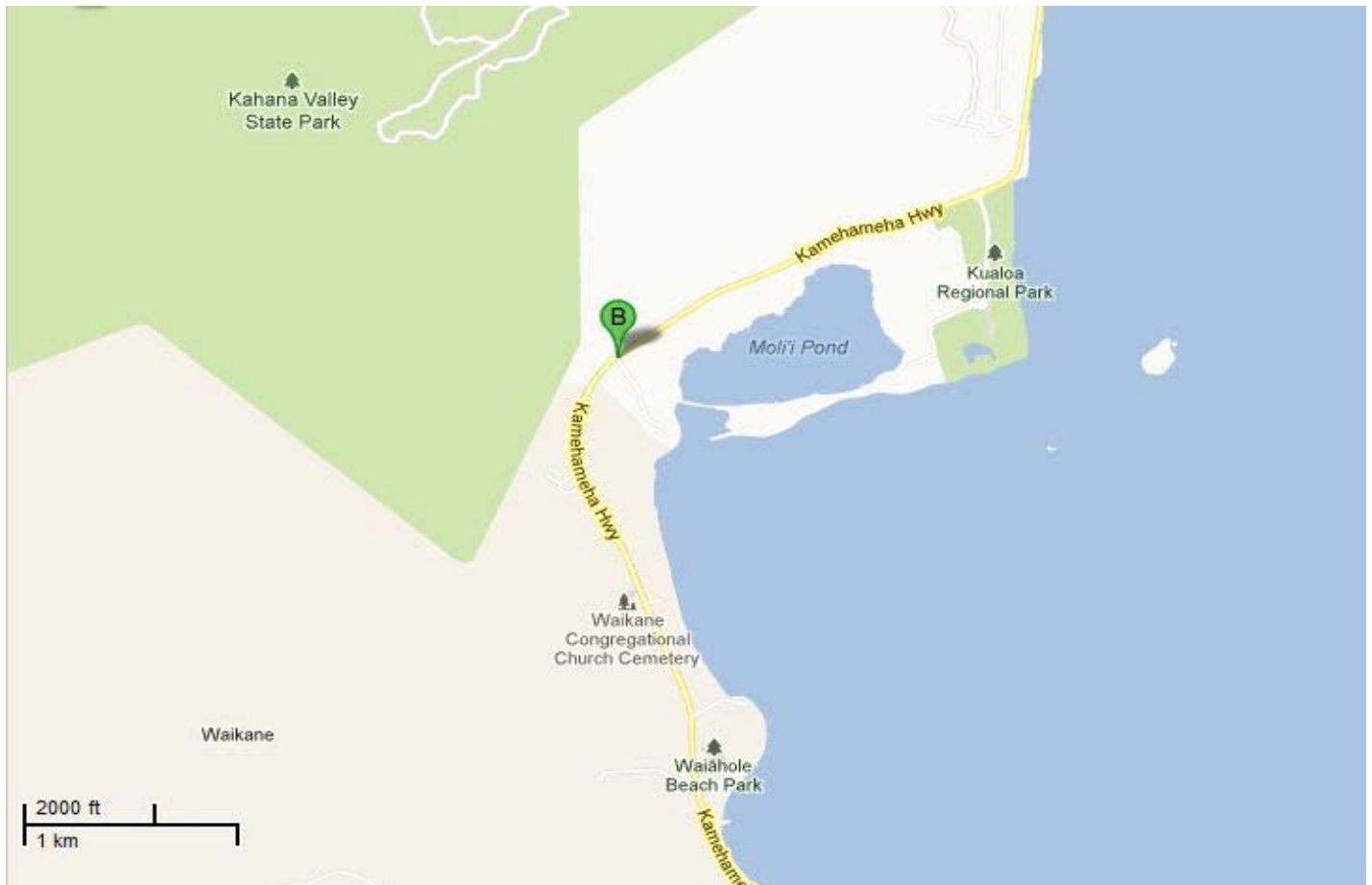
# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000830303252	<b>Route No:</b> 83	
<b>Popular Name:</b> Hakipuu Stream		
<b>Feature Crossed:</b> Hakipuu Stream		
<b>Feature Carried:</b> Kamehameha Highway		
<b>Milepost:</b> 32.52 mi.	<b>Island:</b> Oahu	
<b>Longitude:</b> 157d-51m-18.60s	<b>Latitude:</b> 21d-30m-30.28s	
<b>Location:</b> 0.10 Miles South of Johnson Road		
<b>Historic Name:</b> Hakipuu Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1922	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 29.9 ft.	<b>Total Length:</b> 32.2 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Hakipuu Stream Bridge carries Kamehameha Highway across the Hakipuu Stream. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete solid panel parapets with flat caps and wide end posts which looks to be an addition to the original parapet. The concrete deck is supported by concrete abutments. The parapet cap and end posts have been painted white. Thrie beams were bolted to the end posts however, the workmanship of the bridge has not been obscured. The simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



# Inventory Form

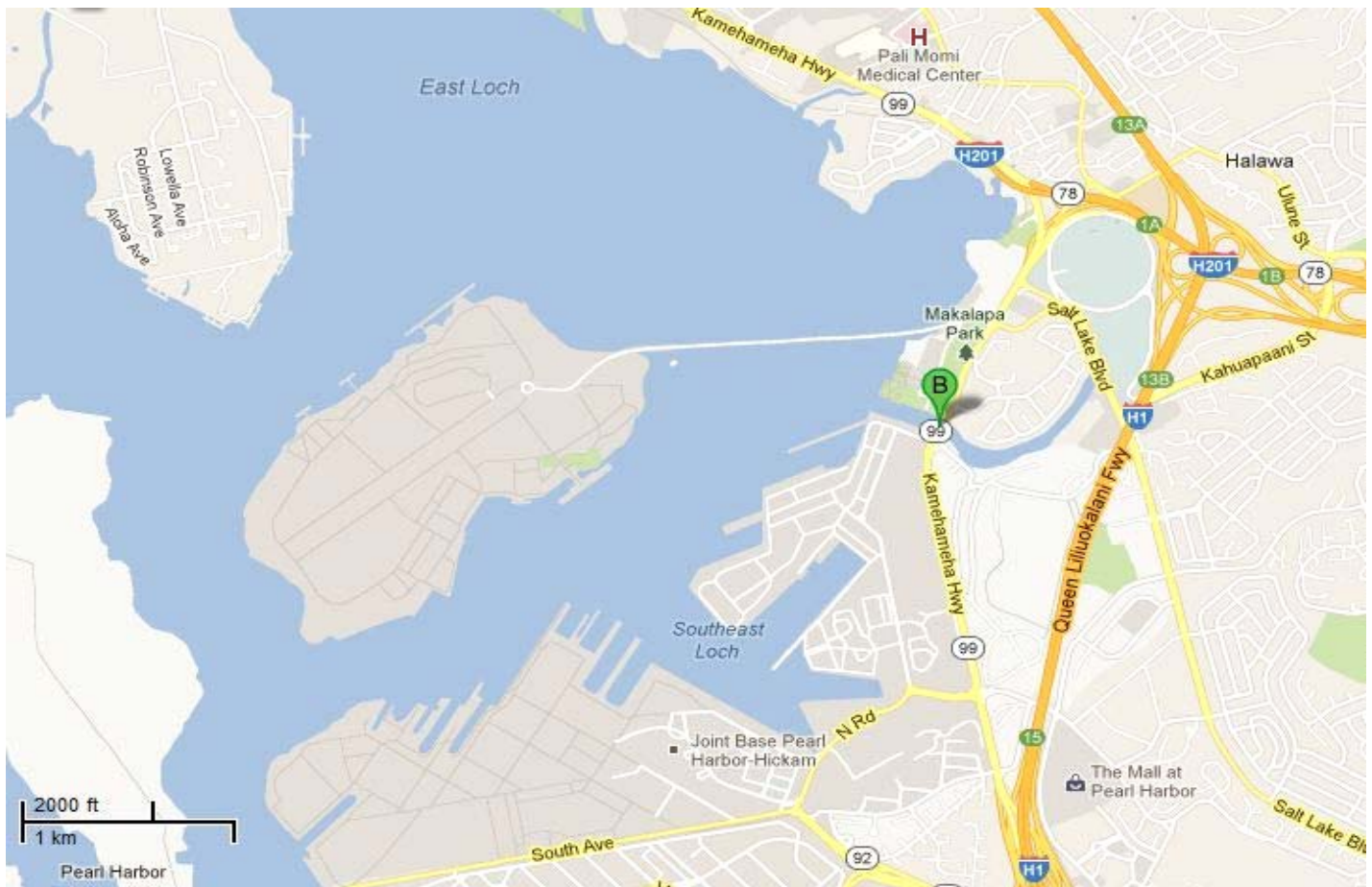
(State)

## General Information

<b>Bridge Number:</b> 003000990402212	<b>Route No:</b> 99
<b>Popular Name:</b> Halawa Stream (Westbound)	
<b>Feature Crossed:</b> Halawa Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 22.10 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-56m-13.63s	<b>Latitude:</b> 21d-21s-54.36s
<b>Location:</b> 0.06 Miles South of Kalaloea Street	
<b>Historic Name:</b> Halawa Stream (Westbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1945	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 6	<b>Max Span:</b> 40.0 ft.	<b>Total Length:</b> 240.2 ft.	<b>Deck Width:</b> 35.4 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Halawa Stream (Westbound) Bridge carries Kamehameha Highway across the Halawa Stream. This concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete open Greek cross parapets with stepped caps and wide solid stepped profile end posts. Two of the end posts have the bridge name and year of construction engraved. The concrete deck is supported by concrete piers and abutments. Only the stepped caps and end posts have been painted white. Unlike most of the other similar type of the bridges, thrie beams were not bolted to the solid panel parapets therefore the workmanship of the bridge has not been obscured.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1940's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



# Inventory Form

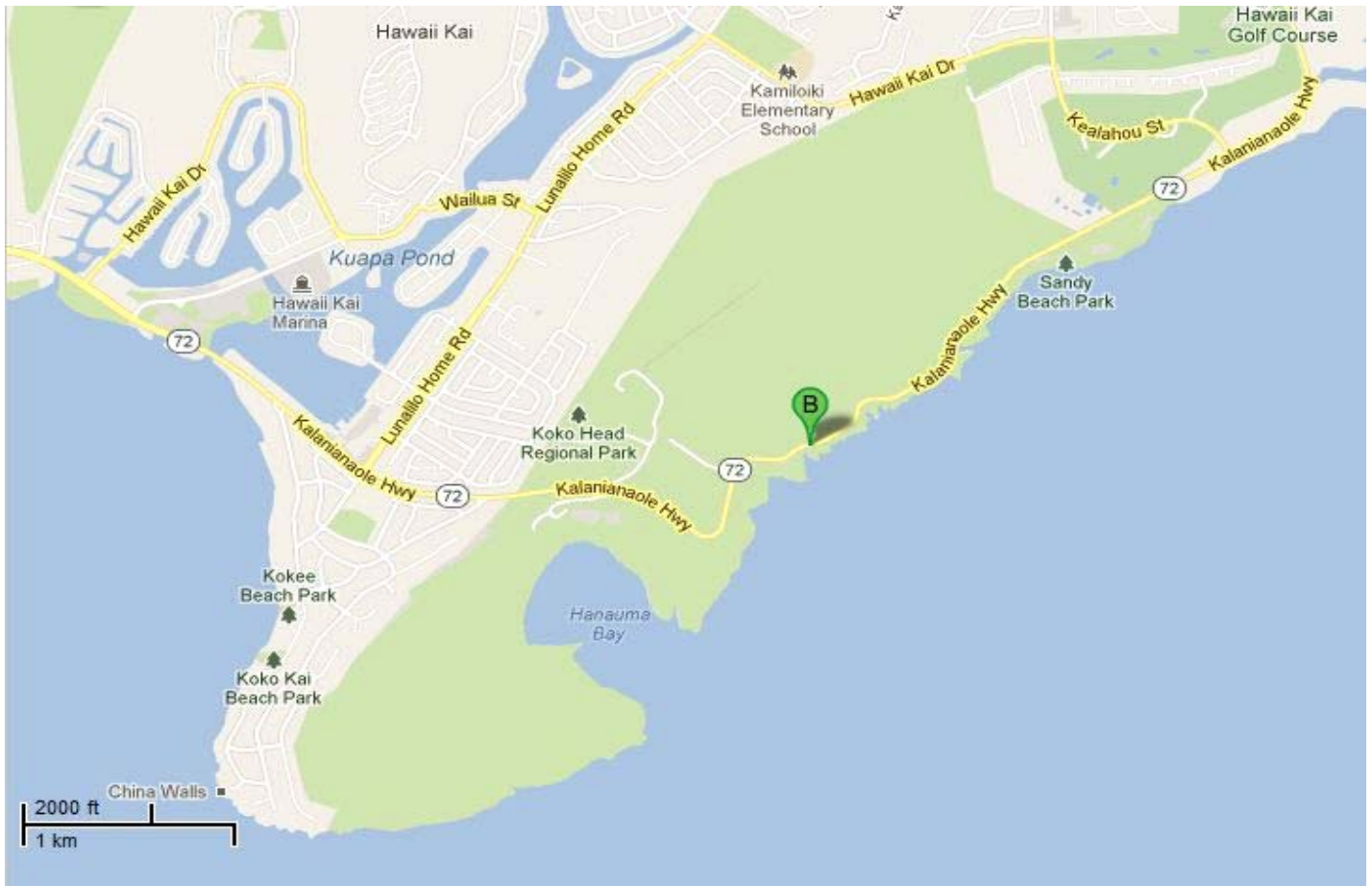
(State)

## General Information

<b>Bridge Number:</b> 003074001400274	<b>Route No:</b> 72
<b>Popular Name:</b> Ihiihilauakea Stream	
<b>Feature Crossed:</b> Ihiihilauakea Stream	
<b>Feature Carried:</b> Kalanianaʻole Highway	
<b>Milepost:</b> 11.66 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-41m-02.53s	<b>Latitude:</b> 21d-16m-38.39s
<b>Location:</b> 0.59 Miles Southwest of Blow Hole Lookout	
<b>Historic Name:</b> Ihiihilauakea Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Open Spandrel Arch	<b>Construction Date:</b> 2013	<b>Replaced?</b> Yes
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 2013		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> The structure was repaired and encapsulated with externally bonded fiber reinforced polymer (FRP).		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 65.0 ft.	<b>Total Length:</b> 69.9 ft.	<b>Deck Width:</b> 29.9 ft.
<b>Superstructure:</b> Concrete Open Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Metal Thrie Beam			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Ihiihilauakea Stream Bridge carries Kalaniana'ole Highway across the Ihiihilauakea Stream. This open spandrel concrete arch is in its original location, is generally in good condition, and its materials remain intact. The bridge has thrie beam railings, the concrete deck is supported by masonry abutments and the workmanship of the structural arch has not been obscured. In 2013 the structure was repaired and encapsulated with externally bonded fiber reinforced polymer (FRP) for structural integrity.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's open spandrel concrete bridge in Oahu that is typical of its period in its use of materials, method of construction, craftsmanship, and design. Arch bridges are also an uncommon bridge type.




# Inventory Form

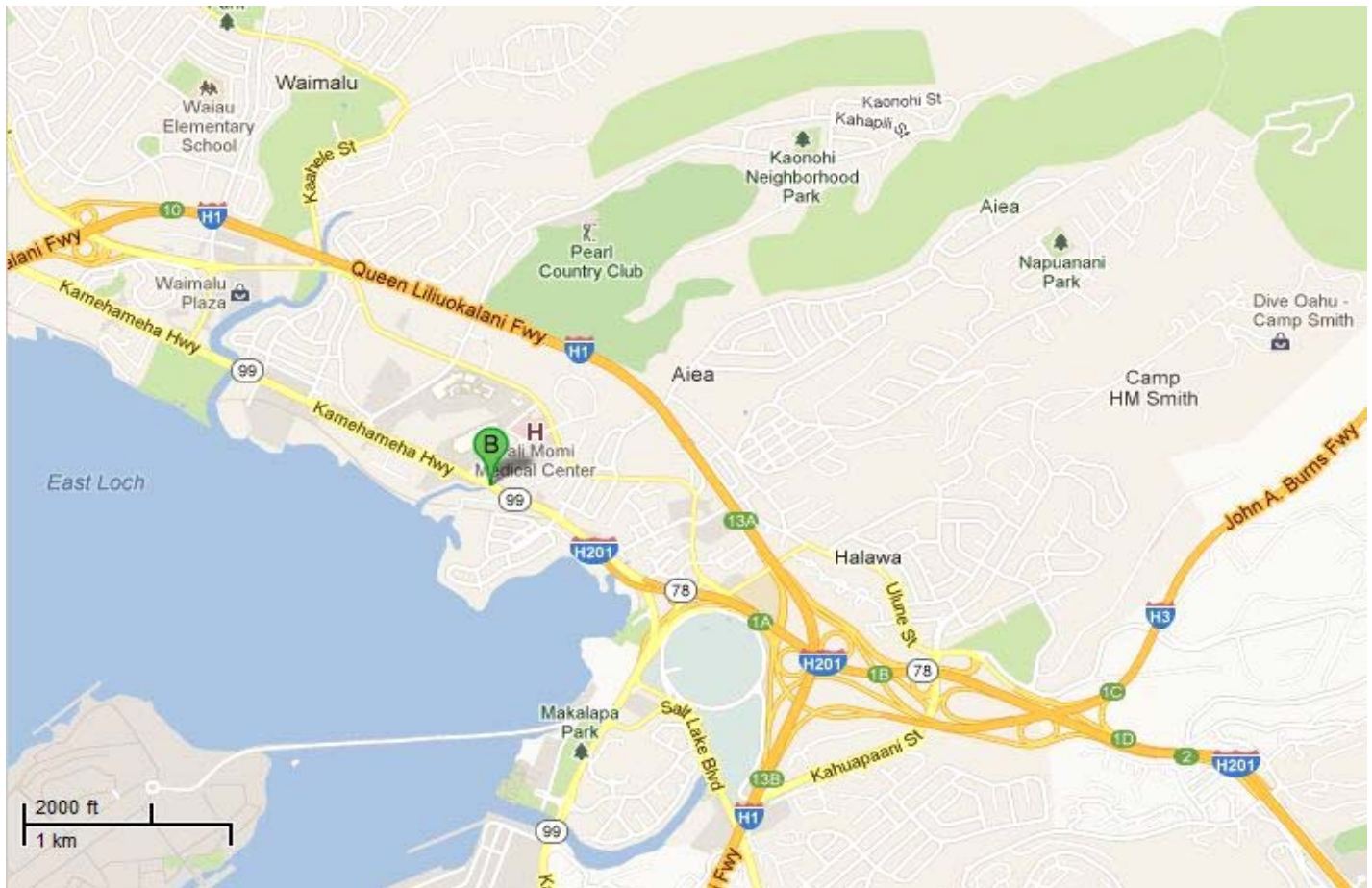
(State)

## General Information

<b>Bridge Number:</b> 003000990402074	<b>Route No:</b> 99
<b>Popular Name:</b> Kalauao Stream (Eastbound)	
<b>Feature Crossed:</b> Kalauao Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 20.72 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-56m-25.43s	<b>Latitude:</b> 21d-22m-50.50s
<b>Location:</b> 0.10 Miles West of Kihale Street	
<b>Historic Name:</b> Kalauao Stream (Eastbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1936	<b>Replaced?</b> No
<b>Altered?</b> Yes	<b>Alteration Date(s):</b> 1966	
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Bridge widened		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 50.0 ft.	<b>Total Length:</b> 57.4 ft.	<b>Deck Width:</b> 48.1 ft.
<b>Superstructure:</b> Prestressed Concrete I-Girder			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> A	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Community Development		
<b>Narrative Description:</b>  The Kalauao Stream (Eastbound) Bridge carries Kamehameha Highway across Kalauao Stream. This concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete open Greek cross parapets with stepped caps and curved wide end posts on one side. The original construction year “1936” is engraved on one of the end posts. The other side of the parapet is replaced to the concrete and metal parapet due to the bridge widening in 1966. Bridge name and the widening year “1966” is engraved on the end solid parapet. The thrie beam approaches were bolted at the end parapets.		

**Significance Statement:**

This bridge is eligible under Criterion A for its association with post-war developments of the community due to bridge widening in 1966.



# Inventory Form

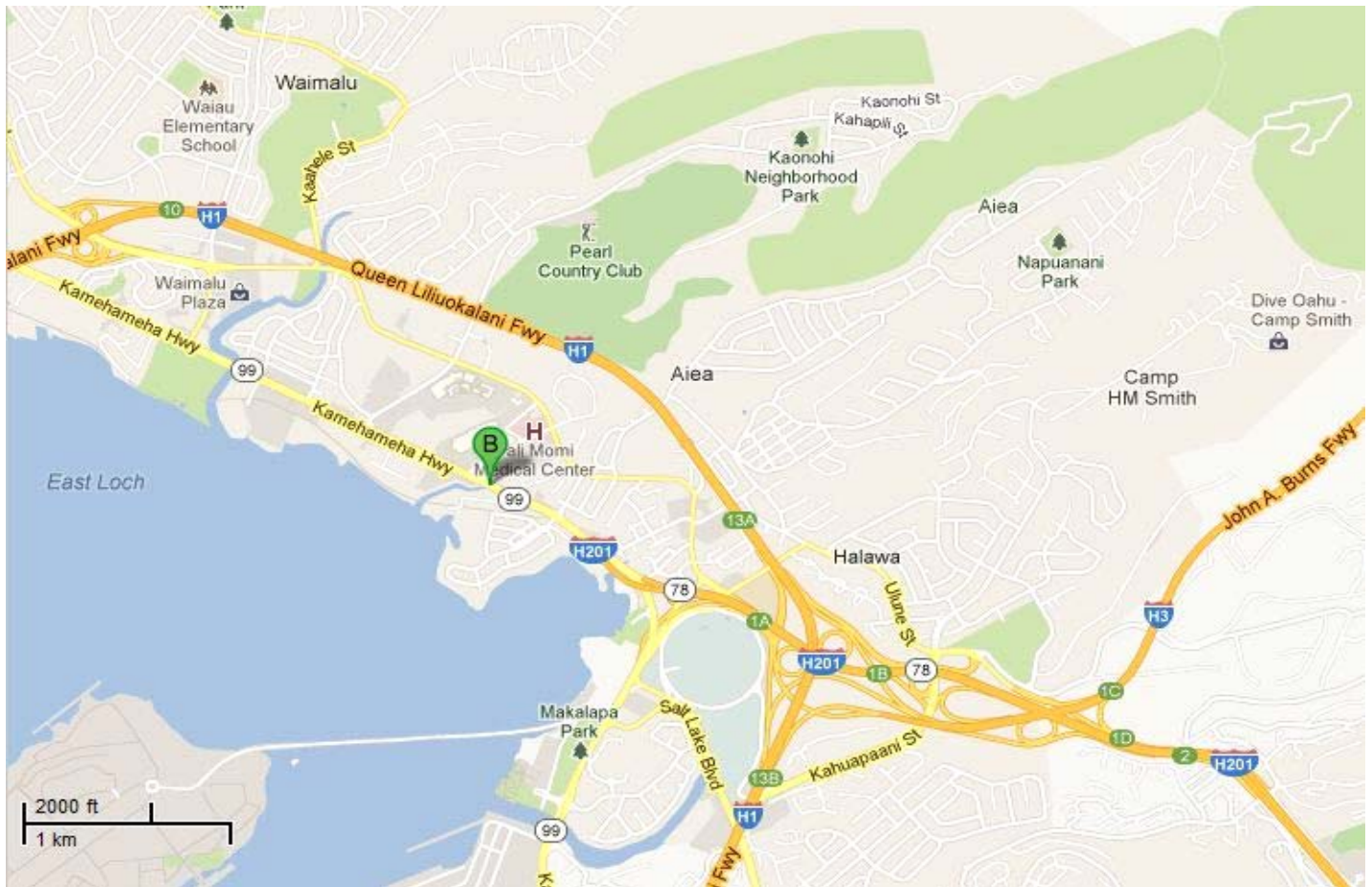
(State)

## General Information

<b>Bridge Number:</b> 003000990402075	<b>Route No:</b> 99
<b>Popular Name:</b> Kalauao Stream (Westbound)	
<b>Feature Crossed:</b> Kalauao Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 20.73 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-56m-24.55s	<b>Latitude:</b> 21d-22m-50.71s
<b>Location:</b> 0.10 Miles West of Kihale Street	
<b>Historic Name:</b> Kalauao Stream (Westbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder		<b>Construction Date:</b> 1945		<b>Replaced?</b> No	
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b> 1966			
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Bridge widened					

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 47.9 ft.	<b>Total Length:</b> 107.9 ft.	<b>Deck Width:</b> 46.3 ft.
<b>Superstructure:</b> Prestressed Concrete I-Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> A	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Community Development		
<b>Narrative Description:</b> <p>The Kalauao Stream (Westbound) Bridge carries Kamehameha Highway across Kalauao Stream. This concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete open Greek cross parapets with stepped caps and curved wide end posts on one side. The thrie beam approaches were bolted to the end posts. The other side of the parapet is replaced to the concrete and metal parapet due to the bridge widening in 1966. Bridge name and the widening year “1966” is engraved on the end solid parapet.</p>		

**Significance Statement:**

This bridge is eligible under Criterion A for its association with post-war developments of the community.

# Inventory Form

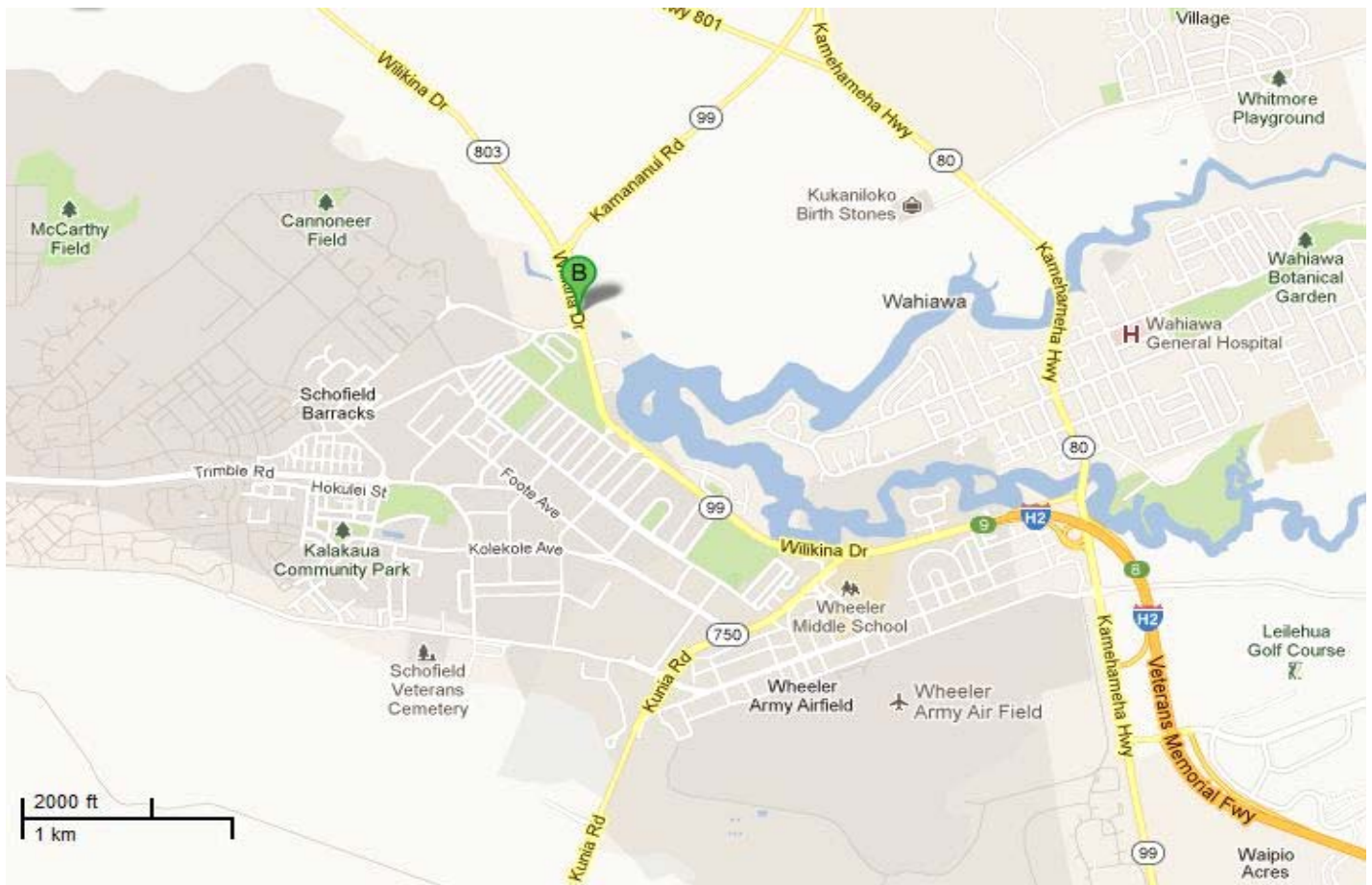
(State)

## General Information

<b>Bridge Number:</b> 003000990300787	<b>Route No:</b> 99
<b>Popular Name:</b> Kaukonahua Stream	
<b>Feature Crossed:</b> Kaukonahua Stream	
<b>Feature Carried:</b> Wilikina Drive	
<b>Milepost:</b> 7.87 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-03m-06.83s	<b>Latitude:</b> 21d-30m-01.36s
<b>Location:</b> 0.06 Miles North of McNair Gate	
<b>Historic Name:</b> Kaukonahua Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1944	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 89.9 ft.	<b>Total Length:</b> 233.9 ft.	<b>Deck Width:</b> 34.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b> Walkway each side			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> <p>The Kaukonahua Stream Bridge was built in 1944, to carry Wilikina Drive over the South Fork of Kaukonahua Stream in Wahiawa just past historic Kemoo Farm. The bridge is in its original location near the McNair Gate of Schofield Barracks. The area has retained its original rural setting in a wooded section on the outskirts of Wahiawa Town, adjacent to agricultural land. The bridge's continuous concrete tee-beam construction and reinforced concrete trestles remain intact. The tee beam engineering eliminated the need for expansion joints on the deck. Despite minor damage, and the addition of removable flared guardrails at the end piers, the bridge's original workmanship remains evident. The guard railings are composed of reinforced concrete "Greek-cross" balustrade that was typical of the era. Interpretation of the bridge is aided by the name and date inscribed on the interior of the end piers.</p>		

**Significance Statement:**

Because ample equipment held by the U.S. Army and Navy were available in the Territory of Hawaii for several years after World War II, every effort was made to obtain needed materials and equipment for local public works projects. The projects were carefully planned not only to tie in with private employment, but to provide employment to the extent necessary to pick up the slack in unemployment that may exist at any particular time. Each county was tasked with proposing specific public works projects for their county including need for project, sketches, estimated cost and estimated man hours required to complete each project. The proposals were submitted to the Department of Postwar Planning to be compiled into a statewide report and priority list.

The Kaukonahua Stream Bridge is a typical example of a project that benefited from the Postwar Planning Division of the Department of Public Works. As a Federal Aid Project during the buildup of the National Defense program, the first Kaukonahua timber trestle bridge was constructed in 1940 to connect Schofield Barracks to the Dillingham Air Field in Mokuleia (via Farrington Hwy). In 1944, as part of the Post War Planning the obsolete timber bridge was upgraded to the existing concrete tee structure.

The surrounding rural environment has remained intact and the bridge continues to provide a vital connection between central Oahu and the North Shore.

# Inventory Form

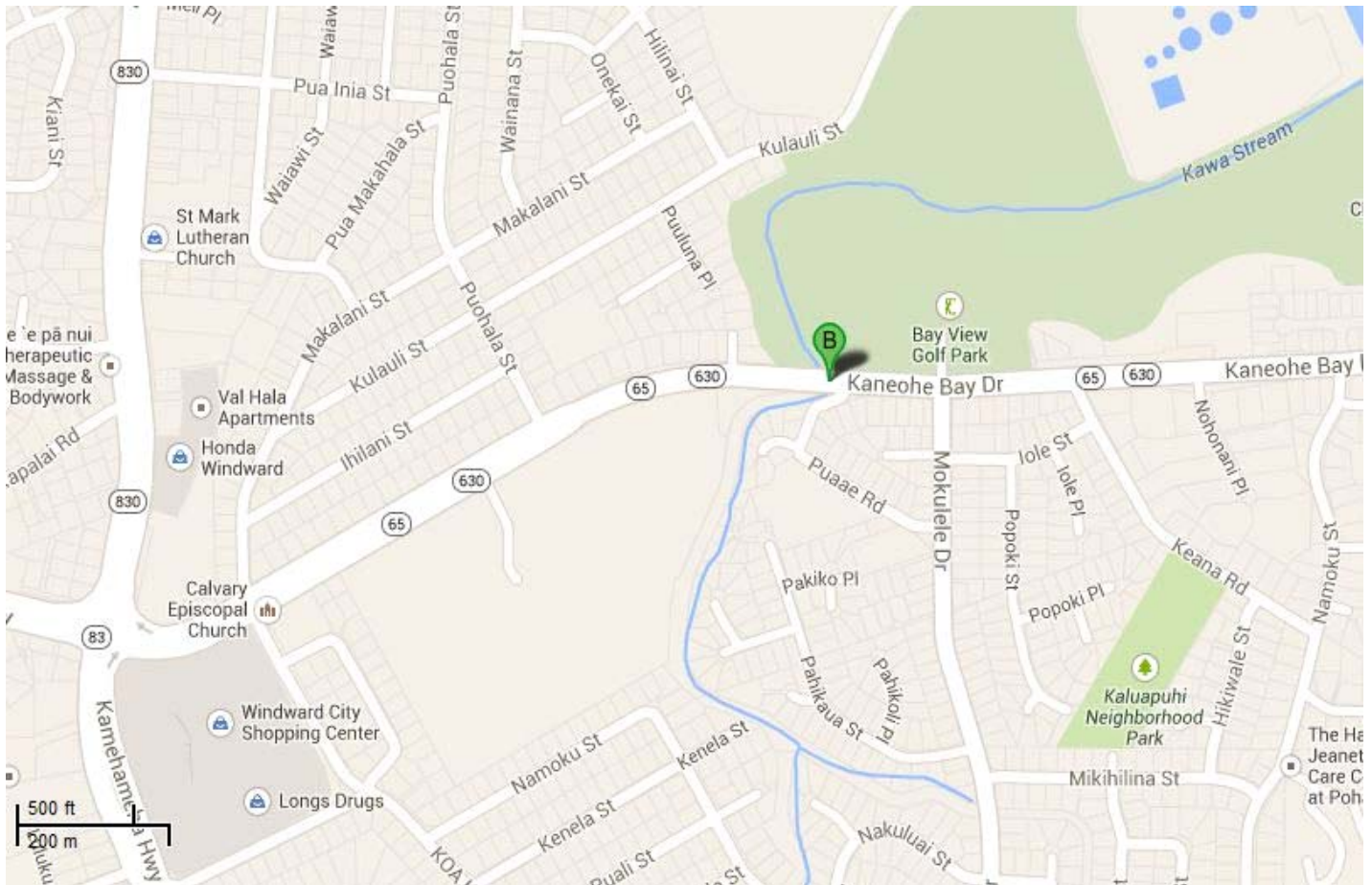
(State)

## General Information

<b>Bridge Number:</b> 003063001400065	<b>Route No:</b> 65
<b>Popular Name:</b> Kawa Stream	
<b>Feature Crossed:</b> Kawa Stream	
<b>Feature Carried:</b> Kaneohe Bay Drive	
<b>Milepost:</b> 0.65 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-25.50s	<b>Latitude:</b> 21d-24m-20.92s
<b>Location:</b> 0.01 Miles West of Puaae Road	
<b>Historic Name:</b> Kawa Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1939	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 20.0 ft.	<b>Total Length:</b> 23.0 ft.	<b>Deck Width:</b> 50.2 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Masonry Abutment			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> Masonry Rock			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kawa Stream Bridge carries Kaneohe Bay Drive across the Kawa Stream. This concrete masonry bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has masonry parapets, concrete deck is supported by masonry abutments. The parapet cap and end posts have been painted white. Thrie beams were placed in front of the masonry parapets. The workmanship of the bridge has not been obscured and the simple design of the parapet retains its historic feeling.</p>		



**Significance Statement:**

The bridge is eligible under Criterion C for its association with early developments in concrete masonry bridge construction in Hawaii. It is a good example of a 1930's masonry structure bridge that is typical of its period in its use of materials, method of construction, and craftsmanship. The design of the bridge has a high artistic value.

# Inventory Form

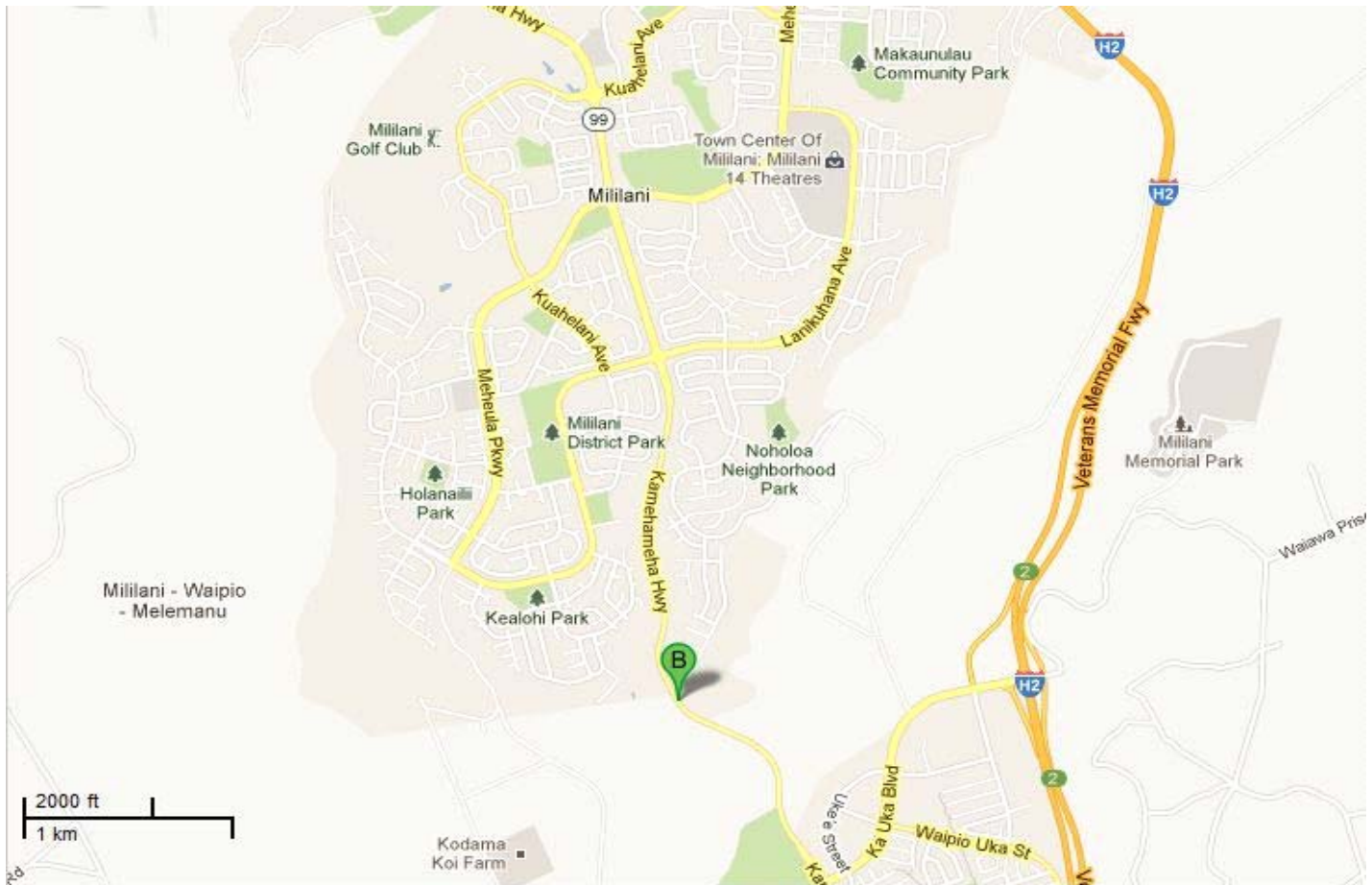
(State)

## General Information

<b>Bridge Number:</b> 003000990301447	<b>Route No:</b> 99
<b>Popular Name:</b> Kipapa Stream	
<b>Feature Crossed:</b> Kipapa Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 14.46 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-00m-41.20s	<b>Latitude:</b> 21d-25m-37.25s
<b>Location:</b> 0.03 Miles South of Ka Uka Boulevard	
<b>Historic Name:</b> Kipapa Stream	
<b>Designer/Engineer:</b> William R. Bartels	
<b>Builder/Contractor:</b> Hawaiian Contracting Co.	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1933	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 16	<b>Max Span:</b> 42.0 ft.	<b>Total Length:</b> 483.9 ft.	<b>Deck Width:</b> 33.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Double Column Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b> Bridge name and date of construction incised on end piers; high stepped end piers.			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> <p>The Kipapa Bridge carries Kamehameha Highway across Kipapa Gulch in central Oahu. The bridge is a reinforced concrete continuous tee beam structure built on reinforced concrete trestles. Although commonly known as the Kipapa Bridge, the 1933 structure was originally named the Franklin Delano Roosevelt (or F.D.R.) Bridge.</p> <p>□□</p> <p>The Kipapa Bridge is in its original location and has retained its original rural setting over Kipapa Gulch despite extensive residential development in the area since the 1970s. The bridge's original continuous tee beam design and reinforced concrete material remain intact. The bridge's original workmanship remains evident despite collision damage at the end piers. The engineering of the bridge can be considered complex for its time due to the continuous tee beam design of the structure, which eliminates the need for expansion joints in the deck, and because of its height. The bridge's historic associations as a 1930s Federal Aid bridge is apparent only to informed observers. Interpretation is aided by the inscription of the bridge name and date of construction on the end piers. The bridge retains its historic feeling primarily due to its relatively narrow width and rail type which is typical of bridges of this period in Hawaii.</p>		

**Significance Statement:**

The Kipapa Gulch Bridge is significant for its contributions to the fields of engineering and transportation in Hawaii. The 1933 bridge is an excellent example of reinforced concrete tee beam construction with an open concrete rail typical of 1930s bridges. The Kipapa Gulch Bridge is eligible under Criterion A for its associations with important public works project initiated by the territorial government and constructed with Federal work relief programs funds during the Depression era. Moreover, the bridge contributed to the economic development of central Oahu by providing reliable vehicular access to the area. It is eligible under Criterion C as a representative example of a 1930s-era Federal Aid bridge utilizing an advanced engineering technology: continuous reinforced concrete tee beam construction. Further, the bridge is representative of the work of a master: William R. Bartels, chief designer for the Territorial Highway Department.

The Kipapa Bridge was constructed in 1933 during the general upgrading of Kamehameha Highway, the belt road around Oahu which serviced the sugar lands on the North Shore. The structure is an important transportation link for the central Oahu community. Its construction spanned the wide Kipapa Gulch and spared travelers from the previous long, circuitous route through the ravine. The bridge was associated with many prominent military and civilian men of Honolulu during its construction and was named after our thirty-first president, Franklin Delano Roosevelt.

The bridge is a striking example of the Federal Aid bridges constructed by the Territory in the 1930s. The design and height of the bridge are representative of the rapid advances made in engineering technology in the early decades of the twentieth century. Engineer W. R. Bartels was responsible for the design of all major territorial bridge projects from 1932 until his retirement from the department in 1956. His work characteristically utilized the latest technology and involved a high degree of engineering complexity. Nonetheless, his bridges evidence a refined aesthetic sensibility which makes them distinctive from the work of other engineers. The builder was W. F. Dillingham, a prolific Honolulu builder and owner of the Hawaiian Contracting Co.



# Inventory Form

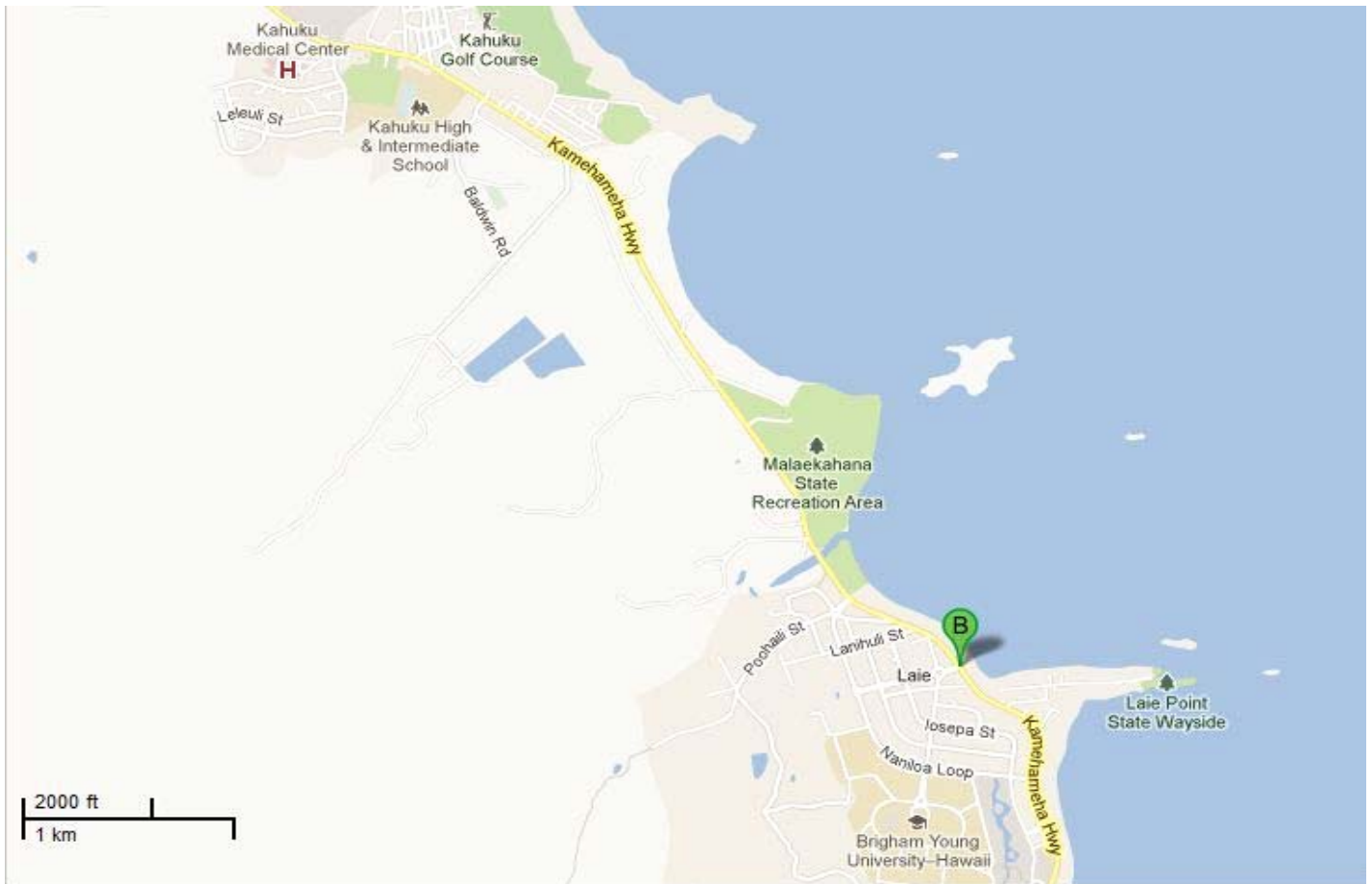
(State)

## General Information

<b>Bridge Number:</b> 003000830301851	<b>Route No:</b> 83
<b>Popular Name:</b> Laieloa Stream	
<b>Feature Crossed:</b> Laieloa Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 18.51 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-55m-21.80s	<b>Latitude:</b> 21d-38m-52.39s
<b>Location:</b> 0.09 Miles Southeast of Halelaa Boulevard	
<b>Historic Name:</b> Laieloa Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b>	Concrete Tee Beam	<b>Construction Date:</b>	1932	<b>Replaced?</b>	No
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b>	1964		
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Wood pedestrian bridge added in 1964.					

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 22.0 ft.	<b>Total Length:</b> 25.9 ft.	<b>Deck Width:</b> 27.6 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Laieloa Stream Bridge carries Kamehameha Highway across the Laieloa Stream. This concrete tee beam bridge is in its original location but in poor condition. The bridge has concrete solid panel parapets with flat caps and curved wide end posts with the bridge name and the year of construction engraved. The single span concrete deck is supported by concrete abutments. The parapet cap and end posts panels have been painted white. A wood pedestrian walkway with wood horizontal railings was added to upstream side of the bridge in 1964. Thrie beams were bolted to the one end of the posts. The simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

The bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

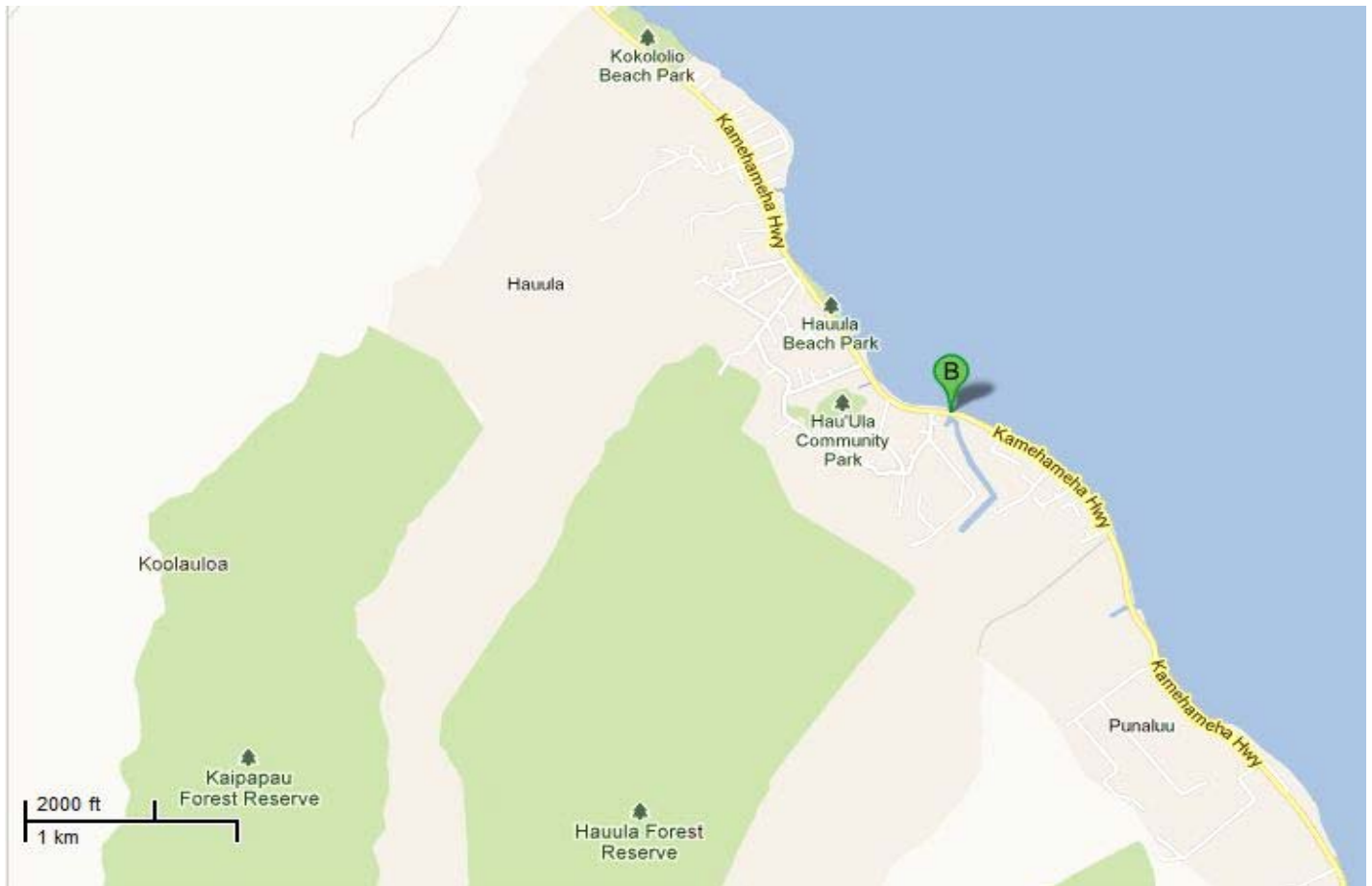
(State)

## General Information

<b>Bridge Number:</b> 003000830302196	<b>Route No:</b> 83
<b>Popular Name:</b> Maheiw Stream	
<b>Feature Crossed:</b> Maheiw Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 21.96 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-54m-19.01s	<b>Latitude:</b> 21d-36m-24.78s
<b>Location:</b> 0.06 Miles Southeast of Hauula Homestead Road	
<b>Historic Name:</b> Maheiw Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b>	Concrete Slab	<b>Construction Date:</b>	1926	<b>Replaced?</b>	No
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b>	1964, 1997		
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Wood pedestrian bridge added in 1964. Wood pedestrian bridge replaced in 1997.					

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 54.1 ft.	<b>Deck Width:</b> 26.2 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Maheiw Stream Bridge carries Kamehameha Highway across the Maheiw Stream. This reinforced concrete is in its original location but is in poor condition. The bridge has concrete solid panel parapets with flat caps and end posts. The reinforced concrete slab deck is supported by the concrete abutments. A wood pedestrian walkway with wood horizontal railings was added to upstream side of the bridge in 1964 and was replaced in 1997. Thrie beams were bolted to the end of the posts however, the workmanship of the bridge has not been obscured. The simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

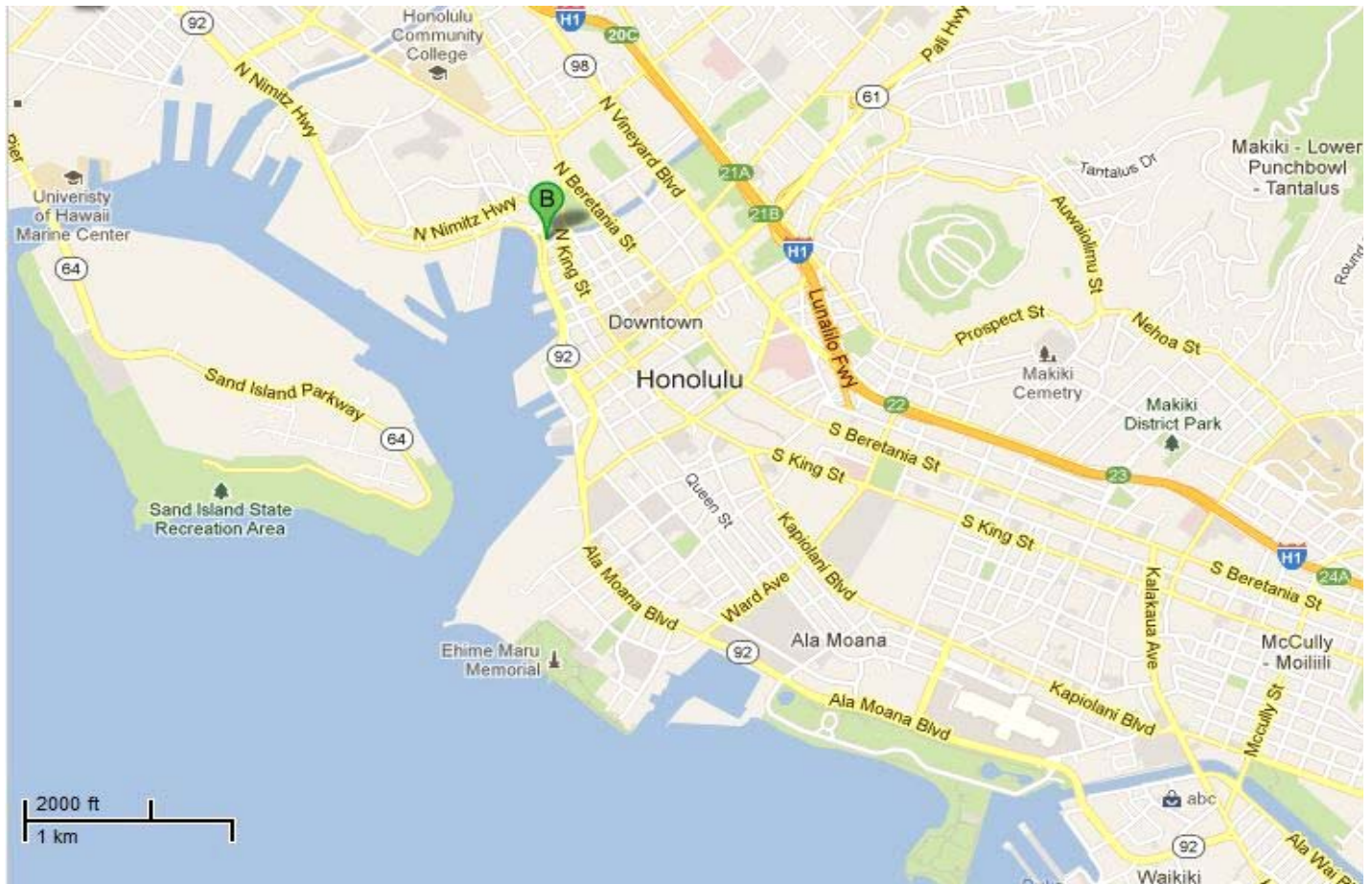
(State)

## General Information

<b>Bridge Number:</b> 003000920400588	<b>Route No:</b> 92
<b>Popular Name:</b> Nuuanu Stream (Westbound)	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> Nimitz Highway	
<b>Milepost:</b> 5.88 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-51m-54.40s	<b>Latitude:</b> 21d-18m-48.25s
<b>Location:</b> 0.06 Miles East of Awa Street	
<b>Historic Name:</b> Nuuanu Stream (Westbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1932	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 32.2 ft.	<b>Total Length:</b> 151.9 ft.	<b>Deck Width:</b> 69.9 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Nuuanu Stream (Westbound) Bridge carries Nimitz Highway across the Nuuanu Stream. The bridge is located near the Chinatown district. This concrete tee beam bridge is in its original location and in fair condition, and its materials remain intact. The bridge has concrete solid parapets with molding decoration at the bottom and top and wide end posts. One of the end posts has bridge name and year of construction engraved. The concrete deck is supported by concrete abutments. The simple design of the parapet retains its historic feeling.</p>		



**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

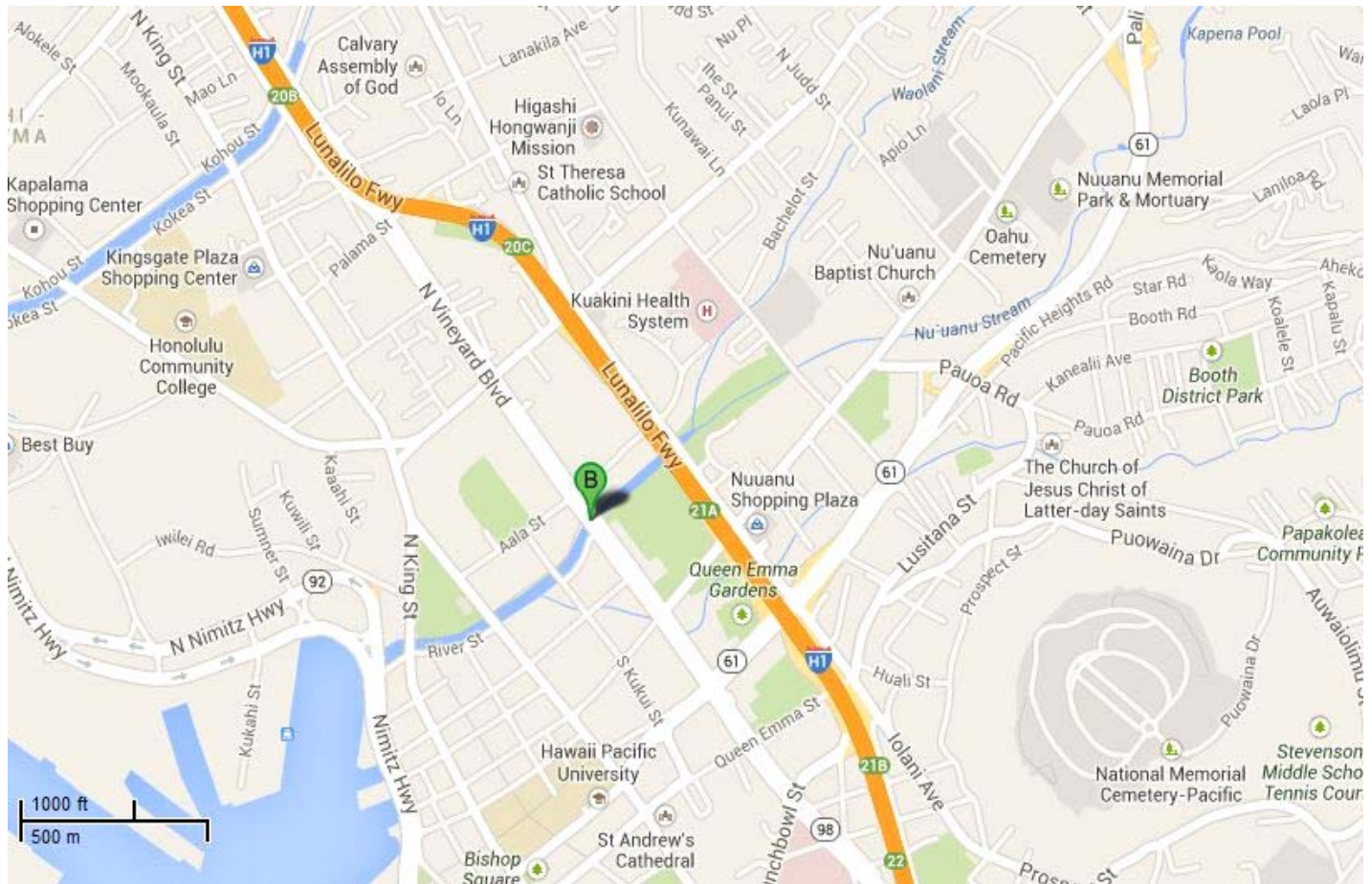
(State)

## General Information

<b>Bridge Number:</b> 003098001400077	<b>Route No:</b> 98
<b>Popular Name:</b> Nuuanu Stream Bridge	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> North Vineyard Boulevard	
<b>Milepost:</b> 0.77 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-51m-34.56s	<b>Latitude:</b> 21d-19m-00.11s
<b>Location:</b> 0.03 Miles East of Aala Street	
<b>Historic Name:</b> Nuuanu Stream Bridge	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1959	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 36.1 ft.	<b>Total Length:</b> 95.1 ft.	<b>Deck Width:</b> 120.1 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Nuuanu Stream Bridge carries N Vineyard Boulevard across Nuuanu Stream. This three span concrete slab bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has concrete horizontal parapets with rectangular voids. The reinforced concrete deck is supported by reinforced concrete abutments. Nuuanu Stream channel has concrete masonry walls which the bridge's abutments connect to.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for being the widest concrete bridge built post-war (1945) on the island of Oahu in the historic study period prior to 1969. This bridge was also a part of the channelization of Nuuanu Stream where all the walls of the channel were built with concrete masonry.



# Inventory Form

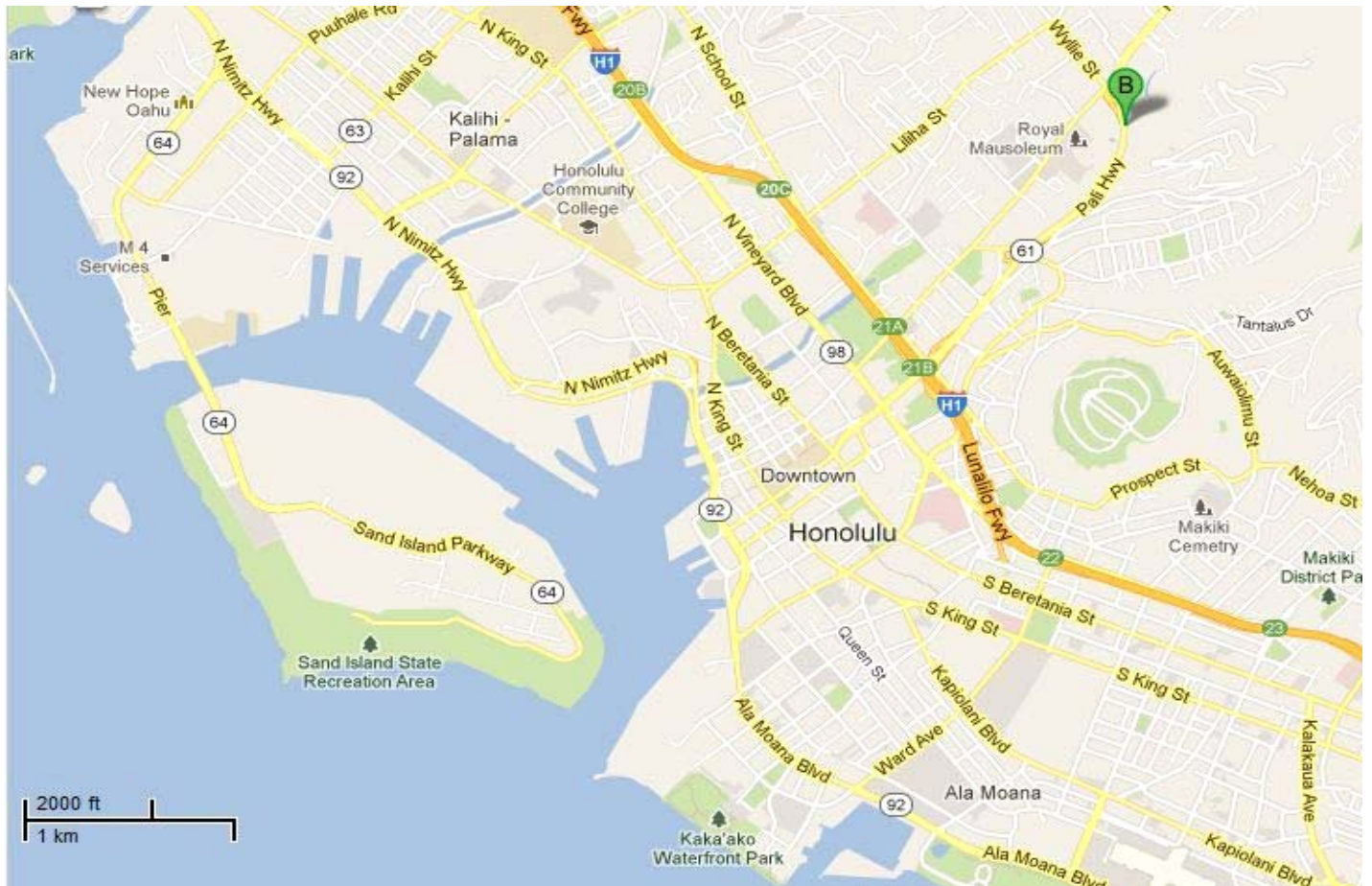
(State)

## General Information

<b>Bridge Number:</b> 003000610400112	<b>Route No:</b> 61
<b>Popular Name:</b> Nuuanu Stream Kapena Falls	
<b>Feature Crossed:</b> Nuuanu Stream Kapena Falls	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 1.12 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-50m-43.09s	<b>Latitude:</b> 21d-19m-31.63s
<b>Location:</b> 0.48 Miles Northeast of Pauoa Road	
<b>Historic Name:</b> Nuuanu Stream Kapena Falls	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Rigid Frame	<b>Construction Date:</b> 1962	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 84.0 ft.	<b>Total Length:</b> 94.2 ft.	<b>Deck Width:</b> 72.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Integral Abutment			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete and Metal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

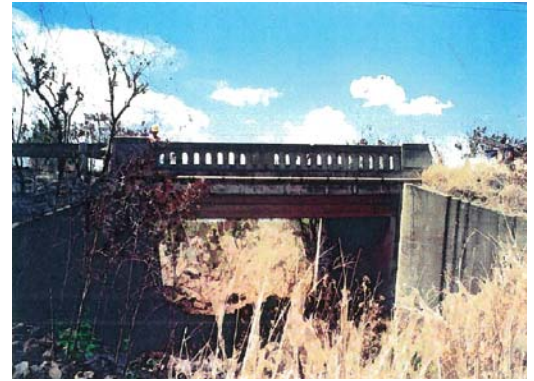
See Pali Historic District description.

# Inventory Form

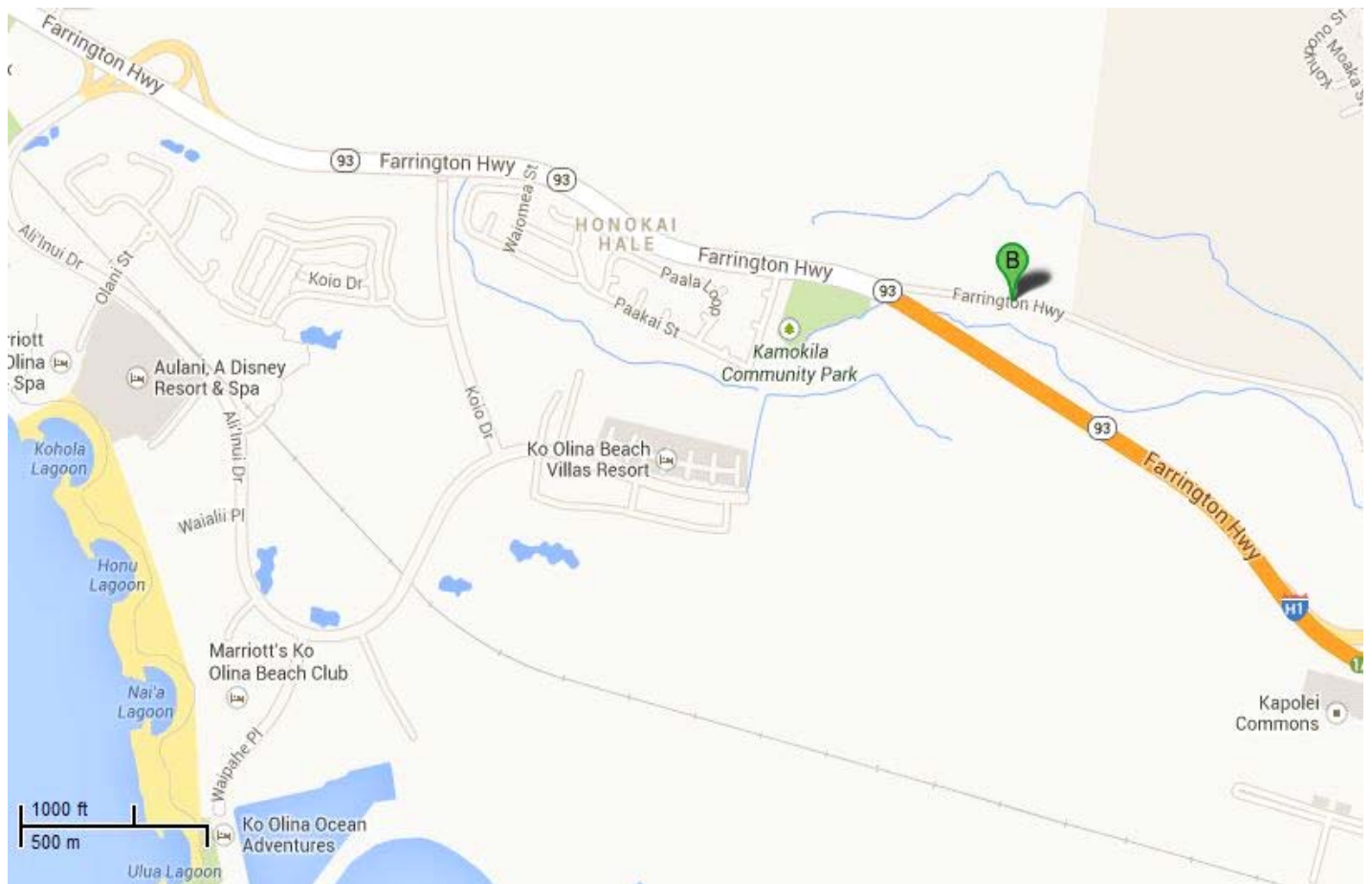
(State)

## General Information

<b>Bridge Number:</b> 003000930300083	<b>Route No:</b> 93
<b>Popular Name:</b> Palailai Stream	
<b>Feature Crossed:</b> Palailai Stream	
<b>Feature Carried:</b> Old Farrington Highway	
<b>Milepost:</b> 0.83 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-06m-03.19s	<b>Latitude:</b> 21d-20m-27.28s
<b>Location:</b> 0.95 Miles West of Kalaeloa Boulevard	
<b>Historic Name:</b> Palailai Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1927	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 23.0 ft.	<b>Total Length:</b> 25.9 ft.	<b>Deck Width:</b> 25.9 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Palailai Stream Bridge carries Old Farrington Highway across the Palailai Stream. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its material remain intact. The bridge has concrete open arched parapets with tapered caps and wide end posts. The bridge name was also engraved on the parapet. The reinforced concrete tee beam deck is supported by the concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs and the simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction craftsmanship, and design.

# Inventory Form

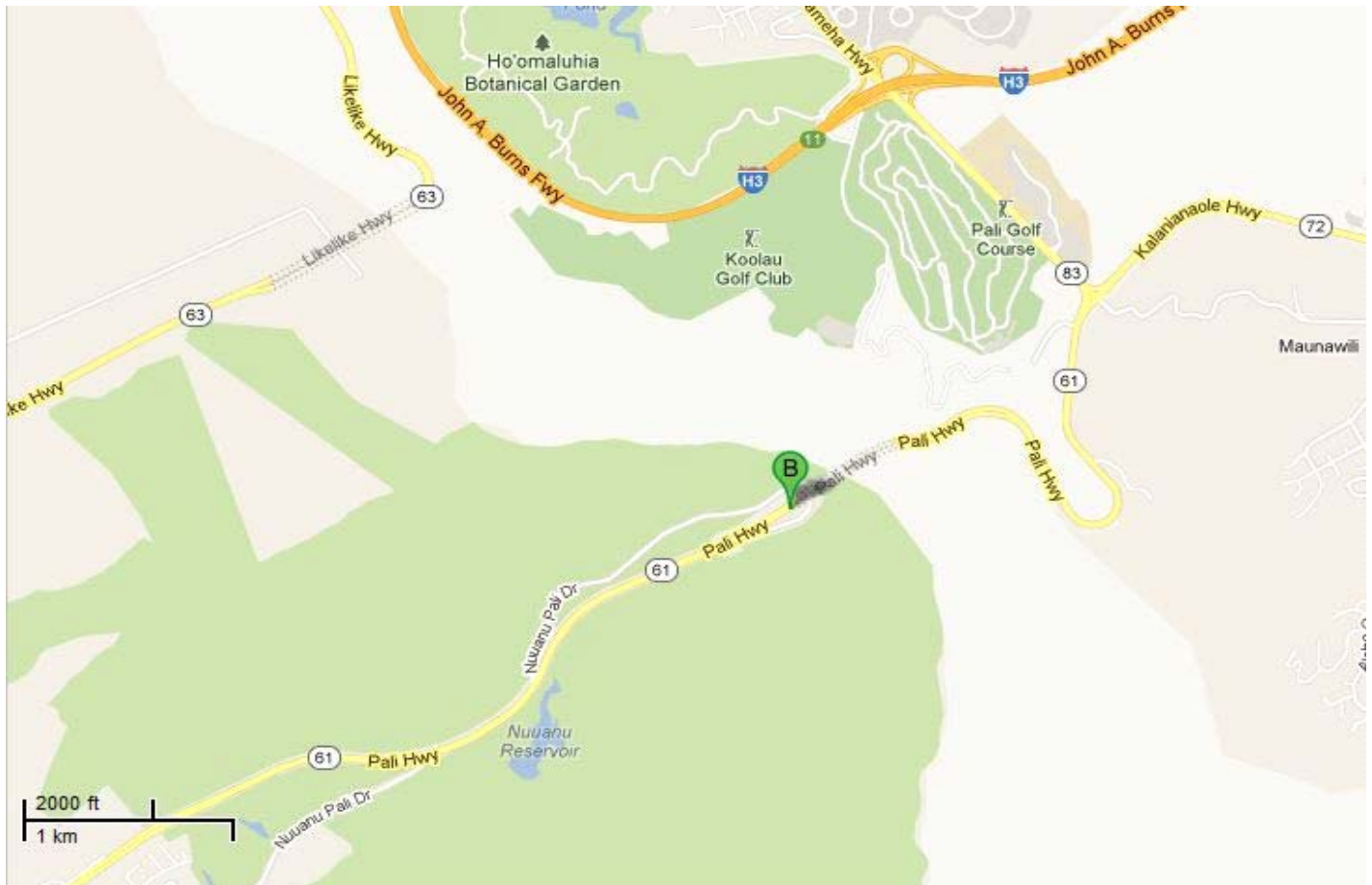
(State)

## General Information

<b>Bridge Number:</b> 003000610300593	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Bridge No. 3 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 3)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 5.93 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-30.03s	<b>Latitude:</b> 21d-22m-03.61s
<b>Location:</b> 0.34 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Bridge No. 3 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1956	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 57.1 ft.	<b>Total Length:</b> 107.9 ft.	<b>Deck Width:</b> 31.5 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Double Column Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		



**Significance Statement:**

See Pali Historic District description.

# Inventory Form

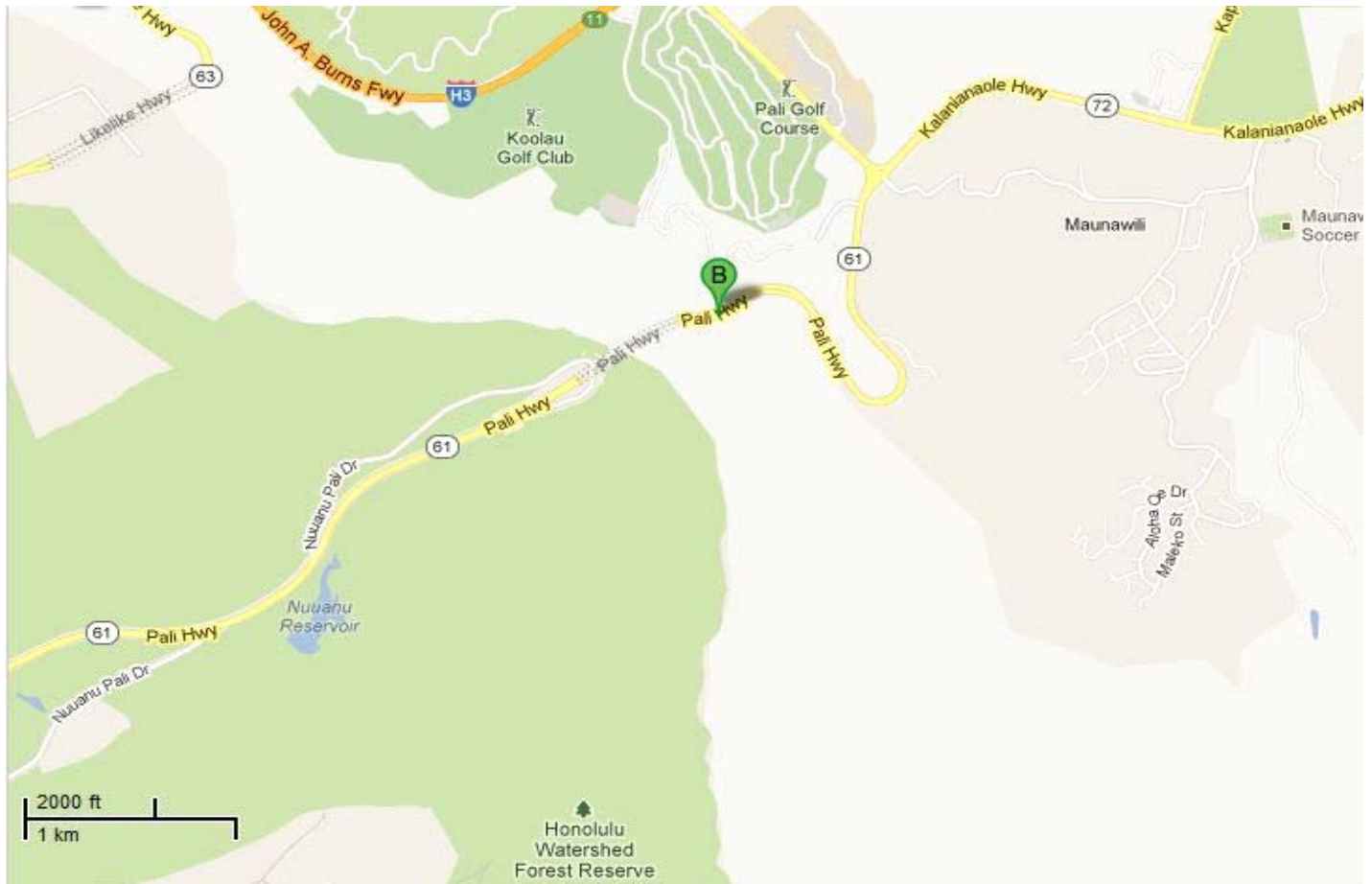
(State)

## General Information

<b>Bridge Number:</b> 003000610300615	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Bridge No. 4B (Outbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 4B)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.15 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-17.44s	<b>Latitude:</b> 21d-22m-06.92s
<b>Location:</b> 0.56 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Bridge No. 4B (Outbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 60.0 ft.	<b>Total Length:</b> 125.0 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.



# Inventory Form

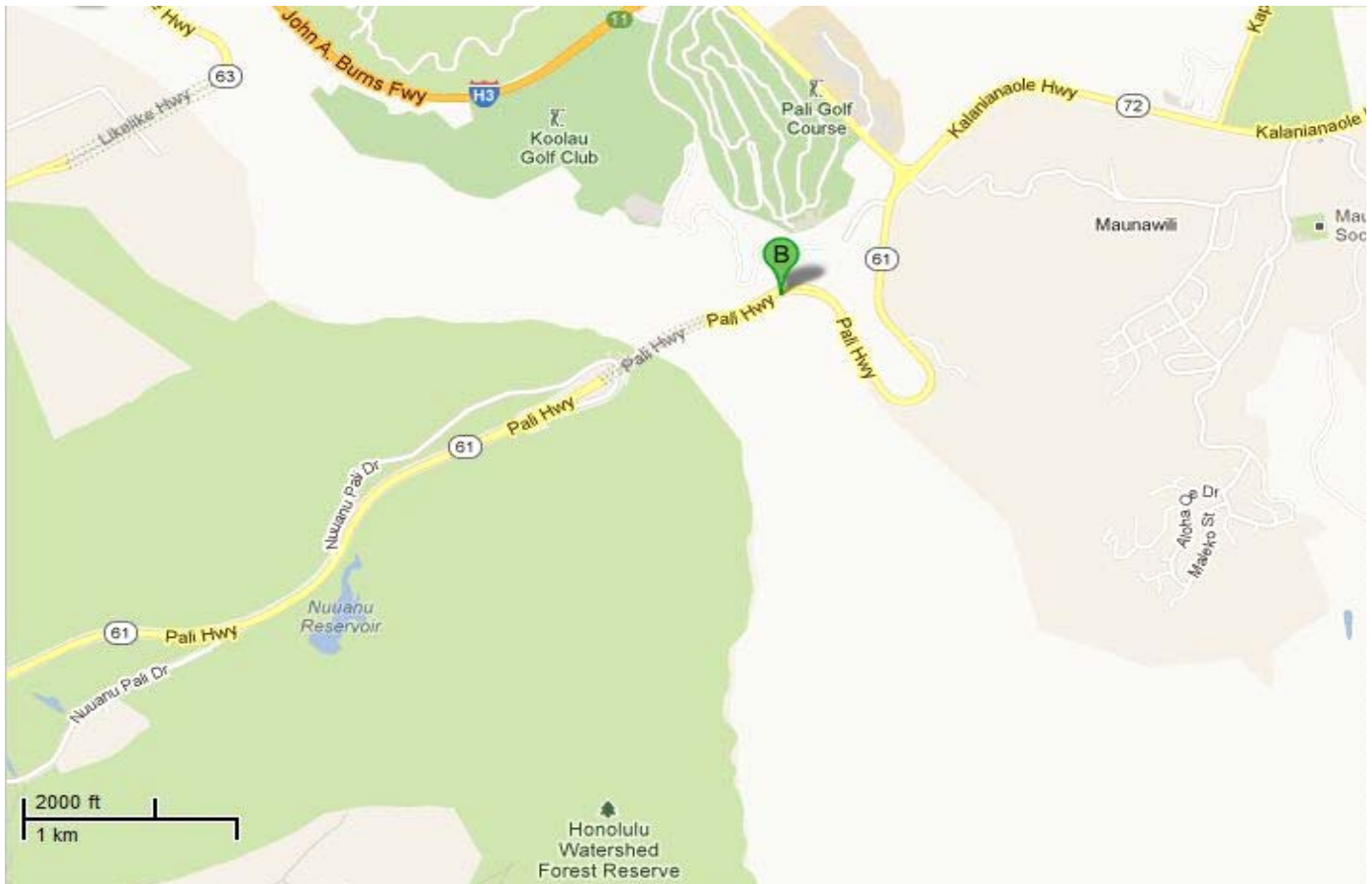
(State)

## General Information

<b>Bridge Number:</b> 003000610300621	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Bridge No. 5 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 5)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.21 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-13.77s	<b>Latitude:</b> 21d-22m-10.32s
<b>Location:</b> 0.62 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Bridge No. 5 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1956	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 83.0 ft.	<b>Total Length:</b> 299.9 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete T-Shaped Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000610300623	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Bridge No. 5A (Outbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 5A)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.23 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-13.55s	<b>Latitude:</b> 21d-22m-09.63s
<b>Location:</b> 0.64 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Bridge No. 5A (Outbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 100.1 ft.	<b>Total Length:</b> 206.0 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

# Inventory Form

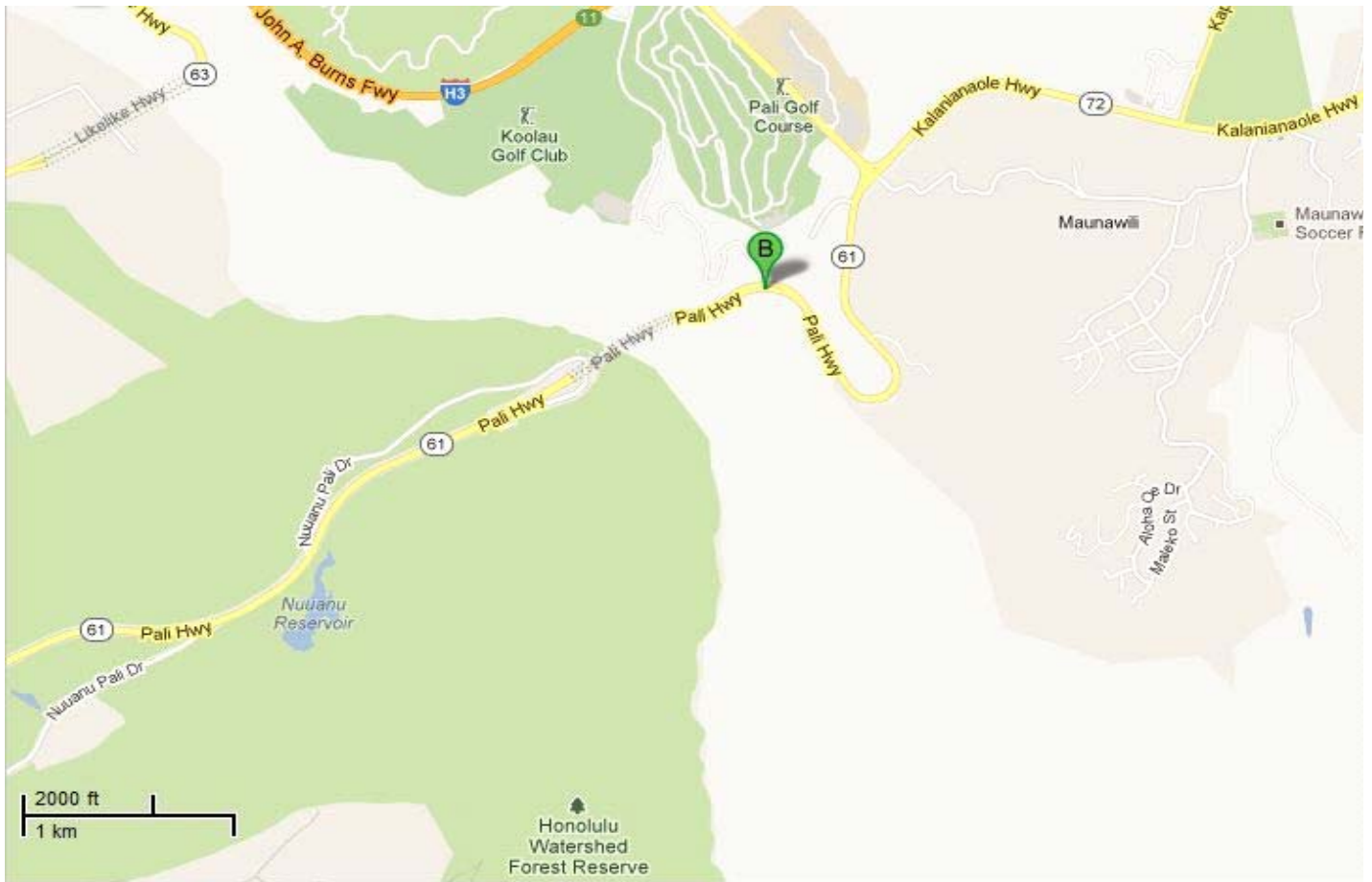
(State)

## General Information

<b>Bridge Number:</b> 003000610300629	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Bridge No. 6 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 6)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.29 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-11.24s	<b>Latitude:</b> 21d-22m-11.23s
<b>Location:</b> 0.70 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Bridge No. 6 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1956	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 45.9 ft.	<b>Total Length:</b> 193.9 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		



**Significance Statement:**

See Pali Historic District description.

# Inventory Form

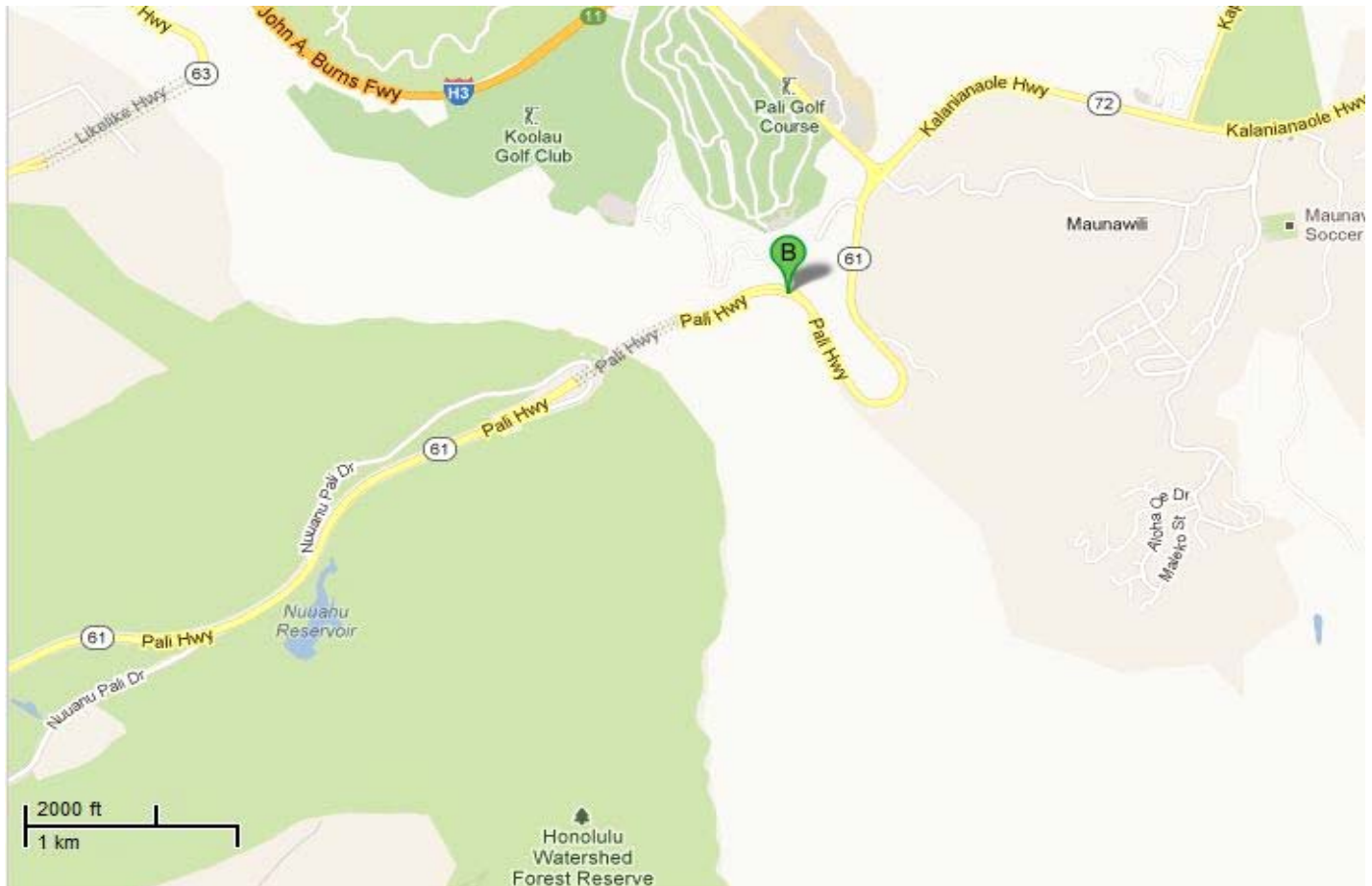
(State)

## General Information

<b>Bridge Number:</b> 003000610300632	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Bridge No. 7 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 7)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.32 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-08.67s	<b>Latitude:</b> 21d-22m-11.62s
<b>Location:</b> 0.73 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Bridge No. 7 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1956	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 78.1 ft.	<b>Total Length:</b> 282.2 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete T-Shaped Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**


See Pali Historic District description.



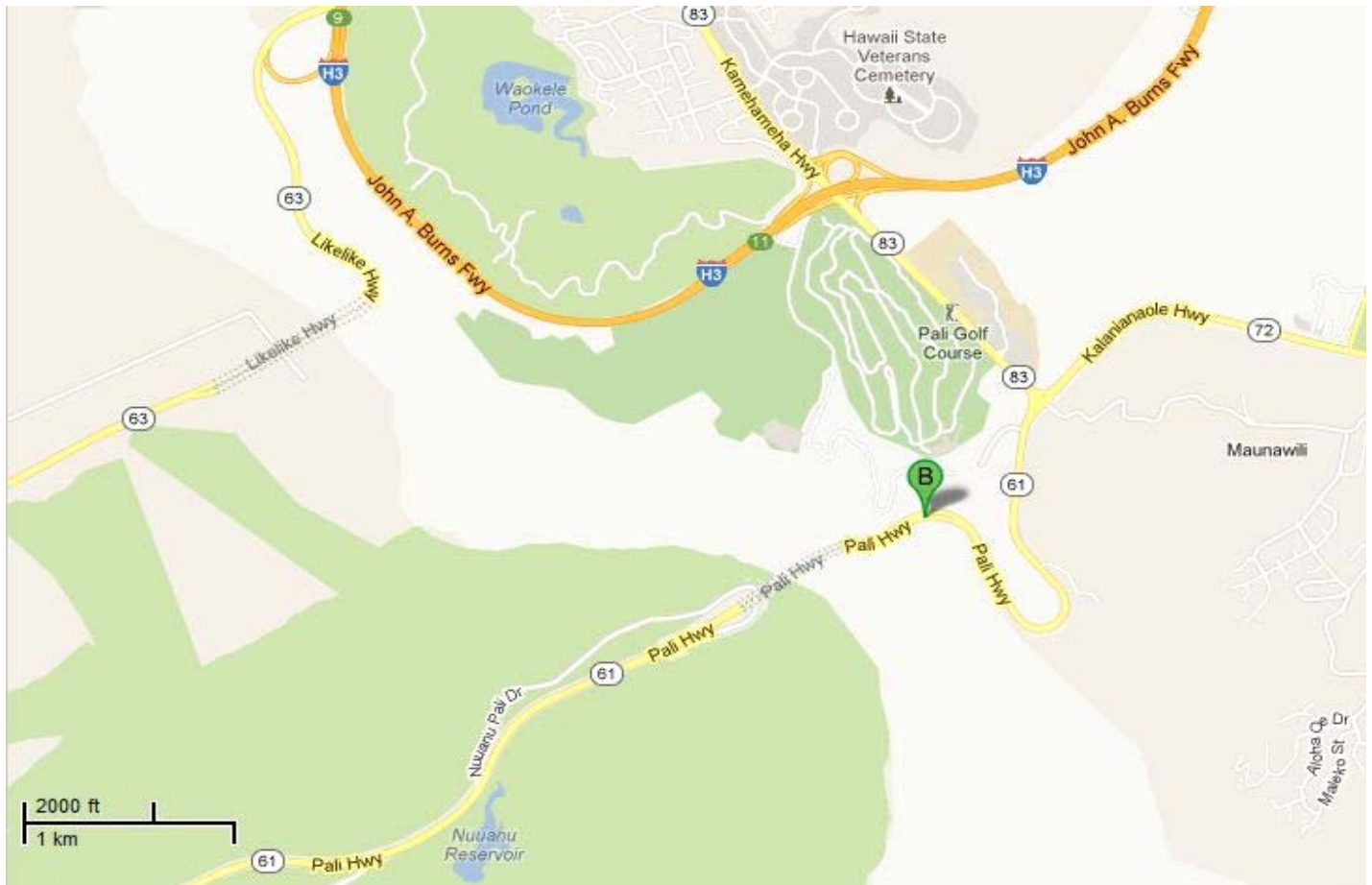
# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000610300631	<b>Route No:</b> 61	
<b>Popular Name:</b> Pali Bridge No. 7A (Outbound)		
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 7A)		
<b>Feature Carried:</b> Pali Highway		
<b>Milepost:</b> 6.31 mi.	<b>Island:</b> Oahu	
<b>Longitude:</b> 157d-47m-08.99s	<b>Latitude:</b> 21d-22m-10.78s	
<b>Location:</b> 0.72 Miles Northeast of Pali Lookout Road		
<b>Historic Name:</b> Pali Bridge No. 7A (Outbound)		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 60.0 ft.	<b>Total Length:</b> 128.9 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

# Inventory Form

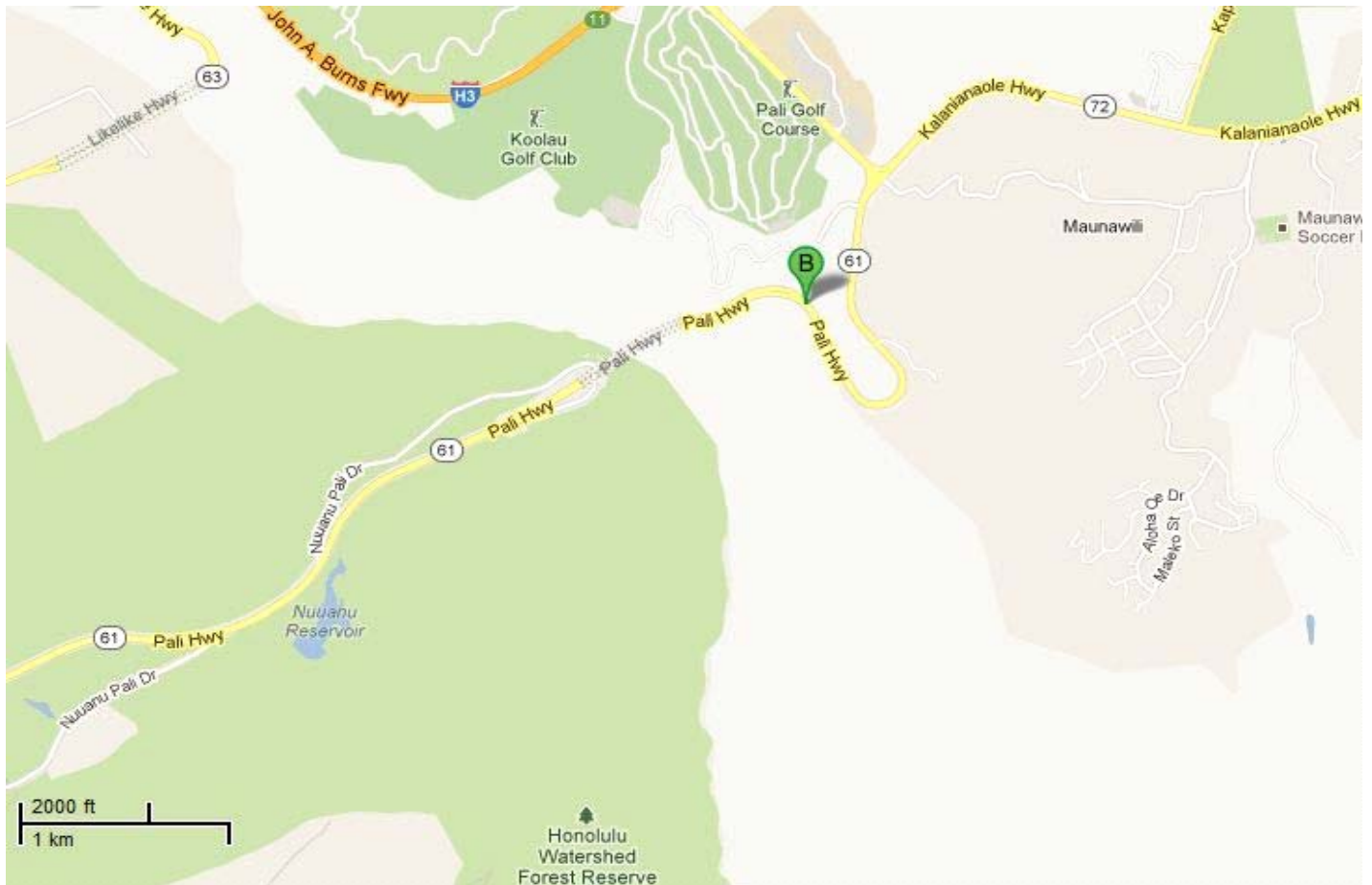
(State)

## General Information

<b>Bridge Number:</b> 003000610300640	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Bridge No. 8 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 8)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.40 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-04.64s	<b>Latitude:</b> 21d-22m-10.39s
<b>Location:</b> 0.81 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Bridge No. 8 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1956	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 94.2 ft.	<b>Total Length:</b> 345.1 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete T-Shaped Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		


**Significance Statement:**

See Pali Historic District description.

# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000610300638	<b>Route No:</b> 61	
<b>Popular Name:</b> Pali Bridge No. 8A (Outbound)		
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 8A)		
<b>Feature Carried:</b> Pali Highway		
<b>Milepost:</b> 6.35 mi.	<b>Island:</b> Oahu	
<b>Longitude:</b> 157d-47m-04.85s	<b>Latitude:</b> 21d-22m-09.82s	
<b>Location:</b> 0.79 Miles Northeast of Pali Lookout Road		
<b>Historic Name:</b> Pali Bridge No. 8A (Outbound)		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 84.0 ft.	<b>Total Length:</b> 175.9 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		



**Significance Statement:**

See Pali Historic District description.

# Inventory Form

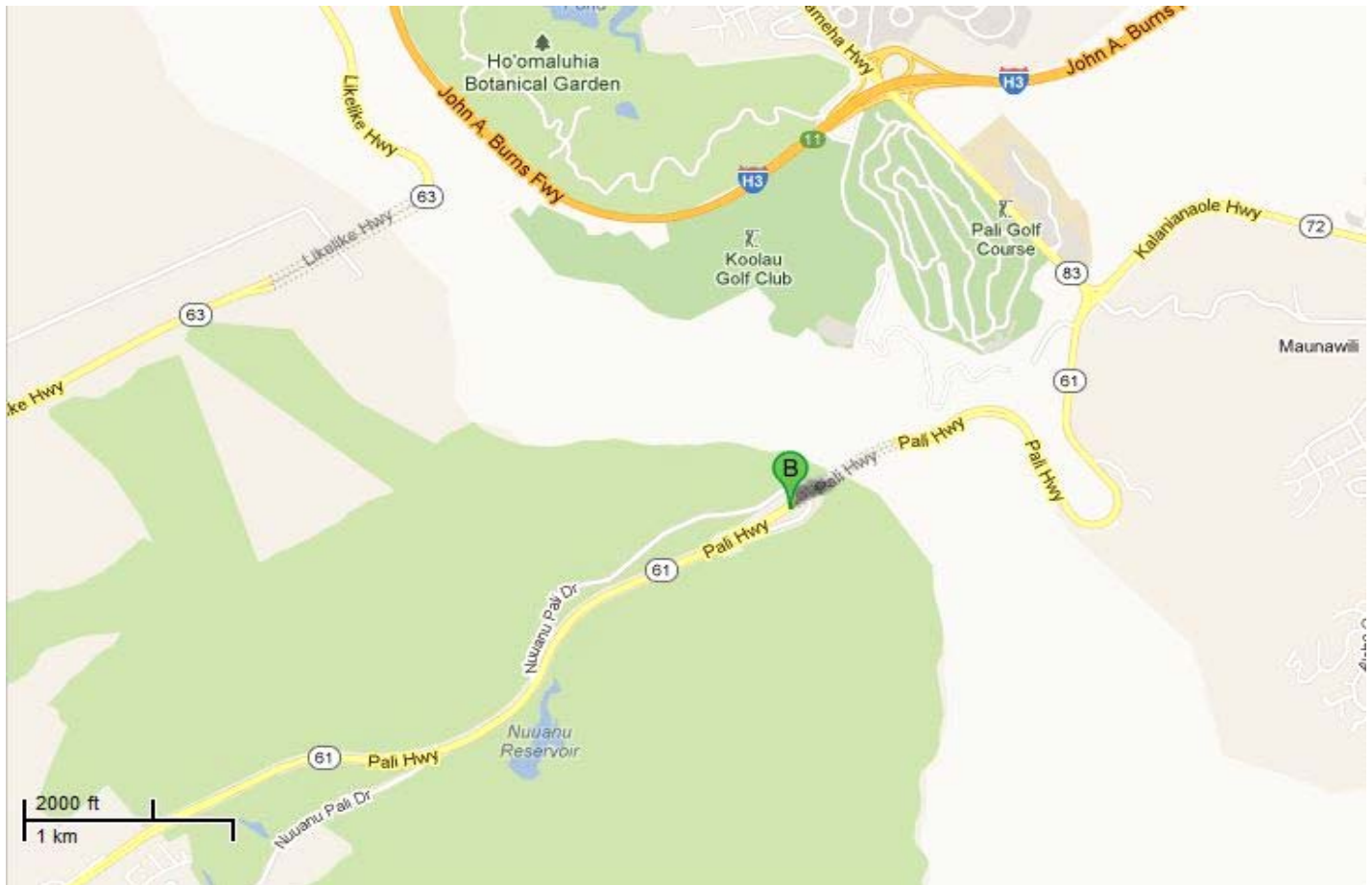
(State)

## General Information

<b>Bridge Number:</b> 003000610300591	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Partial Bridge No. 1 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Partial Bridge No. 1)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 5.91 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-31.48s	<b>Latitude:</b> 21d-22m-02.75s
<b>Location:</b> 0.32 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Partial Bridge No. 1 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1956	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 38.1 ft.	<b>Total Length:</b> 40.0 ft.	<b>Deck Width:</b> 32.2 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.



# Inventory Form

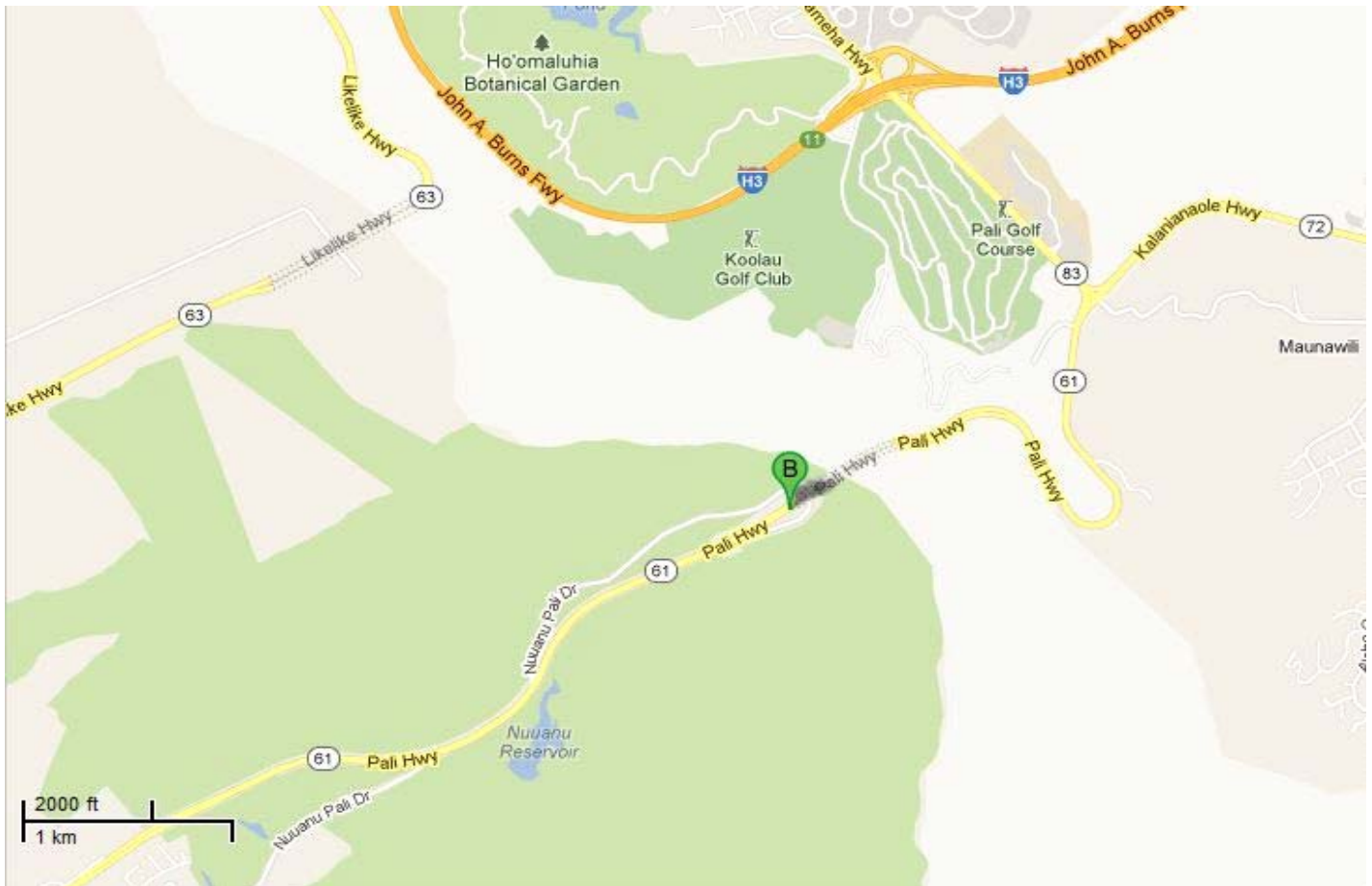
(State)

## General Information

<b>Bridge Number:</b> 003000610300592	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Partial Bridge No. 2 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Partial Bridge No. 2)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 5.92 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-30.90s	<b>Latitude:</b> 21d-22m-03.18s
<b>Location:</b> 0.33 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Partial Bridge No. 2 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1956	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 59.1 ft.	<b>Total Length:</b> 62.0 ft.	<b>Deck Width:</b> 32.2 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

# Inventory Form

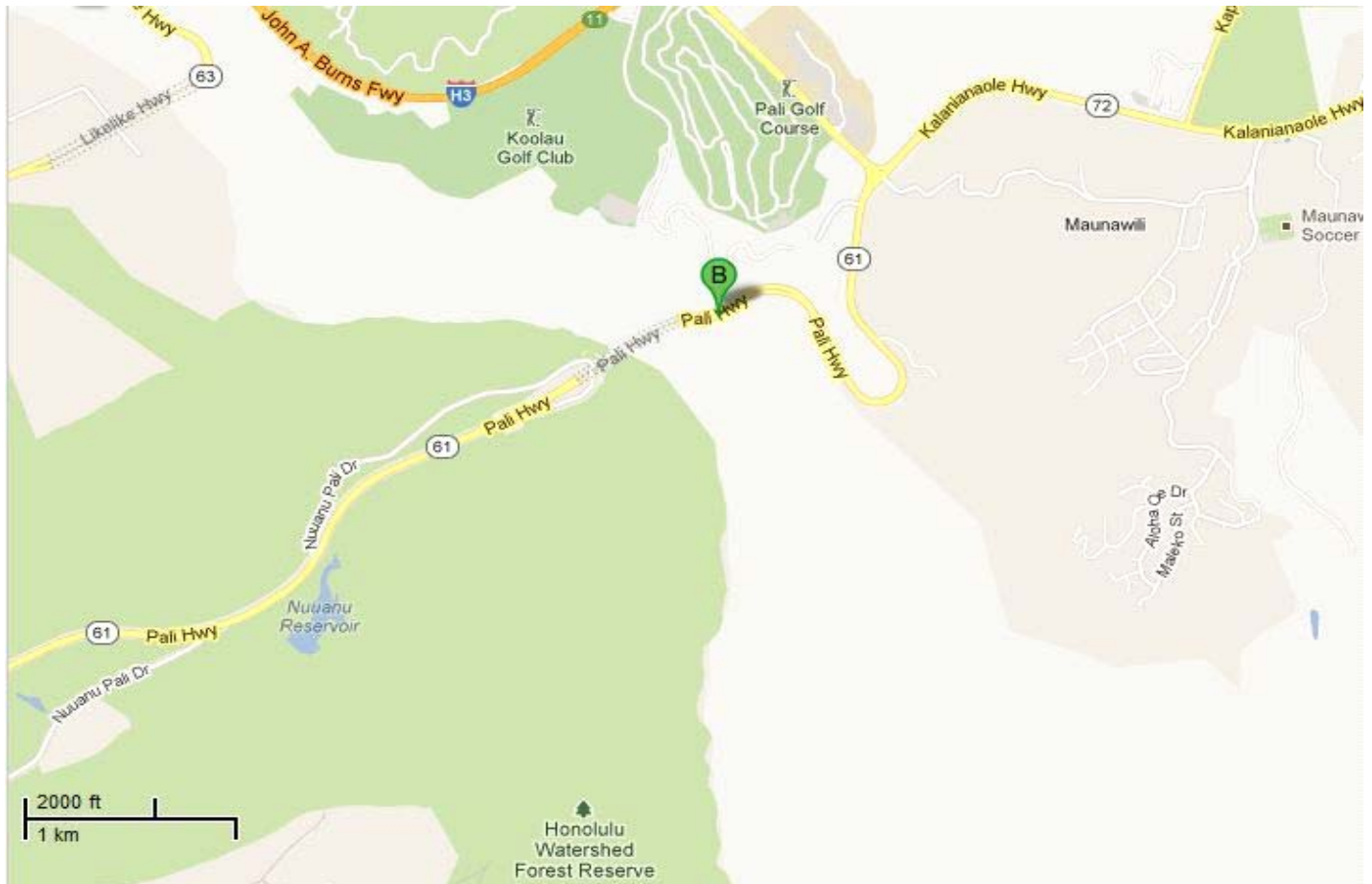
(State)

## General Information

<b>Bridge Number:</b> 003000610300613	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Partial Bridge No. 4A (Outbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 4A)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.13 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-18.23s	<b>Latitude:</b> 21d-22m-06.64s
<b>Location:</b> 0.54 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Partial Bridge No. 4A (Outbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 27.9 ft.	<b>Total Length:</b> 113.8 ft.	<b>Deck Width:</b> 31.5 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Masonry Abutment and Concrete Single Column Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

# Inventory Form

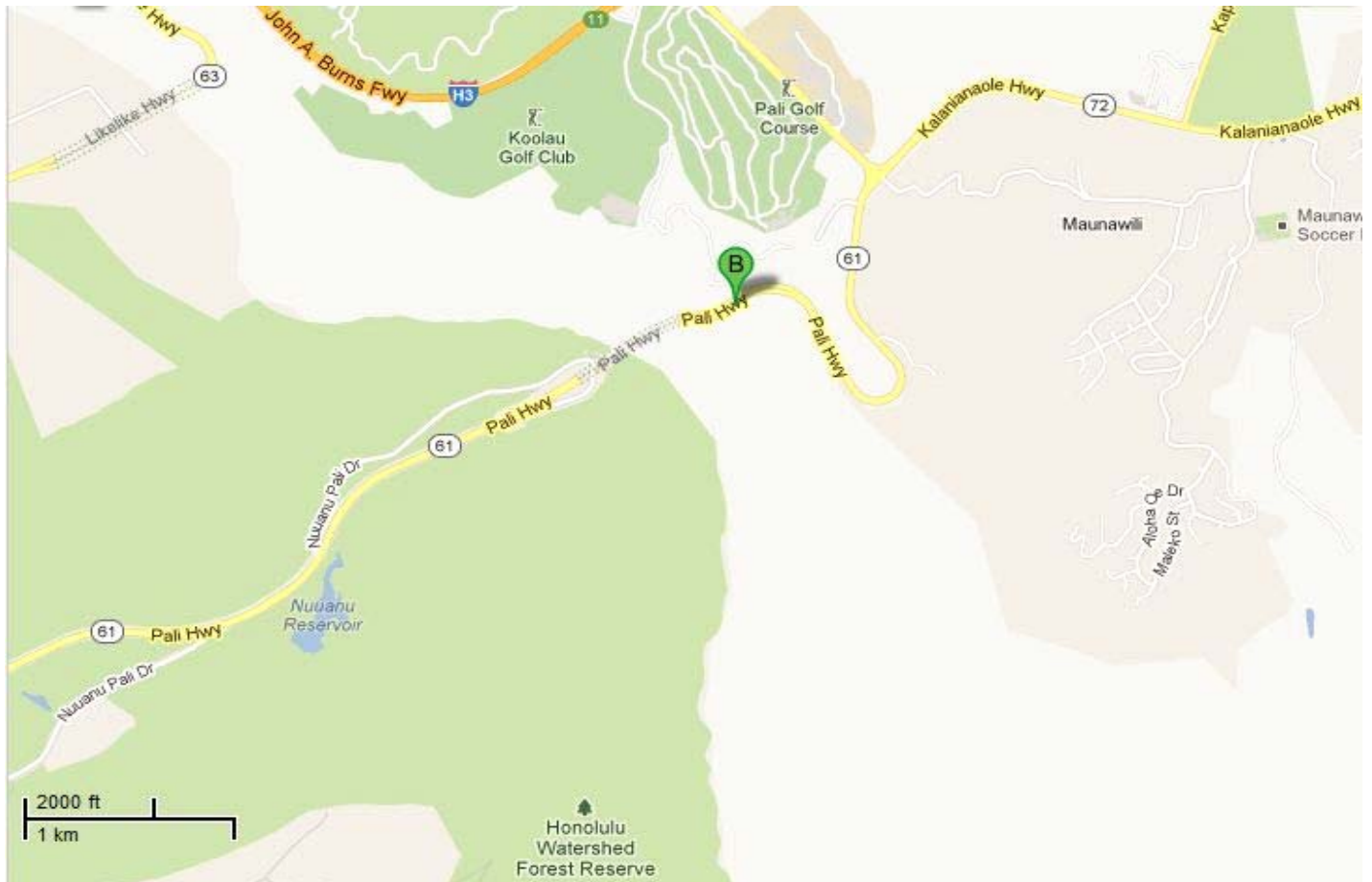
(State)

## General Information

<b>Bridge Number:</b> 003000610300619	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Partial Bridge No. 4C (Outbound)	
<b>Feature Crossed:</b> Mountain (Pali Bridge No. 4C)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 6.19 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-16.63s	<b>Latitude:</b> 21d-22m-07.53s
<b>Location:</b> 0.60 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Partial Bridge No. 4C (Outbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 26.9 ft.	<b>Total Length:</b> 74.1 ft.	<b>Deck Width:</b> 32.5 ft.
<b>Superstructure:</b> Concrete Box Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		



**Significance Statement:**

See Pali Historic District description.

# Inventory Form

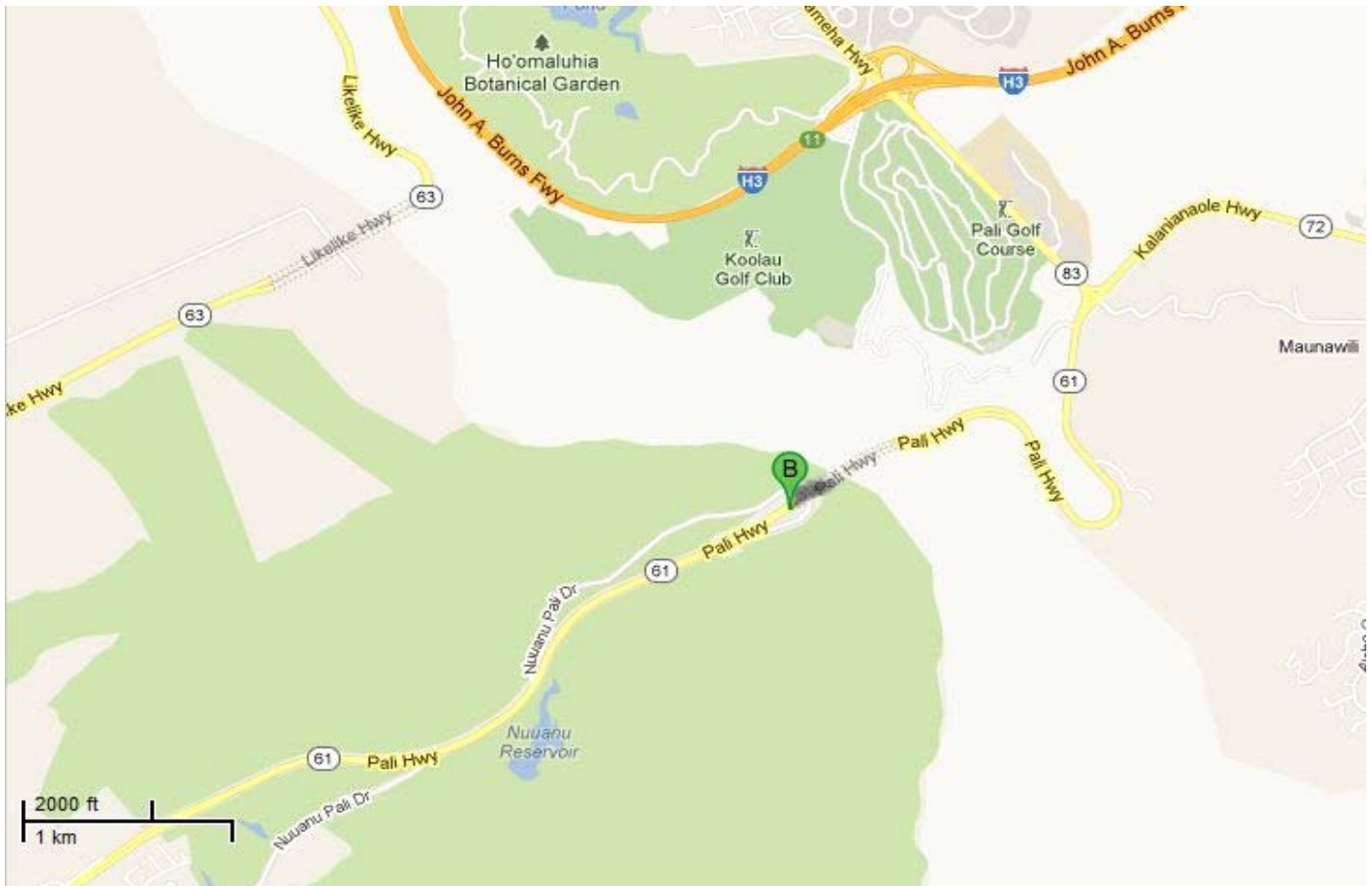
(State)

## General Information

<b>Bridge Number:</b> 003000610300569	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Tunnel No. 1 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Tunnel No. 1)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 5.69 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-32.01s	<b>Latitude:</b> 21d-22m-02.22s
<b>Location:</b> 0.10 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Tunnel No. 1 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Arch Culvert	<b>Construction Date:</b> 1957	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 27.9 ft.	<b>Total Length:</b> 1000.0 ft.	<b>Deck Width:</b> 31.5 ft.
<b>Superstructure:</b>			
<b>Substructure:</b> Concrete Arch Culvert			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> No Parapet/Railing			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

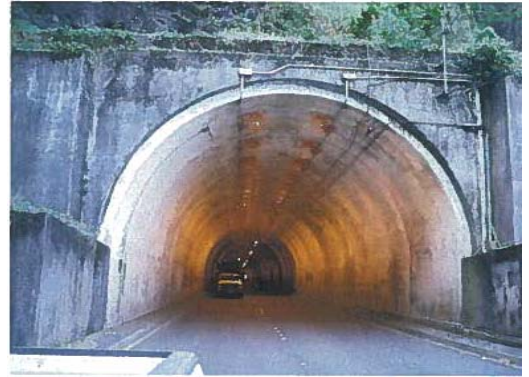


# Inventory Form

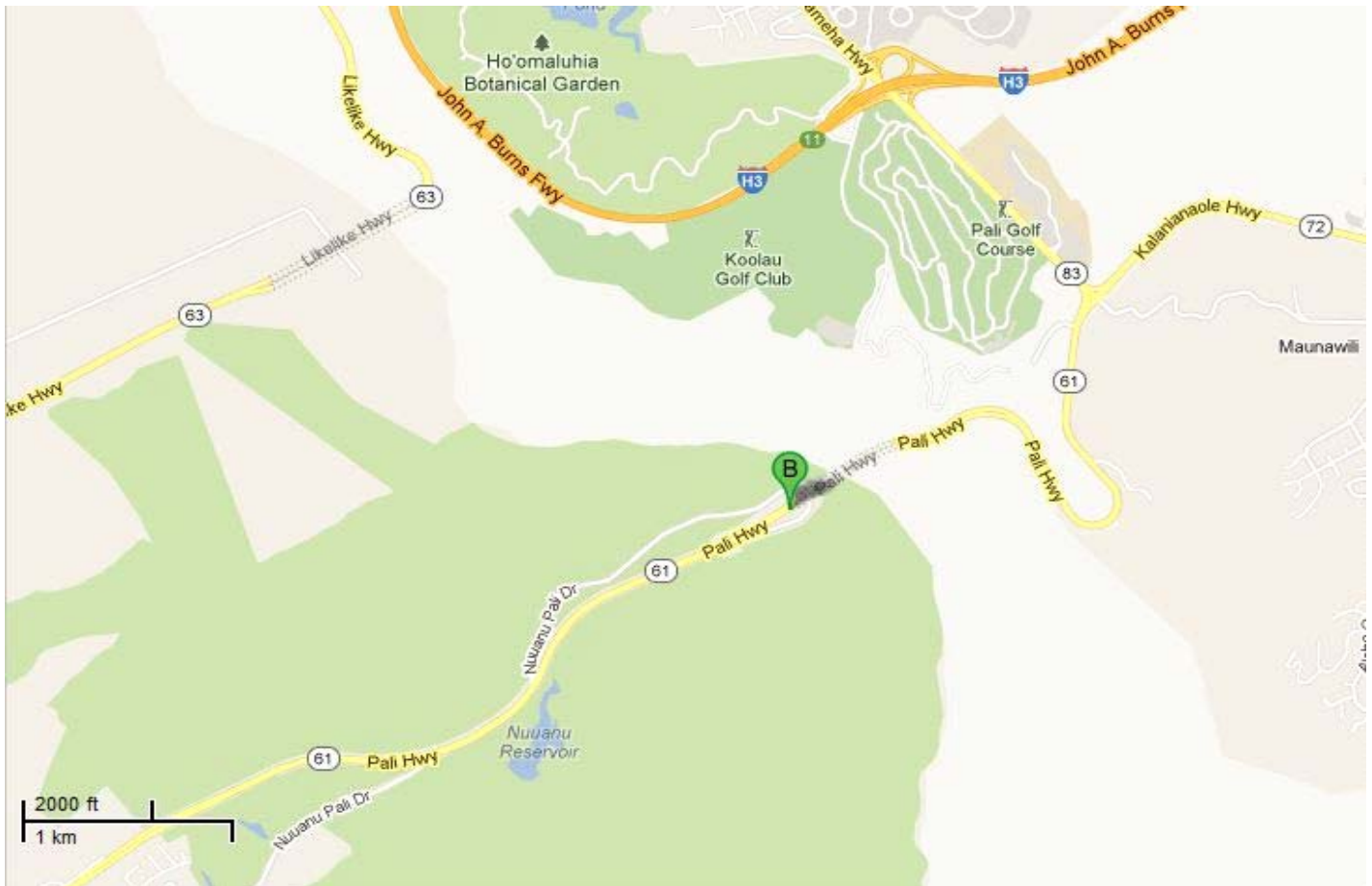
(State)

## General Information

<b>Bridge Number:</b> 003000610300568	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Tunnel No. 1A (Outbound)	
<b>Feature Crossed:</b> Mountain (Pali Tunnel No. 1A)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 5.68 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-40.70s	<b>Latitude:</b> 21d-21m-55.58s
<b>Location:</b> 0.10 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Tunnel No. 1A (Outbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Arch Culvert	<b>Construction Date:</b> 1959	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 27.9 ft.	<b>Total Length:</b> 1080.1 ft.	<b>Deck Width:</b> 31.5 ft.
<b>Superstructure:</b>			
<b>Substructure:</b> Concrete Arch Culvert			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> No Parapet/Railing			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

# Inventory Form

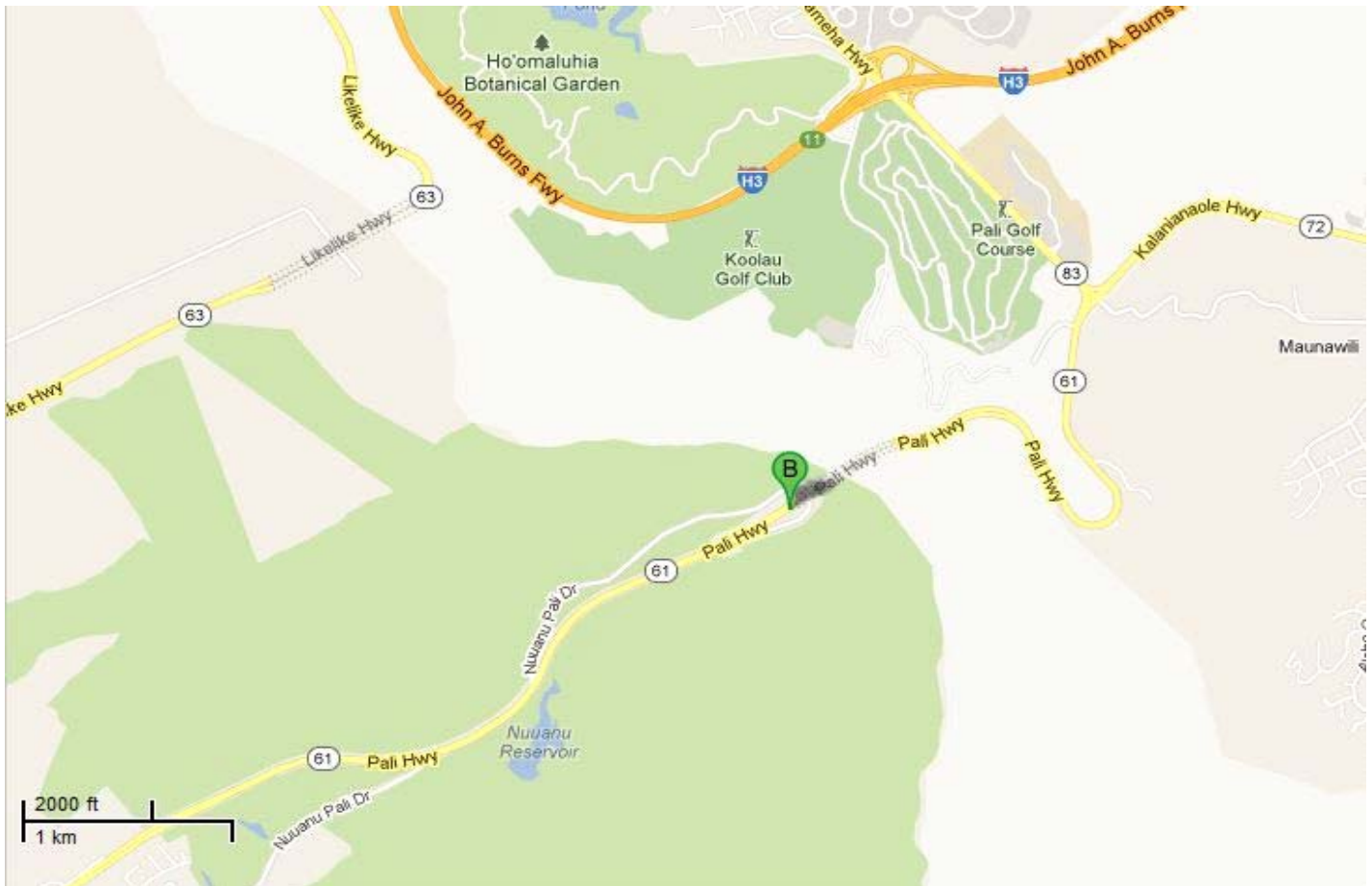
(State)

## General Information

<b>Bridge Number:</b> 003000610300596	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Tunnel No. 2 (Inbound)	
<b>Feature Crossed:</b> Mountain (Pali Tunnel No. 2)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 5.96 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-24.05s	<b>Latitude:</b> 21d-22m-06.23s
<b>Location:</b> 0.36 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Tunnel No. 2 (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Arch Culvert	<b>Construction Date:</b> 1957	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 27.9 ft.	<b>Total Length:</b> 500.0 ft.	<b>Deck Width:</b> 31.5 ft.
<b>Superstructure:</b>			
<b>Substructure:</b> Concrete Arch Culvert			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> No Parapet/Railing			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

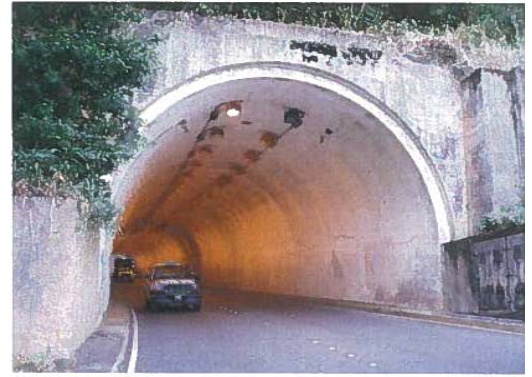
See Pali Historic District description.

# Inventory Form

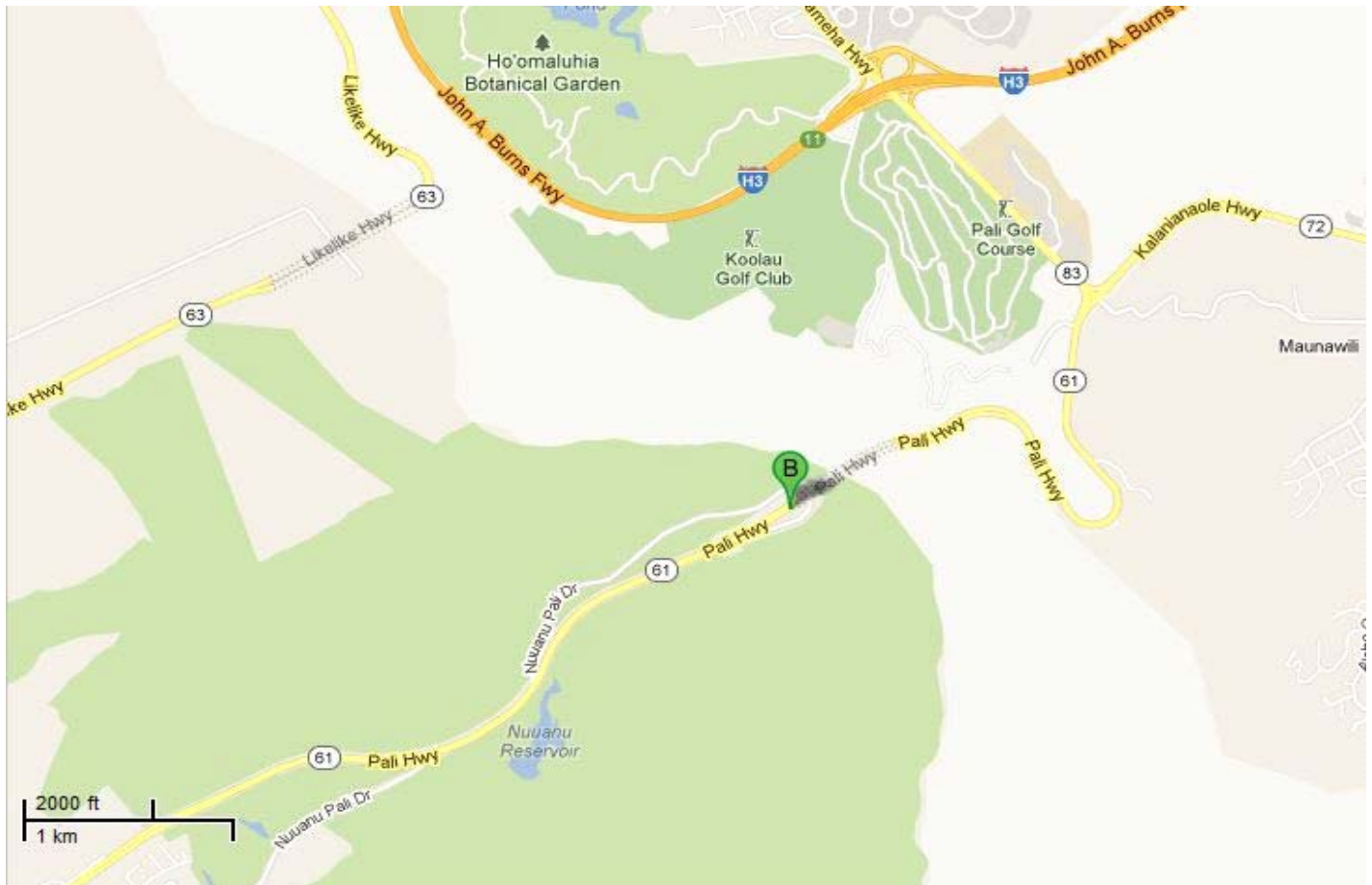
(State)

## General Information

<b>Bridge Number:</b> 003000610300595	<b>Route No:</b> 61
<b>Popular Name:</b> Pali Tunnel No. 2A (Outbound)	
<b>Feature Crossed:</b> Mountain (Pali Tunnel No. 2A)	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 5.95 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-47m-28.64s	<b>Latitude:</b> 21d-22m-03.54s
<b>Location:</b> 0.36 Miles Northeast of Pali Lookout Road	
<b>Historic Name:</b> Pali Tunnel No. 2A (Outbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Arch Culvert	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 27.9 ft.	<b>Total Length:</b> 497.0 ft.	<b>Deck Width:</b> 31.5 ft.
<b>Superstructure:</b>			
<b>Substructure:</b> Concrete Arch Culvert			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> No Parapet/Railing			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		



**Significance Statement:**

See Pali Historic District description.

# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000830302186	<b>Route No:</b> 83
<b>Popular Name:</b> Papau Stream-Waipuhi	
<b>Feature Crossed:</b> Papau Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 21.86 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-54m-24.76s	<b>Latitude:</b> 21d-36m-25.30s
<b>Location:</b> 0.23 Miles Southeast of Kukuna Road	
<b>Historic Name:</b> Papau Stream-Waipuhi	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1932	<b>Replaced?</b> No
<b>Altered?</b> Yes	<b>Alteration Date(s):</b> 1997	
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Wood pedestrian bridge added in 1997.		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 22.0 ft.	<b>Total Length:</b> 24.0 ft.	<b>Deck Width:</b> 27.6 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Papau Stream-Waipuhi Stream Bridge carries Kamehameha Highway across the Papau Stream. This concrete tee beam bridge is in its original location and in fair condition, and its materials remain intact. The bridge has concrete solid panel parapets with flat caps and curved end posts. The concrete deck is supported by concrete abutments. The parapet and end posts caps have been painted white. A wood pedestrian walkway with wood horizontal railings was added to one side of the bridge in 1997. Thrie beams were bolted to the end posts. The simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.




# Inventory Form

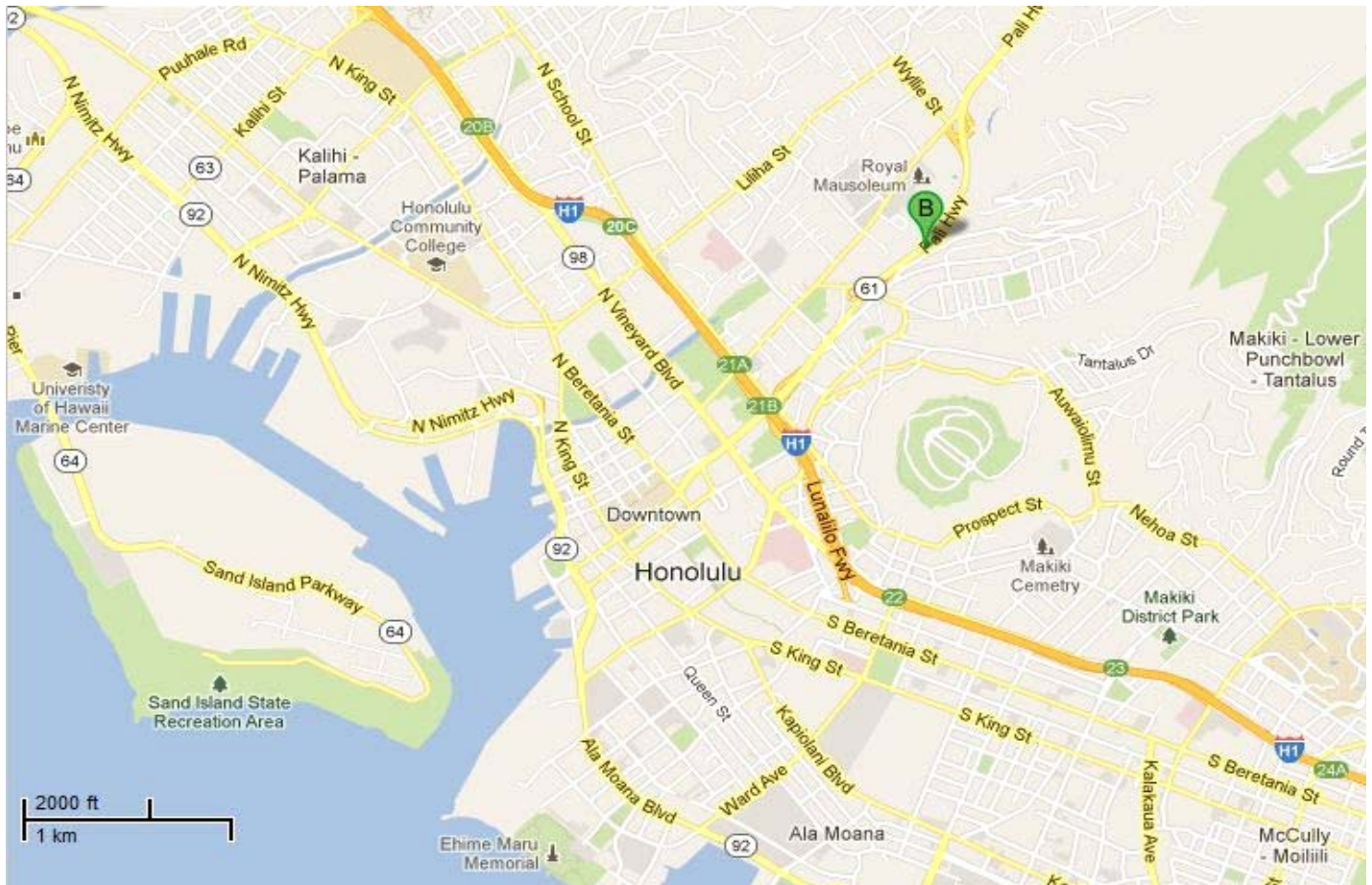
(State)

## General Information

<b>Bridge Number:</b> 003000610400090	<b>Route No:</b> 61
<b>Popular Name:</b> Partial Bridge No. 8	
<b>Feature Crossed:</b> Unnamed Gulch	
<b>Feature Carried:</b> Pali Highway	
<b>Milepost:</b> 0.90 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-50m-48.40s	<b>Latitude:</b> 21d-19m-21.01s
<b>Location:</b> 0.26 Miles Northeast of Pauoa Road	
<b>Historic Name:</b> Partial Bridge No. 8	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1962	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 37.1 ft.	<b>Total Length:</b> 76.1 ft.	<b>Deck Width:</b> 35.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Single Column Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete and Metal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Transportation, Engineering		
<b>Narrative Description:</b> See Pali Historic District description.		

**Significance Statement:**

See Pali Historic District description.

# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000990300626	<b>Route No:</b> 99
<b>Popular Name:</b> Poamoho Stream	
<b>Feature Crossed:</b> Upper Poamoho Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 6.26 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-02m-20.59s	<b>Latitude:</b> 21d-31m-06.11s
<b>Location:</b> 0.18 Miles North of Nui Avenue	
<b>Historic Name:</b> Poamoho Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1936	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 116.1 ft.	<b>Total Length:</b> 404.9 ft.	<b>Deck Width:</b> 31.8 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Double Column Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Poamoho Stream Bridge carries Kamehameha Highway across the Poamoho Stream. This concrete tee beam bridge is in its original location but in poor condition. The bridge has concrete open Greek cross parapets with flat caps and curved wide solid end posts. End posts consist of stepped profile and two of the posts have the bridge name and the year of construction engraved. The concrete deck is supported by concrete piers and abutments. Thrie beams were bolted to the end posts however, the simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000830303396	<b>Route No:</b> 83
<b>Popular Name:</b> Unnamed Stream (North Waiahole)	
<b>Feature Crossed:</b> Unnamed Stream (North Waiahole)	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 33.96 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-51m-00.75s	<b>Latitude:</b> 21d-29m-19.68s
<b>Location:</b> 0.59 Miles North of Waiahole Valley Road	
<b>Historic Name:</b> Unnamed Stream (North Waiahole)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b>	Concrete Slab	<b>Construction Date:</b>	1928	<b>Replaced?</b>	No
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b>	1972		
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Wood pedestrian bridge added in 1972.					

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 54.1 ft.	<b>Deck Width:</b> 26.9 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The North Waiahole Stream Bridge carries Kamehameha Highway across the Waiahole Stream. This concrete slab bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete solid panel parapets with flat caps and end posts. The reinforced concrete deck is supported by concrete abutments. A wood pedestrian walkway with metal horizontal railing was added to one side of the bridge in 1972. The new concrete solid panel parapets were extended to the end posts to bolt the thrie beam approaches however, the workmanship of the bridge has not been obscured. The simple design of the parapet retains its historic feeling.</p>		



**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

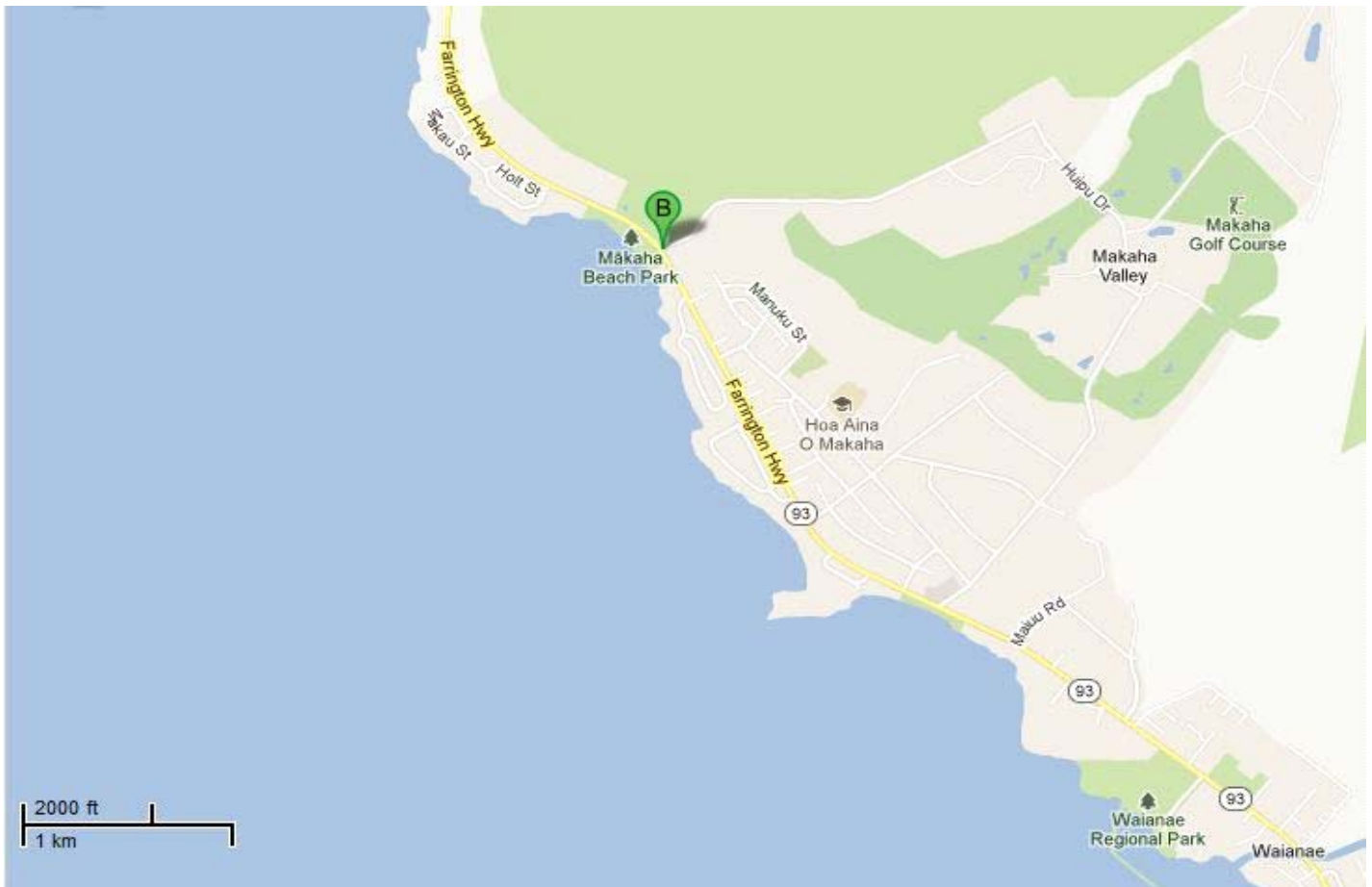
(State)

## General Information

<b>Bridge Number:</b> 003000930301404	<b>Route No:</b> 93
<b>Popular Name:</b> Unnamed Stream-Makaha No. 3	
<b>Feature Crossed:</b> Unnamed Stream	
<b>Feature Carried:</b> Farrington Highway	
<b>Milepost:</b> 14.04 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-13m-09.60s	<b>Latitude:</b> 21d-28m-34.16s
<b>Location:</b> 0.12 Miles West of Upena Street	
<b>Historic Name:</b> Unnamed Stream-Makaha No. 3	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Timber Stringer	<b>Construction Date:</b> 1937	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 19.0 ft.	<b>Total Length:</b> 60.0 ft.	<b>Deck Width:</b> 29.2 ft.
<b>Superstructure:</b> Timber Stringer			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Timber Deck with AC Overlay			
<b>Parapets/Railings:</b> Wood			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Unmamed Stream (Makaha No. 3) Bridge carries Farrington Highway across the Unnamed Stream. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has timber railing, reinforced concrete tee beam deck, concrete piers and masonry abutments. The workmanship of the bridge has not been obscured and the simple design of the parapet retains its historic feeling.</p> <p>The bridge is scheduled for replacement; MOA complete as of Summer 2013.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



# Inventory Form

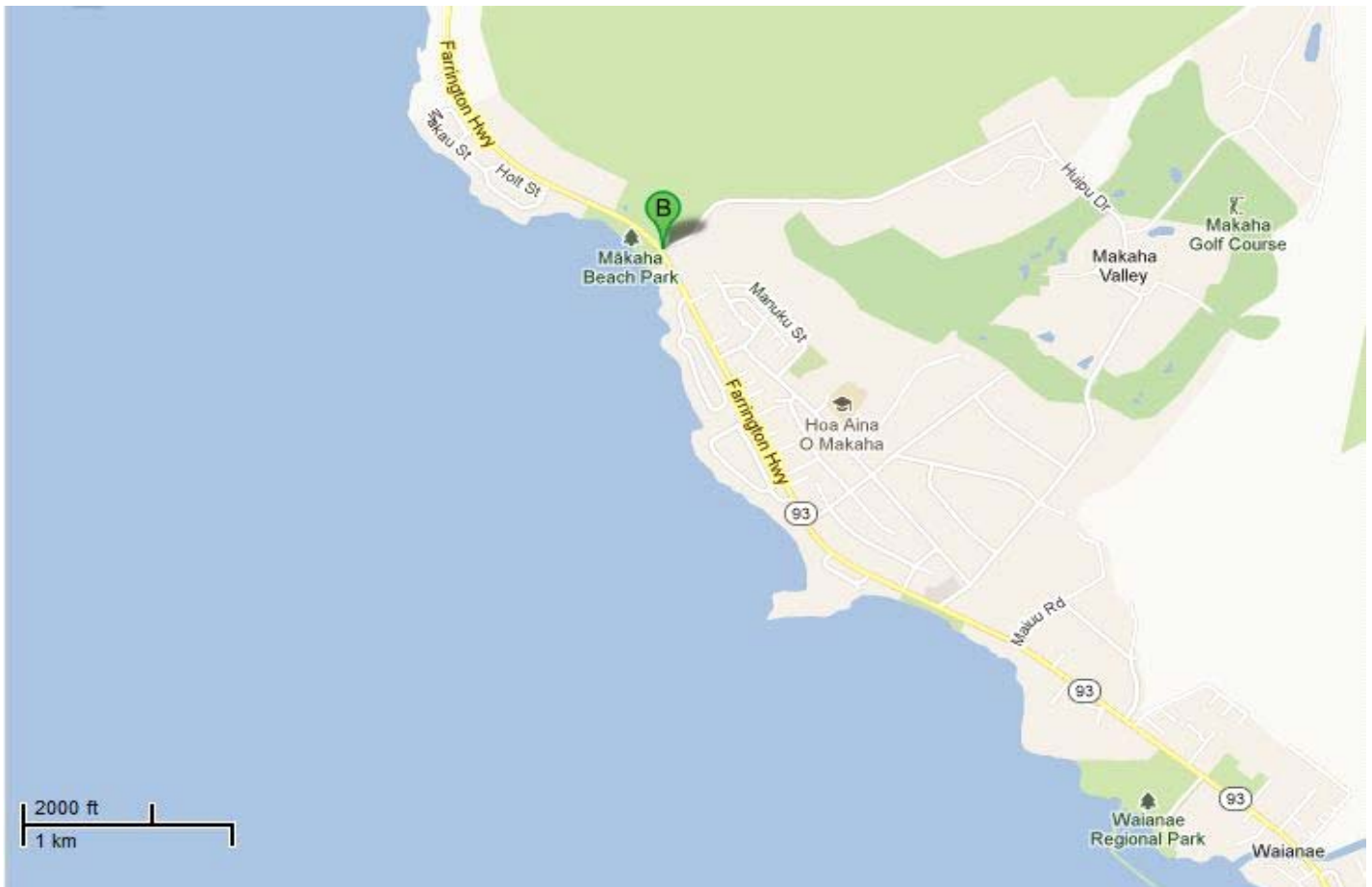
(State)

## General Information

<b>Bridge Number:</b> 003000930301412	<b>Route No:</b> 93
<b>Popular Name:</b> Unnamed Stream-Makaha No. 3A	
<b>Feature Crossed:</b> Unnamed Stream	
<b>Feature Carried:</b> Farrington Highway	
<b>Milepost:</b> 14.12 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-13m-12.05s	<b>Latitude:</b> 21d-28m-37.41s
<b>Location:</b> 0.20 Miles West of Upena Street	
<b>Historic Name:</b> Unnamed Stream-Makaha No. 3A	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Timber Stringer	<b>Construction Date:</b> 1937	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 19.0 ft.	<b>Total Length:</b> 78.1 ft.	<b>Deck Width:</b> 29.2 ft.
<b>Superstructure:</b> Timber Stringer			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Timber Deck with AC Overlay			
<b>Parapets/Railings:</b> Wood			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Unnamed Stream (Makaha No. 3A) Bridge carries Farrington Highway across the Unnamed Stream. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has timber railing, reinforced concrete tee beam deck, concrete piers and masonry abutments. The workmanship of the bridge has not been obscured and the simple design of the parapet retains its historic feeling.</p> <p>The bridge is scheduled for replacement; MOA complete as of Summer 2013.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

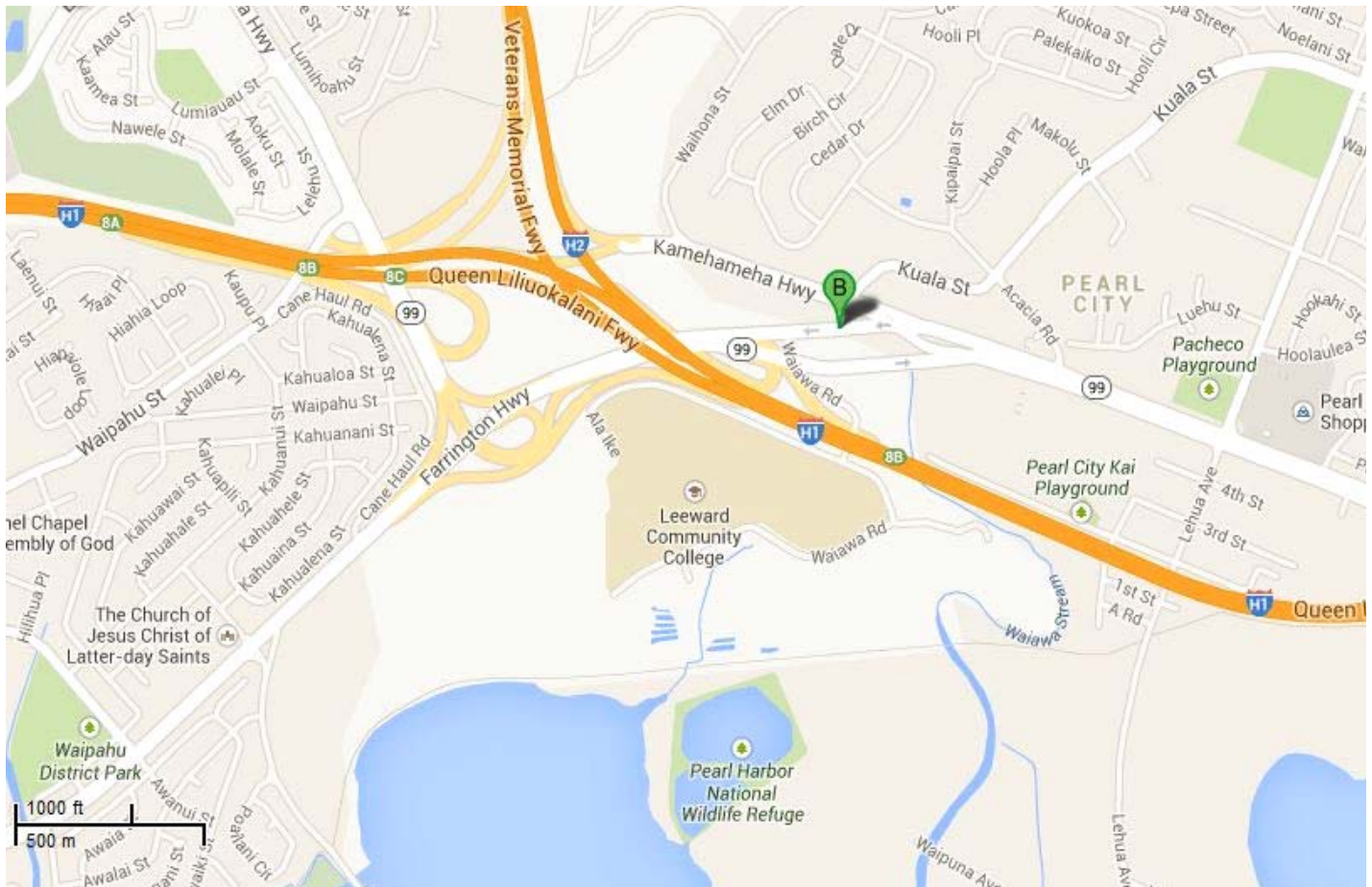
(State)

## General Information

<b>Bridge Number:</b> 003000990401802	<b>Route No:</b> 99
<b>Popular Name:</b> Waiawa Stream (Westbound)	
<b>Feature Crossed:</b> Waiawa Stream	
<b>Feature Carried:</b> Farrington Highway	
<b>Milepost:</b> 18.02 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-58m-48.35s	<b>Latitude:</b> 21d-23m-47.06s
<b>Location:</b> 0.12 Miles East of Leeward Community College Access Road	
<b>Historic Name:</b> Waiawa Stream (Westbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1933	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 6	<b>Max Span:</b> 55.1 ft.	<b>Total Length:</b> 332.0 ft.	<b>Deck Width:</b> 33.8 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Double Column Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waiawa Stream (West Bound) Bridge carries Faarington Highway across the Waiawa Stream. This concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete open arch parapets with tapered caps and curved wide end posts. Two end posts have the bridge name and the year of construction engraving. The concrete deck is supported by concrete abutments. The parapet caps and end posts have been painted white. Thrie beams were bolted to the end section of the bridge and some utility pipes were attached to the bottom of the bridge. The simple design of the parapet retains its historic feeling.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

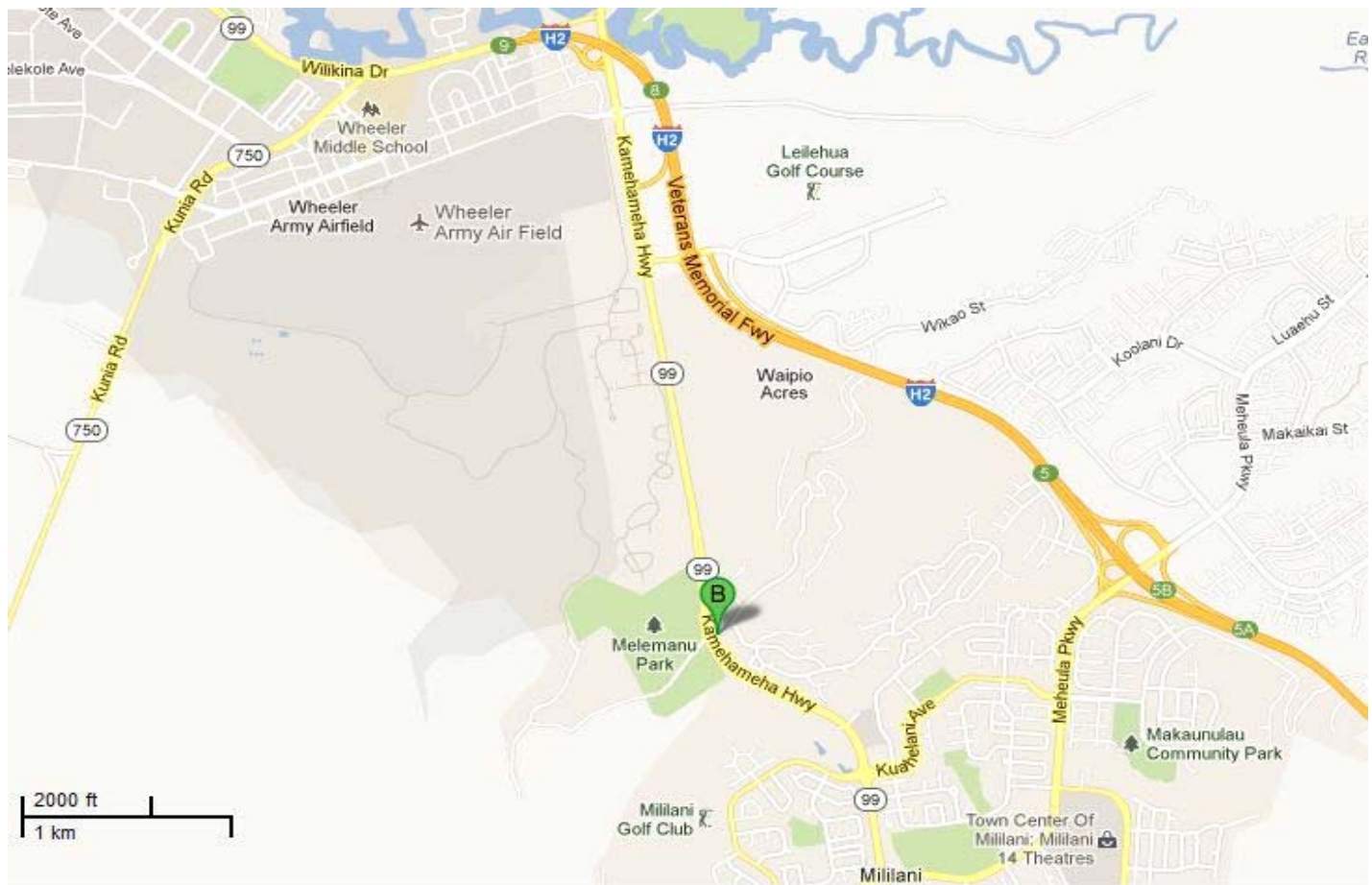
# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000990301164	<b>Route No:</b> 99	
<b>Popular Name:</b> Waikakalaua Stream (Inbound)		
<b>Feature Crossed:</b> Waikakalaua Stream		
<b>Feature Carried:</b> Kamehameha Highway		
<b>Milepost:</b> 11.63 mi.	<b>Island:</b> Oahu	
<b>Longitude:</b> 158d-01m-26.15s	<b>Latitude:</b> 21d-27m-49.56s	
<b>Location:</b> 0.67 Miles South of Lehua Road		
<b>Historic Name:</b> Waikakalaua Stream (Inbound)		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1936	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 2007		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Thrie beams added to the bridge in 2007.		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 89.9 ft.	<b>Total Length:</b> 225.1 ft.	<b>Deck Width:</b> 38.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waikakalaua Stream (Inbound) Bridge carries Kamehameha Highway across the Waikakalaua Stream. This concrete tee beam bridge is in its original location and in fair condition, and its materials remain intact. The bridge has concrete open Greek cross parapets with flat caps and curved wide solid end posts. End posts consist of stepped profile. The concrete deck is supported by concrete piers and abutments. A pedestrian walkway with thrie beams was built along the inner side of the bridge in 2007.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

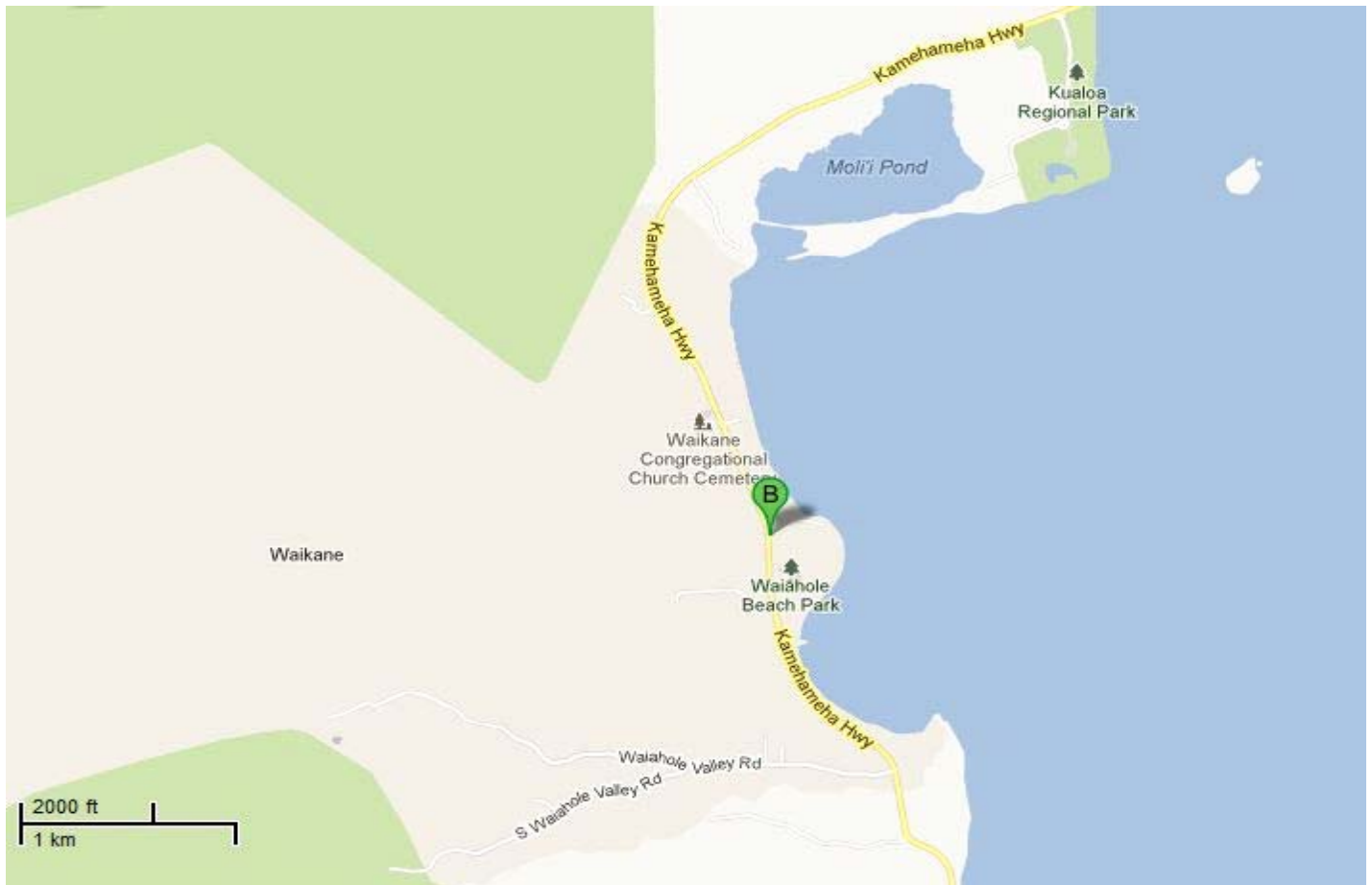
# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000830303377	<b>Route No:</b> 83	
<b>Popular Name:</b> Waikane Stream		
<b>Feature Crossed:</b> Waikane Stream		
<b>Feature Carried:</b> Kamehameha Highway		
<b>Milepost:</b> 33.77 mi.	<b>Island:</b> Oahu	
<b>Longitude:</b> 157d-51m-02.38s	<b>Latitude:</b> 21d-29m-30.01s	
<b>Location:</b> 1.35 Miles South of Johnson Road		
<b>Historic Name:</b> Waikane Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1928	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 42.0 ft.	<b>Total Length:</b> 44.0 ft.	<b>Deck Width:</b> 26.9 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waikane Stream Bridge carries Kamehameha Highway across the Waikane Stream. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its material remain intact. The bridge has concrete solid panel parapets with flat cap and end posts with the bridge name engraved. The single span reinforced concrete tee beam deck is supported by the concrete abutments. Wood pedestrian walkway with metal horizontal railing was added to one side of the bridge. The new concrete solid panel parapet with panel is extended to the end posts to secure the thrie beams approaches, therefore the workmanship of the bridge has not been obscured. The simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



# Inventory Form

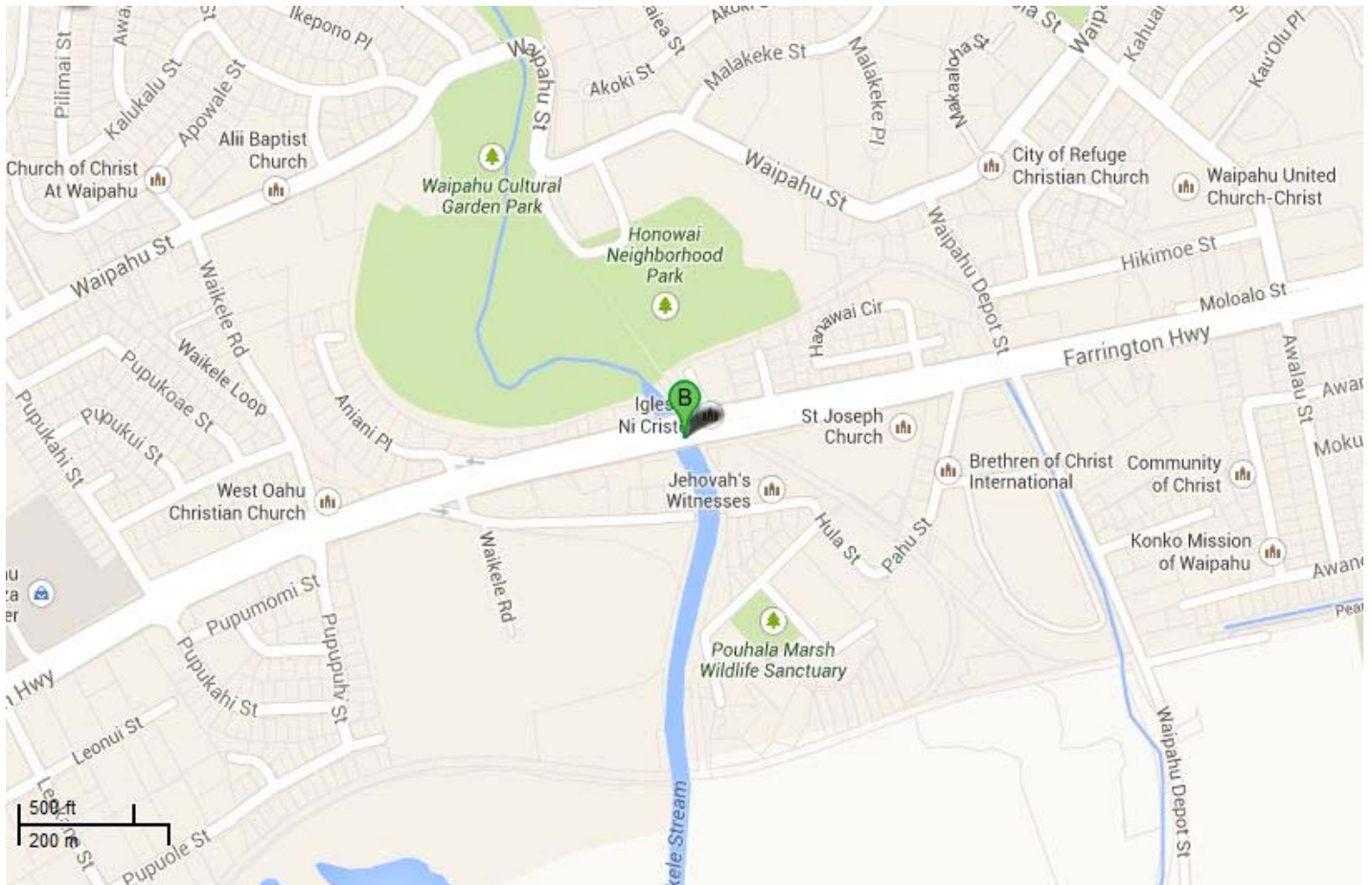
(State)

## General Information

<b>Bridge Number:</b> 003090001400108	<b>Route No:</b> 7101
<b>Popular Name:</b> Waikele Canal (Inbound)	
<b>Feature Crossed:</b> Waikele Canal	
<b>Feature Carried:</b> Farrington Highway	
<b>Milepost:</b> 1.12 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 158d-00m-38.21s	<b>Latitude:</b> 21d-22m-57.94s
<b>Location:</b> 0.22 Miles East of Waikele Road	
<b>Historic Name:</b> Waikele Canal (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1939	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 49.9 ft.	<b>Total Length:</b> 129.9 ft.	<b>Deck Width:</b> 32.2 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Social History, Transportation, Commerce, Engineering		
<b>Narrative Description:</b> <p>The Waikele Canal (Inbound) Bridge carries Farrington Highway across the Waikele Stream. This tall concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete open Greek cross parapets with stepped caps and curved wide solid end posts. The concrete deck is supported by concrete piers and concrete abutments. Thrie beams were bolted to the end posts. The simple design of the parapet retains its historic feeling.</p>		

**Significance Statement:**

This bridge is eligible under Criterion A for its association with the plantation industry. It is the last major reaccommodation bridge built by the FHWA for the railroad before it went out of business. It is also eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. The bridge is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

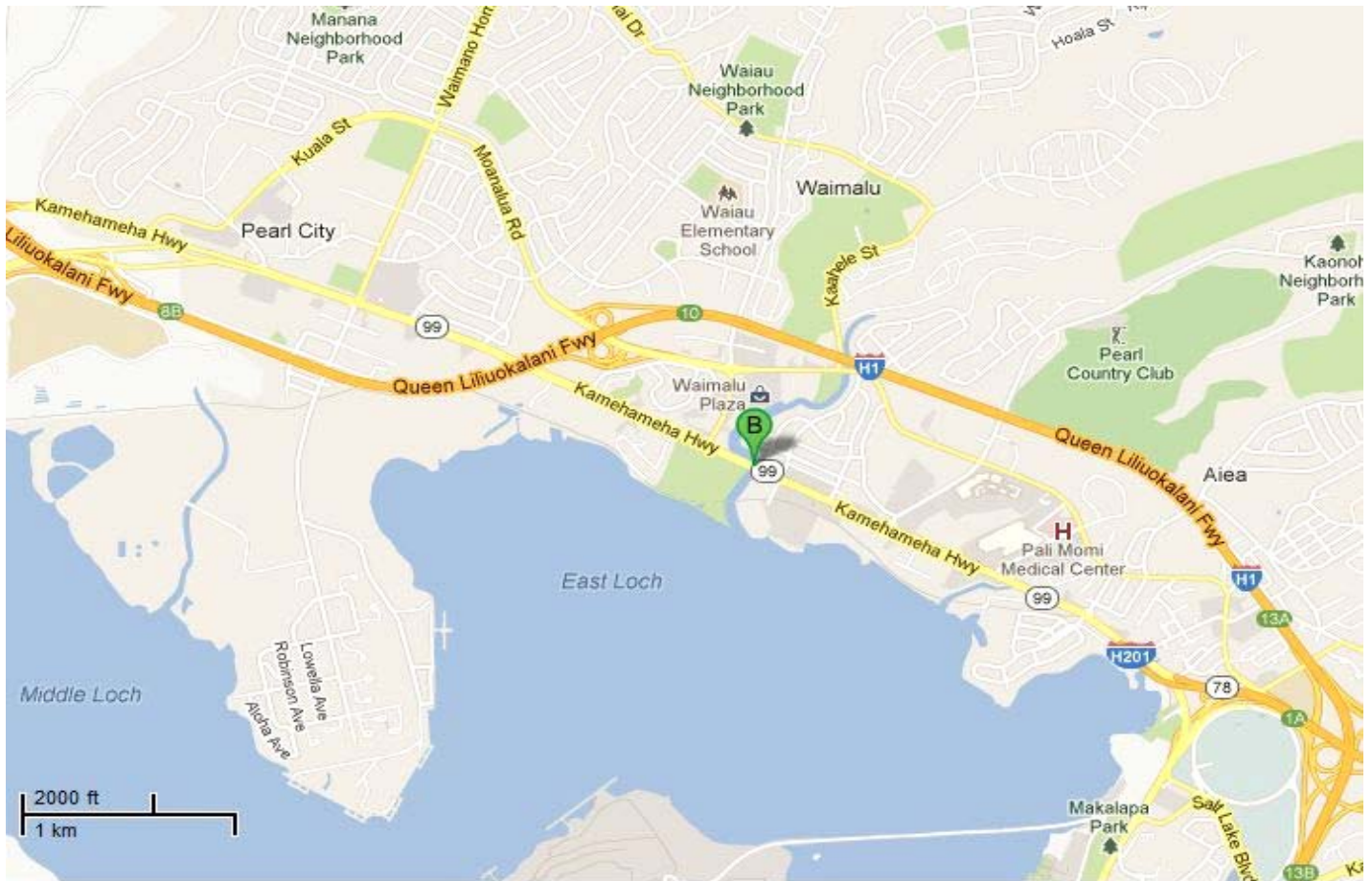
(State)

## General Information

<b>Bridge Number:</b> 003000990401986	<b>Route No:</b> 99
<b>Popular Name:</b> Waimalu Stream (Eastbound)	
<b>Feature Crossed:</b> Waimalu Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 19.86 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-57m-08.44s	<b>Latitude:</b> 21d-23m-10.03s
<b>Location:</b> 0.13 Miles East of Kaahumanu Street	
<b>Historic Name:</b> Waimalu Stream (Eastbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1936	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 1966		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Bridge widened		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 47.9 ft.	<b>Total Length:</b> 145.0 ft.	<b>Deck Width:</b> 48.2 ft.
<b>Superstructure:</b> Prestressed Concrete I-Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> A	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Community Development		
<b>Narrative Description:</b> <p>The Waimalu Stream (East Bound) Bridge carries Kamehameha Highway across Waimalu Stream. This concrete girder bridge, in its original location, is in generally good condition, and its materials remain intact. The bridge has a concrete open Greek cross parapet with stepped caps and curved wide end posts on one side. The other side of the parapet has been replaced with a concrete and metal parapet due to bridge widening in 1966.</p>		

**Significance Statement:**

This bridge is eligible under Criterion A for its association with post-war developments of the community.

# Inventory Form

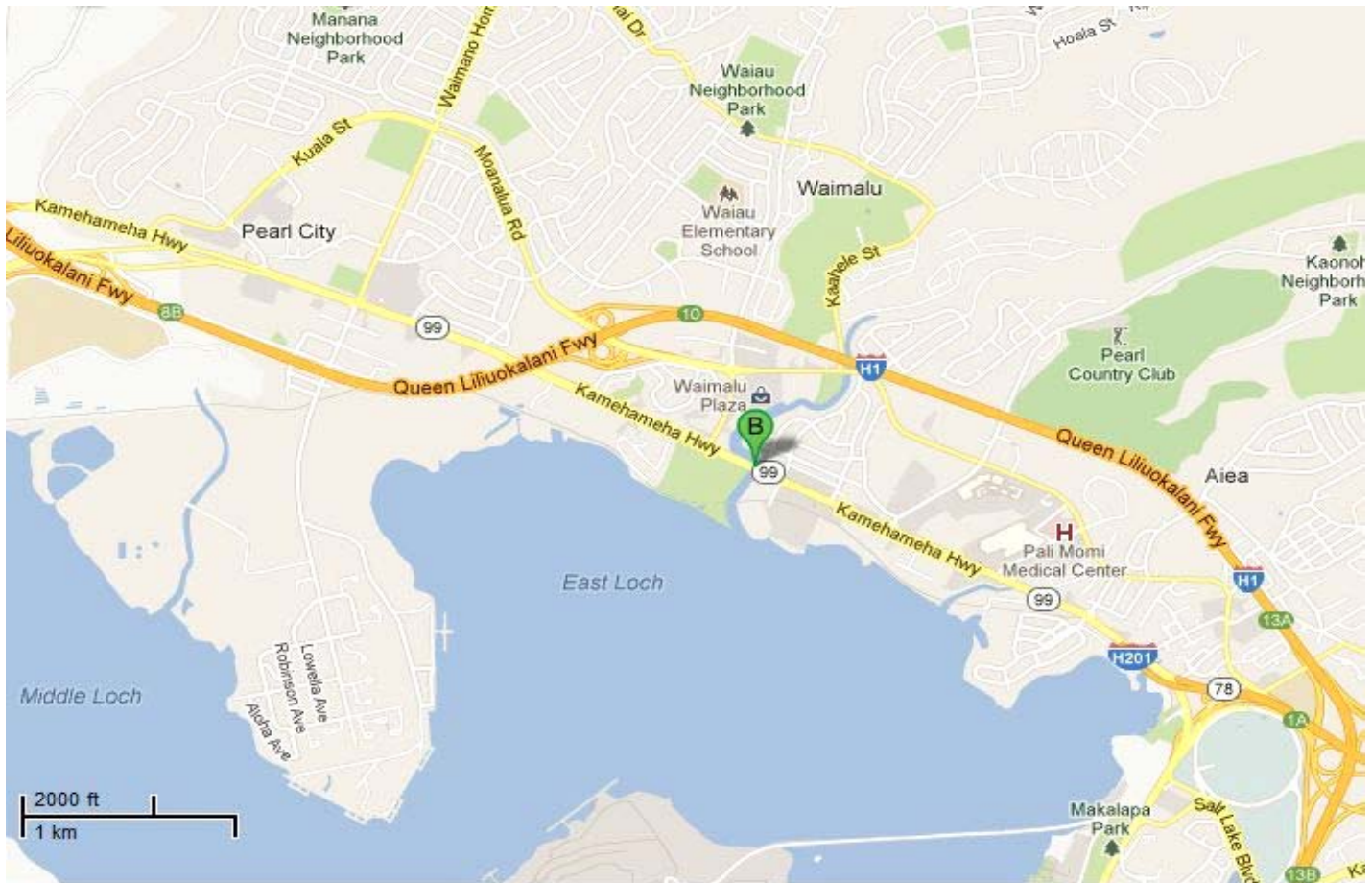
(State)

## General Information

<b>Bridge Number:</b> 003000990401987	<b>Route No:</b> 99
<b>Popular Name:</b> Waimalu Stream (Westbound)	
<b>Feature Crossed:</b> Waimalu Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 19.87 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-57m-08.19s	<b>Latitude:</b> 21d-23m-10.56s
<b>Location:</b> 0.13 Miles East of Kaahumanu Street	
<b>Historic Name:</b> Waimalu Stream (Westbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1945	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 1966		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Bridge widened		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 47.9 ft.	<b>Total Length:</b> 143.0 ft.	<b>Deck Width:</b> 46.3 ft.
<b>Superstructure:</b> Prestressed Concrete I-Girder			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> A	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Community Development		
<b>Narrative Description:</b> <p>The Waimalu Stream (West Bound) Bridge carries Kamehameha Highway across Waimalu Stream. This concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has a concrete open Greek cross parapet with stepped caps and curved wide end posts on one side with three beams bolted to the end posts. The other parapet was replaced with concrete and metal due to bridge widening in 1966.</p>		



**Significance Statement:**

This bridge is eligible under Criterion A for its association with post-war developments of the community.

# Inventory Form

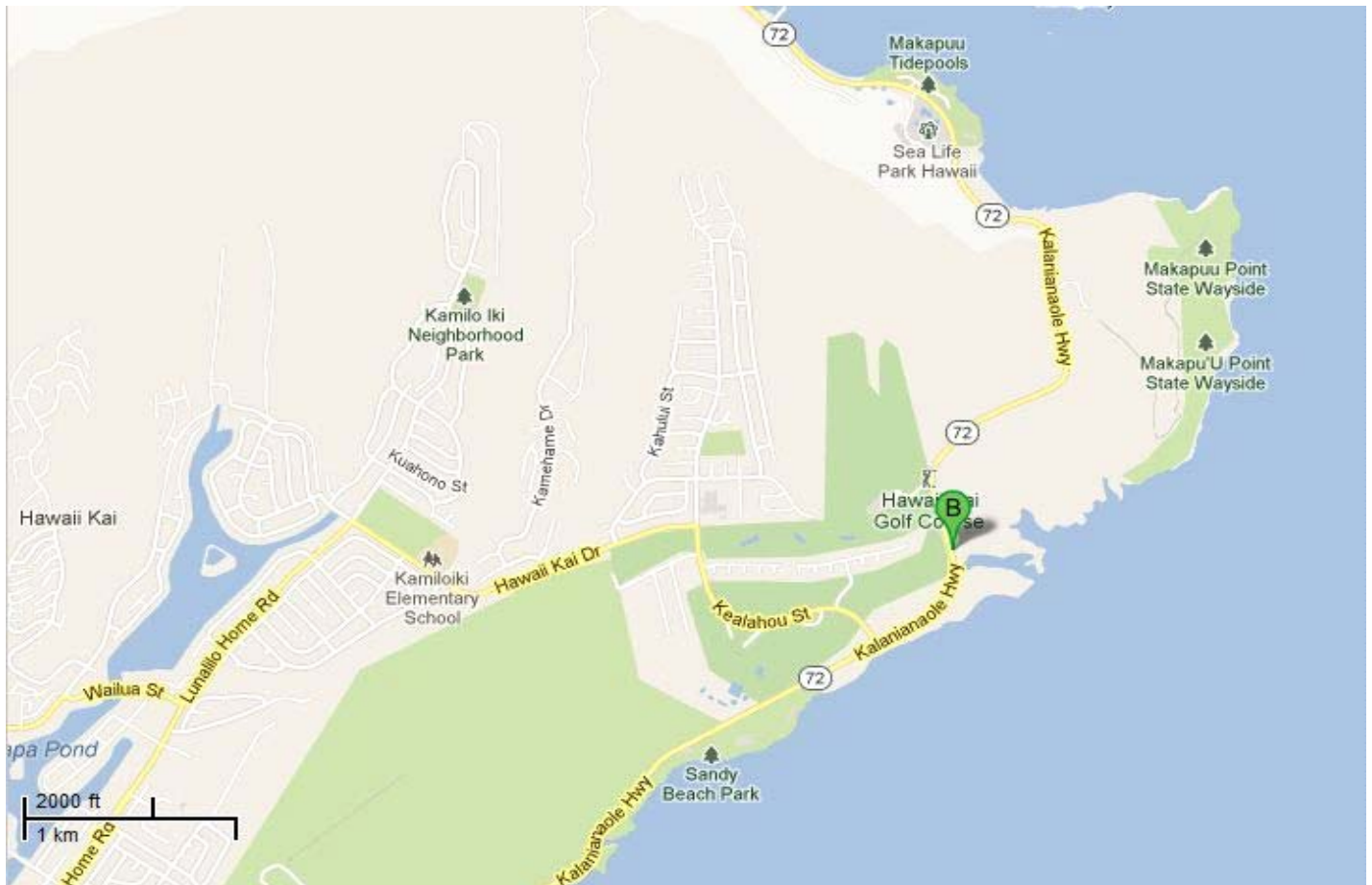
(State)

## General Information

<b>Bridge Number:</b>	003074001400083	<b>Route No:</b>	72
<b>Popular Name:</b>	Wawamalu Stream		
<b>Feature Crossed:</b>	Wawamalu Stream		
<b>Feature Carried:</b>	Kalanianaʻole Highway		
<b>Milepost:</b>	9.75 mi.	<b>Island:</b>	Oahu
<b>Longitude:</b>	157d-39m-41.96s	<b>Latitude:</b>	21d-17m-37.36s
<b>Location:</b>	0.96 Miles South of Makapuu Lighthouse Road		
<b>Historic Name:</b>	Wawamalu Stream		
<b>Designer/Engineer:</b>	William R. Bartels		
<b>Builder/Contractor:</b>			



**Location Map:**



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1947	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 60.0 ft.	<b>Total Length:</b> 69.9 ft.	<b>Deck Width:</b> 44.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete and Metal			
<b>Setting:</b>			
<b>Other Features:</b> Name and date incised			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Wawamalu Stream Bridge was constructed in 1947 to carry a re-aligned Kalaniana'ole Highway over Wawamalu Canal on the East Shore of Oahu. It is a single-span continuous concrete tee beam structure that runs parallel to the original Wawamalu Bridge built in 1931. The guard railings are composed of three horizontal steel rails with vertical steel posts. The bridge remains in its original, undeveloped setting near the Hawaii Kai Golf Course on the East Oahu coastline. The workmanship of the bridge is good, and has not been obscured by additions or repairs. The original concrete tee beam design and materials remain intact. The bridge's historic association as the work of a master is not easily discernible, but the date of construction is incised on the end pier. This bridge has little historic feeling, because it runs parallel to the older, unused, bridge which is obviously historic.</p>		

**Significance Statement:**

The Wawamalu Stream Bridge is eligible under criterion C- because it was the work of a master. It is the work of a person of significance - William R. Bartels, Chief Engineer for the Territorial Highways Department, who was responsible for all major territorial bridge projects from 1932- 1956. Bartels was considered a "cracker-jack" engineer who enjoyed the challenge of difficult assignments and his work characteristically utilized the latest technology and involved a high degree of engineering complexity. Nonetheless, his bridges show refined aesthetic sensibility which makes them distinctive from work of other engineers. Bartels was a German born engineer who worked briefly for a sugar plantation on Maui before being hired by the Territorial Highway Department in 1932. He designed most Territorial bridges from then until 1957. Bartels was responsible for the largest and most sophisticated bridge construction projects in Hawaii during this time and there was a marked shift to large deck girder and rigid frame bridges. (1) (2) He ended his tenure as Chief of the Bridge Division at age 70. This was well past the standard retirement age but he was kept on by special permission and out of necessity because his abilities were so great. Bridges designed by Bartels have often been hailed for their accomplishment of engineering as well as aesthetics.

The Wawamalu Stream Bridge is a typical example of the work by Bartels and is similar to the other stream bridges of the era.

(1) 1996 Report by Spencer Mason Architects, V-6.

(2) 1996 Report by Spencer Mason Architects, V-13.

(3) [www.hookele.com/crc/bridge1.html](http://www.hookele.com/crc/bridge1.html)



# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000630400576	<b>Route No:</b> 63
<b>Popular Name:</b> Wilson Tunnel (Inbound)	
<b>Feature Crossed:</b> Mountain (Wilson Tunnel - Inbound)	
<b>Feature Carried:</b> Likelike Highway	
<b>Milepost:</b> 5.76 mi.	<b>Island:</b> Oahu
<b>Longitude:</b> 157d-48m-43.24s	<b>Latitude:</b> 21d-22m-46.91s
<b>Location:</b> 2.82 Miles Northeast of Valley View Drive	
<b>Historic Name:</b> Wilson Tunnel (Inbound)	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Arch Culvert	<b>Construction Date:</b> 1958	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 28.9 ft.	<b>Total Length:</b> 2774.9 ft.	<b>Deck Width:</b> 27.9 ft.
<b>Superstructure:</b>			
<b>Substructure:</b> Concrete Arch Culvert			
<b>Floor/Decking:</b> Concrete Deck			
<b>Parapets/Railings:</b> No Parapet/Railing			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Persons, Engineering		
<b>Narrative Description:</b> <p>The Wilson Tunnel (Inbound) carries Likelike Highway through the Koolau Mountain Range. This 42 module tunnel is in its original location, is generally in good condition, and its materials remain intact. The tunnel has tile on the interior walls.</p>		


**Significance Statement:**

The Wilson Tunnel is eligible under Criterion C for its association with providing convenient transportation and communication between the Windward and Leeward sides of the island through the Koolau Mountain Range, and for being a major engineering feat. It was officially named "John H. Wilson Tunnel" in 1953 after Johnny Wilson, the 1964 mayor of Honolulu who was an advocate for the tunnel to be located on the Kalihi Valley route. The Wilson Tunnel is also eligible under Criterion A for its association with Johnny Wilson. The project for the Wilson Tunnel began in 1952. Tunnel construction halted in 1954 to 1955 after a cave-in that caused the death of five people. The project continued in 1956 and was completed by 1957. The completion of the John H. Wilson Tunnel (and the Pali Tunnel) relieved traffic on the old Pali Road.

# Inventory Form

(State)

## General Information

<b>Bridge Number:</b> 003000630400575	<b>Route No:</b> 63	
<b>Popular Name:</b> Wilson Tunnel (Outbound)		
<b>Feature Crossed:</b> Mountain (Wilson Tunnel - Outbound)		
<b>Feature Carried:</b> Likelike Highway		
<b>Milepost:</b> 5.75 mi.	<b>Island:</b> Oahu	
<b>Longitude:</b> 157d-49m-07.03s	<b>Latitude:</b> 21d-22m-31.91s	
<b>Location:</b> 2.82 Miles Northeast of Valley View Drive		
<b>Historic Name:</b> Wilson Tunnel (Outbound)		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Arch Culvert	<b>Construction Date:</b> 1959	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 27.9 ft.	<b>Total Length:</b> 2813.0 ft.	<b>Deck Width:</b> 27.9 ft.
<b>Superstructure:</b>			
<b>Substructure:</b> Concrete Arch Culvert			
<b>Floor/Decking:</b> Concrete Deck			
<b>Parapets/Railings:</b> No Parapet/Railing			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Tunnel	<b>Historic Function:</b> Tunnel	
<b>Area of Significance:</b> Persons, Engineering		
<b>Narrative Description:</b> <p>The Wilson Tunnel (Outbound) carries Likelike Highway through the Koolau Mountain Range. This 42 module tunnel is in its original location, is generally in good condition, and its materials remain intact. The tunnel has tile on the interior walls.</p>		

**Significance Statement:**

The Wilson Tunnel is eligible under Criterion C for its association with providing convenient transportation and communication between the Windward and Leeward sides of the island through the Koolau Mountain Range, and for being a major engineering feat. It was officially named "John H. Wilson Tunnel" in 1953 after Johnny Wilson, the 1964 mayor of Honolulu who was an advocate for the tunnel to be located on the Kalihi Valley route. The Wilson Tunnel is also eligible under Criterion A for its association with Johnny Wilson. The project for the Wilson Tunnel began in 1952. Tunnel construction halted in 1954 to 1955 after a cave-in that caused the death of five people. The project continued in 1956 and was completed by 1957. The completion of the John H. Wilson Tunnel (and the Pali Tunnel) relieved traffic on the old Pali Road.

# Oahu 2013 County Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003364001200001	10th Avenue Double Box Culvert-Waiomao Stream	Waiomao Stream	10th Avenue	1962	Concrete Box Culvert	Metal Horizontal	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Unique example of a box culvert built in the 1960s</li> </ul>
003382001200001	10th Avenue Place Bridge-Waiomao Stream	Waiomao Stream	10th Avenue Place	1930	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003837001100001	23+68 Br/Maililili M-2	23+68 Br/Maililili M-2	Puuhulu Road	1970	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003401001100001	Ahaolelo Road Bridge No. 1-Kahaluu WPP A-1 Channel	Kahaluu WPP A-1 Channel	Ahaolelo Road	1965	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003370001200001	Ahe Street Bridge-Pukele Stream	Pukele Stream	Ahe Street	1950	Concrete Slab	Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003430001100001	Ahiki Street 4-Cell Box Culvert No. 1-Drainage Ditch	Drainage Ditch	Ahiki Street	1955	Concrete Box Culvert	No Parapet/Railing	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003431001100001	Ahiki Street 4-Cell Box Culvert No. 2-Drainage Ditch	Drainage Ditch	Ahiki Street	1955	Concrete Box Culvert	No Parapet/Railing	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003403001100001	Ahilama Road Box Culvert	North Waihee Stream	Ahilama Road	1977	Concrete Box Culvert	Concrete and Chain Link	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003495001200001	Ahilama Road Box Culvert-Waihee Stream	Waihee Stream	Ahilama Road	1965	Concrete Box Culvert	Concrete Solid Decorative	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003460001200001	Ahuimanu Place Box Culvert-Drainage Ditch	Drainage Ditch	Ahuimanu Place	1965	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003394001200001	Ainapo Br/Hahaione Chl	Hahaione Channel	Ainapo Street	1972	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003455001100001	Akumu Street 4-Cell Box Culvert-Saint John Vianney Ditch	Saint John Vianney Ditch	Akumu Street	1961	Concrete Box Culvert	Concrete Solid Decorative	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003122001200001	Ala Aolani Arch Culvert Moanalua Stream	Moanalua Stream	Ala Aolani Street	1962	Concrete Arch Culvert	Metal Thrie Beam	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003126001200001	Ala Aolani Street Bridge No. 1-Moanalua Stream	Moanalua Stream	Ala Aolani Street	1965	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003127001200001	Ala Aolani Street Bridge No. 2-Moanalua Stream	Moanalua Stream	Ala Aolani Street	1965	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003128001200001	Ala Aolani Street Bridge No. 3-Moanalua Stream	Moanalua Stream	Ala Aolani Street	1963	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003131001200001	Ala Aolua Loop Bridge-Moanalua Stream	Moanalua Stream	Ala Aolua Loop	1965	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003440001100001	Alaloe St/Heeia Strm	Heeia Stream	Alaloe Street	1972	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003371001200001	Aliikoa Street Bridge-Kapakahi Stream	Kapakahi Stream	Aliikoa Street	1954	Concrete Slab	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003905001100001	Anania Dr/Waiahole Ditch	Waiahole Ditch	Anania Drive	1973	Concrete Frame	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003300001200001	Ani Street Bridge-Wailupe Stream	Wailupe Stream	Ani Street	1954	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003406001100001	Auloe Road Bridge No. 1-Kahanaiki Stream	Kahanaiki Stream	Auloe Road	1921	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> </ul>
003407001100001	Auloe Road Bridge No. 2-Maunawili Stream	Maunawili Stream	Auloe Road	1921	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> </ul>
003801001100001	Auyong Homestead Road Bridge-Ulehawa Channel U-3	Ulehawa Channel U-3	Auyong Homestead Road	1964	Concrete Slab	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003202001200001	Booth Rd/Pauoa Strm	Pauoa Stream	Booth Road	1973	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083041400055	Date Street Bridge-Manoa Palolo Drainage Canal	Manoa-Palolo Stream	Date Street	1937	Concrete Slab	Concrete Solid Decorative	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

Greyed-out cells have no form.

# Oahu 2013 County Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003083051400001	Diamond Head Road Bridge Upper-Gully	Gully (Diamond Head)	Diamond Head Road	1930	Open Spandrel Arch	Concrete Open Arched	No	Eligible***	<ul style="list-style-type: none"> <li>Arch bridges are an uncommon bridge type</li> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s open spandrel arch bridge</li> </ul>
003062071400140	Dillingham Boulevard Bridge-Kapalama Canal	Kapalama Canal	Dillingham Boulevard	1930	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s reinforced concrete bridge</li> </ul>
003083061400076	Dole Street Bridge-Manoa Stream	Manoa Stream	Dole Street	1953	Concrete Slab	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003309001200001	East Hind Drive Bridge-Wailupe Stream	Wailupe Stream	East Hind Drive	1949	Concrete Tee Beam	Concrete and Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003208001200001	East Manoa Road Bridge No. 1-Manoa Stream	Manoa Stream	East Manoa Road	1938	Concrete Tee Beam	Concrete Open Decorative	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s reinforced concrete bridge</li> </ul>
003083071400092	East Manoa Road Bridge No. 2-Manoa Stream	Manoa Stream	East Manoa Road	1950	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003923001100001	Farrington Highway Bridge No. 1-Kaloi Gulch	Kaloi Gulch	Farrington Highway	1941	Concrete Slab	Concrete Solid	No	Not Eligible	This bridge has lost integrity due to thrie beams that have been bolted in front of the solid concrete parapet such that the concrete is not visible. The bridge does not have distinctive engineering or architectural features that depart from standard bridge design.
003924001100001	Farrington Highway Bridge No. 2-Hunehune Stream	Hunehune Stream	Farrington Highway	1941	Concrete Slab	Concrete Solid	No	Not Eligible	This bridge has lost integrity due to thrie beams that have been bolted in front of the solid concrete parapet such that the concrete is not visible. The bridge does not have distinctive engineering or architectural features that depart from standard bridge design.
003902001100001	Farrington Highway Bridge No. 3-Palehua Stream	Palehua Stream	Farrington Highway	1922	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1920s reinforced concrete bridge</li> </ul>
003922001100001	Farrington Highway Bridge-Honouliuli Stream	Honouliuli Stream	Farrington Highway	1939	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s reinforced concrete bridge</li> </ul>
003209001100001	Fern Street Bridge-Makiki Stream	Makiki Stream	Fern Street	1931	Concrete Slab	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s reinforced concrete bridge</li> </ul>
003062081400252	Fort Street Mall Underpass-South King Street	Fort Street Mall	South King Street	1968	Concrete Slab	Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. Originally this structure was designed as a pedestrian underpass. It was later filled in with a City and County office and no longer reads as an underpass.
003076001400581	Fort Weaver Road Bridge-Honouliuli Stream	Honouliuli Stream	Fort Weaver Road	1927	Closed Spandrel Arch	Concrete Solid Panel with Cap	No	Eligible***	<ul style="list-style-type: none"> <li>Arch bridges are an uncommon bridge type</li> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s closed spandrel arch bridge</li> </ul>
003982001100001	Halawa Correctional Facility Access Road	Stream	Halawa Correctional Facility Access Road	1959	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003376001200001	Haleloa Pl/Kuliouou Strm	Kuliouou Stream	Haleloa Place	1973	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003306001200001	Halemaumau Place Triple Cell Box Culvert-Niu Stream	Niu Stream	Halemaumau Place	1960	Concrete Box Culvert	Metal Horizontal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003353001200001	Halemaumau St/Niu E Fork	Niu Stream East Fork	Halemaumau Street	1969	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003354001200001	Halemaumau St/Niu W Fork	Niu Stream West Fork	Halemaumau Street	1969	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003836001100001	Halona Road/Maililili (M-2)	Halona Road/Maililili (M-2)	Halona Road	1970	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003514001100001	Hauula Homestead Road Bridge-Maakua Stream	Maakua Stream	Hauula Homestead Road	1930	Concrete Slab	Concrete Solid	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s reinforced concrete bridge</li> </ul>
003304001200001	Hawaii Kai Drive Bridge-Kuapa Pond	Kuapa Pond	Hawaii Kai Drive	1967	Concrete Slab	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003303001200001	Hawaii Kai Drive Double Box Culvert-Hahaione Channel	Hahaione Channel	Hawaii Kai Drive	1962	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003346001200001	Hawaii Kai Drive-Kamiloiki Stream	Kamiloiki Stream	Hawaii Kai Drive	1967	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003345001200001	Hiikala Place Bridge-Waialae Nui Stream	Waialae Nui Stream	Hiikala Place	1962	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003968001100001	Honowai Street Bridge-Waipahu Stream	Waipahu Stream	Honowai Street	1967	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

Greyed-out cells have no form.



# Oahu 2013 County Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003466001100001	Hui Aeko Street/Drain Channel	Drain Channel	Hui Aeko Street	1971	Concrete Box Culvert	Chain-link Fence	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003438001200001	Huli Street Box Culvert	Waimanalo Drainage Canal	Huli Street	1976	Concrete Box Culvert	Concrete Solid	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003408001100001	Kaawakea Road 4-Cell Box Culvert-Kawainui Stream	Kawainui Stream	Kaawakea Road	1961	Concrete Box Culvert	Metal Horizontal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003083821400052	Kaelepulu Stream (Kawainui Canal)	Kaelepulu Stream (Kawainui Canal)	Wanaao Road	1971	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003311001200001	Kahala Avenue Bridge No. 1-Muliwai Ditch	Muliwai Ditch	Kahala Avenue	1947	Concrete Rigid Frame	Concrete Solid Decorative	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1940s and 1950s concrete rigid frame bridge</li> </ul>
003312001200001	Kahala Avenue Bridge No. 2-Kapakahi Stream	Kapakahi Stream	Kahala Avenue	1927	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to its rehabilitation in 1952 where metal rails were added to the existing solid concrete parapet. The bridge does not have distinctive engineering or architectural features that depart from standard bridge design.
003211001200001	Kahalua Drive Extension Bridge-Manoa Stream	Manoa Stream	Kahalua Drive	1954	Concrete Rigid Frame	Concrete Solid with Cap	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1950s concrete rigid frame bridge</li> </ul>
003804001100001	Kahau Place Bridge-Ulehawa Channel U-3	Ulehawa Channel U-3	Kahau Place	1964	Concrete Slab	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083181400074	Kalakaua Avenue Bridge-Ala Wai Canal	Ala Wai Canal	Kalakaua Avenue	1929	Closed Spandrel Arch	Concrete Solid Decorative	Yes	Eligible***	<ul style="list-style-type: none"> <li>Arch bridges are an uncommon bridge type</li> <li>Excellent example of reinforced concrete solid-spandrel arch bridge in the Art Deco style</li> <li>Associated with public works efforts by Territory of Hawaii and the development of Waikiki</li> <li>Contributed to economic development of Honolulu and Waikiki by providing reliable vehicular access</li> <li>Only multiple-span marine reinforced concrete arch of its kind in the state</li> <li>Built in 1929 by Ralph E. Woolley, a prolific builder in Honolulu</li> <li>See National Register of Historic Places Nomination Form in appendices</li> </ul>
003393001200001	Kalama Valley Channel	Kalama Valley Channel	Kahului Street	1972	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003392001200001	Kalama Valley Channel	Kalama Valley Channel	Mokuahano Street	1972	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003109001200001	Kalihi Br#2/Kalihi Stream	Kalihi Stream	Kalihi Street	1969	Concrete Girder	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083211400072	Kalihi Street Bridge No. 1-Kamanaiki Stream	Kamanaiki Stream	Kalihi Street	1938	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1930s reinforced concrete bridge</li> </ul>
003148001200001	Kalihi Street Bridge No. 3-Kalihi Stream	Kalihi Stream	Kalihi Street	1942	Steel Stringer	Wood	No	Eligible***	<ul style="list-style-type: none"> <li>Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>Good example of steel stringer bridge that is not associated with railroads</li> </ul>
003314001200001	Kalua Road Bridge-Palolo Stream	Palolo Stream	Kalua Road	1953	Concrete Slab	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
00300C291100137	Kamehameha Highway Bridge-Anahulu Stream	Anahulu Stream	Kamehameha Highway	1921	Rainbow Arch	Concrete Solid Panel with Cap	No	Eligible***	<ul style="list-style-type: none"> <li>Arch bridges are an uncommon bridge type</li> <li>Excellent example of 1920s reinforced concrete "rainbow"/marsh arch construction</li> <li>One of two remaining examples of this bridge type in the state</li> <li>Associated with public works efforts by the City and County of Honolulu during early Territorial period and with the development of Haleiwa</li> <li>Representative of work of a master: designer Guy Rothwell</li> <li>Serves as gateway to historic Haleiwa district and Town</li> </ul>
003008360800242	Kamehameha Highway Bridge-Heeia Stream	Heeia Stream	Kamehameha Highway	1921	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible***	<ul style="list-style-type: none"> <li>Excellent example of 1920s era reinforced concrete solid-spandrel arch bridge in the Art Deco style</li> <li>Associated with public works efforts by City and County of Honolulu in Territorial period</li> <li>Contributions to economic development of Windward Oahu by providing reliable vehicular access to previously isolated communities</li> </ul>
003083601400059	Kamehameha Highway Bridge-Kaneohe Stream	Kaneohe Stream	Kamehameha Highway	1953	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083601400098	Kamehameha Highway Bridge-Keaahala Stream	Keaahala Stream	Kamehameha Highway	1918	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>Associated with early developments in concrete bridge construction in Hawaii</li> <li>Good example of 1910s reinforced concrete bridge</li> </ul>
00300C301100152	Kamehameha Highway Double Box Culvert-Lokoeha Stream	Lokoeha Stream	Kamehameha Highway	1989	Concrete Box Culvert	Concrete and Metal	No	Not Eligible	This culvert has lost integrity due to the complete replacement of the original 1923 culvert in 1989. Reinforced metal and concrete rails were used. The culvert does not have distinctive engineering or architectural features that depart from standard culvert design.

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\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

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# Oahu 2013 County Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
00308322000049	Kamehameha IV Road Footbridge-Kamehameha IV Road	Kamehameha IV Road	Pedestrian Overpass	1961	Concrete Tee Beam	Metal Decorative	No	Program Comments	This is a typical postwar pedestrian bridge and falls under Program Comments.
003347001200001	Kamiloiki Stream	Kamiloiki Stream	Maninihola Street	1969	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003062021400052	Kapiolani Boulevard Bridge No. 1-Makiki Stream	Makiki Stream	Kapiolani Boulevard	1931	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s concrete tee beam bridge</li> </ul>
003062021400168	Kapiolani Boulevard Bridge-Manoa Palolo Channel	Manoa-Palolo Stream	Kapiolani Boulevard	1950	Concrete Tee Beam	Concrete and Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003447001100001	Kapoo Street/Kapunahala Stream	Kapunahala Stream	Kapoo Street	1969	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003253001200001	Kapulei Street Triple Box Culvert-Pauoa Stream	Pauoa Stream	Kapulei Street	1951	Concrete Box Culvert	Concrete Solid	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003448001100001	Kapunahala Stream	Kapunahala Stream	Kaneke Street	1970	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003800001100001	Kaupuni Stream Bridge	Kaupuni Stream	Kaneaki Street	1976	Concrete Stringer	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003411001100001	Kawailoa Road Bridge-Kaelepulu Stream	Kaelepulu Stream	Kawailoa Road	1925	Concrete Tee Beam	Concrete Solid Panel with Cap	No	Not Eligible	This bridge has lost integrity due to extensive reconstruction. It was extended in 1960 and includes metal railings. In 1971 a foot bridge with decorative metal railings was added behind an original solid panel concrete parapet. The bridge does not have distinctive engineering or architectural features that depart from standard bridge design.
003825001100001	Kawiwi Stream Bridge-Channel K-3	Kaupuni Channel K-3	Unnamed Road	1968	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003352001200001	Keahole St/Kuapa Pond	Kuapa Pond	Keahole Street	1973	Concrete Slab	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003488001100001	Keolu Dr/Keolu Hill Chl	Keolu Hill Channel/Kaelepulu Tributary	Keolu Drive	1970	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003425001100001	Keolu Drive Bridge No. 1-Kaelepulu Stream	Kaelepulu Stream	Keolu Drive	1961	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003427001100001	Keolu Drive Bridge No. 2-Hele Drainage Channel	Hele Drainage Channel	Keolu Drive	1957	Concrete Slab	Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003928001100001	Kihale Street Bridge-Kalauao Stream	Kalauao Stream	Kihale Street	1956	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003083261400006	Kikowaena Street Bridge-Moanalua Stream	Moanalua Stream	Kikowaena Street	1961	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003260001200001	Kimo Drive Bridge-Nuuanu Stream	Nuuanu Stream	Kimo Drive	1925	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> <li>• Associated with historic Nuuanu residential development</li> </ul>
003343001200001	Kiwila Street Bridge-Palolo Stream	Palolo Stream	Kiwila Street	1961	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003219001200001	Koali Rd/Palolo Stream	Palolo Stream	Koali Road	1972	Steel Stringer	Concrete and Metal/Wood	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003929001100001	Komo Mai Dr/Pc Drain Cnl	Pc Drain Cnl	Komo Mai Drive	1969	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003918001100001	Komo Mai Drive Bridge-Waimano Stream	Waimano Stream	Komo Mai Drive	1961	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003974001100001	Komo Mai Drive/Drainage Canal	Drainage Canal	Komo Mai Drive	1972	Concrete Culvert	None	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003351001200001	Kuliouou Road Bridge-Kuliouou Stream	Kuliouou Stream	Kuliouou Road	1968	Steel Stringer	Wood	No	Eligible	<ul style="list-style-type: none"> <li>• Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>• Good example of postwar 1960s steel stringer bridge</li> </ul>
003350001200001	Kuliouou Stream	Kuliouou Stream	Summer Street	1969	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003429001100001	Kumuahu Street Bridge-Waimanalo Stream	Waimanalo Stream	Kumuahu Street	1963	Steel Stringer	Metal Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>• Good example of postwar 1960s steel stringer bridge</li> <li>• Metal rails made of structural steel tubes and wide flange posts</li> </ul>

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# Oahu 2013 County Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003378001200001	Lai Road Bridge No. 1- Pukele Stream	Pukele Stream	Lai Road	1935	Concrete Slab	Metal Thrie Beam	No	Not Eligible	This bridge does not have distinctive engineering or architectural features that depart from standard bridge design. The bridge is on a private road and not publicly accessible but maintained by the City.
003379001200001	Lai Road Bridge No. 2- Pukele Stream	Pukele Stream	Lai Road	1935	Concrete Slab	Metal Thrie Beam	No	Not Eligible	This bridge does not have distinctive engineering or architectural features that depart from standard bridge design. The bridge is on a private road and not publicly accessible but maintained by the City.
003380001200001	Lai Road Bridge No. 3- Pukele Stream	Pukele Stream	Lai Road	1935	Concrete Slab	Metal Thrie Beam	No	Not Eligible	This bridge does not have distinctive engineering or architectural features that depart from standard bridge design. The bridge is on a private road and not publicly accessible but maintained by the City.
003261001200001	Laimi Road Bridge- Nuuanu Stream	Nuuanu Stream	Laimi Road	1920	Concrete Girder	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> <li>• Associated with historic Nuuanu residential development</li> </ul>
003124001200001	Laulani St/Kamanaiki Str	Kamanaiki Stream	Laulani Street	1973	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003949001100001	Leokane Street Triple Box Culvert-Waipahu Stream	Waipahu Stream	Leokane Street	1965	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003950001100001	Leonui Street Triple Box Culvert-Waipahu Stream	Waipahu Stream	Leonui Street	1965	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003262001200001	Liholiho Street Box Culvert-Makiki Stream	Makiki Stream	Liholiho Street	1977	Concrete Box Culvert	Concrete and Metal Decorative	No	Not Eligible	This culvert has lost integrity due to the complete reconstruction of the original 1937 culvert in 1977. It is also scheduled for rehabilitation in fall of 2013. The concrete rubble masonry channel is a potentially eligible historic resource.
003083371400092	Lowrey Avenue Bridge- Manoa Stream	Manoa Stream	Lowrey Avenue	1953	Concrete Tee Beam	Concrete Open Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. This bridge replaced an earlier wood bridge and was part of the Manoa Stream Flood Control Project.
003835001100001	Lualualei Homestead Rd/M-2	Maililiili Stream M-2	Lualualei Homestead Road	1970	Concrete Girder	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003484001100001	Luluku Road Triple Box Culvert-Kaneohe Stream	Kaneohe Stream	Luluku Road	1962	Concrete Box Culvert	Metal Horizontal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003083381400047	Lusitana Street Bridge- Pauoa Stream	Pauoa Stream	Lusitana Street	1932	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003806001100001	Maaloa Street Bridge- Ulehawa Channel U-3	Ulehawa Channel U-3	Maaloa Street	1964	Concrete Slab	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003833001100001	Maili Channel M-5	Maili Channel M-5	Kulaaupuni Street	1973	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003834001100001	Maililiili Channel	Maililiili Channel	Maililiili Road	1970	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003402001100001	Makakalo Street 4-Cell Box Culvert-Drainage Ditch	Drainage Ditch	Makakalo Street	1955	Concrete Box Culvert	No Parapet/Railing	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003226001200001	Makiki Street Bridge- Makiki Stream	Makiki Stream	Makiki Street	1912	Closed Spandrel Arch	Metal Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Arch bridges are an uncommon bridge type</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1910s closed spandrel arch bridge</li> </ul>
003340001200001	Malia Street Bridge No. 1-Waialae Nui Stream	Waialae Nui Stream	Malia Street	1961	Concrete Slab	Concrete Solid Decorative	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1960s reinforced concrete bridge</li> </ul>
003807001100001	Maliona Street Box Culvert-Channel M-4	Maili Channel M-4	Maliona Street	1967	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003138001100001	Manaiki Stream Bridge	Manaiki Stream	Pineapple Place	1978	Concrete Frame	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003444001100001	Maunawili Road Bridge No. 2- Kamakalepo Stream	Kamakalepo Stream	Maunawili Road	1966	Concrete Slab	Metal Thrie Beam	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003437001100001	Maunawili Road Bridge No. 3- Maunawili Stream	Maunawili Stream	Maunawili Road	2009	Concrete Slab	Concrete and Metal	No	Not Eligible**	This bridge has lost integrity due to the complete replacement of the original 1937 bridge in 2009. The concrete rubble masonry abutments are a potentially eligible historic resource.
003083401400011	McCully Street Bridge- Ala Wai Canal	Ala Wai Canal	McCully Street	1959	Concrete Slab	Metal Horizontal	Yes	Eligible***	<ul style="list-style-type: none"> <li>• Contributed to economic development of Honolulu and Waikiki by providing reliable vehicular access</li> <li>• Part of 1954 Bennett-Maier plan (Charles B. Bennett and Eugene Maier) for redevelopment to relieve and control traffic in Waikiki</li> <li>• See National Register of Historic Places Nomination Form in appendices</li> </ul>
003485001100001	Melekula Road Bridge- Kahaluu Stream	Kahaluu Stream	Melekula Road	1956	Concrete Tee Beam	Concrete Solid	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.

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# Oahu 2013 County Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003072001400258	Moanalua Road Box Culvert-Kalauao Stream	Kalauao Stream	Moanalua Road	1992	Concrete Box Culvert	Concrete and Metal	No	Not Eligible	This culvert has lost integrity due to the complete replacement of the original 1935 culvert in 1992. Reinforced metal and concrete rails were also used. The culvert does not have distinctive engineering or architectural features that depart from standard culvert design.
003072001400318	Moanalua Road Bridge Aiea Stream	Aiea Stream	Moanalua Road	1951	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003072001400235	Moanalua Road Bridge Kaonohi Stream	Kaonohi Stream	Moanalua Road	1966	Closed Spandrel Arch	Metal Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Good example of 1960s closed arch bridge</li> <li>• Arch bridges are an uncommon bridge type</li> <li>• Only arch bridge built postwar (1945) in the state of Hawaii in the historic study period prior to 1977</li> </ul>
003072001400159	Moanalua Road Bridge Waimalu Stream	Waimalu Stream	Moanalua Road	1965	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003080001100001	Mohihi Street Bridge-Ulehawa Channel U-3	Ulehawa Channel U-3	Mohihi Street	1964	Concrete Slab	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003154001200001	Naio Street Bridge-Nuhoelawai Stream	Nuhoelawai Stream	Naio Street	1927	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> </ul>
003083451400011	Nalanieha Street Bridge-Kalihi Stream	Kalihi Stream	Nalanieha Street	1955	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083461400067	Nehoa Street Bridge-Makiki Stream	Makiki Stream	Nehoa Street	1920	Concrete Slab	Concrete Solid Panel with Cap	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> </ul>
003062091400213	North Beretania Street Bridge-Nuuanu Stream	Nuuanu Stream	North Beretania Street	1967	Concrete Slab	Metal Horizontal	No	Not Eligible**	This bridge is near the Chinatown Special Design District however, the bridge does not have distinctive engineering or architectural features that depart from standard bridge design. The concrete rubble masonry channel is a potentially eligible historic resource.
003083981400003	North Hotel Street Bridge-Nuuanu Stream	Nuuanu Stream	North Hotel Street	1936	Concrete Slab	Concrete and Metal Decorative	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003083761400197	North Kalaheo Avenue Bridge-Kawainui Canal	Kawainui Canal	North Kalaheo Avenue	1952	Concrete Tee Beam	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. This bridge was a part of the Kawainui Swamp Flood Control Project.
003062081400218	North King Street Bridge No. 1-Nuuanu Stream	Nuuanu Stream	North King Street	1922	Concrete Tee Beam	Concrete Solid	No	Eligible***	<ul style="list-style-type: none"> <li>• Excellent example of 1920s era reinforced concrete tee-beam construction with solid decorative parapets</li> <li>• Associated with public works efforts by the City and County of Honolulu during Territorial period</li> <li>• Located alongside the Chinatown Historic District which was nominated to the National Register in January 17, 1973</li> </ul>
003062081400134	North King Street Bridge No. 2-Kapalama Canal	Kapalama Canal	North King Street	1938	Concrete Tee Beam	Concrete and Metal Decorative	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003062081400037	North King Street Bridge-Kalihi Stream	Kalihi Stream	North King Street	1933	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003083321400031	North Kuakini Street Bridge No. 1-Nuuanu Stream	Nuuanu Stream	North Kuakini Street	1934	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003083321400019	North Kuakini Street Bridge No. 2-Waiolani Stream	Waiolani Stream	North Kuakini Street	1934	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003123001200001	North Kukui Street Bridge-Nuuanu Stream	Nuuanu Stream	North Kukui Street	1966	Concrete Slab	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083631400093	North School Street Bridge-Kalihi Stream	Kalihi Stream	North School Street	1927	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> </ul>
003083631400271	North School Street Bridge-Nuuanu Stream	Nuuanu Stream	North School Street	1932	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>
003129001200001	Numana Rd/Kalihi Stream	Kalihi Stream	Numana Road	1969	Steel Stringer	Wood	No	Not Eligible	Research did not indicate significance under NRHP Criteria A, B, C, or D or HRS 6E criteria a, b, c, d, or e.
003083471400113	Nuuanu Avenue Arch Bridge-Nuuanu Stream	Nuuanu Stream	Nuuanu Avenue	1904	Masonry Arch	Masonry Rock with Cap	No	Eligible***	<ul style="list-style-type: none"> <li>• Arch bridges are an uncommon bridge type</li> <li>• Excellent example of 1900s masonry arch construction and is one of nine of type left in Hawaii</li> <li>• Notable for use of vernacular building materials from the islands: local basalt rock/"lava rock"</li> <li>• Associated with early public works efforts by Territory of Hawaii, and for contributions to commercial and residential development of urban Honolulu</li> <li>• Representative of work of a master: Louis M. Whitehouse, a prolific contractor from that era</li> </ul>

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# Oahu 2013 County Bridge Matrix

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003265001200001	Nuuanu Pali Drive Bridge-Nuuanu Stream	Nuuanu Stream	Nuuanu Pali Drive	1930	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> <li>• Associated with historic Nuuanu residential development</li> </ul>
003083761400001	Oneawa Street Bridge-Kawainui Stream	Kawainui Stream	Oneawa Street	1967	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments. This bridge was constructed in conjunction with the Kawainui Swamp Flood Control Project.
003809001100001	Paakea Road Bridge-Channel M-1	Maililili Channel M-1	Paakea Road	1966	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003601001100001	Paalaa Road Box Culvert-Unnamed Stream	Unnamed Stream	Paalaa Road	1968	Concrete Box Culvert	Metal Horizontal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003326001200001	Paalea Street Bridge-Palolo Stream	Palolo Stream	Paalea Street	1952	Concrete Slab	Metal Picket	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003953001100001	Paiwa Street Triple Box Culvert-Wailani Stream	Wailani Stream	Paiwa Street	1963	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003083531400155	Palolo Avenue Bridge No. 1-Palolo Stream	Palolo Stream	Palolo Avenue	1949	Concrete Tee Beam	Concrete and Metal Decorative	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083531400001	Palolo Avenue Bridge No. 2-Pukele Stream	Pukele Stream	Palolo Avenue	1928	Concrete Tee Beam	Concrete and Metal	No	Not Eligible	This bridge has lost integrity due to bridge widening in the 1960s. The original bridge railings appear to have been replaced with postwar concrete and metal railings. The bridge does not have distinctive engineering or architectural features that depart from standard bridge design.
003602001100001	Paukaula Stream	Paukaula Stream	Haleiwa Road	1971	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003232001200001	Pawaina Street Bridge-Manoa Stream	Manoa Stream	Pawaina Street	1961	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003267001200001	Peleeke Drive Bridge-Nuuanu Stream	Nuuanu Stream	Peleeke Drive	1930	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s reinforced concrete bridge</li> <li>• Associated with historic Nuuanu residential development</li> </ul>
003331001200001	Pepeekeo Street Double Box Culvert-Hahaione Channel	Hahaione Channel	Pepeekeo Street	1962	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003234001200001	Phillip Street-Makiki Stream	Makiki Stream	Phillip Street	1938	Concrete Slab	Concrete and Metal	No	Not Eligible	This bridge does not have distinctive engineering or architectural features that depart from standard bridge design. In 1995 the bridge was widened. The concrete rubble masonry channel is a potentially eligible historic resource.
003810001100001	Plantation Road Bridge Channel K-2	Kaupuni Channel K-2	Plantation Road	1968	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003257001200001	Puiwa Road Triple Box Culvert-Nuuanu Stream	Nuuanu Stream	Puiwa Road	1964	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments. This culvert is located in the historic Nuuanu residential development.
003072001400140	Punanani Channel	Punanani Channel	Moanalua Road	1969	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003236001200001	Puowaina Drive Bridge Auwaiolimu Street	Auwaiolimu Street	Puowaina Drive	1936	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible***	<ul style="list-style-type: none"> <li>• Excellent example of 1930s continuous reinforced concrete T-beam construction with typical open concrete rail</li> <li>• Associated with important public works projects initiated by the county government</li> <li>• Contributed to the economic development of urban Honolulu by providing reliable vehicular access</li> <li>• Associated with engineer W.F. Way from City and County of Honolulu, Department of Public Works and builder James Glover Ltd., a contracting company</li> <li>• At the time of construction it was the only bridge on Oahu to cross a road</li> </ul>
003838001100001	Puuhulu Rd/Maililili M-2	Maililili M-2	Puuhulu Road	1970	Concrete Tee Beam	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003844001100001	Puuhulu Road Box Culvert	Puuhulu Stream	Puuhulu Road	1977	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003814001100001	Saint John's Road Bridge-Channel M-4	Maili Channel M-4	Saint John's Road	1967	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083061400136	Saint Louis Drive Bridge-Palolo Stream	Palolo Stream	Saint Louis Drive	1929	Open Spandrel Arch	Concrete Open Horizontal	No	Eligible***	<ul style="list-style-type: none"> <li>• Arch bridges are an uncommon bridge type</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1920s and 1930s open spandrel arch</li> </ul>
003067001400301	Salt Lake Boulevard Bridge-Halawa Stream	Halawa Stream	Salt Lake Boulevard	1968	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003933001100001	Ulune Street Double Box Culvert-Aiea Stream	Aiea Stream	Ulune Street	1954	Concrete Box Culvert	Masonry Rock	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003237001200001	Waaloa Way Bridge No. 1-Manoa Stream	Manoa Stream	Waaloa Way	1996	Steel Stringer	Metal Thrie Beam	No	Not Eligible	This bridge has lost integrity due to the complete replacement of the original 1967 bridge in 1996. The bridge is not publicly accessible and is utilized as a Board of Water Supply maintenance bridge.

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.

\*\*\* Formerly "High Preservation Value."

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# Oahu 2013 County Bridge Matrix

Bridge Number	Bridge Name	Feature Crossed	Feature Carried	Construction Date	Bridge Type	Parapet/Railing Type	Listed on National/Hawaii Register	Eligibility Status*	Character Defining Feature (Significance)
003268001200001	Waaloa Way Bridge No. 2-Manoa Stream	Manoa Stream	Waaloa Way	1965	Steel Stringer	Wood	No	Eligible	<ul style="list-style-type: none"> <li>• Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>• Good example of distinct structural type of 1960s steel girder bridge</li> <li>• Bridge is maintained by the Board of Water Supply</li> </ul>
003244001200001	Waaloa Way Bridge No. 3-Waiakeakua Stream	Waiakeakua Stream	Waaloa Way	1967	Steel Stringer	Wood	No	Eligible	<ul style="list-style-type: none"> <li>• Uncommon use of steel material in Hawaii's extreme marine environment</li> <li>• Good example of distinct structural type of 1960s steel girder bridge</li> <li>• Bridge is maintained by the Board of Water Supply</li> </ul>
003245001200001	Waaloa Way Bridge No. 4-Waiakeakua Stream	Waiakeakua Stream	Waaloa Way	1963	Timber Stringer	Wood	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of post-war 1960's timber stringer bridge</li> <li>• Bridge is maintained by the Board of Water Supply</li> </ul>
003605001100001	Waialua Beach Road Bridge-Kiikii Stream	Kiikii Stream	Waialua Beach Road	1950	Concrete Tee Beam	Concrete Open Horizontal	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with Howard Hisayuki Kurio who worked for Territorial Department of Public Works for 17 years since 1932</li> </ul>
003830001100001	Waianae Valley Road/Kaupuni Chl	Kaupuni Stream	Waianae Valley Road	1971	Concrete Slab	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003955001100001	Waihau Street Double Box Culvert-Waipio Lined No.1	Waipio Lined No. 1	Waihau Street	1957	Concrete Box Culvert	Metal Horizontal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003443001100001	Waialele Road Bridge-Kealahala Stream	Kealahala Stream	Waialele Road	1967	Concrete Rigid Frame	Concrete Open Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003342001200001	Wailua St/Kuapa Pond	Kuapa Pond	Wailua Street	1970	Concrete Slab	Metal Horizontal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003072001400041	Waimano Stream	Waimano Stream	Moanalua Road	1969	Concrete Tee Beam	Concrete and Metal Fence	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003349001200001	Wainiha Street Bridge-Kamiloiki Stream	Kamiloiki Stream	Wainiha Street	1967	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003967001100001	Wainihi Street Double Box Culvert-Waipio Lined No.1	Waipio Lined No. 1	Wainihi Street	1957	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003083661400001	Waipahu Stream (Drainage Canal #1)	Waipahu Stream (Drainage Canal #1)	Waipahu Street	1971	Concrete Tee Beam	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083661400104	Waipahu Street Arch Bridge-Waikele Stream	Waikele Stream	Waipahu Street	1905	Closed Spandrel Arch	Concrete Solid with Cap	No	Eligible***	<ul style="list-style-type: none"> <li>• Arch bridges are an uncommon bridge type</li> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1900s closed spandrel arch bridge</li> </ul>
003083661400002	Waipahu Street Bridge No. 3-Waipahu Stream	Waipahu Stream	Waipahu Street	1967	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003083660000003	Waipahu Street Footbridge-Waipahu Street	Waipahu Street	Pedestrian Overpass	1963	Concrete Tee Beam	Metal Picket	No	Program Comments	This is a typical postwar pedestrian bridge and falls under Program Comments.
003971001100001	Waipio Point Access Road Bridge No. 2-Wailani Stream	Wailani Stream	Waipio Point Access Road	1967	Concrete Girder	Concrete and Metal	No	Program Comments	This is a typical postwar bridge and falls under Program Comments.
003903001100001	Waipio Point Access Road Bridge No.1-Railroad Right of Way	Railroad Right of Way	Waipio Point Access Road	1946	Concrete Tee Beam	Concrete Open Greek Cross	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1940s reinforced concrete bridge</li> </ul>
003956001100001	Waipuka Place Double Culvert - Waipio Lined No.1	Waipio Lined No. 1	Waipuka Place	1957	Concrete Box Culvert	Concrete and Metal	No	Program Comments	This is a typical postwar culvert and falls under Program Comments.
003083681400001	Wyllie Street Bridge-Waolani Stream	Waolani Stream	Wyllie Street	1931	Concrete Tee Beam	Concrete Open Arched	No	Eligible	<ul style="list-style-type: none"> <li>• Associated with early developments in concrete bridge construction in Hawaii</li> <li>• Good example of 1930s reinforced concrete bridge</li> </ul>

\* NRHP or HRS 6E Listed, Eligible, Not Eligible, Contributing, Non-Contributing, or Program Comments.

\*\* Historic resources adjacent to resource.


\*\*\* Formerly "High Preservation Value."

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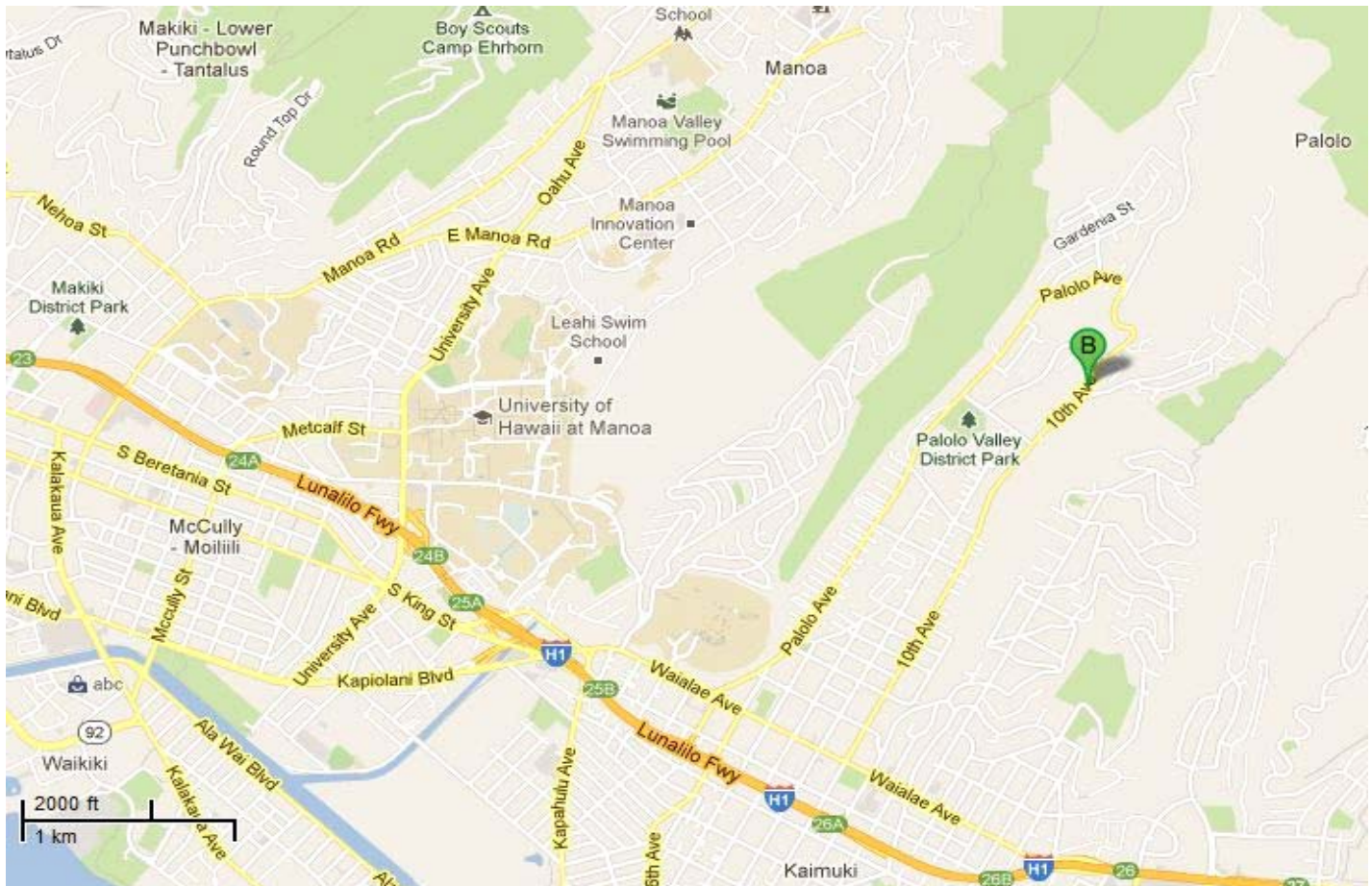
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003364001200001	
<b>Popular Name:</b> 10th Avenue Double Box Culvert-Waiomao Stream	
<b>Feature Crossed:</b> Waiomao Stream	
<b>Feature Carried:</b> 10th Avenue	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-47m-24.61s <b>Latitude:</b> 21d-18m-04.64s	
<b>Location:</b> TMK: 3-4-03	
<b>Historic Name:</b> 10th Avenue Double Box Culvert-Waiomao Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Box Culvert	<b>Construction Date:</b> 1962	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 10.0 ft.	<b>Total Length:</b> 23.0 ft.	<b>Deck Width:</b> 48.3 ft.
<b>Superstructure:</b>			
<b>Substructure:</b> Concrete Box Culvert			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> Metal Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Culvert	<b>Historic Function:</b> Culvert	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The 10th Avenue/Waiomo Stream Culvert carries 10th Avenue across Waiomo Stream. This double 10' x 10' box culvert is in its original location, is generally in good condition, and its materials remain intact. The culvert has metal round pipe railings with chain link fencing. The deck is earth fill on reinforced concrete box culvert. Concrete abutments support the box culvert above a channeled stream with concrete rock masonry walls. Concrete rock masonry detailing is shown on the side of the bridge. The workmanship of the bridge has not been obscured by additions or repairs.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a unique example of a box culvert in the 1960s in its use of materials, method of construction, craftsmanship, and design.

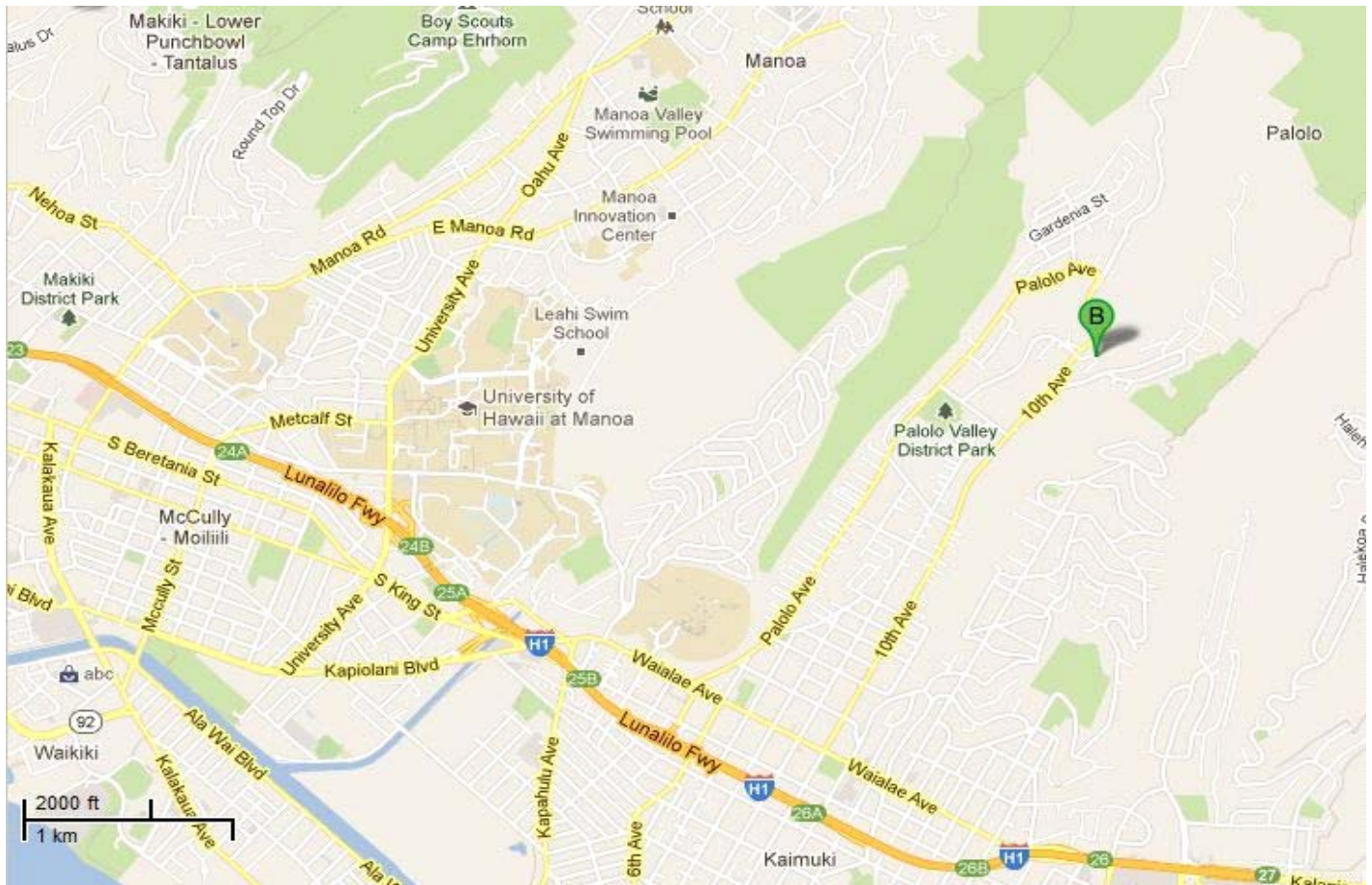
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003382001200001		
<b>Popular Name:</b> 10th Avenue Place Bridge-Waiomao Stream		
<b>Feature Crossed:</b> Waiomao Stream		
<b>Feature Carried:</b> 10th Avenue Place		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-47m-19.31s <b>Latitude:</b> 21d-18m-07.87s		
<b>Location:</b> TMK: 3-4-03		
<b>Historic Name:</b> 10th Avenue Place Bridge-Waiomao Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1930	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 21.0 ft.	<b>Total Length:</b> 25.0 ft.	<b>Deck Width:</b> 27.3 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Masonry Abutment			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The 10th Avenue Place Bridge carries 10th Avenue across Waiomao Stream. This single-span reinforced concrete bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has concrete parapets with arched voids and caps. Paneled concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by rock masonry abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**


This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1930's reinforced concrete bridge that is typical of its materials, method of construction, craftsmanship, and design.



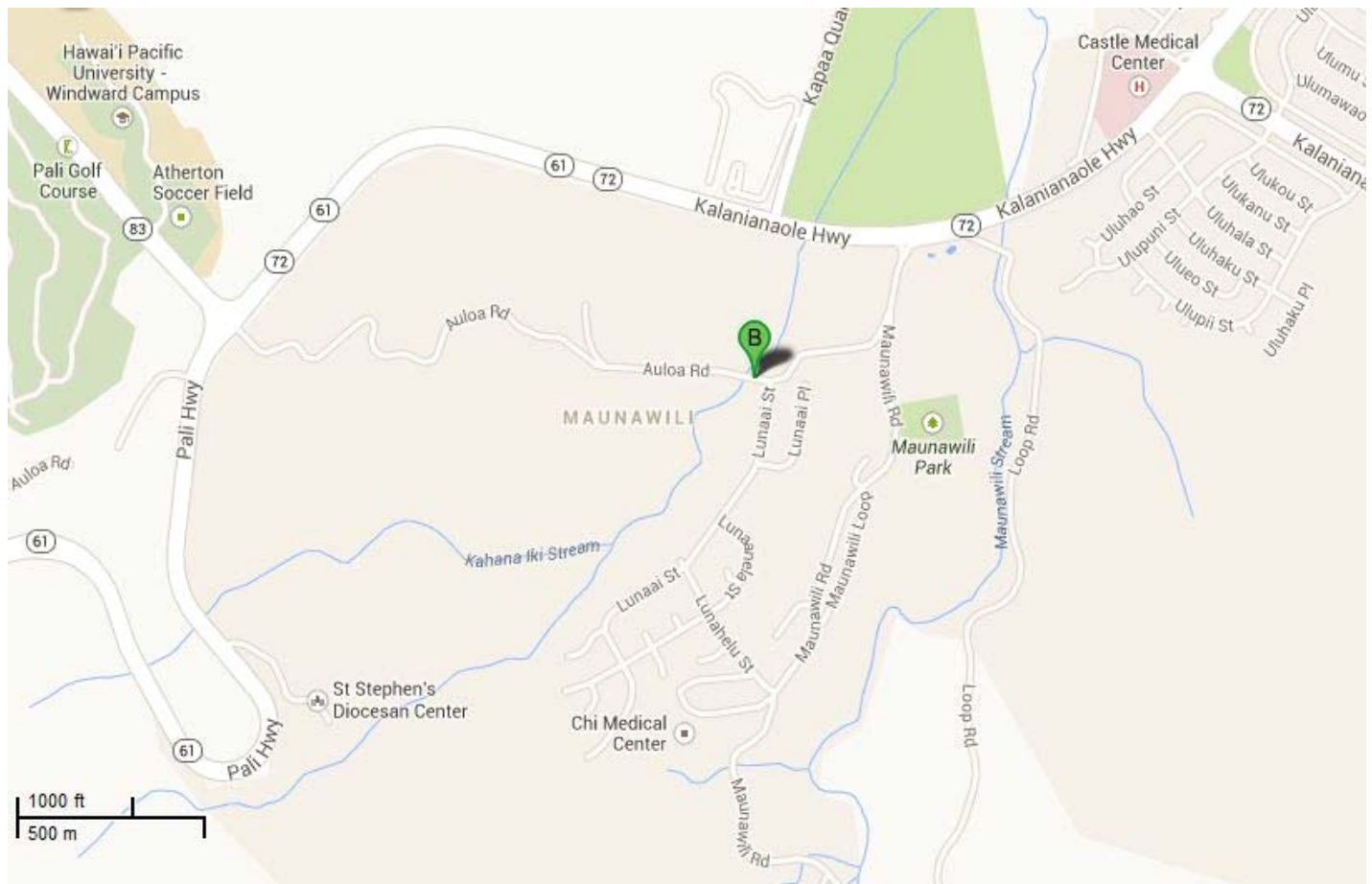
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003406001100001		
<b>Popular Name:</b> Auloa Road Bridge No. 1-Kahanaiki Stream		
<b>Feature Crossed:</b> Kahanaiki Stream		
<b>Feature Carried:</b> Auloa Road		
<b>Milepost:</b> 0.80 mi.	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-46m-02.41s	<b>Latitude:</b> 21d-22m-25.42s	
<b>Location:</b> TMK: 4-2-07		
<b>Historic Name:</b> Auloa Road Bridge No. 1-Kahanaiki Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1921	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 40.0 ft.	<b>Total Length:</b> 44.0 ft.	<b>Deck Width:</b> 26.3 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Auloa Road/Kahanaiki Stream Bridge carries Auloa Road across Kahanaiki Stream. This single-span reinforced concrete bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has solid panel concrete parapets with intermittent posts and caps. Concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by reinforced concrete abutments. Thrie beams were bolted to the end posts however, the workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1920's reinforced concrete bridge that is typical of its materials, method of construction, craftsmanship, and design.

# Inventory Form

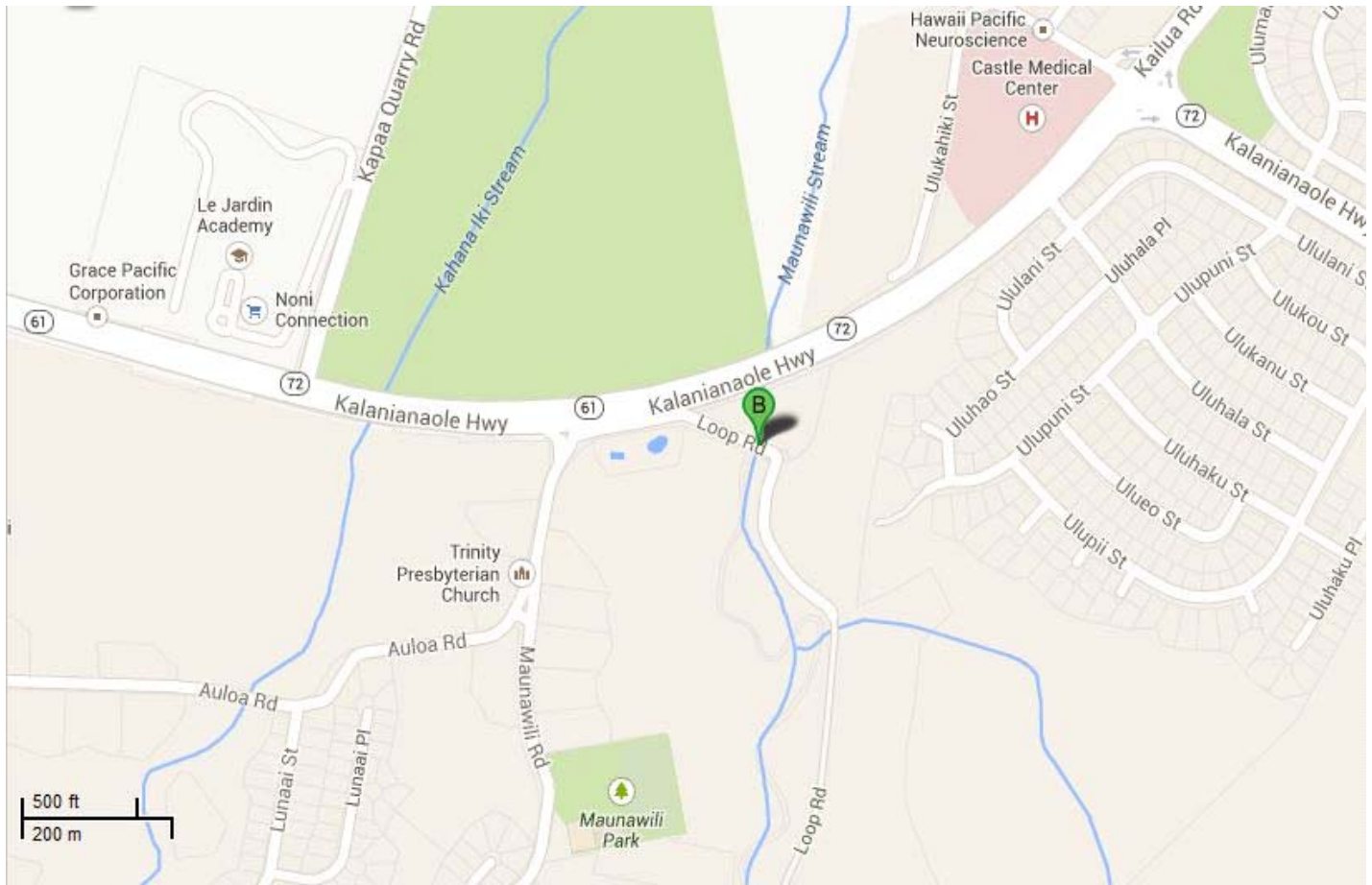
(County/Private)

## General Information

<b>Bridge Number:</b> 003407001100001	
<b>Popular Name:</b> Auloa Road Bridge No. 2-Maunawili Stream	
<b>Feature Crossed:</b> Maunawili Stream	
<b>Feature Carried:</b> Auloa Road	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-45m-39.49s	<b>Latitude:</b> 21d-22m-35.96s
<b>Location:</b> TMK: 4-2-07	
<b>Historic Name:</b> Auloa Road Bridge No. 2-Maunawili Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1921	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 6	<b>Max Span:</b> 18.0 ft.	<b>Total Length:</b> 108.0 ft.	<b>Deck Width:</b> 26.4 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Auloa Road/Maunawili Stream Bridge carries Auloa Road across Maunawili Stream. This single-span reinforced concrete bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has solid panel concrete parapets with caps and slight intermittent posts. Small concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by reinforced concrete abutments. Thrie beams were bolted to the end posts however, the workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1920's reinforced concrete bridge that is typical of its materials, method of construction, craftsmanship, and design.

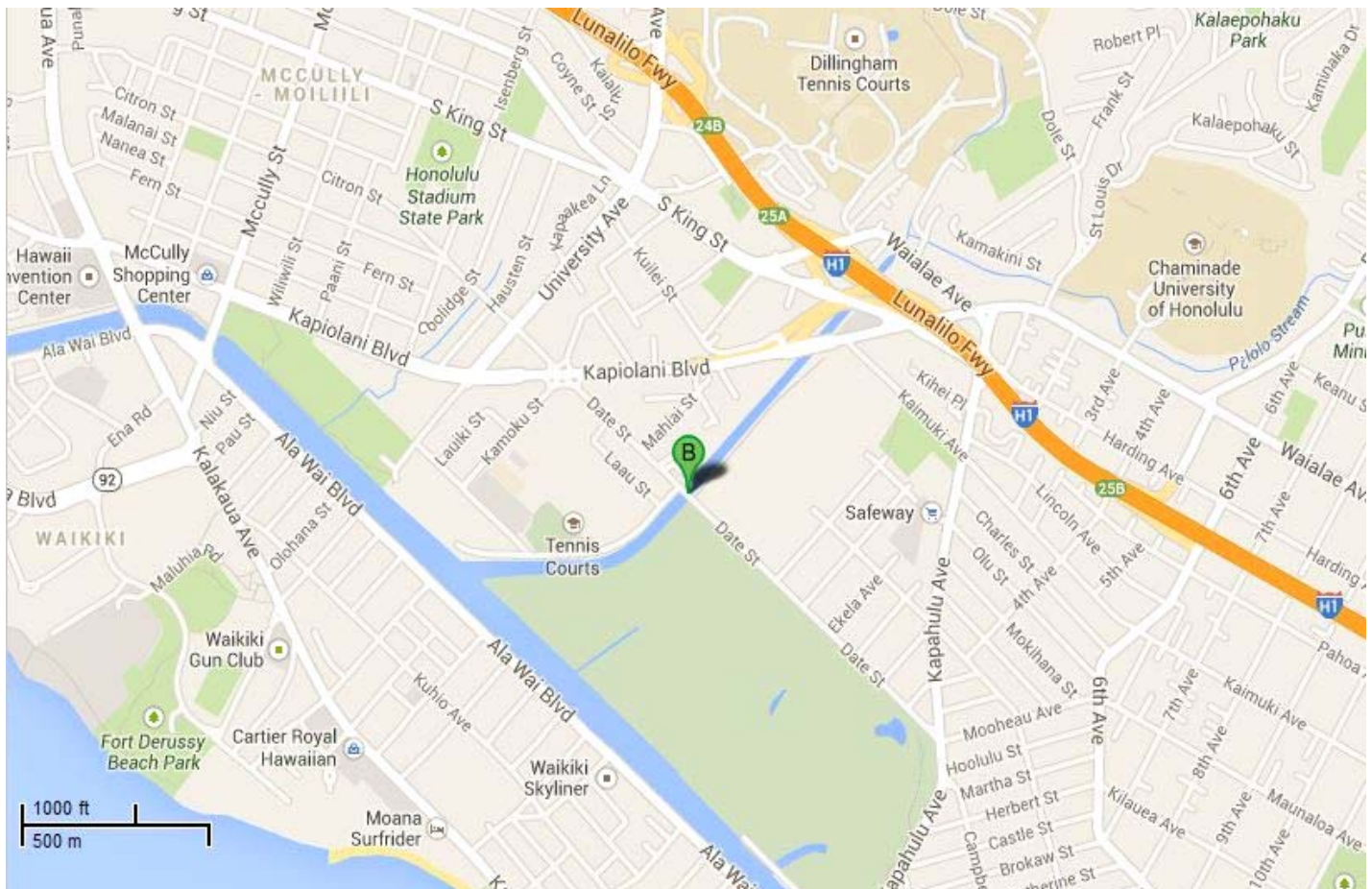
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083041400055	
<b>Popular Name:</b> Date Street Bridge-Manoa Palolo Drainage Canal	
<b>Feature Crossed:</b> Manoa-Palolo Stream	
<b>Feature Carried:</b> Date Street	
<b>Milepost:</b> 0.55 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-49m-13.80s <b>Latitude:</b> 21d-17m-05.29s	
<b>Location:</b> East of Laau Street	
<b>Historic Name:</b> Date Street Bridge-Manoa Palolo Drainage Canal	
<b>Designer/Engineer:</b> Clarence T. Loo	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1937	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 56.1 ft.	<b>Total Length:</b> 113.8 ft.	<b>Deck Width:</b> 57.1 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Decorative			
<b>Setting:</b>			
<b>Other Features:</b> Walkways along two sides; "WPA" and date of construction incised on parapets			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Manoa Palolo Stream Bridge carries Date Street across the Manoa-Palolo Drainage Canal. This 3-span reinforced concrete slab bridge is in its original location, is generally in good condition, and its materials remain intact. Solid concrete parapets with horizontal caps, intermittent posts at the piers, and decorative Art Moderne end posts are unique features of the bridge. The concrete deck is supported by concrete piers and concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		



**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

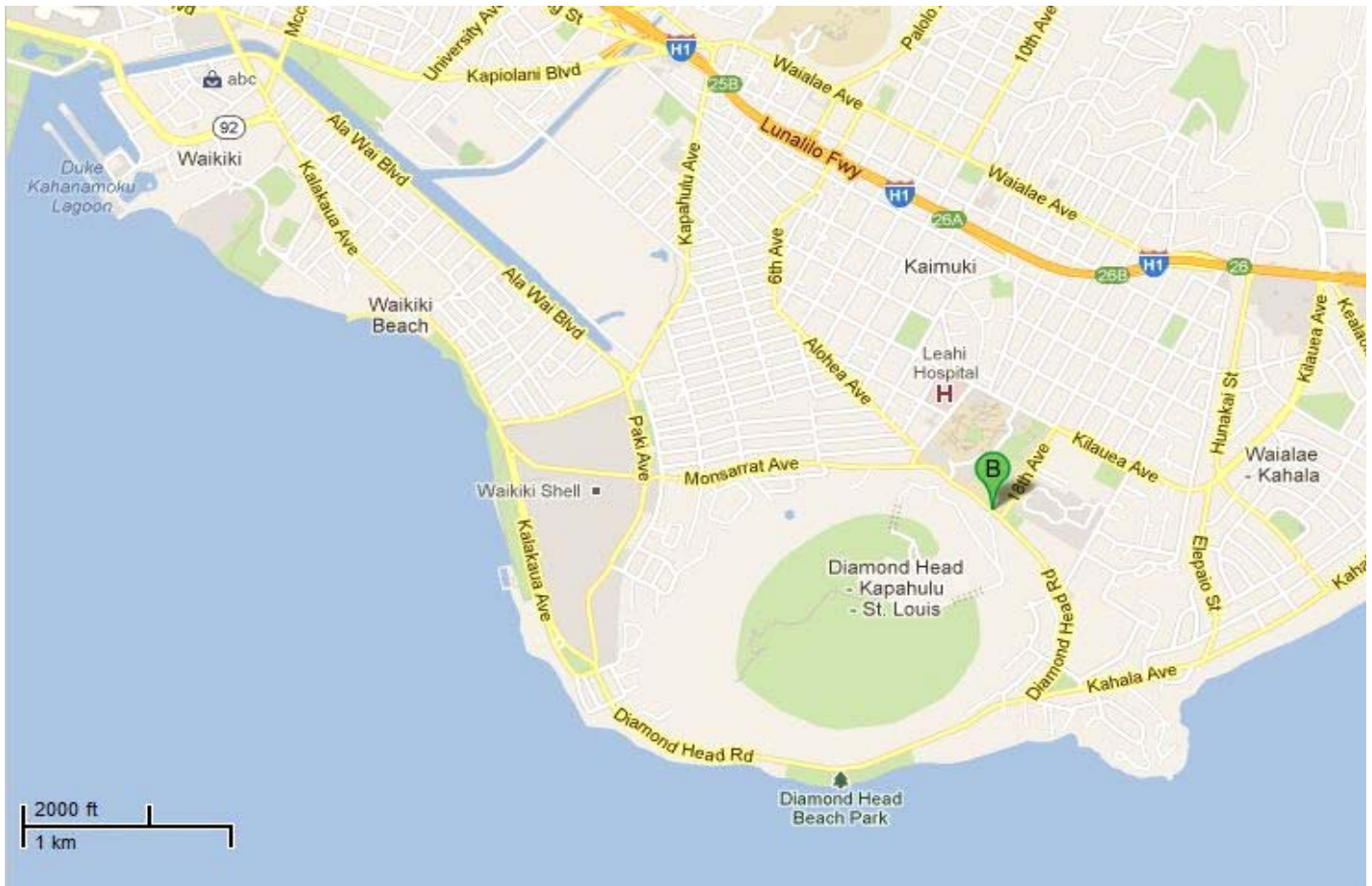
(County/Private)

## General Information

<b>Bridge Number:</b> 003083051400001	
<b>Popular Name:</b> Diamond Head Road Bridge Upper-Gully	
<b>Feature Crossed:</b> Gully (Diamond Head)	
<b>Feature Carried:</b> Diamond Head Road	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-48m-16.65s	<b>Latitude:</b> 21d-15m-22.75s
<b>Location:</b> 0.38 Miles West of Poka Street	
<b>Historic Name:</b> Diamond Head Road Bridge Upper-Gully	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Open Spandrel Arch	<b>Construction Date:</b> 1930	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 2013		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Structural repair, raised the railing height to meet code		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 49.9 ft.	<b>Total Length:</b> 65.9 ft.	<b>Deck Width:</b> 14.6 ft.
<b>Superstructure:</b> Concrete Open Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Diamond Head Road Bridge carries Diamond Head Road across a gully. This single-span, round arch girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has one concrete parapet with arch voids and a horizontal cap. Concrete end posts with caps flank the approaches of the parapets. The concrete deck is supported by reinforced concrete abutments which rest on soil and rock. The workmanship of the bridge has not been obscured by additions or repairs. The simple design of the parapets retains the bridge's historic feeling. The parapets have been repaired/alterd in 2013.</p>		

**Significance Statement:**


This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's open spandrel arch bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. Arch bridges are also an uncommon bridge type.



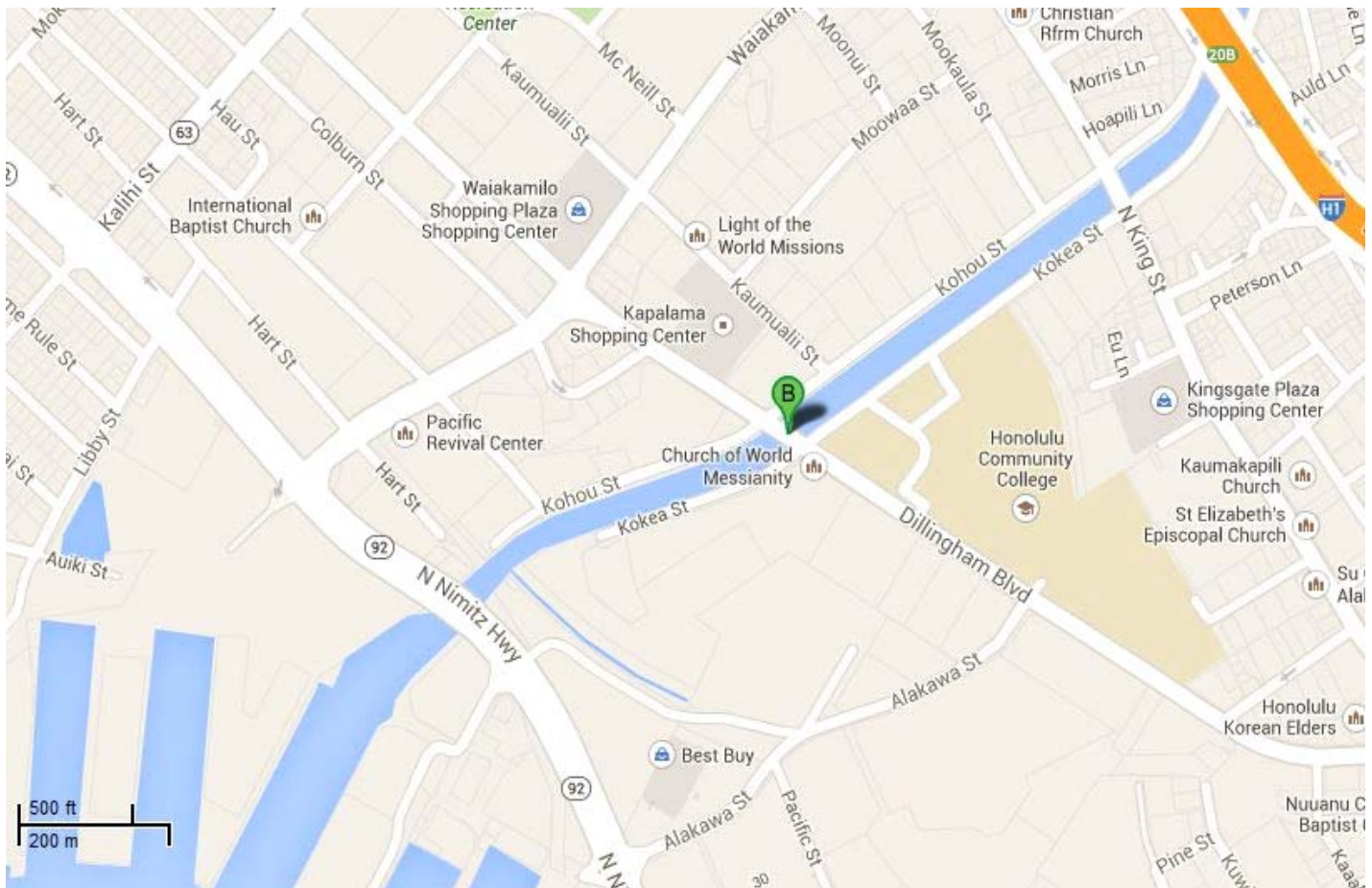
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003062071400140	
<b>Popular Name:</b> Dillingham Boulevard Bridge-Kapalama Canal	
<b>Feature Crossed:</b> Kapalama Canal	
<b>Feature Carried:</b> Dillingham Boulevard	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-52m-23.22s <b>Latitude:</b> 21d-19m-19.42s	
<b>Location:</b> Between Kohou Street and Kokea Street	
<b>Historic Name:</b> Dillingham Boulevard Bridge-Kapalama Canal	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1930	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 5	<b>Max Span:</b> 23.0 ft.	<b>Total Length:</b> 109.9 ft.	<b>Deck Width:</b> 78.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kapalama Canal Bridge carries Dillingham Boulevard across the Kapalama Canal. This 5-span reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has parapets with arched voids, intermittent posts, and end posts with caps. The concrete deck is supported by concrete piers and concrete masonry abutments. The workmanship of the bridge has not been obscured by additions or repairs. The bridge has retained its historic feeling due to the design of the railings which are typical of 1930s bridges.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

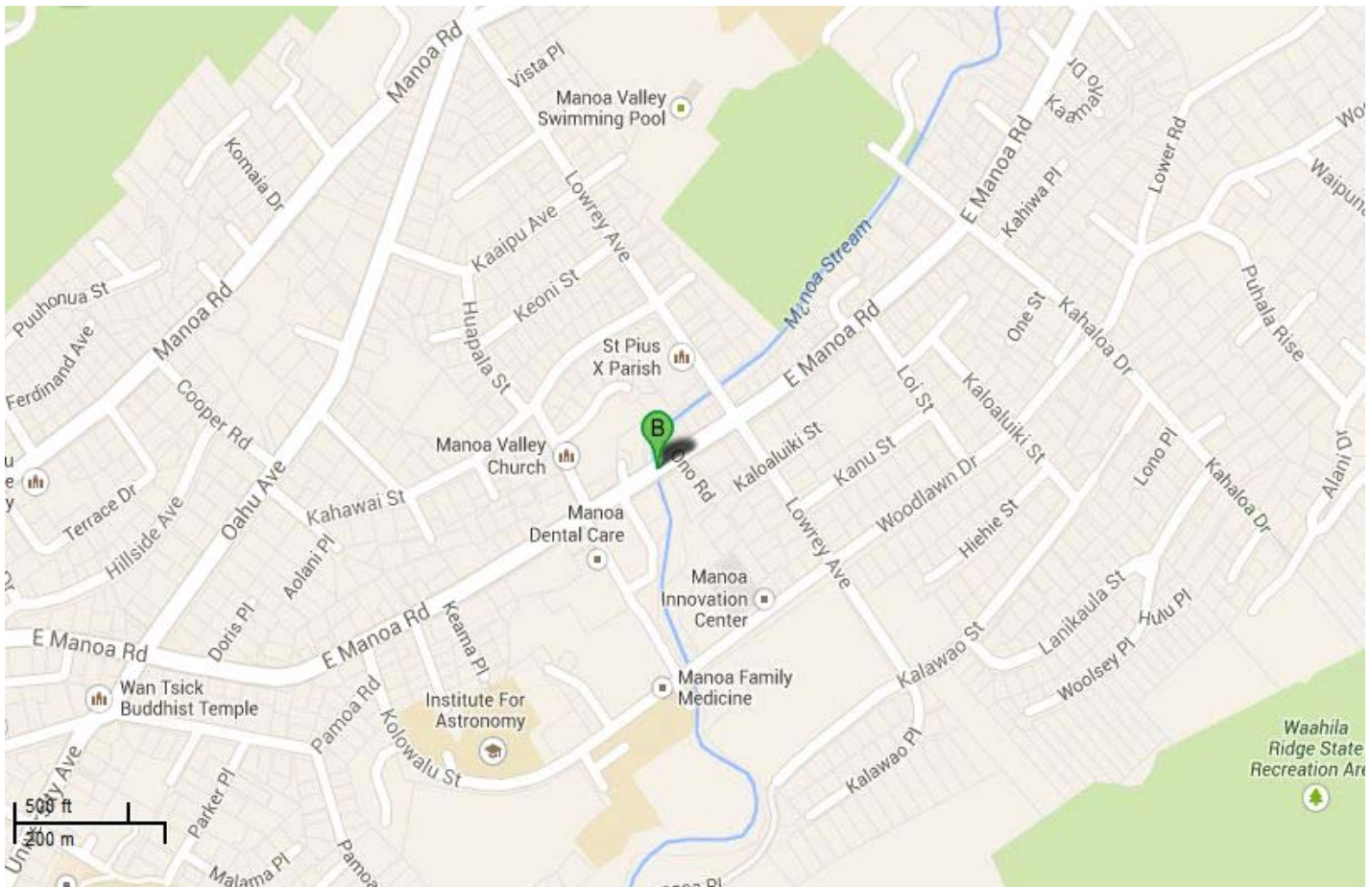
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003208001200001	
<b>Popular Name:</b> East Manoa Road Bridge No. 1-Manoa Stream	
<b>Feature Crossed:</b> Manoa Stream	
<b>Feature Carried:</b> East Manoa Road	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-48m-34.37s <b>Latitude:</b> 21d-18m-36.75s	
<b>Location:</b> TMK: 2-9-06	
<b>Historic Name:</b> East Manoa Road Bridge No. 1-Manoa Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1938	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 30.0 ft.	<b>Total Length:</b> 33.0 ft.	<b>Deck Width:</b> 46.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Decorative			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The East Manoa Road Bridge carries East Manoa Road across Manoa PK Ditch. This single-span reinforced concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid concrete parapets and decorative concrete end posts. The concrete deck is supported by reinforced concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

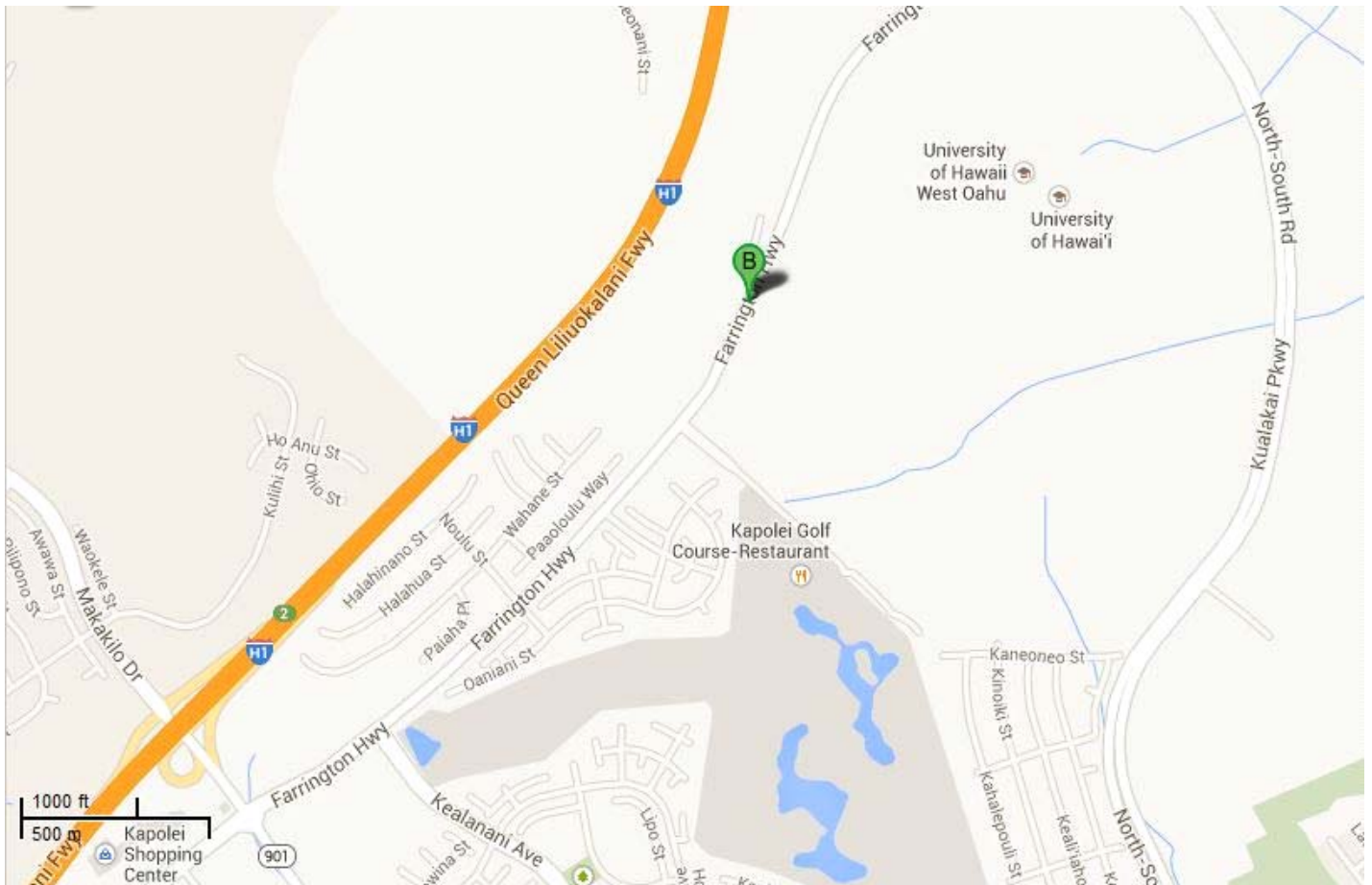
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003902001100001	
<b>Popular Name:</b> Farrington Highway Bridge No. 3-Palehua Stream	
<b>Feature Crossed:</b> Palehua Stream	
<b>Feature Carried:</b> Farrington Highway	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 158d-03m-47.40s <b>Latitude:</b> 21d-21m-07.33s	
<b>Location:</b> TMK: 9-1-16	
<b>Historic Name:</b> Farrington Highway Bridge No. 3-Palehua Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1922	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 20.0 ft.	<b>Total Length:</b> 22.0 ft.	<b>Deck Width:</b> 27.0 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Farrington Highway Bridge No. 3 carries Farrington Highway across Palehua Stream. This single-span reinforced cast-in-place concrete bridge is in its original location, is in poor condition, and its materials remain intact. The bridge has solid panel reinforced concrete parapets with caps and small end posts with caps. Thrie beams flank the approaches of the parapets but are not attached to the parapet itself. The concrete deck is supported by reinforced concrete abutments and spread footings. The workmanship of the bridge has not been obscured by additions or repairs.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1920's concrete slab bridge that is typical of its materials, method of construction, craftsmanship, and design.

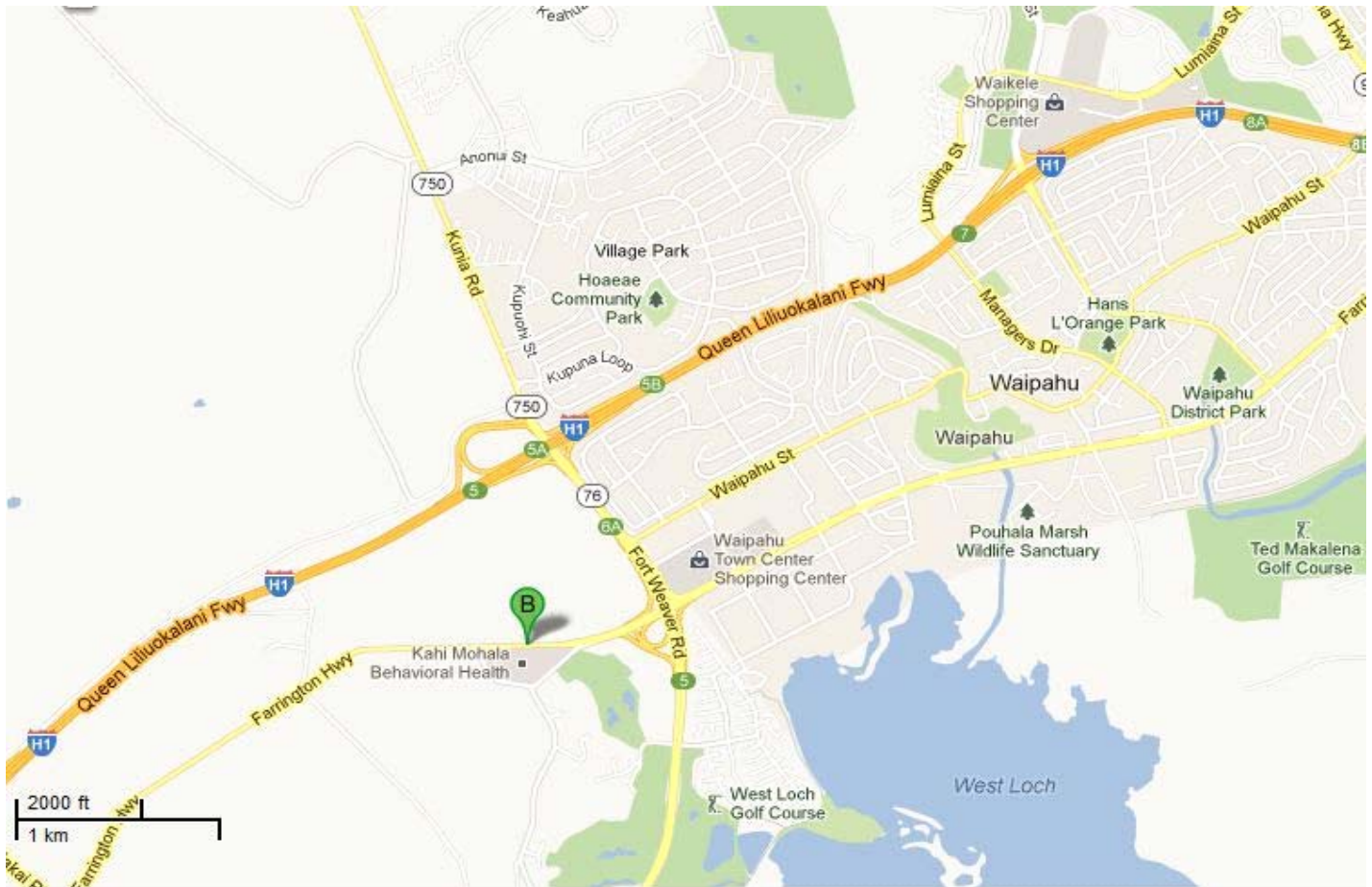
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003922001100001	
<b>Popular Name:</b> Farrington Highway Bridge-Honouliuli Stream	
<b>Feature Crossed:</b> Honouliuli Stream	
<b>Feature Carried:</b> Farrington Highway	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 158d-02m-00.83s <b>Latitude:</b> 21d-22m-27.82s	
<b>Location:</b> TMK: 9-1-17	
<b>Historic Name:</b> Farrington Highway Bridge-Honouliuli Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1939	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 40.0 ft.	<b>Total Length:</b> 54.0 ft.	<b>Deck Width:</b> 32.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Farrington Highway Bridge carries Farrington Highway across the Honouliuli Stream. This single-span reinforced cast-in-place concrete bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with cross shaped voids and caps. Wide end posts flank the ends of the parapets. The concrete deck is supported by concrete abutments, two piers, and spread footings. Thrie beams were bolted to the end posts however, the workmanship of the bridge has not been obscured.</p>		

**Significance Statement:**


This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1930's concrete tee beam bridge that is typical of its materials, method of construction, craftsmanship, and design.



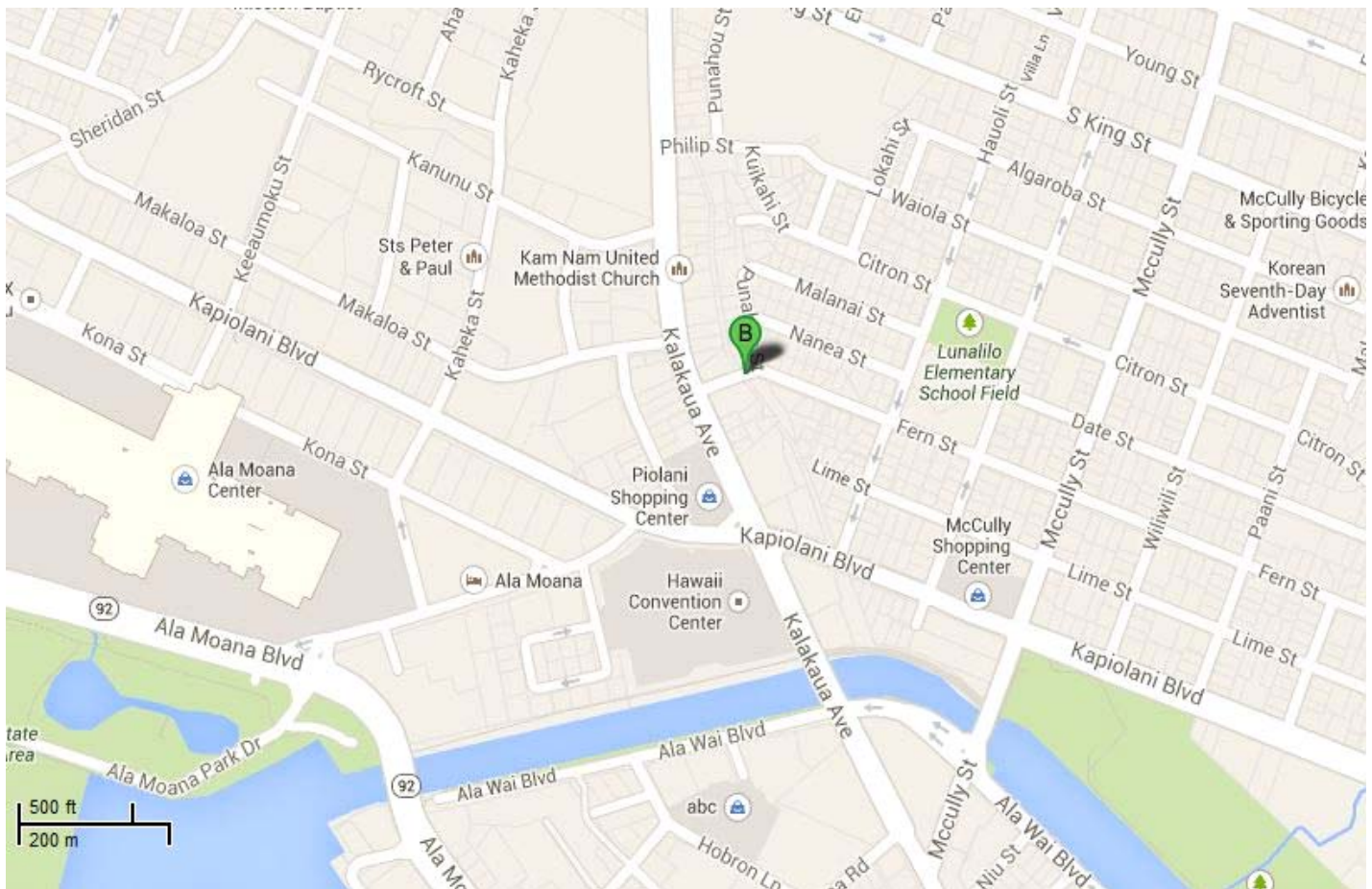
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003209001100001	
<b>Popular Name:</b> Fern Street Bridge-Makiki Stream	
<b>Feature Crossed:</b> Makiki Stream	
<b>Feature Carried:</b> Fern Street	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-50m-09.07s <b>Latitude:</b> 21d-17m-32.74s	
<b>Location:</b> TMK: 2-3-23	
<b>Historic Name:</b> Fern Street Bridge-Makiki Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1931	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 2013		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Structural repair, raised the railing height to meet code		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 22.0 ft.	<b>Total Length:</b> 23.0 ft.	<b>Deck Width:</b> 55.3 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Fern Street Bridge carries Fern Street across Makiki Stream. This single-span reinforced concrete slab bridge with fascia girders is in its original location, is generally in good condition, and its materials remain intact. The bridge has a concrete parapet with arch voids and a horizontal cap. Paneled concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by reinforced concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs. In 2013 rehabilitation of the bridge included spall repair and an increase to the parapet height to meet code.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

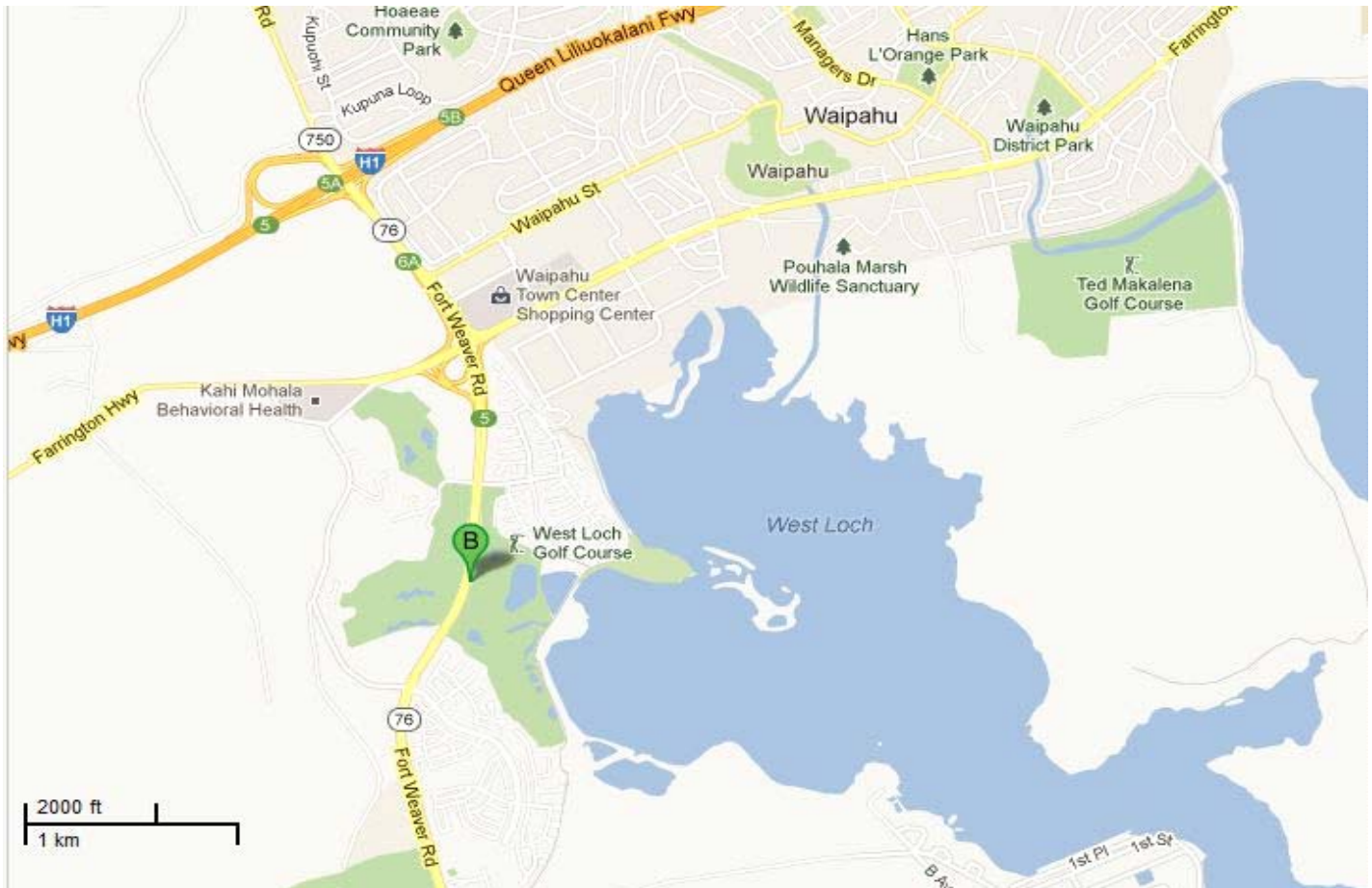
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003076001400581	
<b>Popular Name:</b> Fort Weaver Road Bridge-Honouliuli Stream	
<b>Feature Crossed:</b> Honouliuli Stream	
<b>Feature Carried:</b> Fort Weaver Road	
<b>Milepost:</b> 5.81 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 158d-01m-58.30s <b>Latitude:</b> 21d-22m-21.06s	
<b>Location:</b> TMK: 9-1-17	
<b>Historic Name:</b> Fort Weaver Road Bridge-Honouliuli Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Closed Spandrel Arch	<b>Construction Date:</b> 1927	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 32.0 ft.	<b>Total Length:</b> 42.0 ft.	<b>Deck Width:</b> 32.9 ft.
<b>Superstructure:</b> Concrete Closed Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Honouliuli Stream Bridge carries Fort Weaver Road across the Honouliuli Stream. This single span closed arch bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid panel concrete parapets with concrete panel end posts. The concrete deck is supported by concrete abutments. Thrie beams were bolted to the end posts however, the workmanship of the bridge has not been obscured. The simple design of the parapets retains the bridge's historic feeling.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's closed spandrel arch bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. Arch bridges are also an uncommon bridge type.

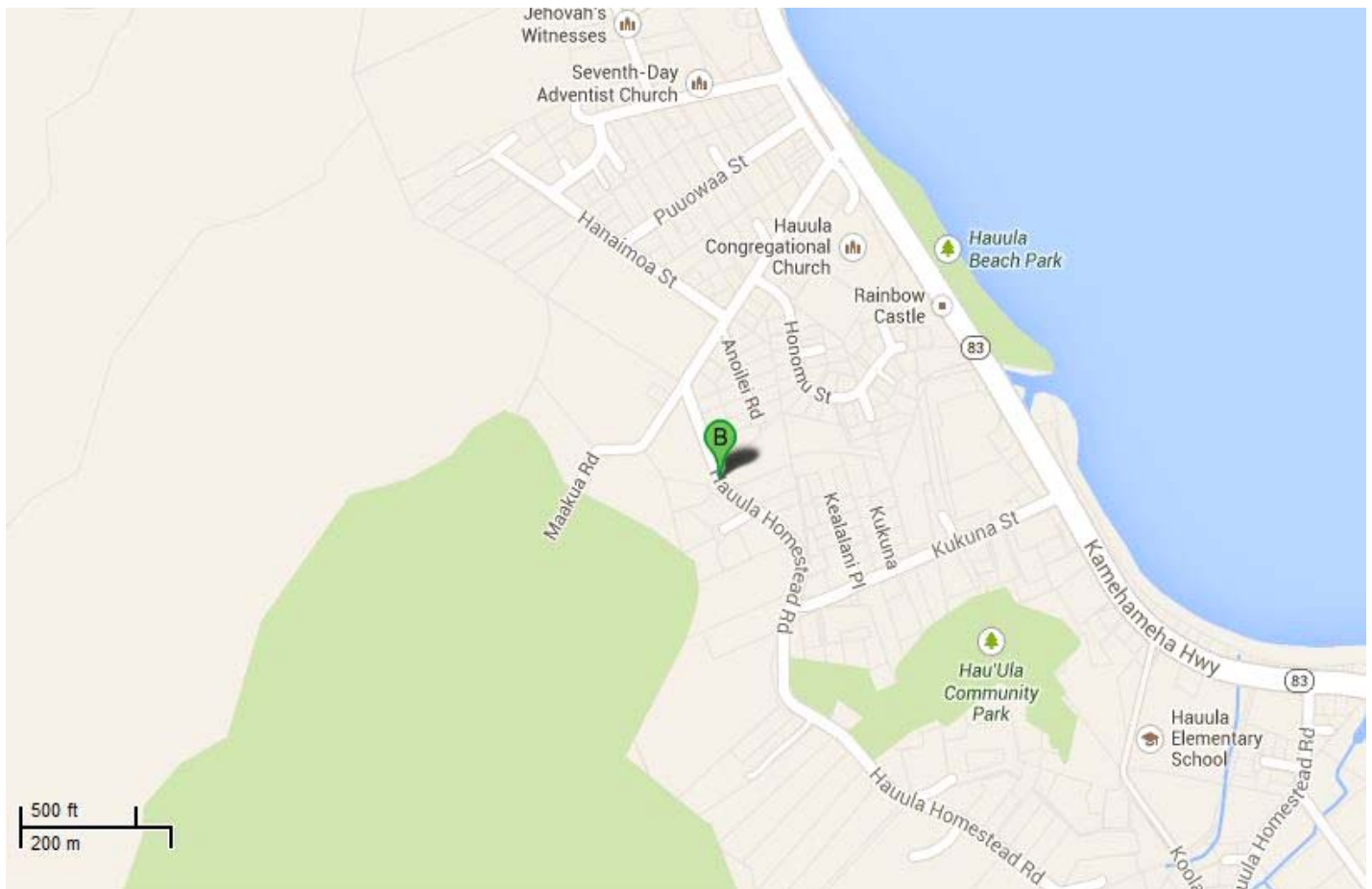
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003514001100001	
<b>Popular Name:</b> Hauula Homestead Road Bridge-Maakua Stream	
<b>Feature Crossed:</b> Maakua Stream	
<b>Feature Carried:</b> Hauula Homestead Road	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-54m-49.54s <b>Latitude:</b> 21d-36m-33.47s	
<b>Location:</b> TMK: 5-4-13	
<b>Historic Name:</b> Hauula Homestead Road Bridge-Maakua Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b>	<b>Replaced?</b> No
<b>Altered?</b> No	<b>Alteration Date(s):</b>	
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 11.0 ft.	<b>Total Length:</b> 36.0 ft.	<b>Deck Width:</b> 33.0 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Hauula Homestead Road Stream Bridge carries Hauula Homestead Road across Maakua Stream. This two-span reinforced concrete bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has solid panel concrete parapets and metal guardrails flank the approaches of the parapets but are not attached to the parapets. The concrete deck is supported by reinforced concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1930's concrete slab bridge that is typical of its materials, method of construction, craftsmanship, and design.

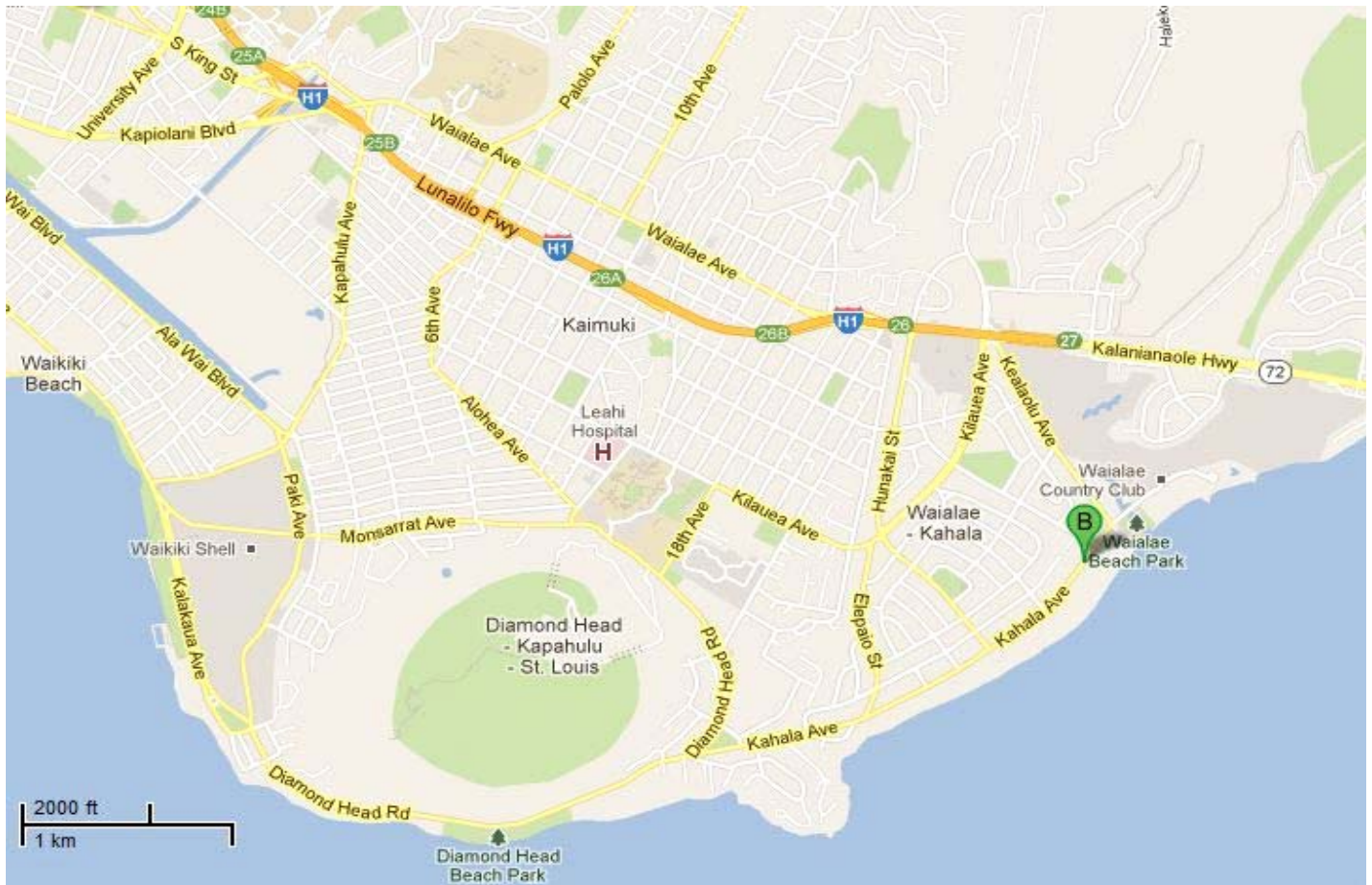
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003311001200001	
<b>Popular Name:</b> Kahala Avenue Bridge No. 1-Muliwai Ditch	
<b>Feature Crossed:</b> Muliwai Ditch	
<b>Feature Carried:</b> Kahala Avenue	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-46m-48.27s <b>Latitude:</b> 21d-16m-04.09s	
<b>Location:</b> TMK: 3-5-07	
<b>Historic Name:</b> Kahala Avenue Bridge No. 1-Muliwai Ditch	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Rigid Frame	<b>Construction Date:</b> 1947	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 26.0 ft.	<b>Total Length:</b> 29.0 ft.	<b>Deck Width:</b> 60.0 ft.
<b>Superstructure:</b> Concrete Rigid Frame			
<b>Substructure:</b> Concrete Integral Abutment			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Decorative			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kahala Avenue Bridge carries Kahala Avenue across Muliwai Ditch. This single-span reinforced concrete frame bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid parapets with decorative Art Moderne ends which are a unique feature. The deck is supported by concrete abutments. The workmanship of the bridge parapet has been obscured by vine vegetation on one side of the bridge.</p>		

**Significance Statement:**


This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1940's and 1950's reinforced concrete frame bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



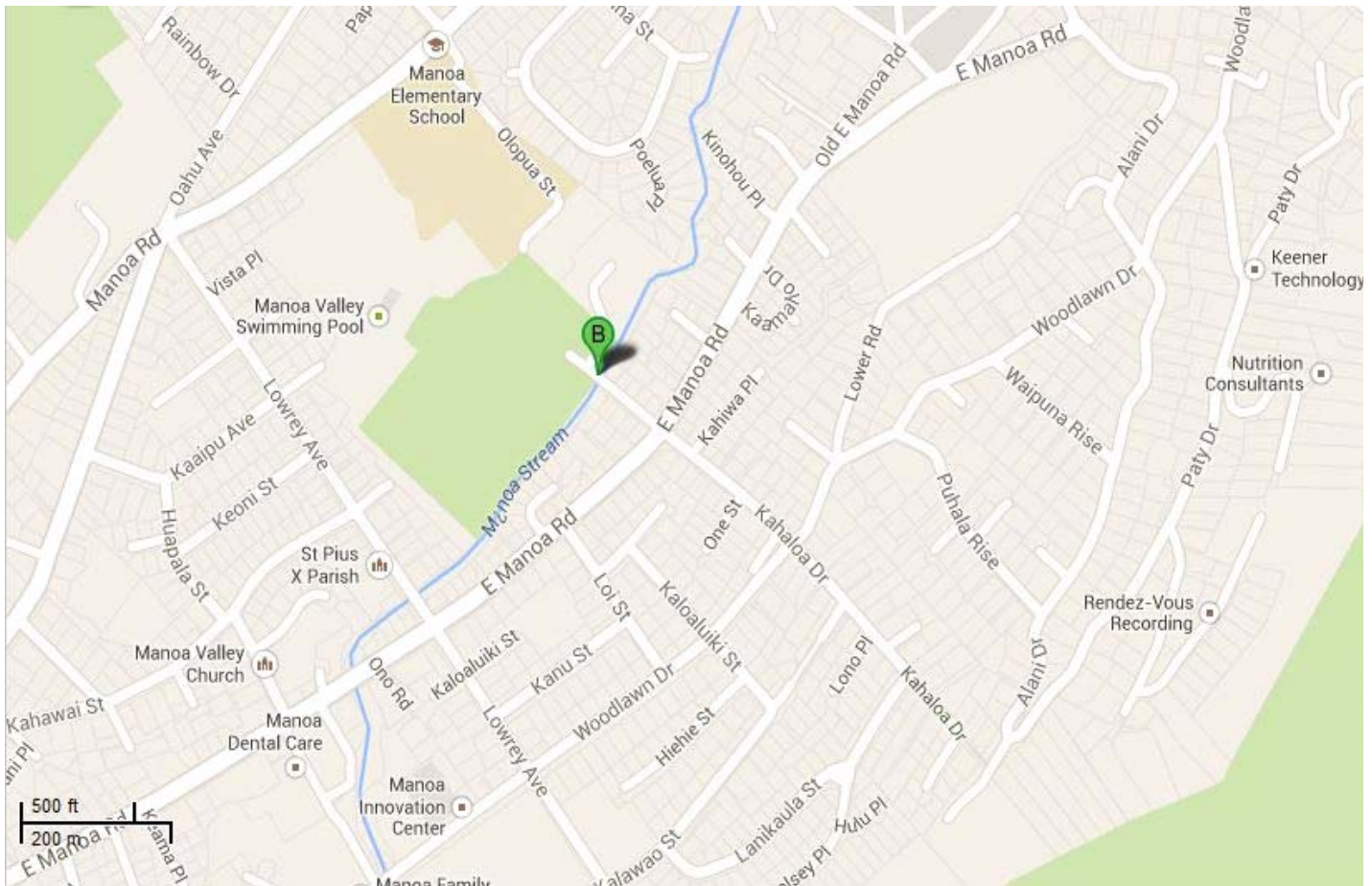
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003211001200001	
<b>Popular Name:</b> Kahaloa Drive Extension Bridge-Manoa Stream	
<b>Feature Crossed:</b> Manoa Stream	
<b>Feature Carried:</b> Kahaloa Drive	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-48m-23.18s <b>Latitude:</b> 21d-18m-49.30s	
<b>Location:</b> TMK: 2-9-36 & 2-9-37	
<b>Historic Name:</b> Kahaloa Drive Extension Bridge-Manoa Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Rigid Frame	<b>Construction Date:</b> 1954	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 40.0 ft.	<b>Total Length:</b> 45.0 ft.	<b>Deck Width:</b> 40.0 ft.
<b>Superstructure:</b> Concrete Rigid Frame			
<b>Substructure:</b> Concrete Integral Abutment			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kahaloa Drive Bridge carries Kahaloa Drive across Manoa Stream. This single-span reinforced concrete frame bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid concrete parapets with caps and small concrete end posts. The concrete deck is supported by reinforced concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1950's reinforced concrete frame bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

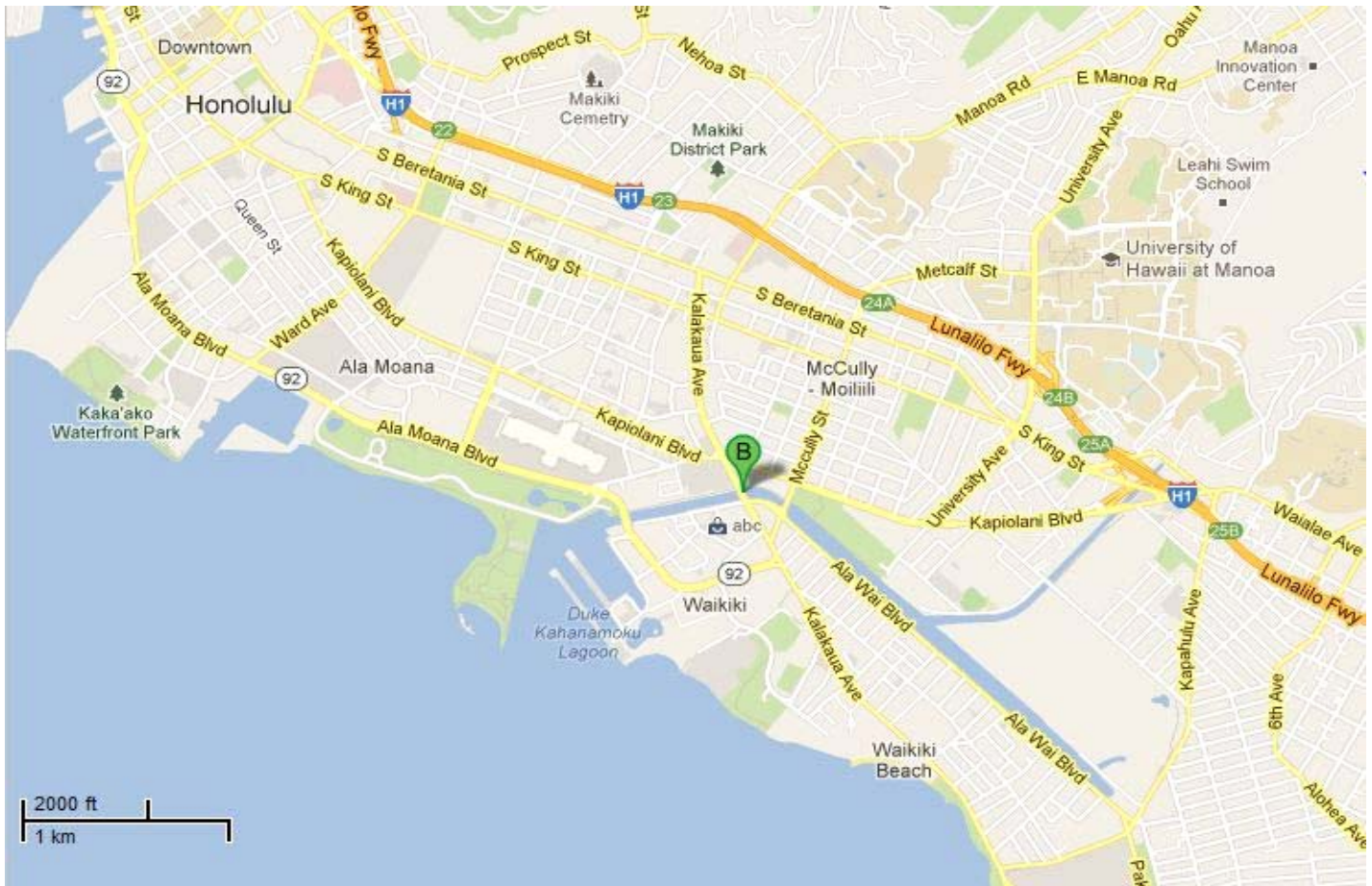
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083181400074	
<b>Popular Name:</b> Kalakaua Avenue Bridge-Ala Wai Canal	
<b>Feature Crossed:</b> Ala Wai Canal	
<b>Feature Carried:</b> Kalakaua Avenue	
<b>Milepost:</b> 0.74 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-50m-05.26s <b>Latitude:</b> 21d-17m-19.82s	
<b>Location:</b> North of Ala Wai Boulevard	
<b>Historic Name:</b> Kalakaua Avenue Bridge-Ala Wai Canal	
<b>Designer/Engineer:</b> James O. Yapp	
<b>Builder/Contractor:</b> R. E. Woolley	

## Location Map:



## Construction Information

<b>Bridge Type:</b>	Closed Spandrel Arch	<b>Construction Date:</b>	1929	<b>Replaced?</b>	No
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b>	Before 1990		
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Original lamp posts removed					

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 49.9 ft.	<b>Total Length:</b> 141.1 ft.	<b>Deck Width:</b> 75.8 ft.
<b>Superstructure:</b> Concrete Closed Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Decorative			
<b>Setting:</b>			
<b>Other Features:</b> Walkways on two sides; incised name and date of construction on parapets			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> Yes
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Transportation		
<b>Narrative Description:</b> <p>The Kalakaua Avenue Bridge is located on the major vehicular access to Waikiki. It spans the Ala Wai Canal, a drainage channel which made the construction of Waikiki Beach resort area possible. The bridge is representative of late period reinforced concrete solid-spandrel arch construction. The neo-classical influenced Art Deco styling and graceful concrete arches of the Kalakaua Avenue Bridge make it one of the most decorative bridges in the state.</p> <p>The Kalakaua Avenue Bridge remains in its original location over the Ala Wai Canal. The bridge's setting has urbanized as a result of the extensive development of Waikiki area in the 1960s-80s. The original Art Deco-style arch design and reinforced concrete materials remain intact, with the exception of the removal of the glass globe street lamps on the end piers. The quality of workmanship is high with no evidence of significant additions or repairs however, the original lamp posts were removed sometime before 1990. The bridge's historic association, as an important civic structure associated with the development of Waikiki, is readily apparent to traffic traveling along Kalakaua Avenue and the Ala Wai Canal. Interpretation is aided by the inscription of the bridge name and date of construction on the end piers. The bridge retains its historic feeling due to its decorative design and now uncommon construction type.</p>		



**Significance Statement:**

The Kalakaua Avenue Bridge is significant for its contributions to the areas of engineering and transportation in Hawaii. The 1929 bridge is an excellent example of reinforced concrete solid-spandrel arch construction in the then popular Art Deco style. The Kalakaua Avenue Bridge is eligible under Criterion A for its associations with public works efforts by the Territory of Hawaii, and as an important civic structure associated with the development of Waikiki, the internationally renowned beach resort on the Island of Oahu. Moreover, the bridge contributed to the economic development of Honolulu and Waikiki by providing reliable vehicular access to the recently established resort area. It is eligible under Criterion C as a rare remaining example of this once common bridge type, as well as for its aesthetic merit. The Kalakaua Avenue Bridge and Ala Wai Canal were determined eligible for the National Register of Historic Places in October 1985. This bridge is an arch bridge which is an uncommon bridge type.

The Waikiki Reclamation Project began in concept as early as 1904, when Lucius E. Pinkham, head of the Board of Health, saw the odiferous duck-ponds and swamps of coastal Waikiki as a health hazard. Once he was appointed Governor of the Territory he pursued the Waikiki Reclamation Project with zeal. However actual work on the Ala Wai Canal did not begin until 1922, when Hawaiian Dredging Company, owned by Walter F. Dillingham, was given the contract to dredge a canal 150 feet wide, twenty-five feet deep and about two miles in length. The original concept included a canal from Kapiolani Park to the Pacific Ocean in the vicinity of Kuhio Beach but this section was never completed.(1) The construction of the canal and the bridge led to the development of the Waikiki resort area and an era of expanded tourism in the islands.

The Kalakaua Avenue Bridge was constructed along the major transportation artery to Waikiki. This was the first permanent bridge in this location after the dredging of the Canal in 1921-24. It is the only multiple-span marine reinforced concrete arch of its kind in the state.(2) The bridge's elaborate neo-classically influenced Art Deco styling makes it one of the most decorative bridges in the island. The Kalakaua Avenue Bridge was built in 1929 by Ralph E. Woolley, who was a prolific builder in Honolulu. Woolley built the Mormon Temple at Laie, Oahu, which was "declared by competent critics to be one of the most beautiful edifices in the world."(3)

See National Register of Historic Places Nomination Form for the Ala Wai Canal Nomination.

(1) Thomas Thrum, "The Waikiki Reclamation Project," Hawaiian Annual (Honolulu, 1923).


(2) Bethany Thomas, Historic Bridge Inventory: Island of Oahu, prepared for the State of Hawaii Department of Transportation Highways Division in cooperation with the U.S. Department of Transportation Federal Highway Administration (Honolulu, 1983), IV-13.

(3) George Nellist, ed., The Story of Hawaii and its Buildings, with which is Incorporated Vol. III, Men of Hawaii (Honolulu: Honolulu Star Bulletin Ltd., 1925), 903-904.

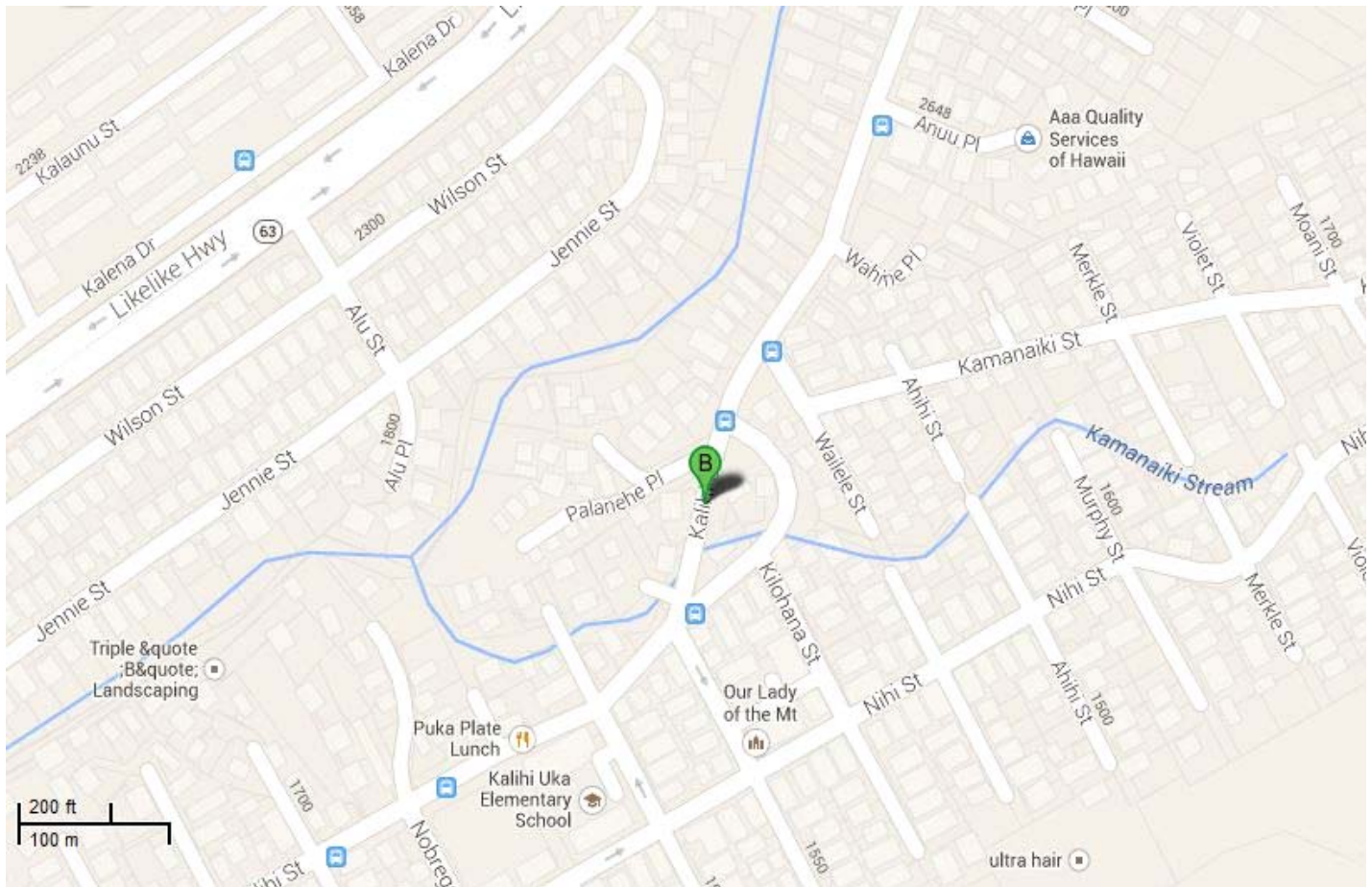
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083211400072	
<b>Popular Name:</b> Kalihi Street Bridge No. 1-Kamanaiki Stream	
<b>Feature Crossed:</b> Kamanaiki Stream	
<b>Feature Carried:</b> Kalihi Street	
<b>Milepost:</b> 0.72 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-51m-39.96s <b>Latitude:</b> 21d-20m-48.89s	
<b>Location:</b> TMK: 1-3-37	
<b>Historic Name:</b> Kalihi Street Bridge No. 1-Kamanaiki Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1938	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 24.0 ft.	<b>Total Length:</b> 29.0 ft.	<b>Deck Width:</b> 49.2 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Masonry Abutment			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kamanaiki Bridge carries Kalihi Street across Kamanaiki Stream. This single-span concrete slab bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid concrete parapets with caps. The end posts are rounded and without caps however, three beam approaches have been placed in front of both ends of the parapets. The concrete deck is supported by lava rock masonry abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

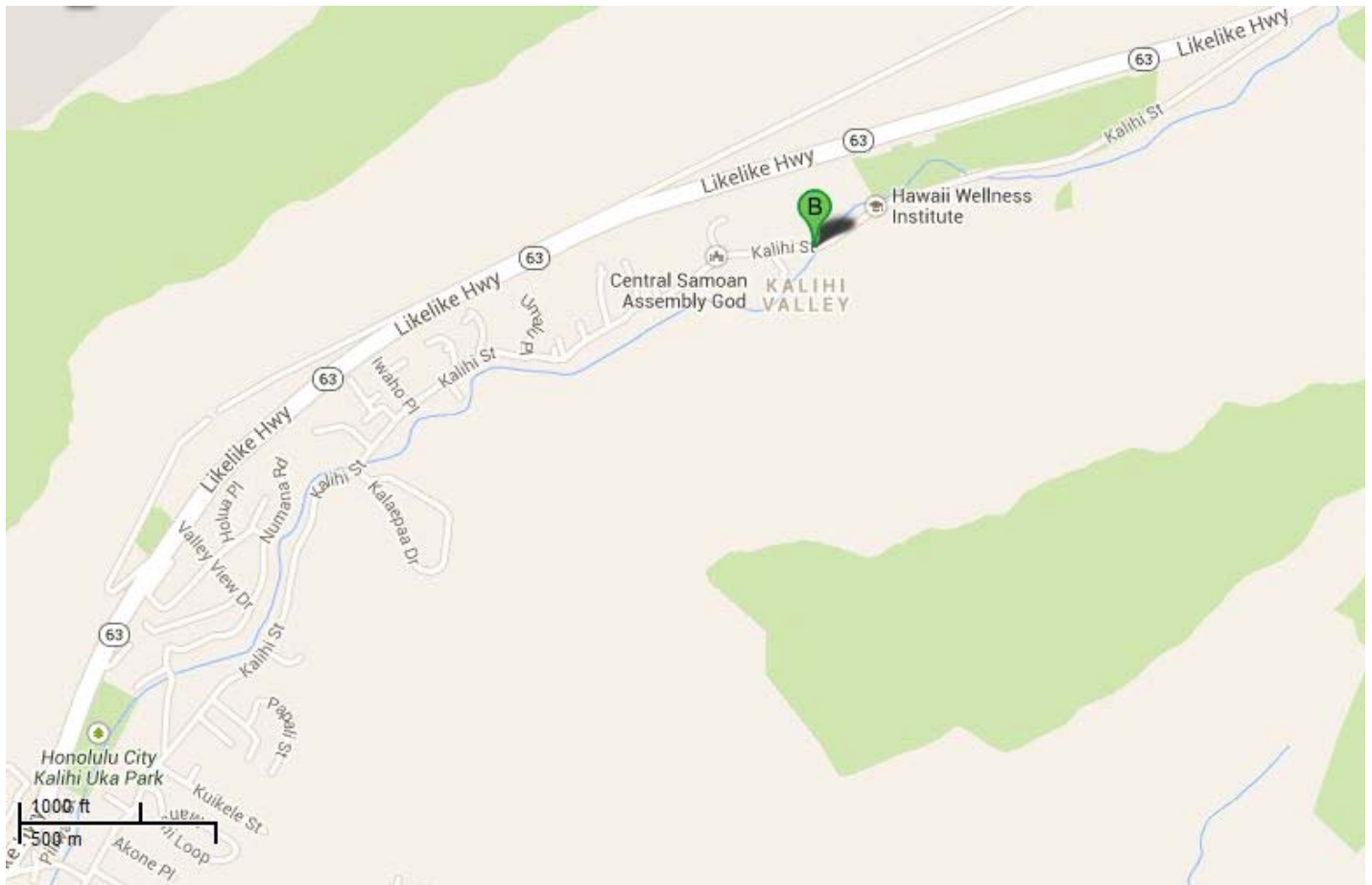
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003148001200001		
<b>Popular Name:</b> Kalihi Street Bridge No. 3-Kalihi Stream		
<b>Feature Crossed:</b> Kalihi Stream		
<b>Feature Carried:</b> Kalihi Street		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-50m-30.94s	<b>Latitude:</b> 21d-21m-52.76s	
<b>Location:</b> TMK: 1-4-20		
<b>Historic Name:</b> Kalihi Street Bridge No. 3-Kalihi Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:





## Construction Information

<b>Bridge Type:</b> Steel Stringer		<b>Construction Date:</b> 1942		<b>Replaced?</b> No
<b>Altered?</b> Yes	<b>Alteration Date(s):</b> 2009, 2012			
<b>Alteration Type(s):</b>				
<b>Alteration Description(s):</b> Replaced Wood Decking				

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 23.0 ft.	<b>Total Length:</b> 64.0 ft.	<b>Deck Width:</b> 17.7 ft.
<b>Superstructure:</b> Steel Multi-girder			
<b>Substructure:</b> Masonry Abutment and Concrete Wall Pier			
<b>Floor/Decking:</b> Timber Deck			
<b>Parapets/Railings:</b> Wood			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Construction		
<b>Narrative Description:</b> <p>The Kalihi Stream Bridge #3 is a steel stinger/multi-beam structure, constructed in 1942, to carry Kalihi Street over Kalihi Stream near the Kalihi Orphanage (now St. Anthony's Retreat). The Hawaiian Electric Company mainly uses the bridge and there are only six residential properties beyond the bridge. The bridge is in its original location in the back of Kalihi Valley. The rural setting is fully intact and surrounded by the lush vegetation of the rainy valley. The engineering of the bridge is neither complex nor typical for the era, but the workmanship of the bridge is good, and not obscured by repairs or additions. The superstructure consists of 4x12 steel stringers laid on the diagonal. The guard railings are painted wood and the decking is 4x12 timber. The timber decking was replaced in 2009 and 2012, but both replacements were consistent with the original design and materials. The rustic setting along with the painted wood railing, unfinished wood decking and narrow breadth contribute greatly to the overall historic feeling of the bridge</p>		


**Significance Statement:**

The Kalihi Stream Bridge #3 is eligible under criterion C – due to its distinct structural type for the area. Steel stringers were constructed in Hawaii primarily for industrial and railroad bridges. Ornamentation, if any, was usually limited to the pattern of the railings. The use of steel was uncommon in Hawaii due to the extreme marine environment. Since very little steel is used for bridge construction in Hawaii, this bridge is eligible under criterion C for its distinctive structural type. The Kalihi Stream Bridge may be the only extant bridge of this type. Other bridges of this type noted in earlier surveys are all associated with the railroad, and specific Federal funding of the U.S. Works Program Grade Crossing Program.

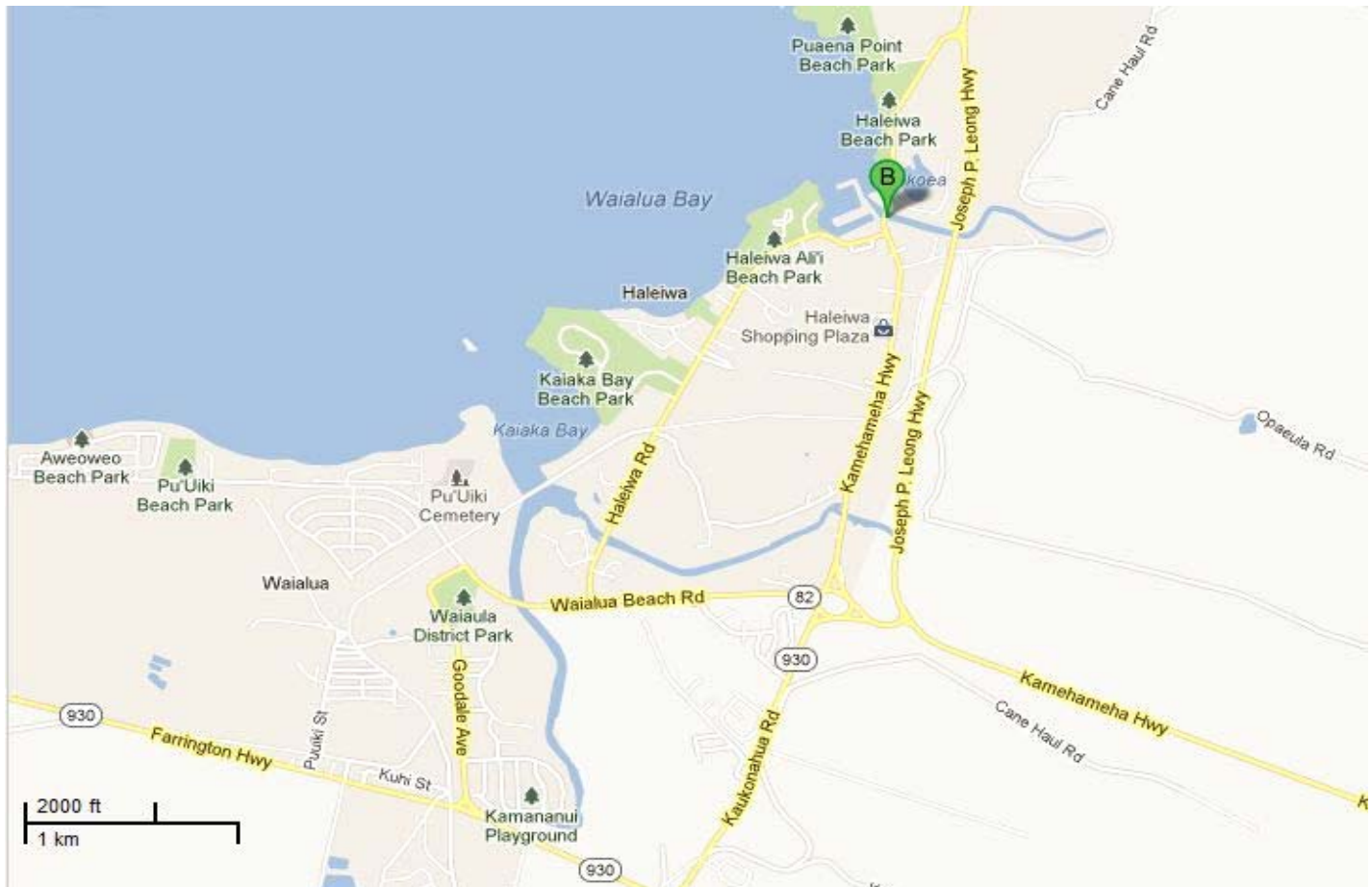
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 00300C291100137	
<b>Popular Name:</b> Kamehameha Highway Bridge-Anahulu Stream	
<b>Feature Crossed:</b> Anahulu Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 1.37 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 158d-06m-12.17s <b>Latitude:</b> 21d-35m-36.85s	
<b>Location:</b> TMK: 6-2-03:012	
<b>Historic Name:</b> Kamehameha Highway Bridge-Anahulu Stream	
<b>Designer/Engineer:</b> Guy Rothwell and Fred Ohrt	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b>	Rainbow Arch	<b>Construction Date:</b>	1921	<b>Replaced?</b>	No
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b>	Before 1989		
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Lamp standards at four end piers and at center span of arch removed					

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 80.0 ft.	<b>Total Length:</b> 161.0 ft.	<b>Deck Width:</b> 31.8 ft.
<b>Superstructure:</b> Concrete Through Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b> Bridge name and date of construction incised on end piers; two 3.5 feet "outrigger" sidewalks suspended from both sides of roadway			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Construction		
<b>Narrative Description:</b> <p>The Anahulu Stream Bridge was built in 1921 to carry the Kamehameha Highway across the Anahulu Stream. The bridge is located in the former town of Haleiwa on the north shore of Oahu. The Anahulu Stream Bridge is a double “rainbow” or Marsh through-deck arch bridge constructed of reinforced concrete.</p> <p>The Anahulu Stream Bridge has been listed on the National Historic Register since 1985 and remains in its original location. The bridge’s setting has changed slightly due to commercial and residential development within the Haleiwa community, thus placing increased pressure on the structure. The lamp standards were removed sometime before 1989 and a by-pass highway to accommodate additional traffic was completed by the state Department of Transportation in 1994. The bridge's original double-rainbow arch design and reinforced concrete materials remain intact, with the exception of the removal of the street lamps on the end piers. The bridge is obviously the work of skilled workmen and the quality of workmanship is extremely high, particularly the bush-hammered finish of the paneled parapets. The bridge's historic association as an important civic structure associated with the development of Haleiwa can be readily discerned by pedestrian and automobile traffic along Kamehameha Avenue. The bridge retains its historic feeling due to its prominent location, narrow width, high-profile design and now uncommon construction type.</p>		

**Significance Statement:**

The Anahulu Stream Bridge is significant for its contributions to the fields of engineering and transportation in Hawaii. The bridge is an excellent example of reinforced concrete “rainbow” or Marsh arch construction. The Anahulu Stream Bridge is eligible under Criterion A for its associations with public works efforts by the City and County of Honolulu during the early Territorial period and as an important civic structure associated with the development of Haleiwa. It is eligible under Criterion C as a rare remaining example of this bridge type. Moreover, it is representative of the work of a master: Guy Rothwell, the designer of the Palama Settlement and the Harris Memorial Church.

The Anahulu “Haleiwa” Bridge has been identified as the most well-known man-made feature in Haleiwa Town.(1) The bridge serves as the “gateway” to historic Haleiwa and is located within the County-designated Haleiwa Special Design District. The bridge survived an important preservation battle between the community and the local governmental transportation agency. In the 1960s, the Anahulu Bridge was determined to be too narrow for two-way traffic and the Waialua Community Association urged the City Council to replace it with a new structure.(2) However by 1970, concerned citizens rallied to preserve the picturesque bridge, yet recognize the present-day transportation needs of the north shore community. The alternative plan preserved the historic bridge by creating a bypass with a new highway and modern four-lane bridge upstream.

This bridge is one of two remaining “Rainbow” or Marsh arch bridges in the state; the other being the Keawe Street-Wailuku River Bridge near downtown Hilo. Arch bridges are also an uncommon bridge type.

(1) Honolulu (City and County), Department of Land Utilization, Haleiwa, Historic, Cultural, and Scenic District No. 6 (Honolulu: Printing by city and County Printing Services, Office of Information and Complaint, 1983), 11.

(2) “Anahulu Bridge,” Honolulu Advertiser, April 12, 1968; “Anahulu Bridge,” Star Bulletin, January 3, 1970.



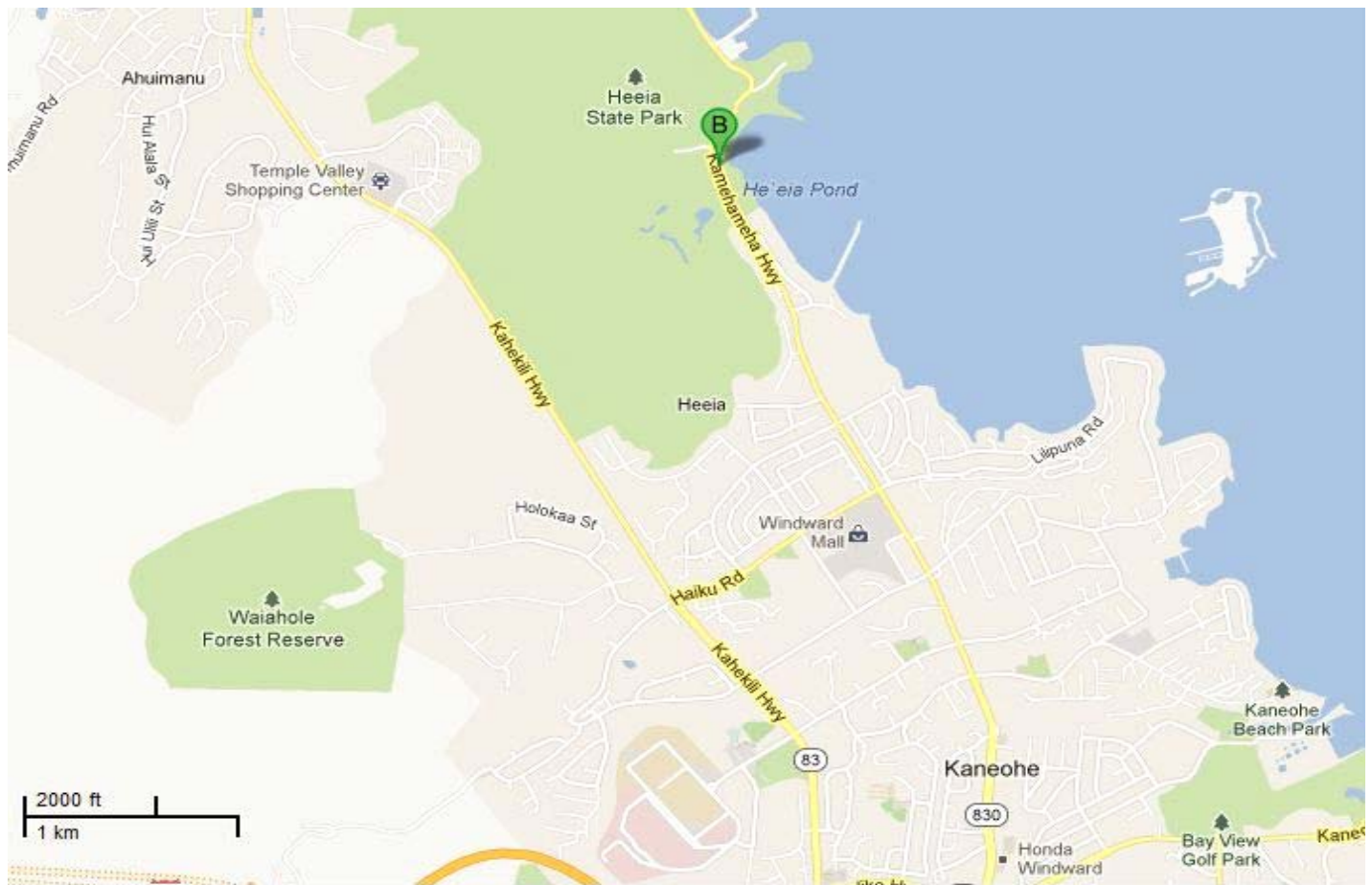
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003008360800242	
<b>Popular Name:</b> Kamehameha Highway Bridge-Heeia Stream	
<b>Feature Crossed:</b> Heeia Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 2.42 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-48m-41.20s <b>Latitude:</b> 21d-26m-11.68s	
<b>Location:</b> 0.39 Miles South of Heeia State Park	
<b>Historic Name:</b> Kamehameha Highway Bridge-Heeia Stream	
<b>Designer/Engineer:</b> H. A. R. Austin	
<b>Builder/Contractor:</b> E. J. Lord	

## Location Map:



## Construction Information

<b>Bridge Type:</b>	Concrete Tee Beam	<b>Construction Date:</b>	1921	<b>Replaced?</b>	No
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b>	1948 and 1989		
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Wood framed walkway added to outside of one parapet (1948); reconstructed with corrugated steel decking and concrete (1989)					

## Bridge Information

<b>Number of Spans:</b> 52	<b>Max Span:</b> 17.1 ft.	<b>Total Length:</b> 892.1 ft.	<b>Deck Width:</b> 24.9 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Design, Construction		
<b>Narrative Description:</b> <p>The Heeia Viaduct carries Kamehameha Highway over Heeia Stream which drains into Heeia Fishpond, a native Hawaiian site listed on the National Register of Historic Places. The bridge is a multi-span reinforced concrete tee-beam bridge with fifty-two spans.</p> <p>The Heeia Viaduct remains in its original location. The bridge's setting over Heeia Stream has retained its rural character, although intensive vegetation growth has obscured the once highly visible bridge. Nonetheless, the bridge's original design and materials remain intact. A wood-framed footbridge was added to the outside of one parapet in 1948; this footbridge has since been reconstructed in 1989 with corrugated steel decking and concrete. The 1922 bridge was technologically innovative for its time, since tee beam construction was relatively uncommon in the islands until the mid-1930s. The original bridge was the work of skilled builders, who constructed its fifty-two concrete spans over the salt water fishpond. The quality of the workmanship remains evident despite alterations to the footbridge and the addition of metal guardrails at the end piers. The bridge's historic associations, as a representative example of an early concrete tee beam bridge and an essential element in Oahu's belt road system, are apparent to an informed observer. The bridge's historic feeling is primarily evident due to its narrow width and solid paneled parapets, typical of 1920s era bridges.</p>		

**Significance Statement:**

The Heeia Viaduct is significant in the areas of engineering and transportation in Hawaii. The 1922 bridge is an excellent example of reinforced concrete tee beam construction with solid paneled parapets typical of 1920s bridges. The Heeia Viaduct is eligible under Criterion A for its associations with public works efforts by the City and County of Honolulu during the territorial period and for its contributions to the economic development of Windward (east) Oahu by providing reliable vehicular access to the area. It is eligible under Criterion C as representative example of a 1920s era bridge utilizing a relatively new engineering technology, continuous reinforced concrete tee beam construction.

The Heeia Viaduct was constructed as part of the upgrading of Oahu's belt road. Begun in 1917, this segment of the belt road connected previously isolated communities with a new paved highway. The bridge is important transportation link for Windward communities. Its construction saved travelers from the long inland journey around the Heeia fishpond, a significant natural and cultural feature of the Windward side of the island.

The Heeia Viaduct is the longest concrete tee-beam bridge on Oahu and one of the first large reinforced concrete tee-beam bridges built in the state.(1) The bridge utilizes technology typical of later concrete bridges and demonstrates the rapid advances in engineering technology in the early decades of the twentieth century. The Heeia Viaduct was built in 1922 by E. J. Lord, a Honolulu contractor. Lord was responsible for "more than one-half of the public work in the Territory," including the Waimanalo road and the belt road, contracts amounting to \$1,500,000.(2) H.A.R. Austin, whose name appears on the plans for the bridge, was the chief engineer for the City and County of Honolulu, Department of Public Works.


(1) Bethany Thompson, Historic Bridge Inventory: Island of Oahu, prepared for the State of Hawaii Department of Transportation Highways Division in cooperation with the U.S. Department of Transportation Federal Highway Administration (Honolulu, 1983), VII-25.

(2) George Nellist, ed., The Story of Hawaii and its Builders, with which is Incorporated Vol. III, Men of Hawaii (Honolulu: Star Bulletin, 1925), 603.

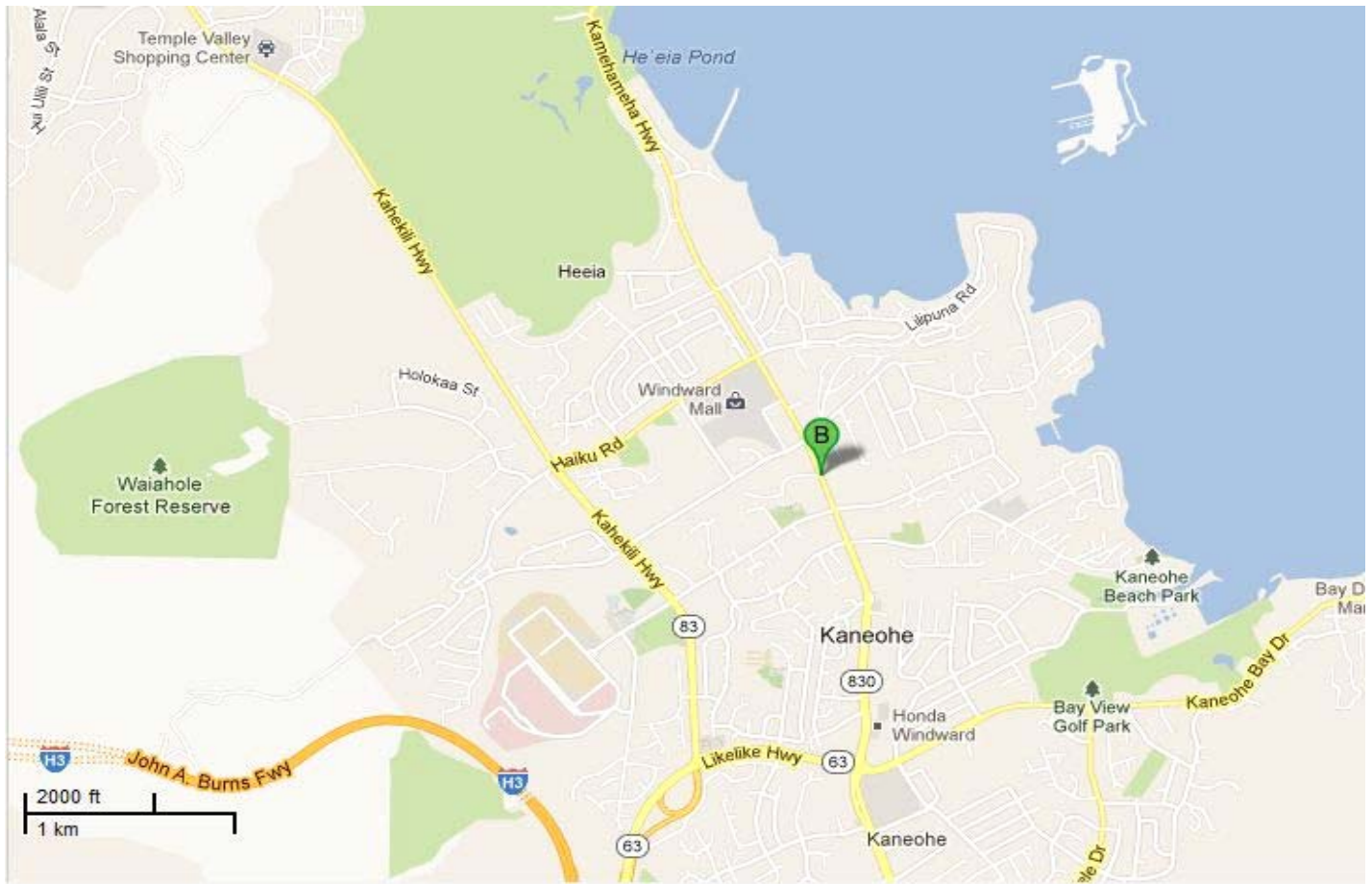
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083601400098	
<b>Popular Name:</b> Kamehameha Highway Bridge-Keaahala Stream	
<b>Feature Crossed:</b> Keaahala Stream	
<b>Feature Carried:</b> Kamehameha Highway	
<b>Milepost:</b> 0.98 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-48m-05.14s <b>Latitude:</b> 21d-25m-00.78s	
<b>Location:</b> TMK: 4-5-19	
<b>Historic Name:</b> Kamehameha Highway Bridge-Keaahala Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1918	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 20.0 ft.	<b>Total Length:</b> 25.0 ft.	<b>Deck Width:</b> 70.3 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Keaahala Stream Bridge carries Kamehameha Highway across Keaahala Stream. This single-span reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid panel concrete parapets with horizontal caps. The concrete deck is supported by concrete abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of an early 1910's concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

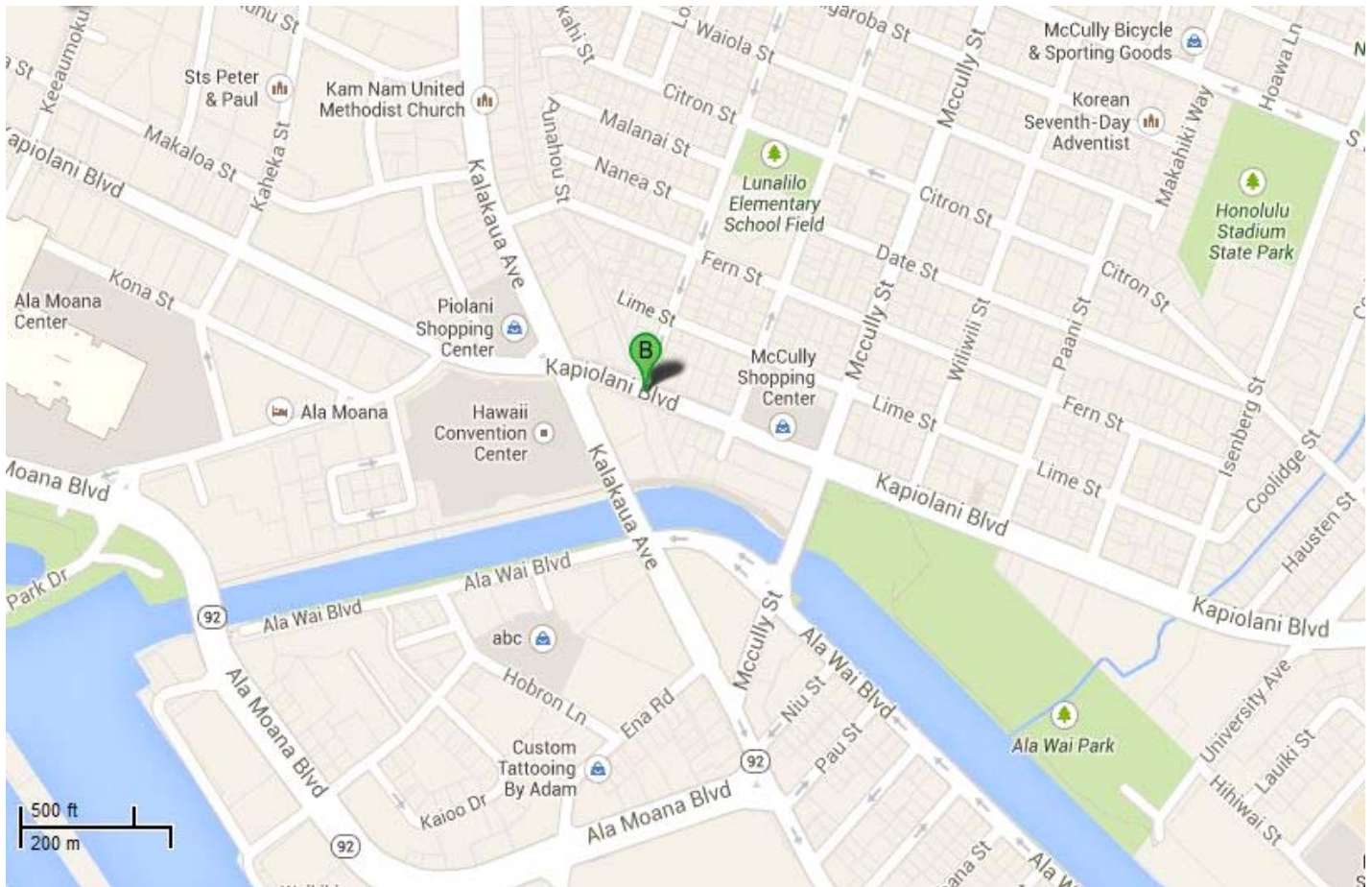
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003062021400052		
<b>Popular Name:</b> Kapiolani Boulevard Bridge No. 1-Makiki Stream		
<b>Feature Crossed:</b> Makiki Stream		
<b>Feature Carried:</b> Kapiolani Boulevard		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-50m-04.62s	<b>Latitude:</b> 21d-17m-25.04s	
<b>Location:</b> 320 Feet East of Kalakaua Avenue		
<b>Historic Name:</b> Kapiolani Boulevard Bridge No. 1-Makiki Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1931	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 40.0 ft.	<b>Total Length:</b> 42.0 ft.	<b>Deck Width:</b> 100.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Makiki Ditch Bridge carries Kapiolani Boulevard across Makiki Stream. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has open concrete parapets with arched voids and wide end posts with flat caps. The structure of the bridge is diagonal along Kapiolani Boulevard and is curved along one parapet. The workmanship of the bridge has not been obscured by additions or repairs. The bridge has retained its historic feeling due to the design of the railings which are typical of 1930s bridges.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete tee-beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

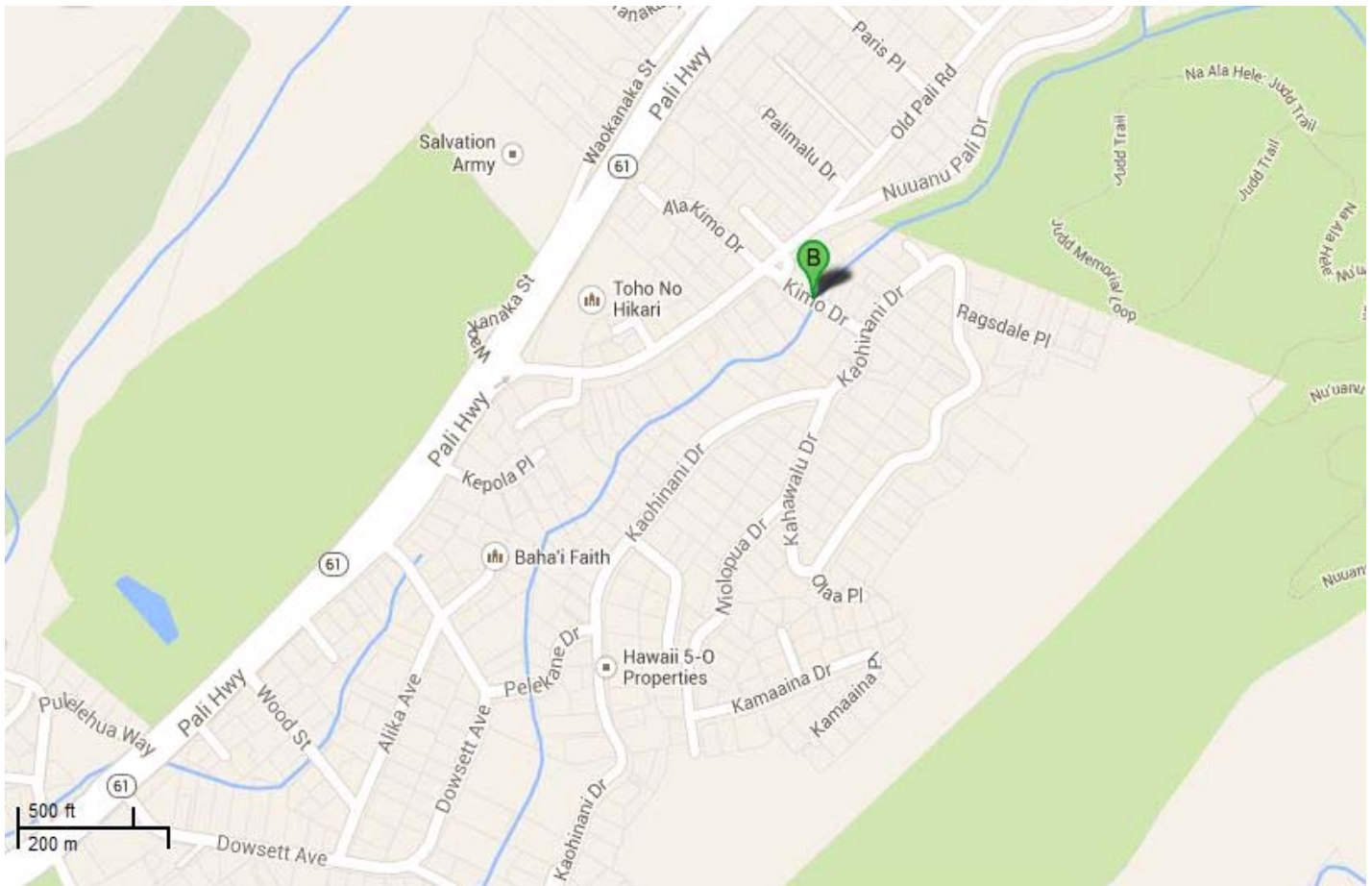
(County/Private)

## General Information

<b>Bridge Number:</b> 003260001200001	
<b>Popular Name:</b> Kimo Drive Bridge-Nuuanu Stream	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> Kimo Drive	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-49m-42.76s	<b>Latitude:</b> 21d-20m-35.82s
<b>Location:</b> TMK: 2-2-50	
<b>Historic Name:</b> Kimo Drive Bridge-Nuuanu Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1925	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 44.0 ft.	<b>Total Length:</b> 125.0 ft.	<b>Deck Width:</b> 40.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kimo Drive Bridge carries Kimo Drive across Nuuanu Stream. This three-span reinforced concrete multi-girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with arched voids and caps. Paneled concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1920's reinforced concrete bridge that is typical of its materials, method of construction, craftsmanship, and design. It is also associated with historic Nuuanu residential development.

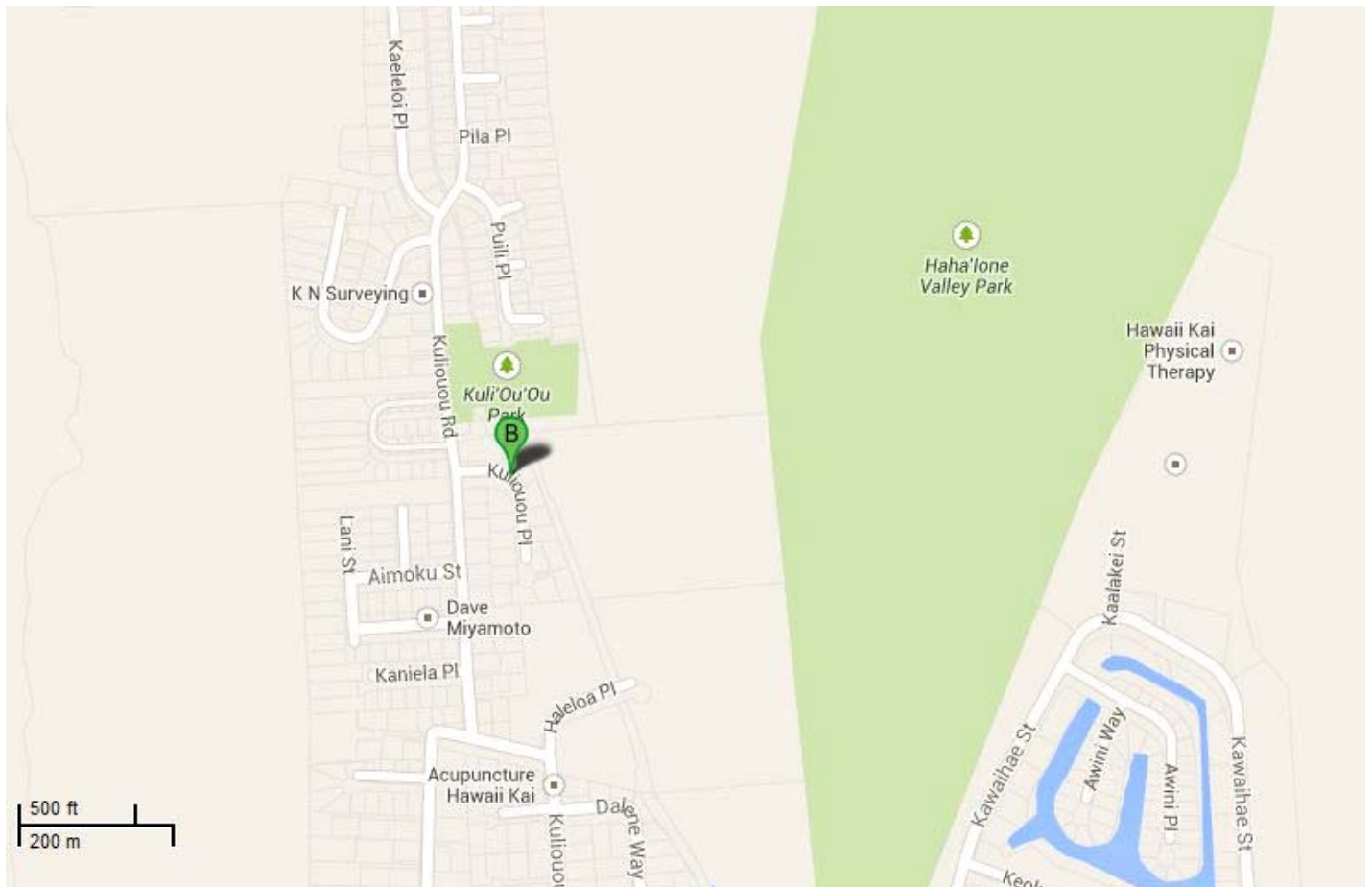
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003351001200001		
<b>Popular Name:</b> Kuliouou Road Bridge-Kuliouou Stream		
<b>Feature Crossed:</b> Kuliouou Stream		
<b>Feature Carried:</b> Kuliouou Road		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-43m-26.05s	<b>Latitude:</b> 21d-17m-40.99s	
<b>Location:</b> TMK: 3-8-06		
<b>Historic Name:</b> Kuliouou Road Bridge-Kuliouou Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Steel Stringer	<b>Construction Date:</b> 1968	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 42.0 ft.	<b>Total Length:</b> 42.0 ft.	<b>Deck Width:</b> 12.0 ft.
<b>Superstructure:</b> Steel Multi-Girder			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Timber Deck			
<b>Parapets/Railings:</b> Wood			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kuliouou Road Bridge carries Kuliouou Road across Kuliouou Stream. This double-span steel stringer bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has metal and wood rails and a 4x12 wood timber deck. The bridge deck is supported by concrete abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs. Currently it is a city-owned bridge but it is undergoing process of conveyance to private property ownership in 2013.</p>		

**Significance Statement:**


The use of steel was uncommon in Hawaii due to the extreme marine environment. Since very little steel is used for bridge construction in Hawaii, this bridge is eligible under Criterion C for its distinctive structural type. It is a good example of a 1960's steel stringer bridge atypical of its period in its use of materials and design.



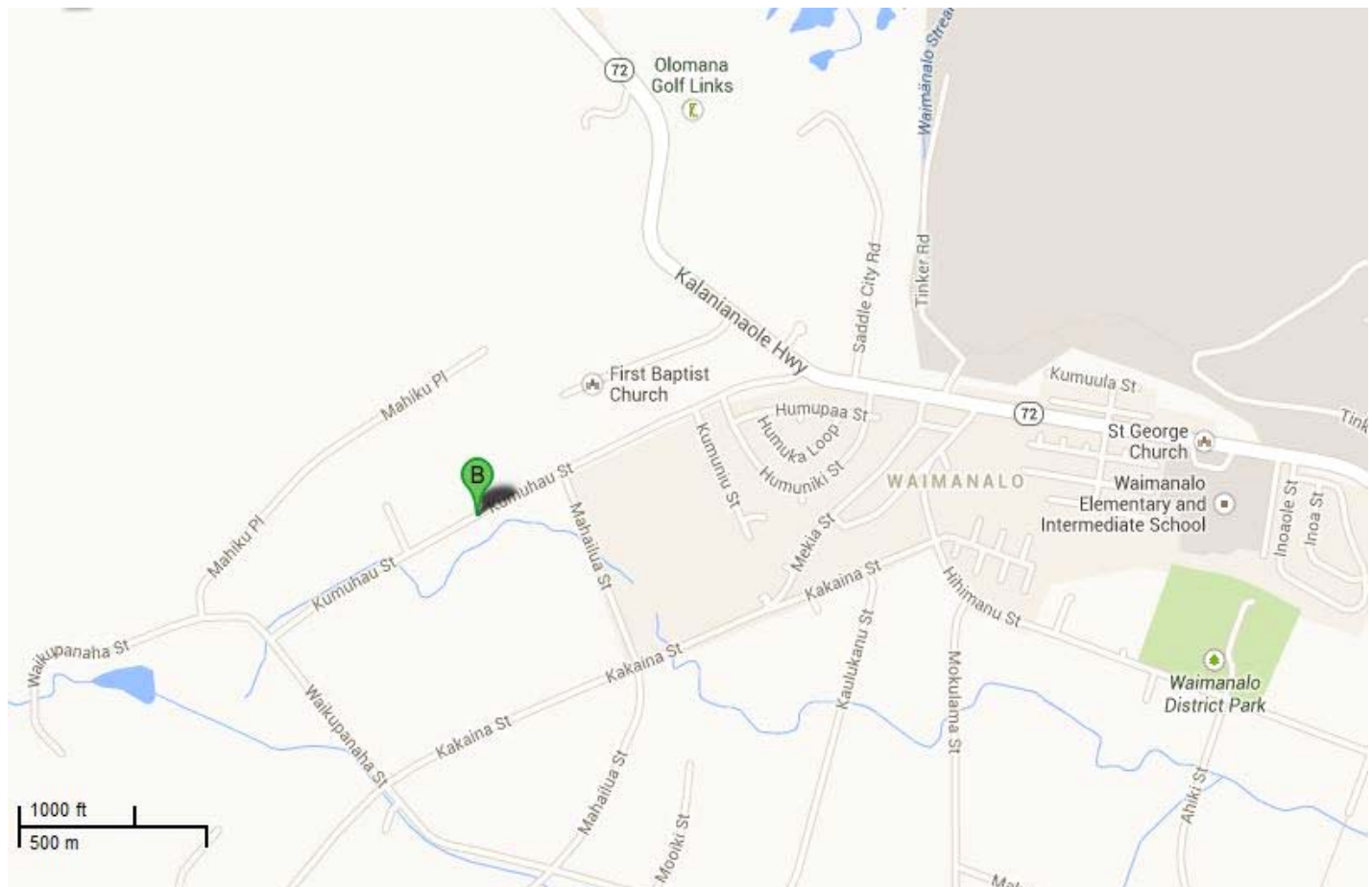
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003429001100001		
<b>Popular Name:</b> Kumuhau Street Bridge-Waimanalo Stream		
<b>Feature Crossed:</b> Waimanalo Stream		
<b>Feature Carried:</b> Kumuhau Street		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-44m-04.55s	<b>Latitude:</b> 21d-20m-45.39s	
<b>Location:</b> TMK: 4-1-18		
<b>Historic Name:</b> Kumuhau Street Bridge-Waimanalo Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Steel Stringer	<b>Construction Date:</b> 1963	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 30.0 ft.	<b>Total Length:</b> 31.0 ft.	<b>Deck Width:</b> 15.9 ft.
<b>Superstructure:</b> Steel Multi-Girder			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Metal Corrugated Deck with AC Overlay			
<b>Parapets/Railings:</b> Metal Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Construction		
<b>Narrative Description:</b> <p>The Kumuhau Street Bridge carries Kumuhau Street across Waimanalo Stream. This single-span steel bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has metal railings made of structural steel tubes and wide flange posts. A metal deck and an asphalt overlay are supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**

The use of steel was uncommon in Hawaii due to the extreme marine environment. Since very little steel is used for bridge construction in Hawaii, this bridge is eligible under Criterion C for its distinctive structural type. It is a good example of a 1960's steel stringer bridge atypical of its period in its use of materials and design.

# Inventory Form

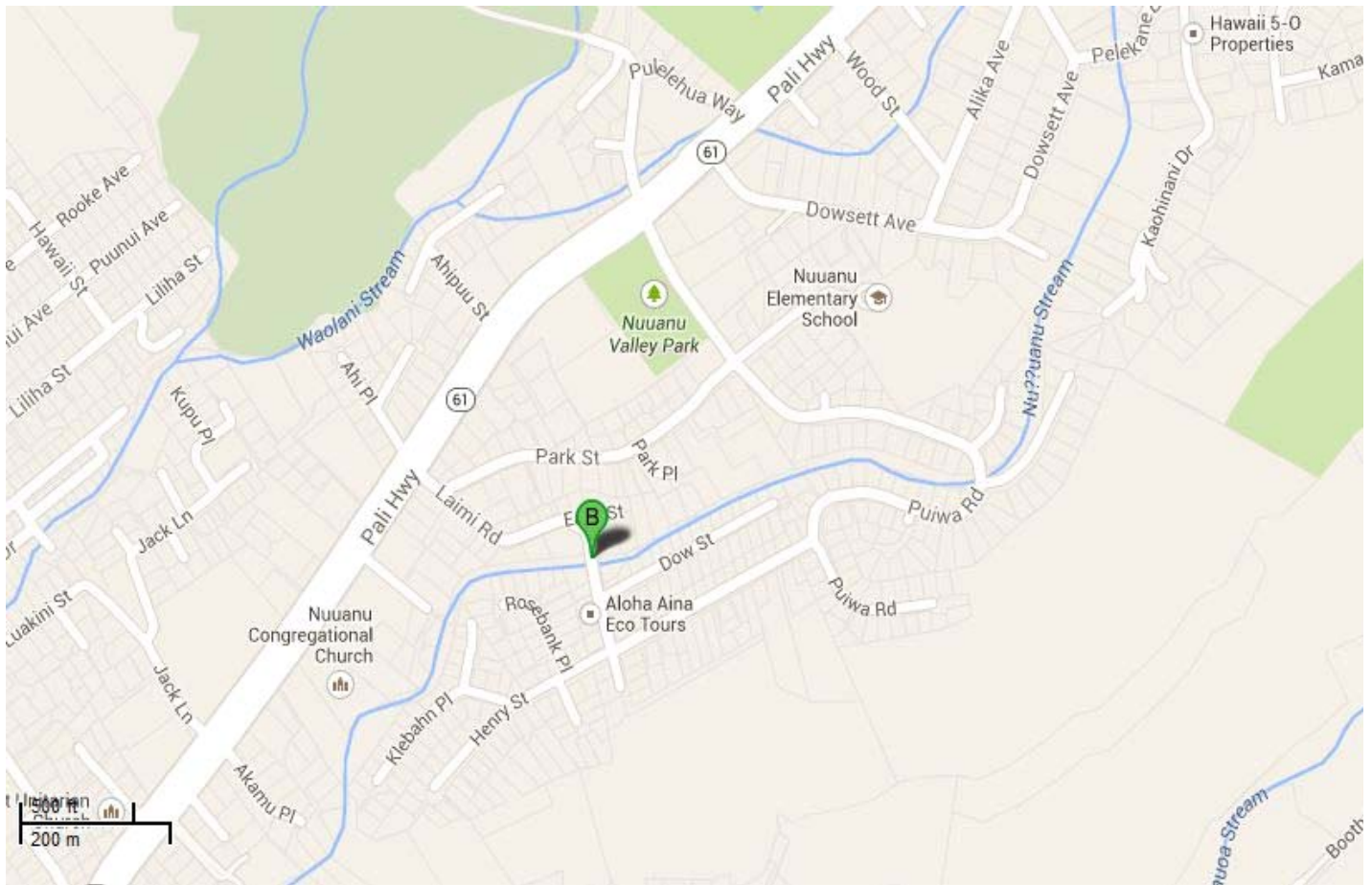
(County/Private)

## General Information

<b>Bridge Number:</b> 003261001200001	
<b>Popular Name:</b> Laimi Road Bridge-Nuuanu Stream	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> Laimi Road	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-50m-20.24s	<b>Latitude:</b> 21d-19m-58.95s
<b>Location:</b> TMK: 2-2-35	
<b>Historic Name:</b> Laimi Road Bridge-Nuuanu Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Girder	<b>Construction Date:</b> 1920	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 1976		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Pedestrian footbridge added		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 50.0 ft.	<b>Total Length:</b> 53.0 ft.	<b>Deck Width:</b> 22.0 ft.
<b>Superstructure:</b> Concrete Through Girder			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Laimi Road Bridge carries Laimi Road across Nuuanu Stream. This single-span reinforced concrete two-girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete panel parapets with caps and panel detail concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by concrete abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs however, a pre-stressed tee-beam pedestrian footbridge was added in 1976 to one side of the bridge.</p>		



**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1920's reinforced concrete bridge that is typical of its materials, method of construction, craftsmanship, and design. It is also associated with historic Nuuanu residential development.

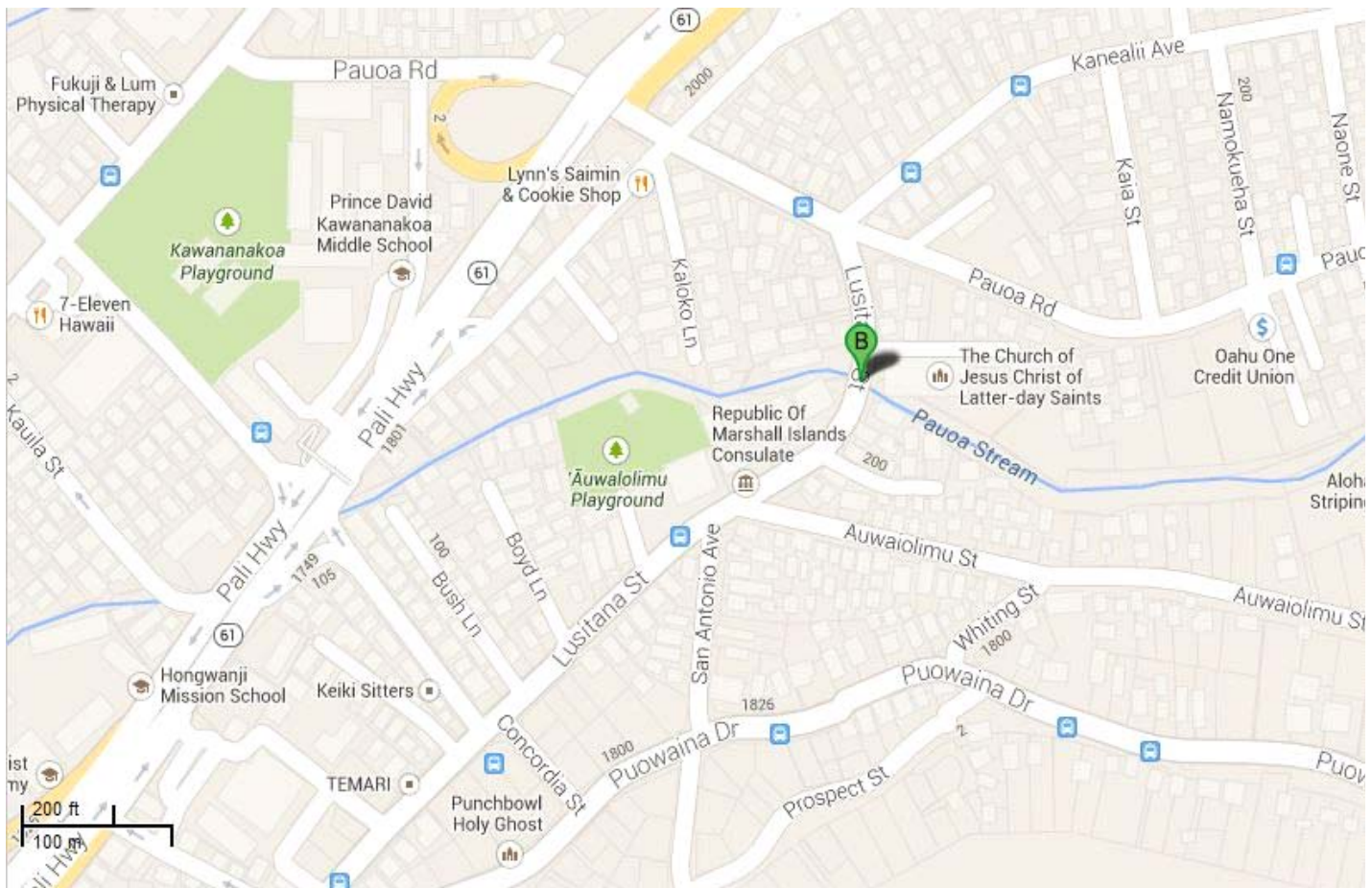
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083381400047		
<b>Popular Name:</b> Lusitana Street Bridge-Pauoa Stream		
<b>Feature Crossed:</b> Pauoa Stream		
<b>Feature Carried:</b> Lusitana Street		
<b>Milepost:</b> 0.47 mi.	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-50m-53.64s		<b>Latitude:</b> 21d-19m-06.19s
<b>Location:</b> 350 Feet North of Auwaiolimu Street		
<b>Historic Name:</b> Lusitana Street Bridge-Pauoa Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1932	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 2013		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Concrete repair of spalls and cracks		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 34.1 ft.	<b>Total Length:</b> 38.1 ft.	<b>Deck Width:</b> 15.8 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Pauoa Stream Bridge carries Lusitania Street across Pauoa Stream. This single-span reinforced concrete bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with arch voids and horizontal caps. Concrete end posts with caps flank the approaches of the parapets. The concrete deck is supported by concrete and masonry abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

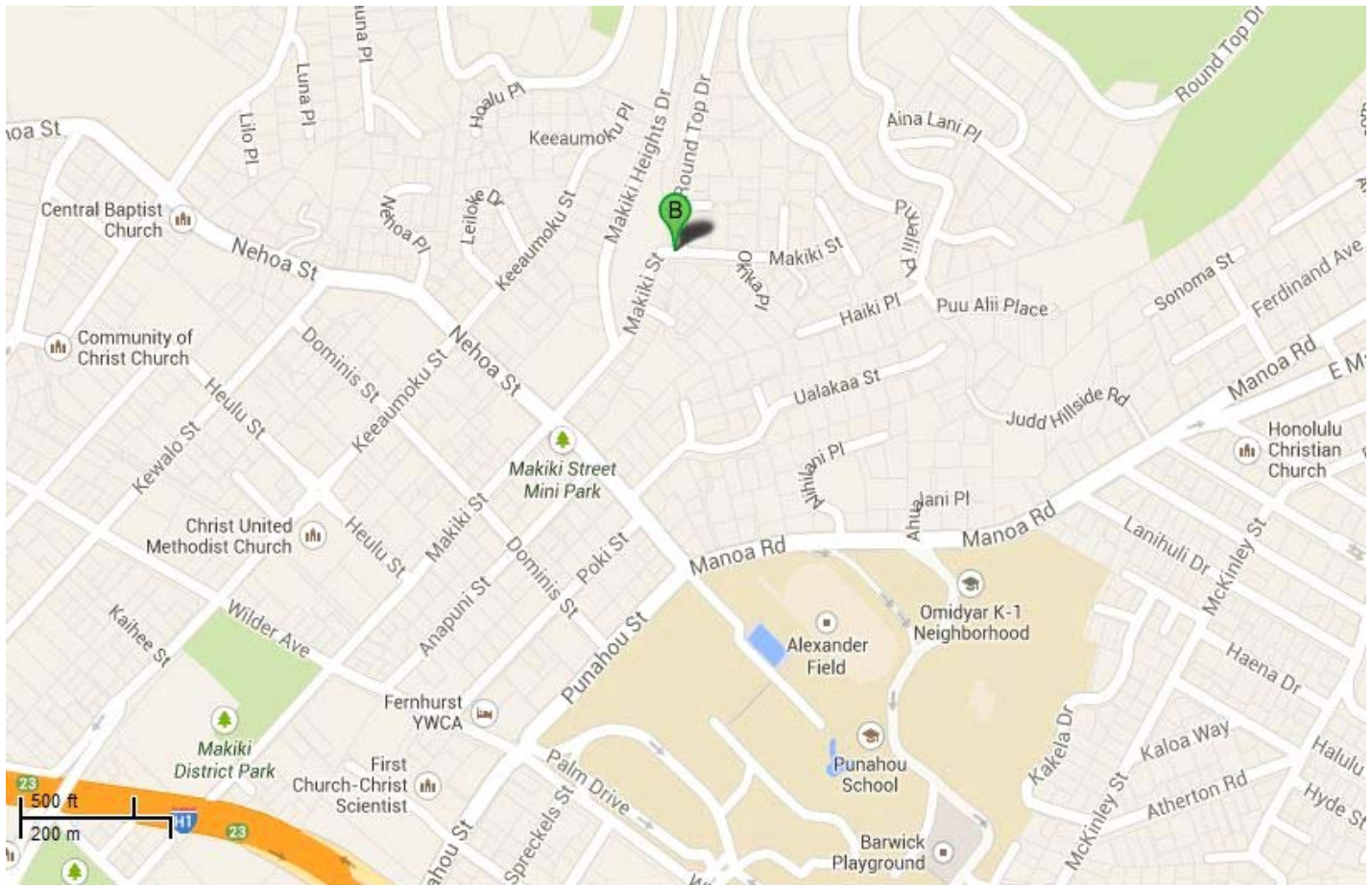
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003226001200001	
<b>Popular Name:</b> Makiki Street Bridge-Makiki Stream	
<b>Feature Crossed:</b> Makiki Stream	
<b>Feature Carried:</b> Makiki Street	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-49m-49.64s <b>Latitude:</b> 21d-18m-31.19s	
<b>Location:</b> TMK: 2-4-23	
<b>Historic Name:</b> Makiki Street Bridge-Makiki Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Closed Spandrel Arch	<b>Construction Date:</b> 1912	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 1953		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Bridge widened		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 20.0 ft.	<b>Total Length:</b> 22.0 ft.	<b>Deck Width:</b> 44.0 ft.
<b>Superstructure:</b> Concrete Closed Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> Metal Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Makiki Street Bridge carries Makiki Street across Makiki Stream. This widened arched bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge was widened in 1953 using reinforced concrete girders with a concrete deck on both sides of the elevation. It has round metal pipe rails and a chain-link fence. Although the 1953 work on the bridge widened it, the workmanship of the bridge has not been obscured by the additions or repairs, and the work did does not detract from the original design.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete arch bridge construction in Hawaii. It is a good example of a 1910's concrete arch bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. Arch bridges are also an uncommon bridge type.

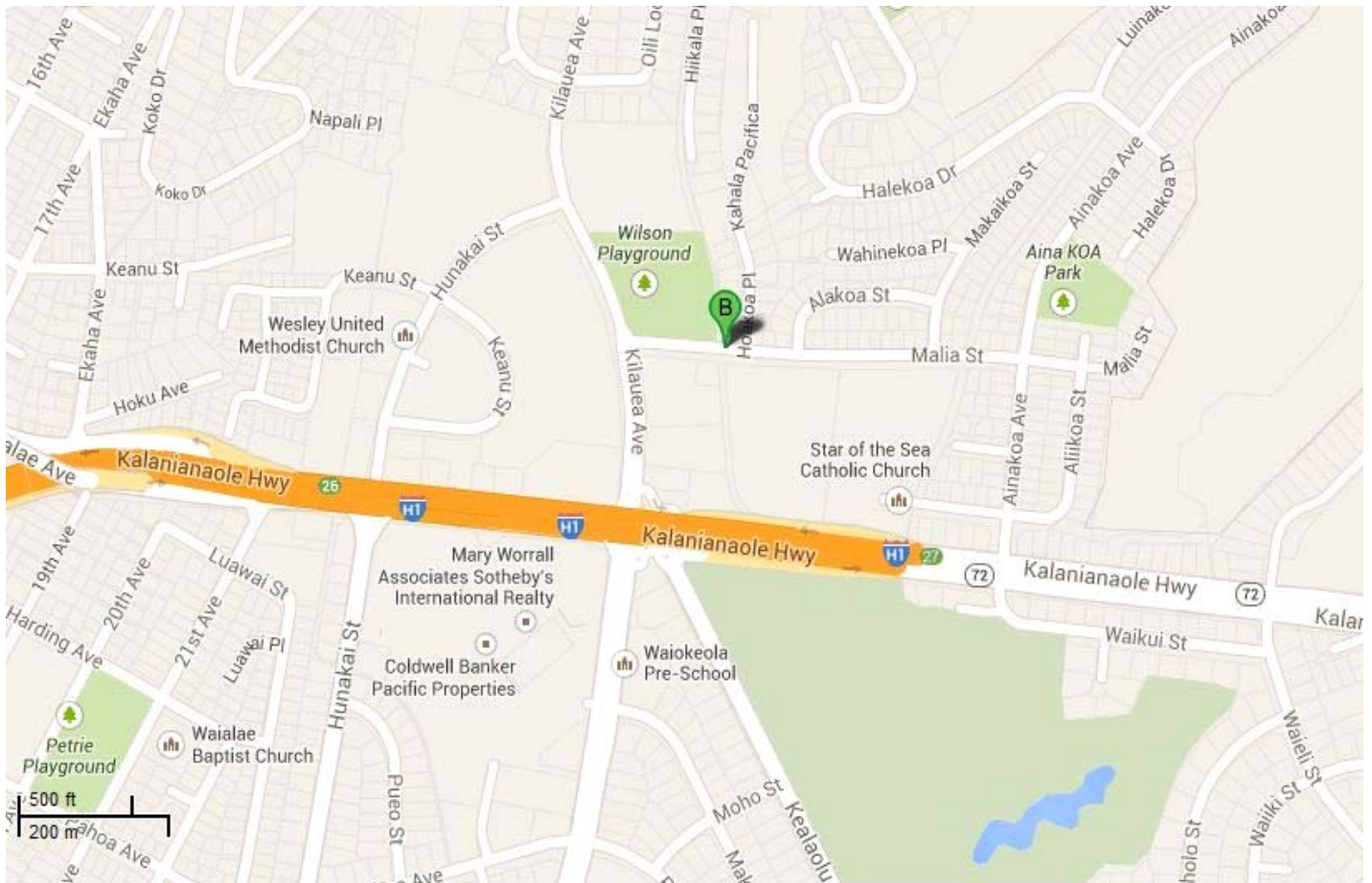
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003340001200001	
<b>Popular Name:</b> Malia Street Bridge No. 1-Waialae Nui Stream	
<b>Feature Crossed:</b> Waialae Nui Stream	
<b>Feature Carried:</b> Malia Street	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-46m-59.91s <b>Latitude:</b> 21d-16m-49.68s	
<b>Location:</b> TMK: 3-5-17	
<b>Historic Name:</b> Malia Street Bridge No. 1-Waialae Nui Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1961	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 21.0 ft.	<b>Total Length:</b> 23.0 ft.	<b>Deck Width:</b> 54.0 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Decorative			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Malia Street Bridge carries Malia Street across Waialae Nui Stream. This single-span reinforced concrete slab bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid parapets with horizontal detailing and decorative curved ends which are a unique feature but the parapets have been modified. The deck is supported by concrete abutments over a channeled ditch. The workmanship of the bridge parapet has been obscured by vine vegetation on one side of the bridge.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1960's reinforced concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



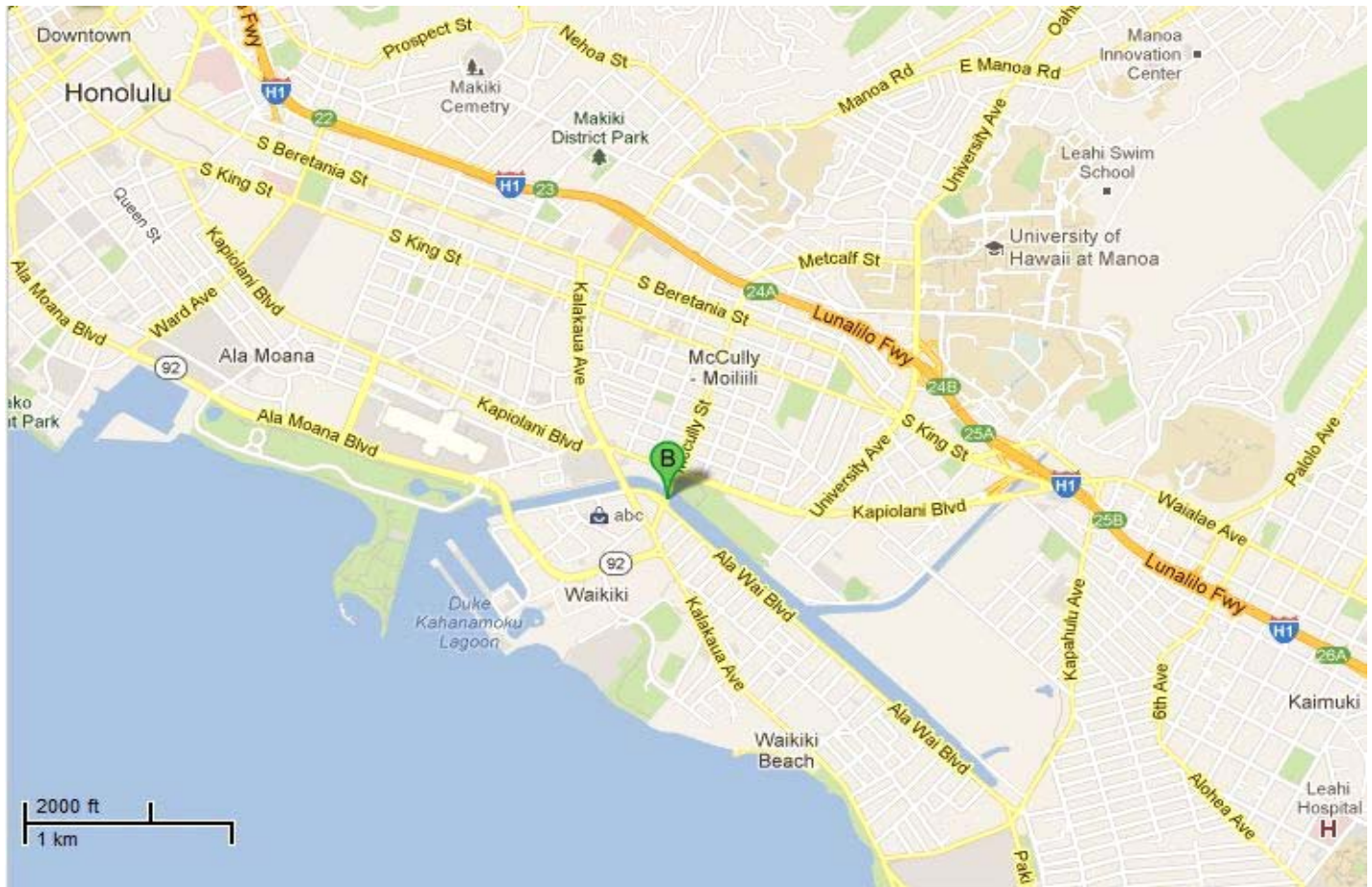
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083401400011	
<b>Popular Name:</b> McCully Street Bridge-Ala Wai Canal	
<b>Feature Crossed:</b> Ala Wai Canal	
<b>Feature Carried:</b> McCully Street	
<b>Milepost:</b> 0.11 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-49m-57.96s <b>Latitude:</b> 21d-17m-17.86s	
<b>Location:</b> North of Ala Wai Boulevard	
<b>Historic Name:</b> McCully Street Bridge-Ala Wai Canal	
<b>Designer/Engineer:</b> W.R. Bartels, M. Katak and R. Shima	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b>	Concrete Slab	<b>Construction Date:</b>	1959	<b>Replaced?</b>	No
<b>Altered?</b>	Yes	<b>Alteration Date(s):</b>	2004		
<b>Alteration Type(s):</b>					
<b>Alteration Description(s):</b> Replaced missing part, patch and repair					

## Bridge Information

<b>Number of Spans:</b> 7	<b>Max Span:</b> 34.1 ft.	<b>Total Length:</b> 166.0 ft.	<b>Deck Width:</b> 86.6 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Masonry Abutment and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Metal Horizontal			
<b>Setting:</b>			
<b>Other Features:</b> Walkways both sides, built on existing piles and piers			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Community Development		
<b>Narrative Description:</b> <p>The Ala Wai Canal Bridge was constructed in 1959 to cope with heavy traffic over McCully Street and was rehabilitated in 2004. The bridge is located on McCully Street between Kapiolani Boulevard and Ala Wai Boulevard as a seven span reinforced concrete slab bridge. It is built on existing piers of the old McCully St. Bridge which was no longer meeting the increasing motor vehicles’ needs. The south end of the bridge is flared to accommodate merging traffic and the ends spans are not supported by abutments. The decking is a reinforced flat concrete slab. This bridge is still in relatively good condition, except for some missing parts of the parapet, spalls and cracks on concrete support brackets, and exposed/corroded reinforcing bars. The parapets and the MOA are scheduled to be modified and completed during the summer of 2013. Each pier consists of pre-stressed concrete piles with a reinforced concrete pile cap. The materials and workmanship have not been obscured by additions or alterations. The engineering complexity can be considered standard for the era. However, the urbanized surroundings and width of the bridge distract moderately from the historic feeling of this structure.</p>		

## Significance Statement:

William R. Bartels, Chief Engineer for the Territorial Highway Department, was responsible for many major territorial bridge projects from 1932-1956. His work characteristically utilized the latest technology and involved a high degree of engineering complexity. Nonetheless, his bridges evidence a refined aesthetic sensibility, which makes them distinctive from work of other engineers.

William R. Bartels was a German born engineer who worked briefly for a sugar plantation on Maui before being hired by the Territorial Highway Department in 1932. Bartels designed most territorial bridges from then until 1957. He was responsible for the largest and most sophisticated bridge construction projects in Hawaii during this time and there was a marked shift to large deck girder and rigid frame bridges. Bartels ended his tenure as Chief of the Bridge Division at age 70. This was well past the standard retirement age but he was kept on by special permission and out of necessity because his abilities were so great. Bridges designed by Bartels have often been hailed for their accomplishment of engineering as well as aesthetics.

### The Bennett-Maier Plan for Waikiki Re-development

This new McCully St. Bridge is a part of the Bennett-Maier plan in 1954 for Waikiki redevelopment to relieve and control the increasing traffic problem in the Waikiki area. The plan proposed this bridge as a way to improve traffic movement into Waikiki from all sections of the island, as well as correct the serious traffic conditions on Kalakaua at the Ala Moana and Ala Wai Boulevard intersections. Studied by Charles B. Bennett, a planning consultant from Los Angeles, and Eugene Maier, a traffic consultant from Houston,(1) the development plan for Waikiki in 1954 suggested the construction of a new bridge at McCully Street, with six traffic lanes over the Ala Wai.(2) The construction of the bridge alleviated the most dangerous intersection, in terms of traffic accidents, in the City & County of Honolulu.

### Eugene Maier

Eugene Maier was the director of public works and engineering in Houston and was awarded by the American Public Work Association of National Public Works Week as one of the Top Ten Public Works Leaders for the year 1961.(3)

### The Ala Wai Canal

The Ala Wai Canal is a picturesque waterway at the western entrance to Waikiki. Constructed in 1922, the canal drains marshlands and diverts storm water runoff away from Waikiki and into the Pacific Ocean. The canal is about 2 miles long, 75 yards wide at the mouth and 100 yards wide in the upper reaches. The drainage area or watershed comprises about 16.3 square miles.(4) The Ala Wai Canal is a man-made estuary that separates the tourist destination of Waikiki from the rest of the island. The watershed encompasses a variety of land uses including urban areas, residential neighborhoods, preservation lands, agriculture, and three stream systems.(5)

Prior to the completion of the canal, the southeastern coast of Oahu was a swampland of fish and duck ponds. Today, the Ala Wai Canal marks the entrance to one of the most famous tourist and beach areas in the world - Waikiki.

The Canal has been designated as both a State Historic Site in 1992, and a National Historic Site in 1985. It is important as a visual feature of Waikiki, in a state which generates about 70 percent of its income from the tourist industry. The canal is important as a place for practice by many kayak and outrigger canoe clubs.(6)

(1) Charles B. Bennett and Eugene Maier, Studies and Recommendations for the Development of Waikiki, 1954, 1.

(2) Charles B. Bennett and Eugene Maier, Studies and Recommendations for the Development of Waikiki, 1954, 1.

(3) APWA. Top Ten Public Works Leaders of the Year: 1960 to Present, [www.apwa.net/About/Awards.asp?Display=top10list](http://www.apwa.net/About/Awards.asp?Display=top10list) (accessed March 9, 2005).

(4) Eugene P. Dashiell, Ala Wai Canal Watershed Water Quality Improvement Project, Honolulu, Mayors' Asia Pacific Environmental Summit, [www.csis.org/e4e/Mayor32Dshiell.html](http://www.csis.org/e4e/Mayor32Dshiell.html) (accessed September 3, 2003).

(5) Ala Wai Canal, Inventory of Current EPA Efforts to Protect Ecosystem, [www.epa.gov/ecoplaces/part2/region9/site1.html](http://www.epa.gov/ecoplaces/part2/region9/site1.html) (accessed September 3, 2003).

(6) Eugene P. Dashiell, Ala Wai Canal Watershed Water Quality Improvement Project, Honolulu, Mayors' Asia Pacific Environmental Summit, [www.csis.org/e4e/Mayor32Dshiell.html](http://www.csis.org/e4e/Mayor32Dshiell.html) (accessed September 3, 2003).

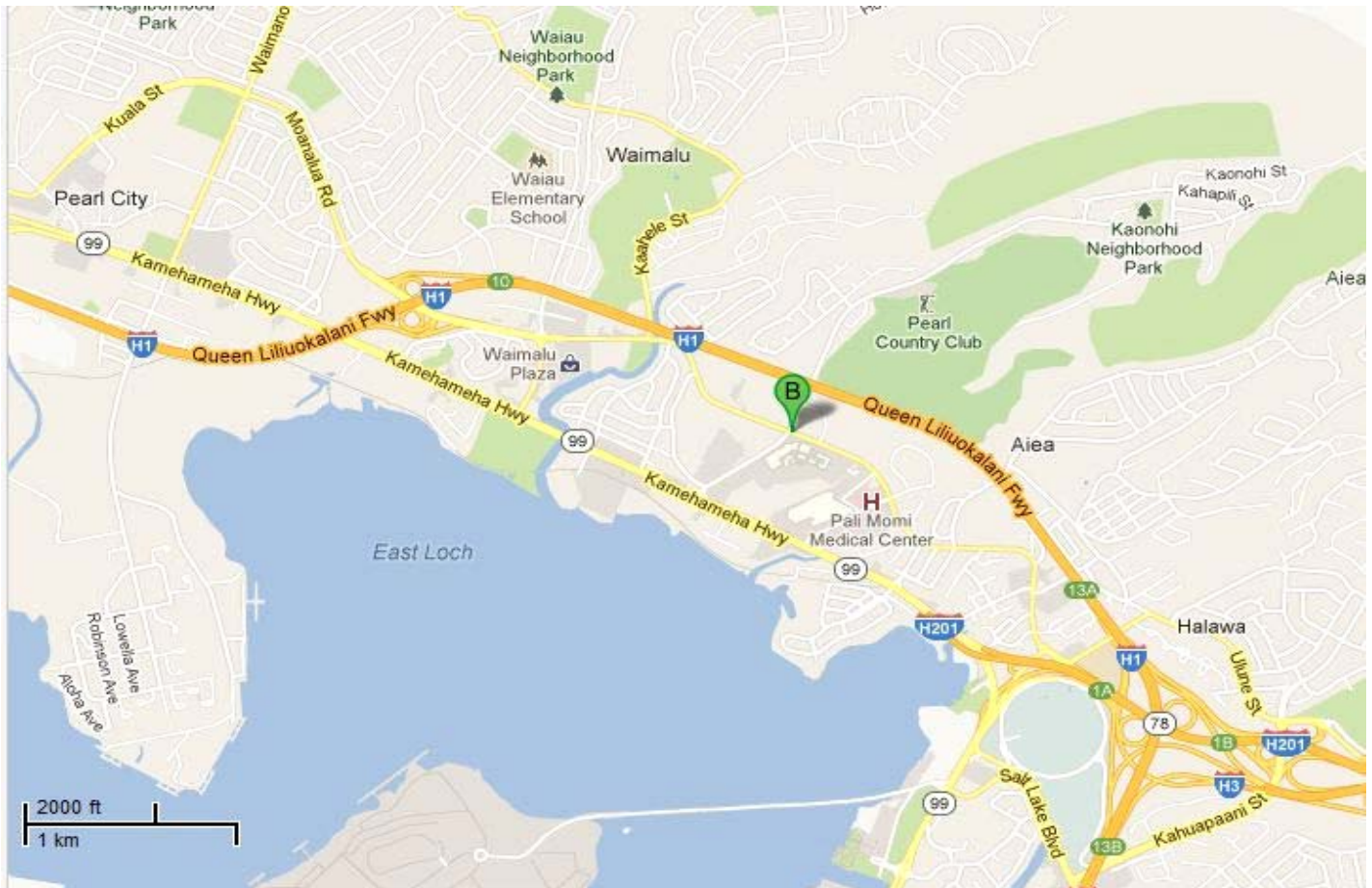
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003072001400235	
<b>Popular Name:</b> Moanalua Road Bridge-Kaonohi Stream	
<b>Feature Crossed:</b> Kaonohi Stream	
<b>Feature Carried:</b> Moanalua Road	
<b>Milepost:</b> 2.35 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-56m-19.62s <b>Latitude:</b> 21d-23m-06.37s	
<b>Location:</b> 0.23 Miles East of Kaonohi Street	
<b>Historic Name:</b> Moanalua Road Bridge-Kaonohi Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Closed Spandrel Arch	<b>Construction Date:</b> 1966	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 46.9 ft.	<b>Total Length:</b> 88.9 ft.	<b>Deck Width:</b> 80.1 ft.
<b>Superstructure:</b> Concrete Closed Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> Metal Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kaonohi Stream Bridge carries Moanalua Road across the Kaonohi Stream. This single span closed arch bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has metal horizontal railings with horizontally detailed concrete end posts. The concrete deck is a reinforced concrete slab with asphalt overlay and is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs however, portions of the bridge has graffiti.</p>		



**Significance Statement:**

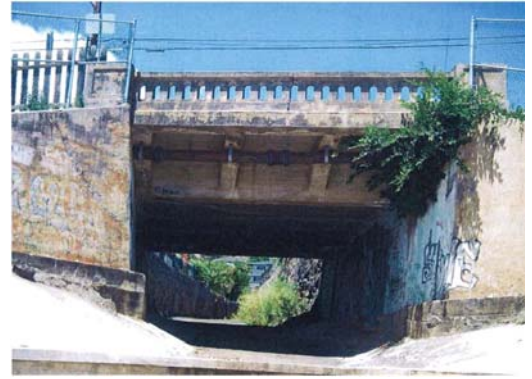
This bridge is eligible under Criterion C for being a good example of a 1960's closed arch bridge that is atypical of its period in methods of construction, craftsmanship, and design. This bridge is the only arch bridge built post-war (1945) in the state of Hawaii in the historic study period prior to 1969. Arch bridges are an uncommon bridge type.

# Inventory Form

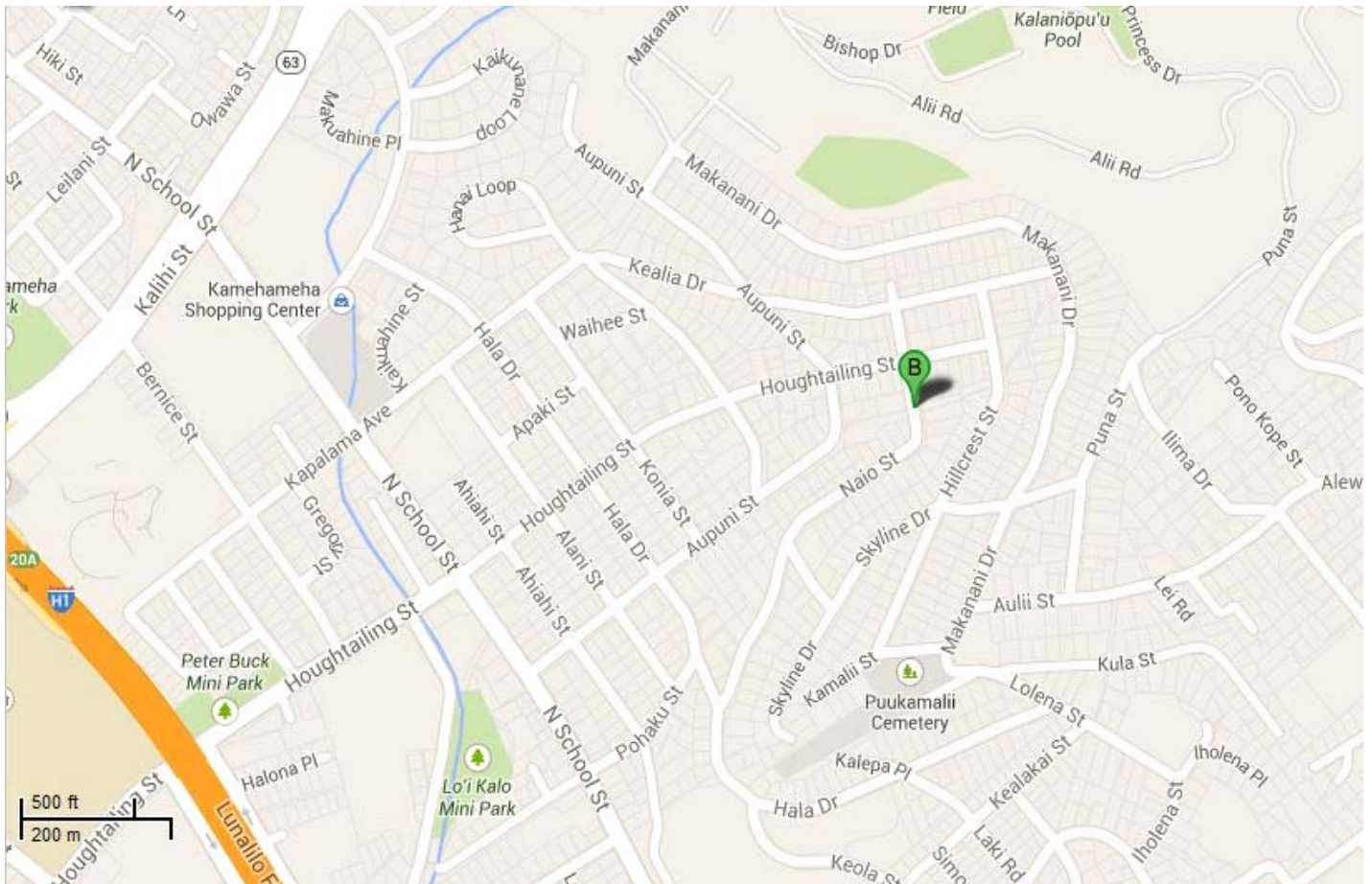
(County/Private)

## General Information

<b>Bridge Number:</b> 003154001200001	
<b>Popular Name:</b> Naio Street Bridge-Nuhelewai Stream	
<b>Feature Crossed:</b> Nuhelewai Stream	
<b>Feature Carried:</b> Naio Street	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-51m-37.73s	<b>Latitude:</b> 21d-20m-02.72s
<b>Location:</b> TMK: 1-6-17	
<b>Historic Name:</b> Naio Street Bridge-Nuhelewai Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1927	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 19.0 ft.	<b>Total Length:</b> 23.0 ft.	<b>Deck Width:</b> 40.4 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Naio Avenue Bridge carries Naio Street across Nuhelewai Stream. This single-span reinforced concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with arch voids and horizontal caps. Concrete panel detailed end posts with caps flank the approaches of the parapets. The concrete deck is supported by reinforced concrete abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1920's reinforced concrete bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

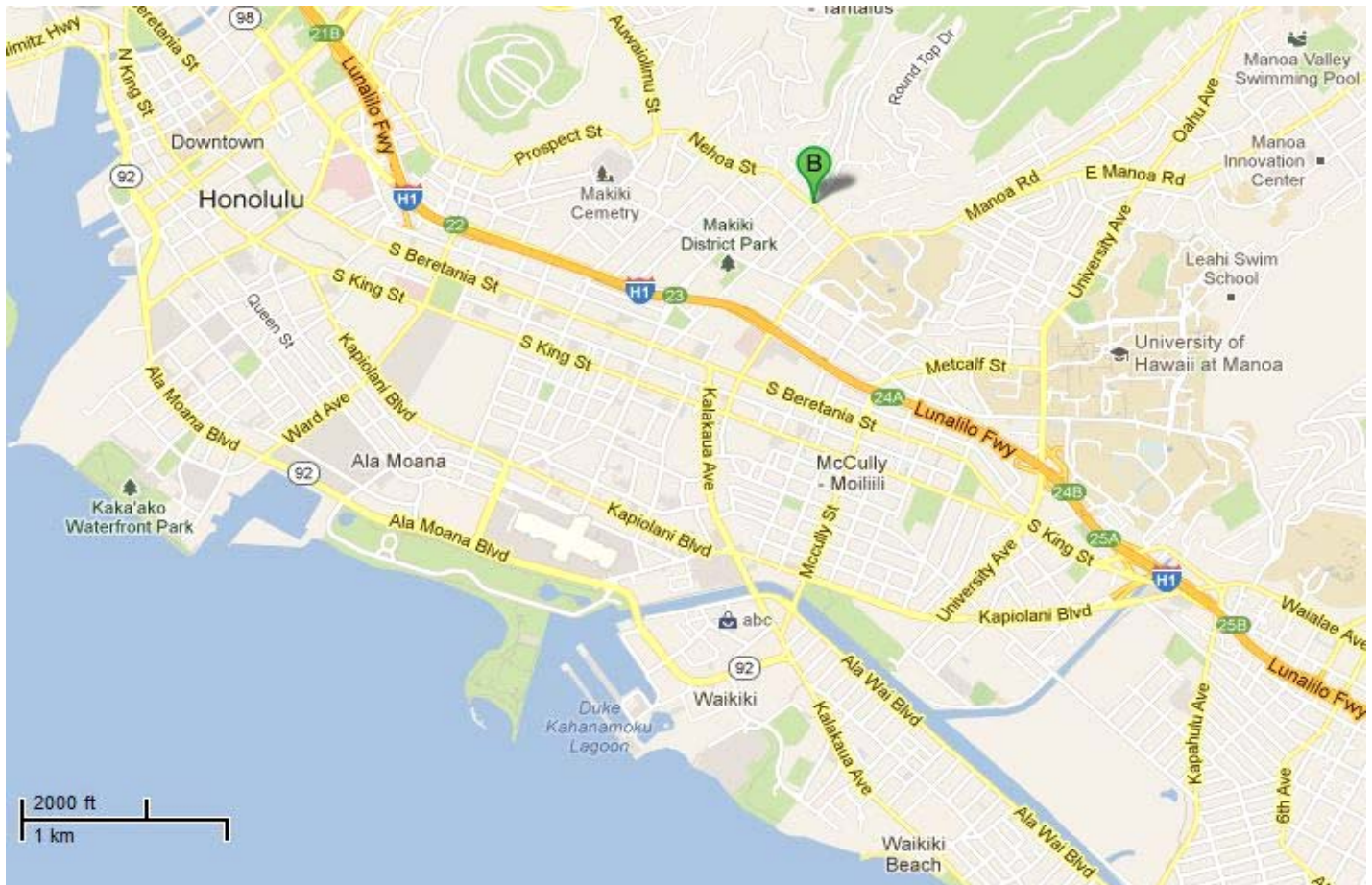
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083461400067	
<b>Popular Name:</b> Nehoa Street Bridge-Makiki Stream	
<b>Feature Crossed:</b> Makiki Stream	
<b>Feature Carried:</b> Nehoa Street	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-49m-54.02s <b>Latitude:</b> 21d-18m-23.38s	
<b>Location:</b> 100 Feet East of Makiki Street	
<b>Historic Name:</b> Nehoa Street Bridge-Makiki Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1920	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 24.0 ft.	<b>Total Length:</b> 24.0 ft.	<b>Deck Width:</b> 48.6 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Masonry Abutment			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid Panel with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Makiki Stream Bridge carries Nehoa Street across Makiki Stream. This single-span concrete slab bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid concrete parapets with horizontal caps and panel detailed end posts with horizontal caps. The concrete deck is supported by concrete and masonry abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

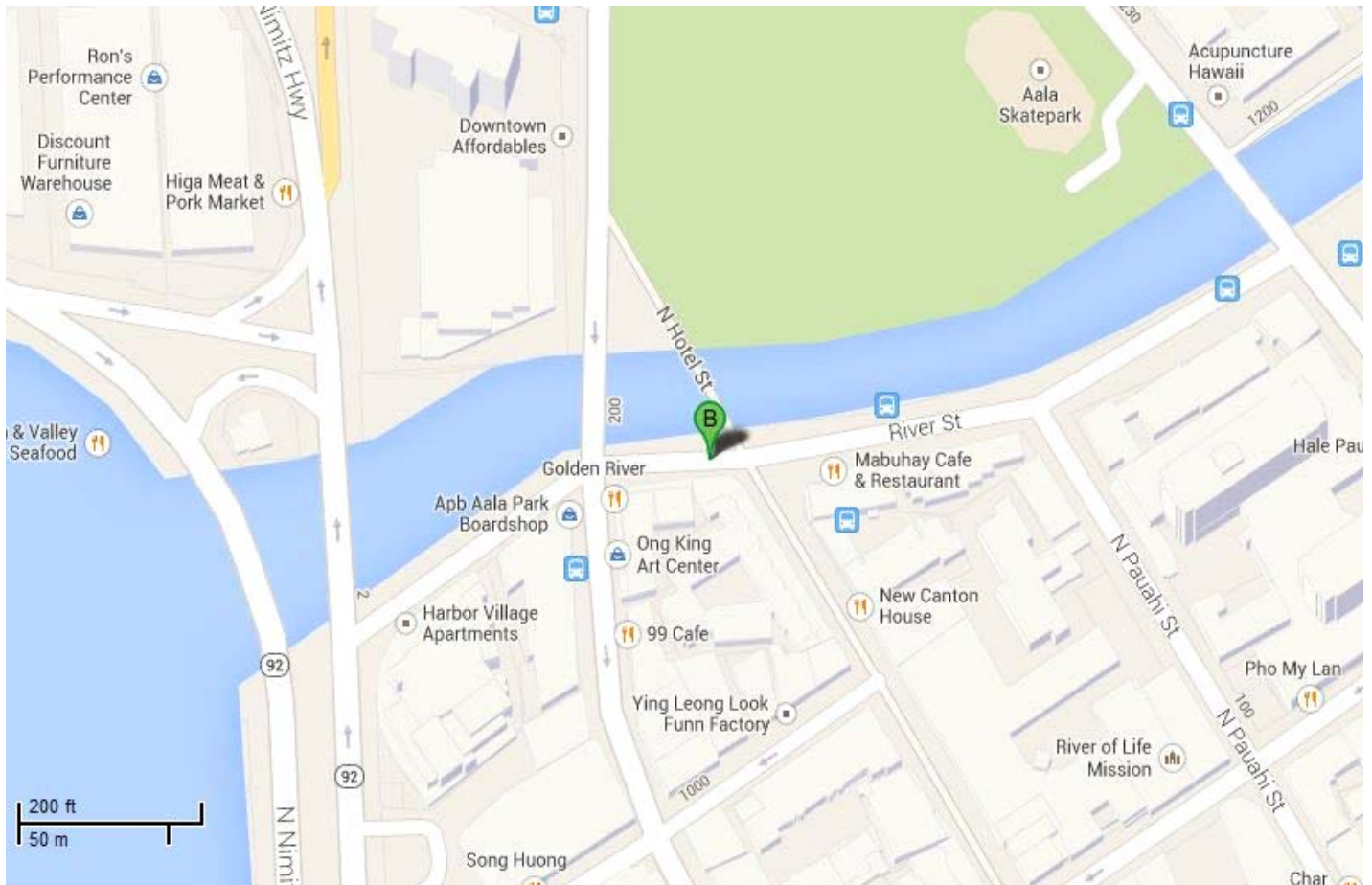
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083981400003	
<b>Popular Name:</b> North Hotel Street Bridge-Nuuanu Stream	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> North Hotel Street	
<b>Milepost:</b> 0.03 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-51m-49.98s <b>Latitude:</b> 21d-18m-49.82s	
<b>Location:</b> TMK: 1-7-27	
<b>Historic Name:</b> North Hotel Street Bridge-Nuuanu Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Slab	<b>Construction Date:</b> 1936	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 41.0 ft.	<b>Total Length:</b> 101.0 ft.	<b>Deck Width:</b> 46.0 ft.
<b>Superstructure:</b> Concrete Slab			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck			
<b>Parapets/Railings:</b> Concrete and Metal Decorative			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Nuuanu Stream Bridge carries North Hotel Street across Nuuanu Stream. This single-span reinforced concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid concrete capped parapets with arched voids and decorative end posts. The concrete deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**


This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's concrete slab bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



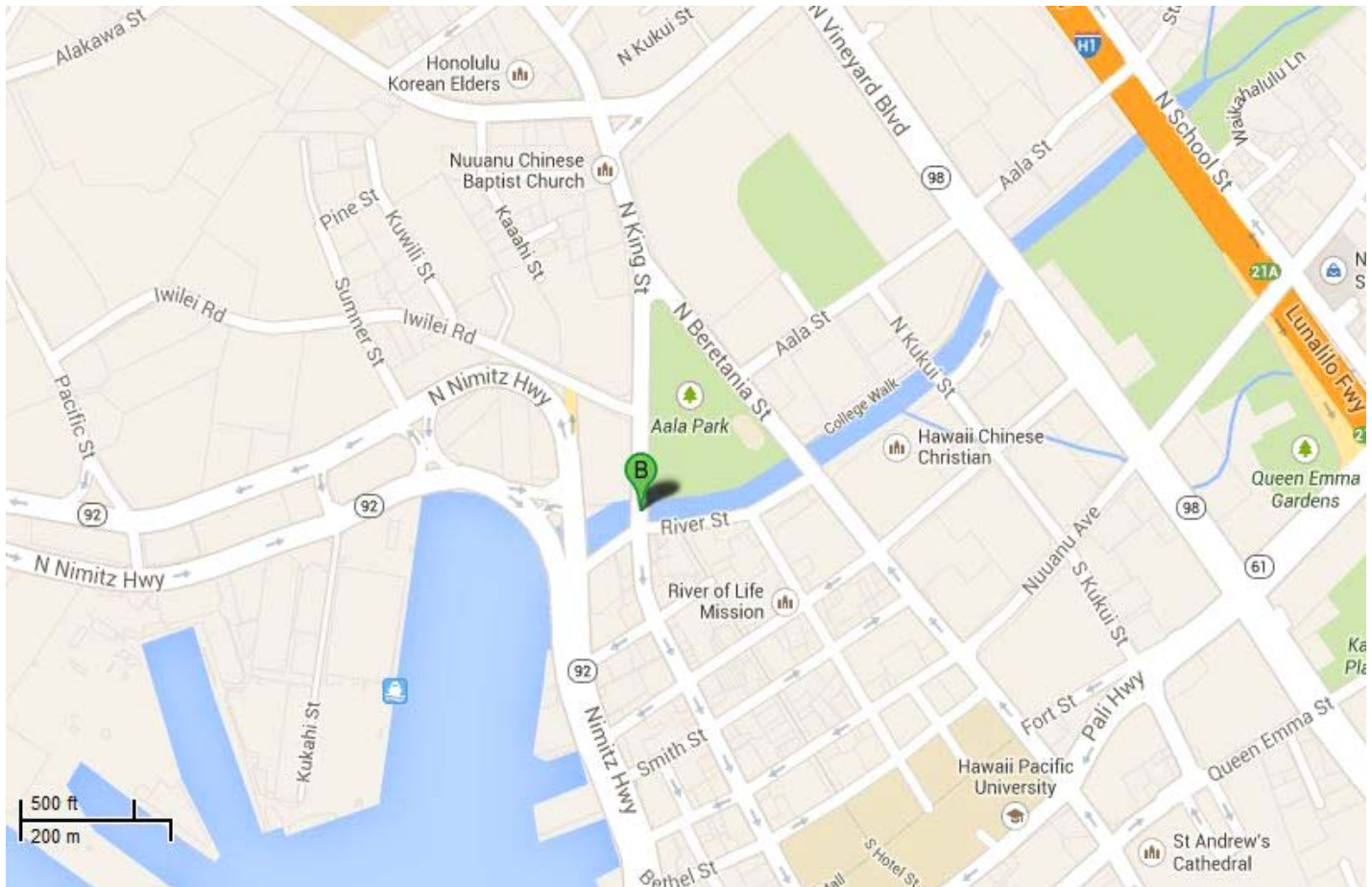
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003062081400218	
<b>Popular Name:</b> North King Street Bridge No. 1-Nuuanu Stream	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> North King Street	
<b>Milepost:</b> 2.18 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-51m-51.25s <b>Latitude:</b> 21d-18m-49.65s	
<b>Location:</b> East of River Street	
<b>Historic Name:</b> North King Street Bridge No. 1-Nuuanu Stream	
<b>Designer/Engineer:</b> H. A. R. Austin / Fred Ohrt	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1922	<b>Replaced?</b> No
<b>Altered?</b> Yes	<b>Alteration Date(s):</b> Unknown	
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Replaced original light fixtures		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 24.9 ft.	<b>Total Length:</b> 91.9 ft.	<b>Deck Width:</b> 80.1 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Solid			
<b>Setting:</b>			
<b>Other Features:</b> Reinforced concrete lamp standards			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The North King Street-Nuuanu River Bridge, also known as the North King Street Bridge No. 1, carries King Street over the Nuuanu River which drains into Honolulu Harbor. The bridge is a three-span reinforced concrete continuous tee beam bridge.</p> <p>The North King Street Bridge remains in its original location over the Nuuanu River. The bridge's setting alongside the Chinatown Historic District has retained its historic character. The bridge's original tee beam design and reinforced concrete materials remain intact. The bridge was technologically innovative for its time, since tee beam construction was relatively uncommon in the islands until the mid-1930s. The original bridge was the work of skilled builders, who constructed its three concrete spans over the river. The quality of the workmanship remains evident despite minor spalling concrete and the replacement of the original light fixtures from the cast concrete lamp standards. The bridge's historic associations, as a representative example of an early concrete tee beam bridge and an essential element in Honolulu's urban road system, as well as a potentially contributing resource within the Chinatown Historic District, are readily apparent to visitors. The bridge is easily viewed from River Street which runs parallel to the Nuuanu River. The bridge's historic feeling is primarily evident due to its decorative stepped parapets and the slight rise of the deck as it spans the river.</p>		

**Significance Statement:**

The North King Street-Nuuanu River Bridge is significant in the areas of engineering and transportation in Hawaii. The bridge is an excellent example of reinforced concrete tee beam construction with solid decorative parapets. The bridge is eligible under Criterion A for its associations with public works efforts by the City and County of Honolulu during the Territorial period, and as an important civic structure associated with the development of urban Honolulu and Chinatown. It is eligible under Criterion C as excellent example of a 1920s-era bridge utilizing a relatively new engineering technology, continuous reinforced concrete tee-beam construction, as well as for its aesthetic merit. The bridge is located alongside the Chinatown Historic District which was nominated to the National Register on January 17, 1973 (State Site Number 80-14-9986).

The North King Street-Nuuanu River Bridge was constructed as part of the upgrading of Honolulu's road system. The bridge is a significant contributing historic resource alongside the Chinatown Historic District. The bridge contributed to the economic development of Chinatown by providing reliable vehicular access at an important river crossing.


The North King Street- Nuuanu River Bridge is one of the first large reinforced concrete tee-beam bridges built in the state.(1) The bridge utilizes technology typical of later concrete bridges and demonstrates the rapid advances in engineering technology in the early decades of the twentieth century. H.A.R. Austin, whose name appears on the plans for the bridge, was the chief engineer for the City and County of Honolulu, Department of Public Works.

(1) Bethany Thompson, Historic Bridge Inventory: Island of Oahu, prepared for the State of Hawaii Department of Transportation Highways Division in cooperation with the U.S. Department of Transportation, Federal Highway Administration (Honolulu, 1983), VII-25.

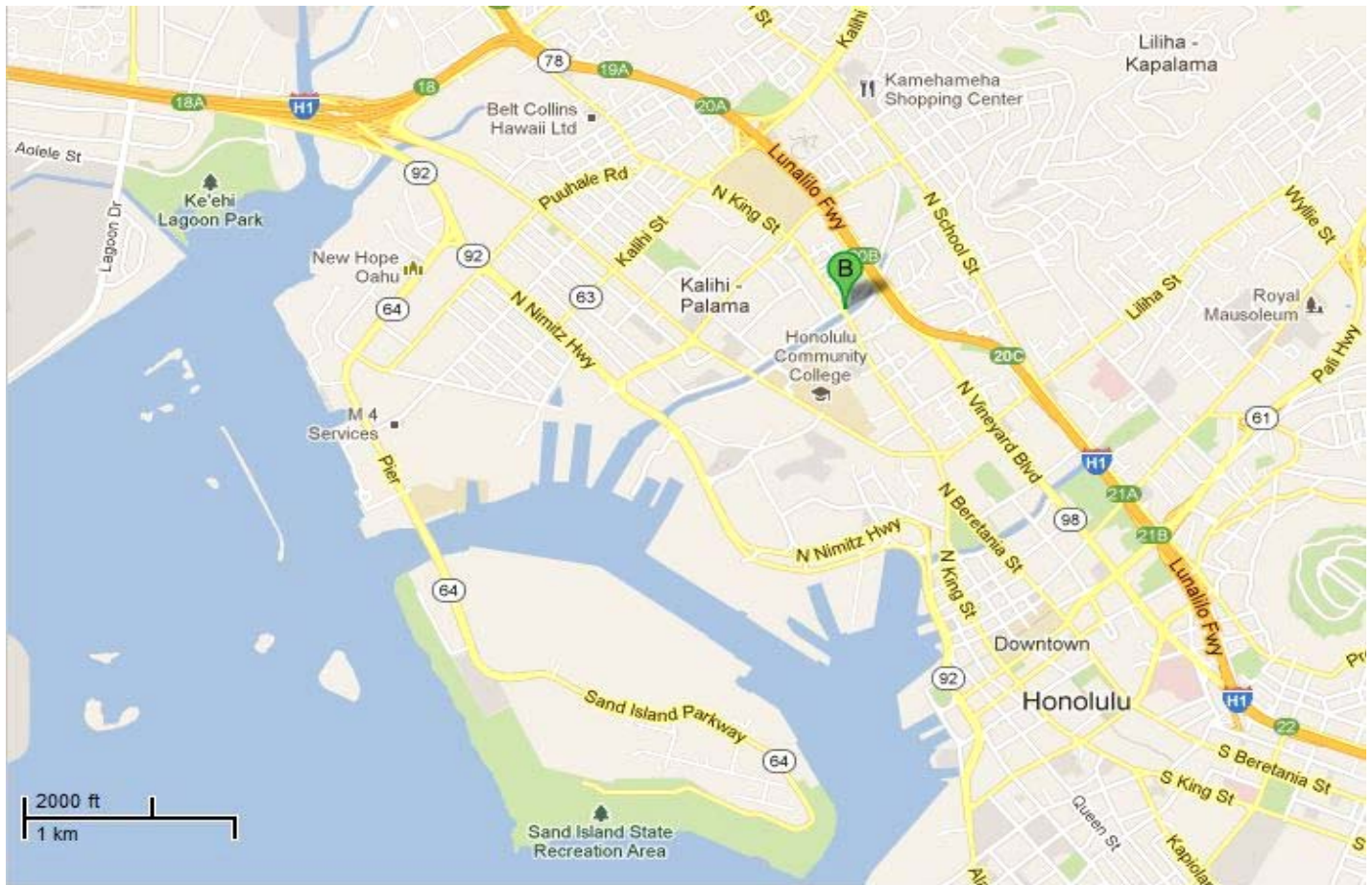
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003062081400134	
<b>Popular Name:</b> North King Street Bridge No. 2-Kapalama Canal	
<b>Feature Crossed:</b> Kapalama Canal	
<b>Feature Carried:</b> North King Street	
<b>Milepost:</b> 1.34 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-52m-07.93s <b>Latitude:</b> 21d-19m-29.66s	
<b>Location:</b> TMK: 1-6-02	
<b>Historic Name:</b> North King Street Bridge No. 2-Kapalama Canal	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1938	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 23.0 ft.	<b>Total Length:</b> 101.0 ft.	<b>Deck Width:</b> 86.7 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete and Metal Decorative			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kapalama Canal Bridge carries North King Street across the Kapalama Canal. This four-span reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has decorative metal railings with concrete intermittent posts and concrete end posts. The concrete deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs however, portions of the metal railings show signs of corrosion.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete tee-beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

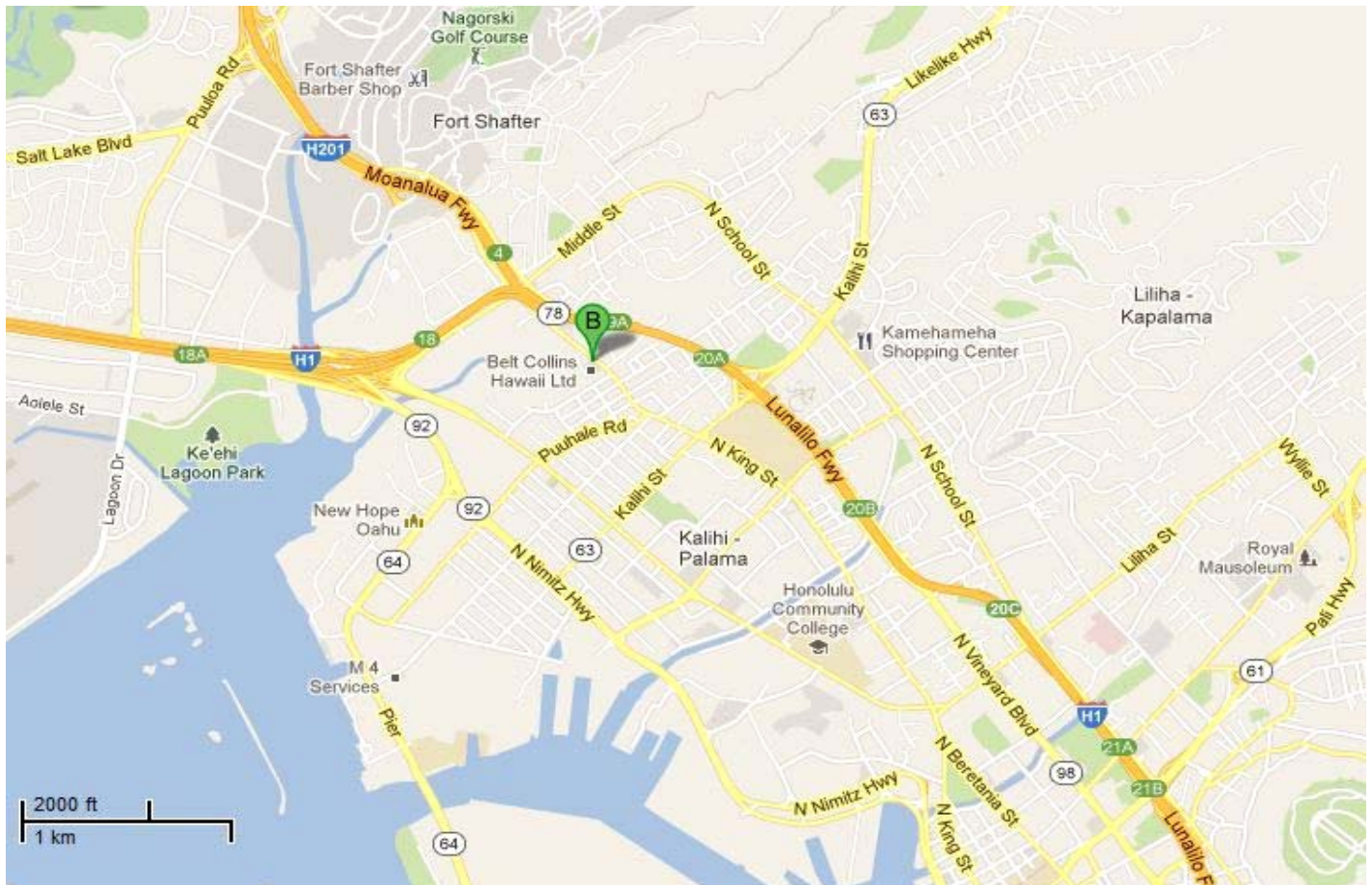
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003062081400037	
<b>Popular Name:</b> North King Street Bridge-Kalihi Stream	
<b>Feature Crossed:</b> Kalihi Stream	
<b>Feature Carried:</b> North King Street	
<b>Milepost:</b> 0.37 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-52m-46.86s <b>Latitude:</b> 21d-20m-02.61s	
<b>Location:</b> 300 Feet West of Gulick Avenue	
<b>Historic Name:</b> North King Street Bridge-Kalihi Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1933	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 62.0 ft.	<b>Total Length:</b> 65.0 ft.	<b>Deck Width:</b> 86.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kalihi Stream Bridge carries North King Street across the Kalihi Stream. This reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has parapets with arched voids and end posts with caps. The concrete deck is supported by concrete masonry abutments. The workmanship of the bridge has not been obscured by additions or repairs. The bridge has retained its historic feeling due to the design of the railings which are typical of 1930s bridges.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's reinforced concrete tee-beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

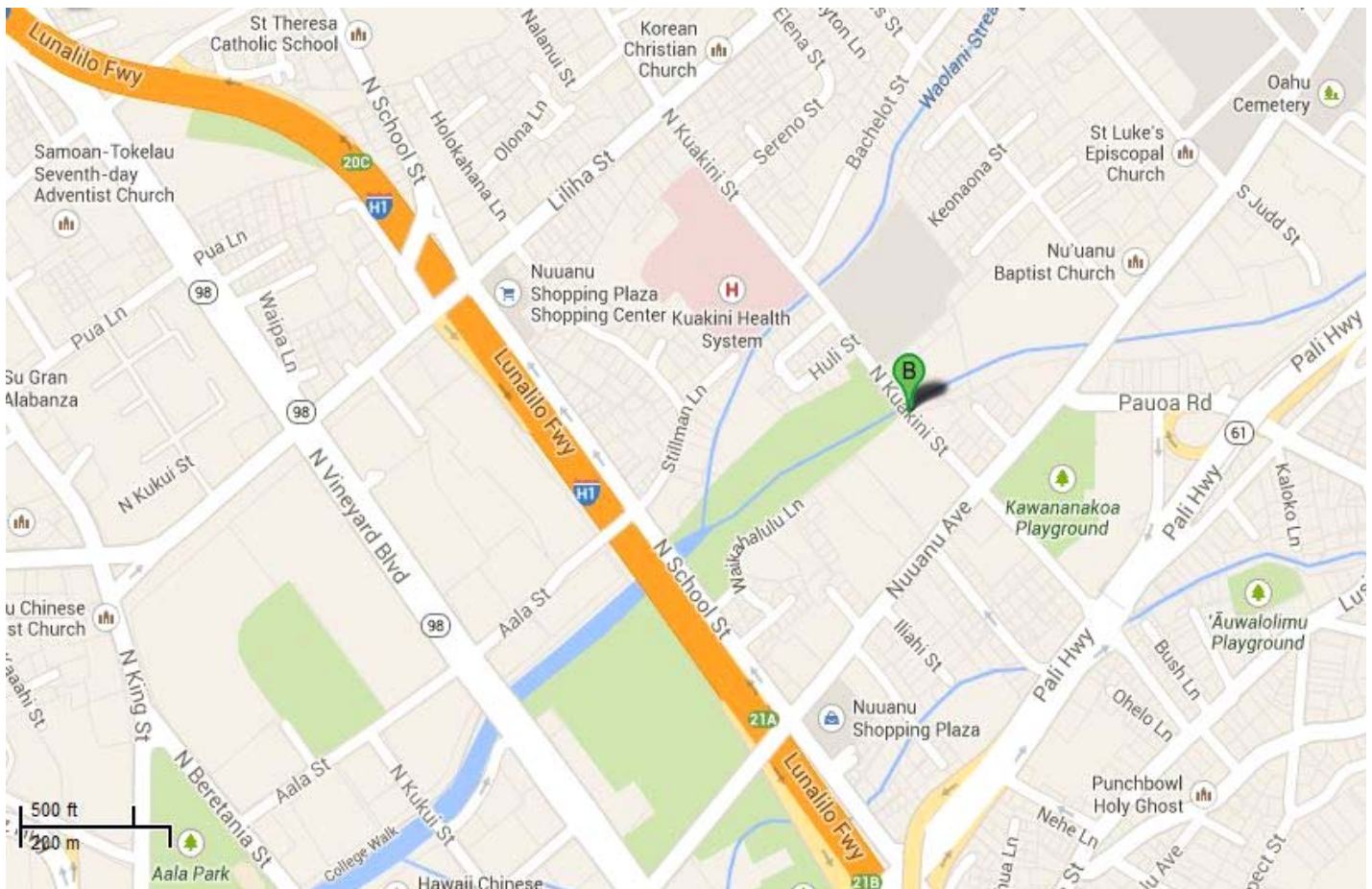
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083321400031	
<b>Popular Name:</b> North Kuakini Street Bridge No. 1-Nuuanu Stream	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> North Kuakini Street	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-51m-15.55s <b>Latitude:</b> 21d-19m-12.33s	
<b>Location:</b> 450 Feet Northwest of Nuuanua Avenue	
<b>Historic Name:</b> North Kuakini Street Bridge No. 1-Nuuanu Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1934	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 55.1 ft.	<b>Total Length:</b> 64.0 ft.	<b>Deck Width:</b> 52.8 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Nuuanu Stream Bridge carries North Kuakini Street across Nuuanu Stream. This single-span arch girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with arch voids and horizontal caps. Concrete end posts with caps flank the approaches of the parapets. The concrete deck is supported by reinforced concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

# Inventory Form

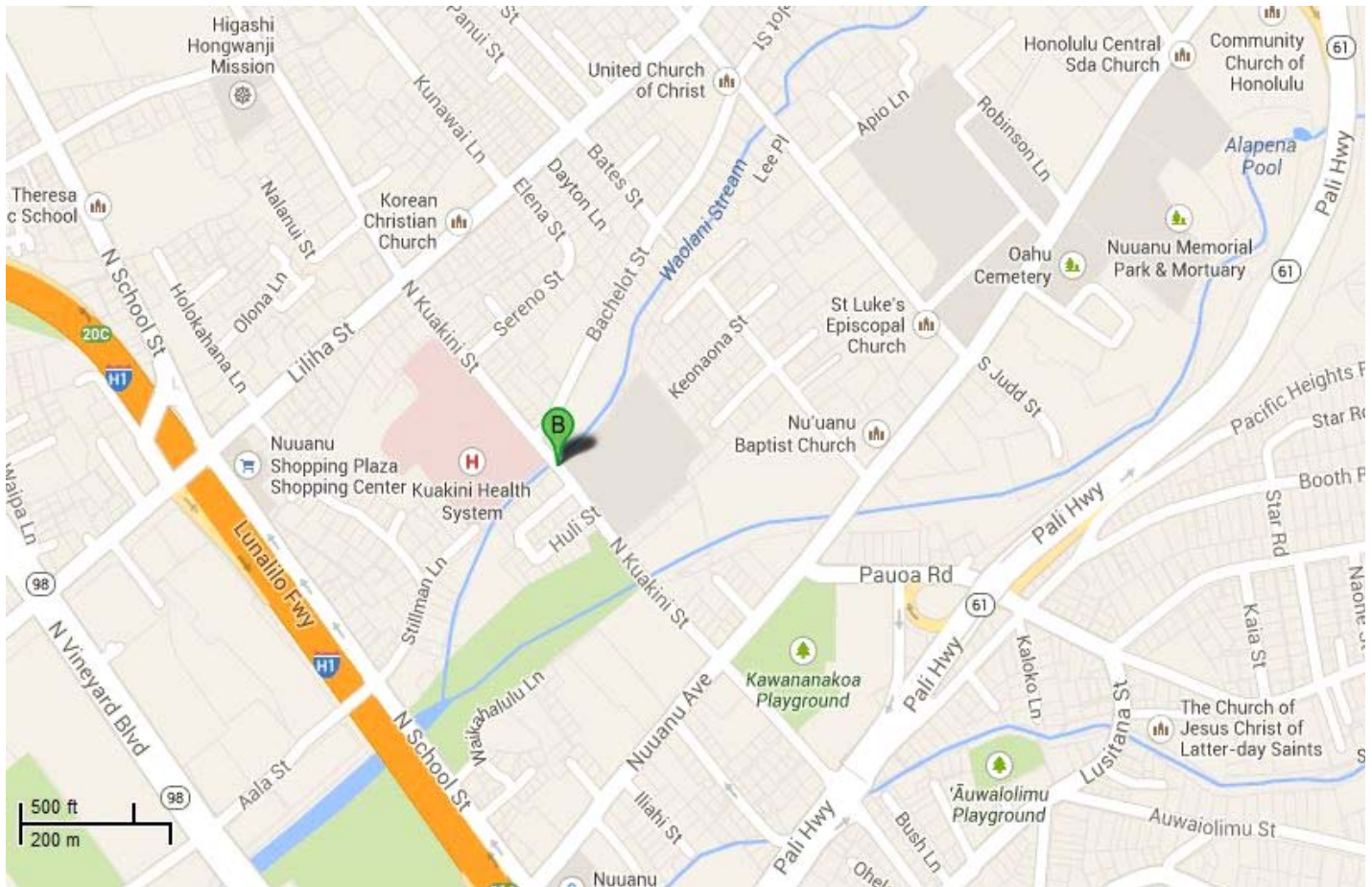
(County/Private)

## General Information

<b>Bridge Number:</b> 003083321400019	
<b>Popular Name:</b> North Kuakini Street Bridge No. 2-Waiolani Stream	
<b>Feature Crossed:</b> Waiolani Stream	
<b>Feature Carried:</b> North Kuakini Street	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-51m-19.82s	<b>Latitude:</b> 21d-19m-17.33s
<b>Location:</b> 100 Feet Northwest of Huna Street	
<b>Historic Name:</b> North Kuakini Street Bridge No. 2-Waiolani Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1934	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 37.1 ft.	<b>Total Length:</b> 44.0 ft.	<b>Deck Width:</b> 52.8 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waiolani Stream Bridge carries North Kuakini Street across Waolani Stream. This single-span reinforced concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with arch voids and horizontal caps, and concrete end posts with caps. The workmanship of the bridge has not been obscured by additions or repairs. The simple design of the parapets retains its historic feeling.</p>		

**Significance Statement:**

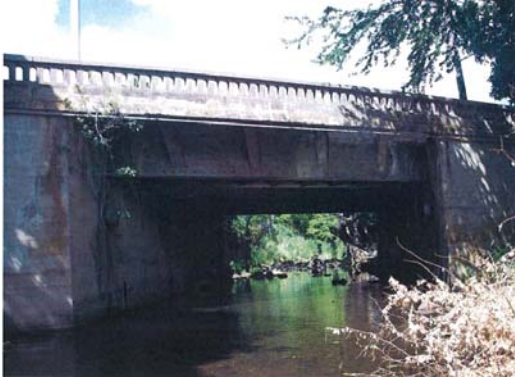
This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's concrete tee-beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.



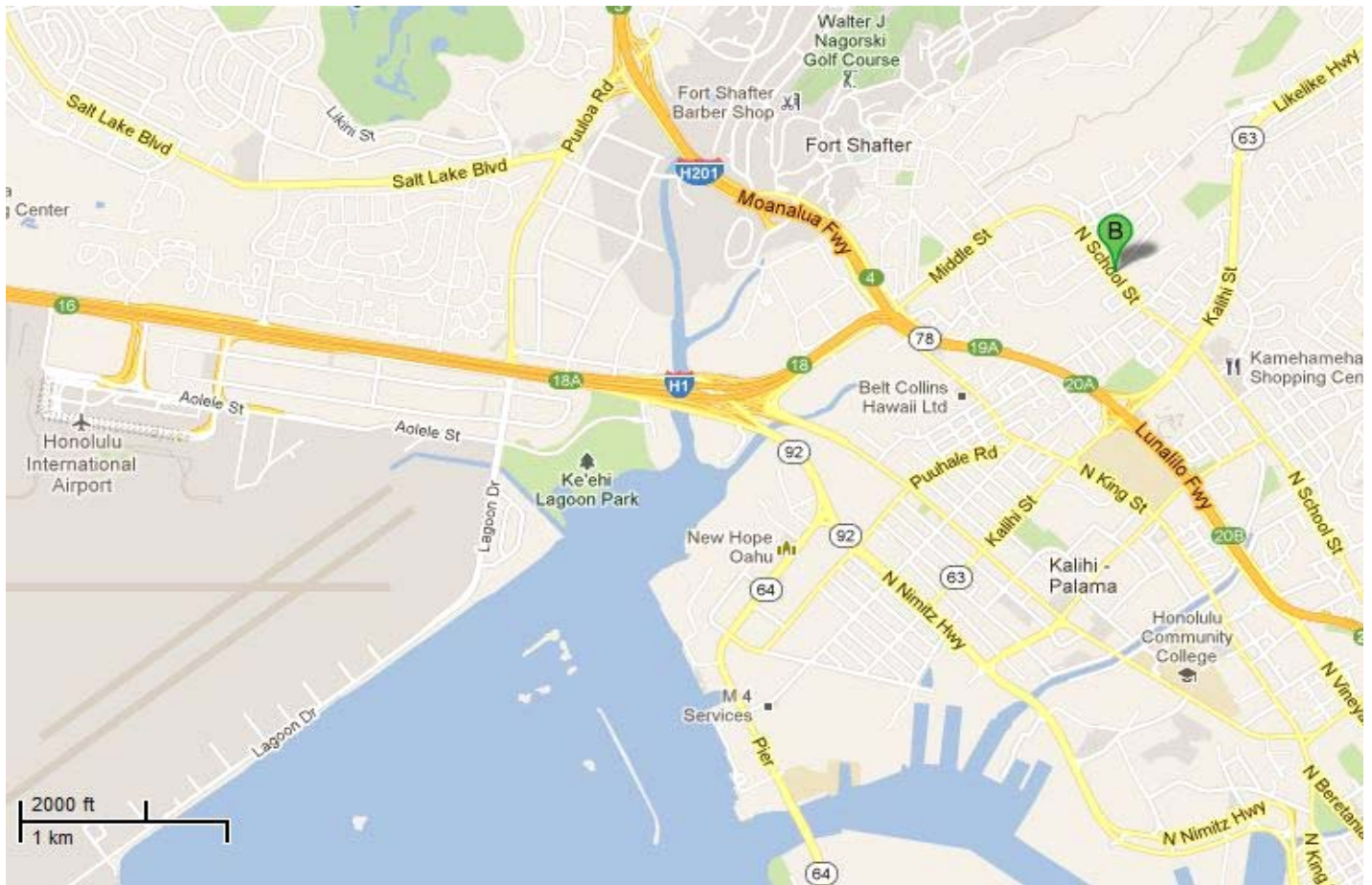
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083631400093	
<b>Popular Name:</b> North School Street Bridge-Kalihi Stream	
<b>Feature Crossed:</b> Kalihi Stream	
<b>Feature Carried:</b> North School Street	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-52m-23.31s <b>Latitude:</b> 21d-20m-21.55s	
<b>Location:</b> 600 Feet Northwest of Gulick Avenue	
<b>Historic Name:</b> North School Street Bridge-Kalihi Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1927	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 38.1 ft.	<b>Total Length:</b> 41.0 ft.	<b>Deck Width:</b> 60.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Kalihi Stream Bridge carries North School Street across Kalihi Stream. This single-span reinforced concrete tee beam bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with arched voids and horizontal caps, and panel detailed end posts with horizontal caps. The concrete deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

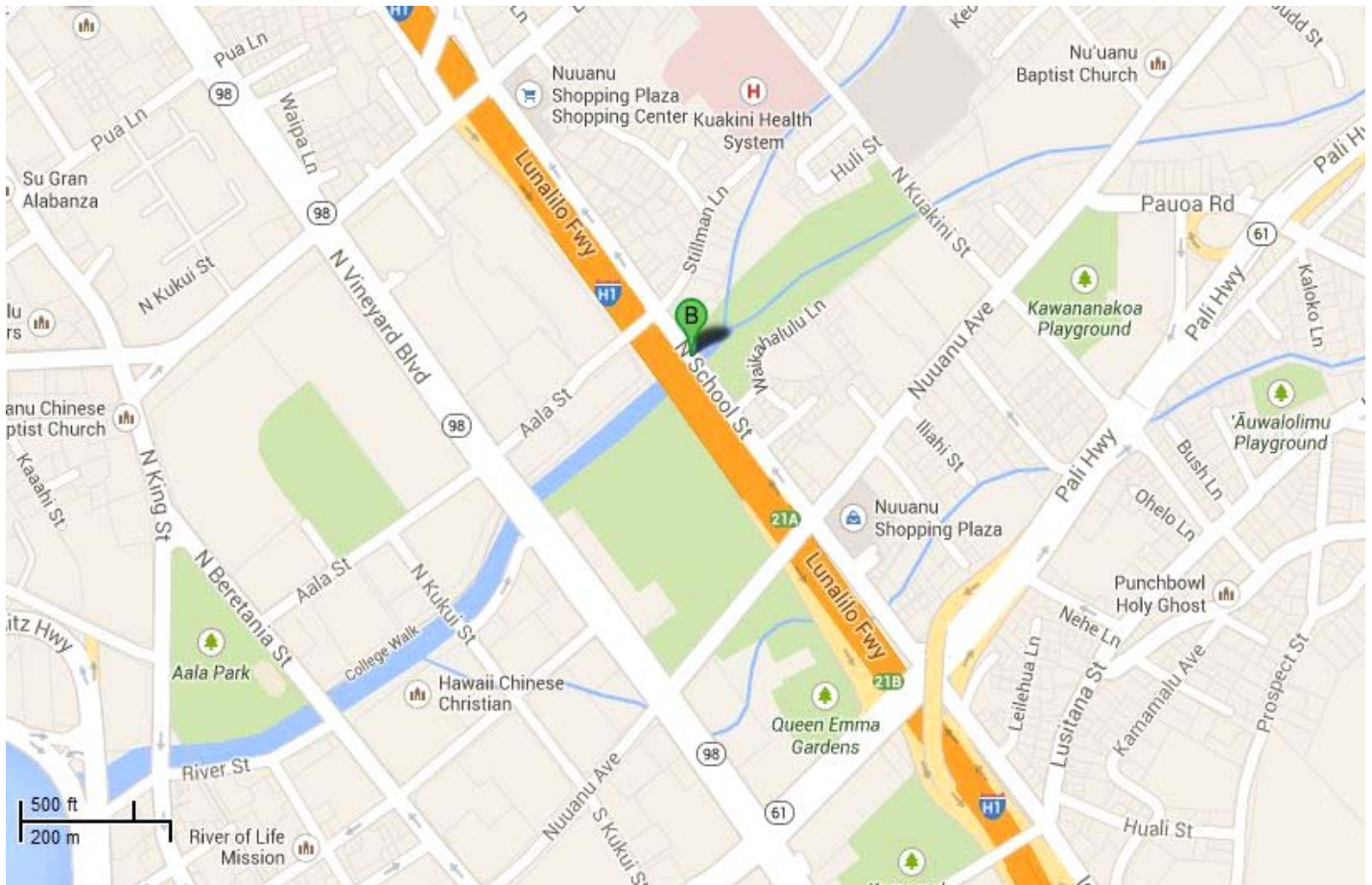
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083631400271		
<b>Popular Name:</b> North School Street Bridge-Nuuanu Stream		
<b>Feature Crossed:</b> Nuuanu Stream		
<b>Feature Carried:</b> North School Street		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-51m-26.63s <b>Latitude:</b> 21d-19m-06.39s		
<b>Location:</b> 250 Feet South of Stillman Lane		
<b>Historic Name:</b> North School Street Bridge-Nuuanu Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1932	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 48.9 ft.	<b>Total Length:</b> 128.9 ft.	<b>Deck Width:</b> 60.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Wall Pier			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Nuuanu Stream Bridge carries North School Street across Nuuanu Stream. This three-span reinforced concrete T-girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete capped parapets with arched voids, intermittent posts, and end posts. The concrete deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's concrete tee beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.

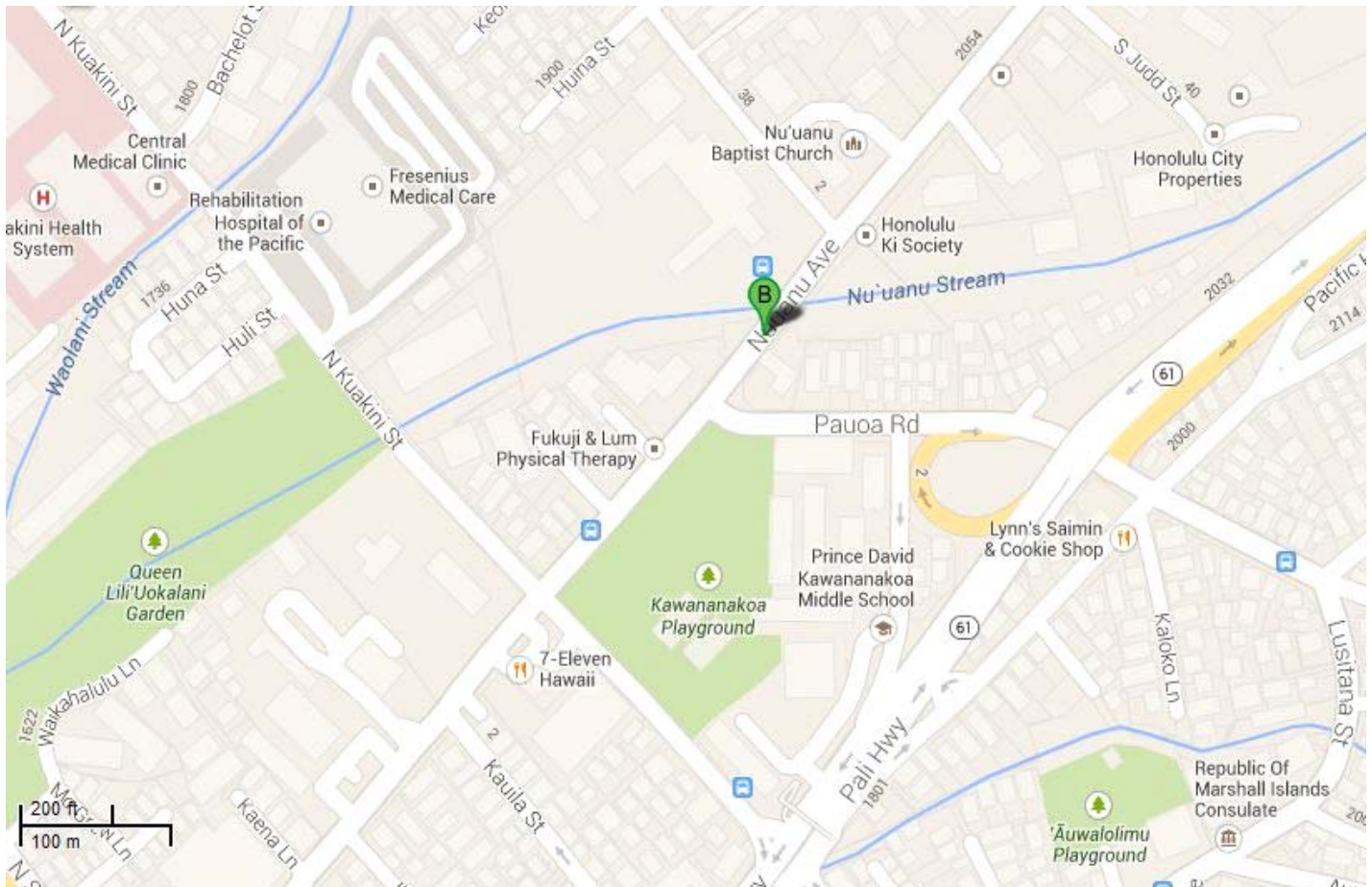
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083471400113	
<b>Popular Name:</b> Nuuanu Avenue Arch Bridge-Nuuanu Stream	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> Nuuanu Avenue	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-51m-07.08s <b>Latitude:</b> 21d-19m-14.51s	
<b>Location:</b> 200 Feet North of Pauoa Road	
<b>Historic Name:</b> Nuuanu Avenue Arch Bridge-Nuuanu Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b> L. M. Whitehouse	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Masonry Arch	<b>Construction Date:</b> 1904	<b>Replaced?</b> No
<b>Altered?</b> Yes	<b>Alteration Date(s):</b> 1937	
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Inverts reconstructed		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 32.2 ft.	<b>Total Length:</b> 32.2 ft.	<b>Deck Width:</b> 62.0 ft.
<b>Superstructure:</b> Masonry Closed Spandrel Arch			
<b>Substructure:</b> Masonry Abutment			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> Masonry Rock with Cap			
<b>Setting:</b>			
<b>Other Features:</b> Sidewalks along two sides			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Transportation		
<b>Narrative Description:</b> <p>The Nuuanu Avenue Bridge carries Nuuanu Avenue over the Nuuanu Stream. The bridge, located in one of Honolulu’s oldest residential neighborhoods, is a rare remaining example of a masonry arch built from local basalt, known as “lava rock”. The Nuuanu Avenue Bridge's original residential setting has been altered by the intensive development of nearby Honolulu in the 1960s-80s. Commercial development and high-rise construction have replaced the older single family homes that once flourished in this area. The bridge's original design, a single-span masonry arch with a concrete-finished vault, remains intact. The bridge's parapets are continuous along this section of Nuuanu Avenue, due to the skew of the stream in relation to the roadway, and are difficult to discern from the roadway due to their low height. The original basalt has not received any major repairs, although one of the cap blocks was replaced in-kind. The inverts were reconstructed in concrete in 1937. The quality of workmanship on the bridge, particularly the massive basalt blocks with dressed margins, is extremely high. The bridge's association with the residential development of urban Honolulu is apparent to the informed observer. The bridge's historic feeling is evident due to the large size and skillful detailing of the basalt (“lava rock”) blocks, a once common vernacular building material. In 2013, the bridge will undergo rehabilitation to increase the railing height via cap alteration to meet code.</p>		

**Significance Statement:**

The Nuuanu Avenue Bridge is significant in the areas of engineering and transportation in Hawaii. The bridge is an excellent example of masonry arch construction in Hawaii. Arch bridges are also an uncommon bridge type. The Nuuanu Avenue Bridge is eligible under Criterion A for its associations with early public works efforts by the Territory of Hawaii and for its contributions to the development of urban Honolulu. It is eligible under Criterion C as a rare remaining example of a once common bridge type constructed with vernacular materials (cut basalt or "lava rock"). Moreover, it is representative of the work of a master: Louis M. Whitehouse, the prolific contractor who built many other roads and bridges in this era.

At the time of its initial construction in 1904, the bridge served as a vital transportation link to downtown Honolulu, aiding in the commercial and residential development of Honolulu. Nuuanu was one of the earliest residential developments on the outskirts of urban Honolulu. After annexation by the United States in 1898, the Territory of Hawaii made road building in urban areas a high priority. The road to Nuuanu would have been among the first to be paved.

The Nuuanu Avenue Bridge is an excellent example of a masonry arch bridge, displaying the skill and artistry of Hawaii's stone masons. It is one of nine remaining masonry-arch bridges in the state and one of the last masonry arch bridges built in Hawaii. The bridge is notable for its use of vernacular building materials. The local basalts which compose the lava-rock used in the bridge's construction are unique to Hawaii and the islands of the Pacific;(1) thus these masonry arch bridges may be the only examples of this type in the United States.

The county estimates the construction date of this bridge to be 1937, however a photograph of the bridge, dated "June 1904", was found in the Hawaii State Archives. The 1902 SPW annual report makes a reference to funding for the "Nuuanu Avenue Bridge" and the establishment of a basalt quarry in Nuuanu. The builder was previously identified as "D. W. Whitehouse", (2) however, it was most likely built by Louis M. Whitehouse. A search through the city directories for the years 1902 through 1934 reveal only a "Whitehouse, L. M." (3) Further, Whitehouse's obituary states that "in 1903, he . . . built Nuuanu dam and reservoir" and may have been responsible for this bridge as well. (4)

(1) Dr. Jane Tribble, personal conversation, School of Ocean and Earth Sciences, University of Hawaii, Honolulu, HI, June 30, 1994.

(2) Bethany Thompson, Historic Bridge Inventory: Island of Oahu, prepared for the State of Hawaii Department of Transportation Highways Division in cooperation with the U.S. Department of Transportation Federal Highway Administration (Honolulu: 1983), IV-23.


(3) Husted's Directory of Honolulu and the Territory of Hawaii, (Honolulu: 1902), 545; Polk-Husted City Directory (Honolulu, 1931/1932), 505; Polk-Husted City Directory (Honolulu: 1933/1934), 497.

(4) "Whitehouse, Head of Land Office Dies," Honolulu Star Bulletin (November 25, 1942).

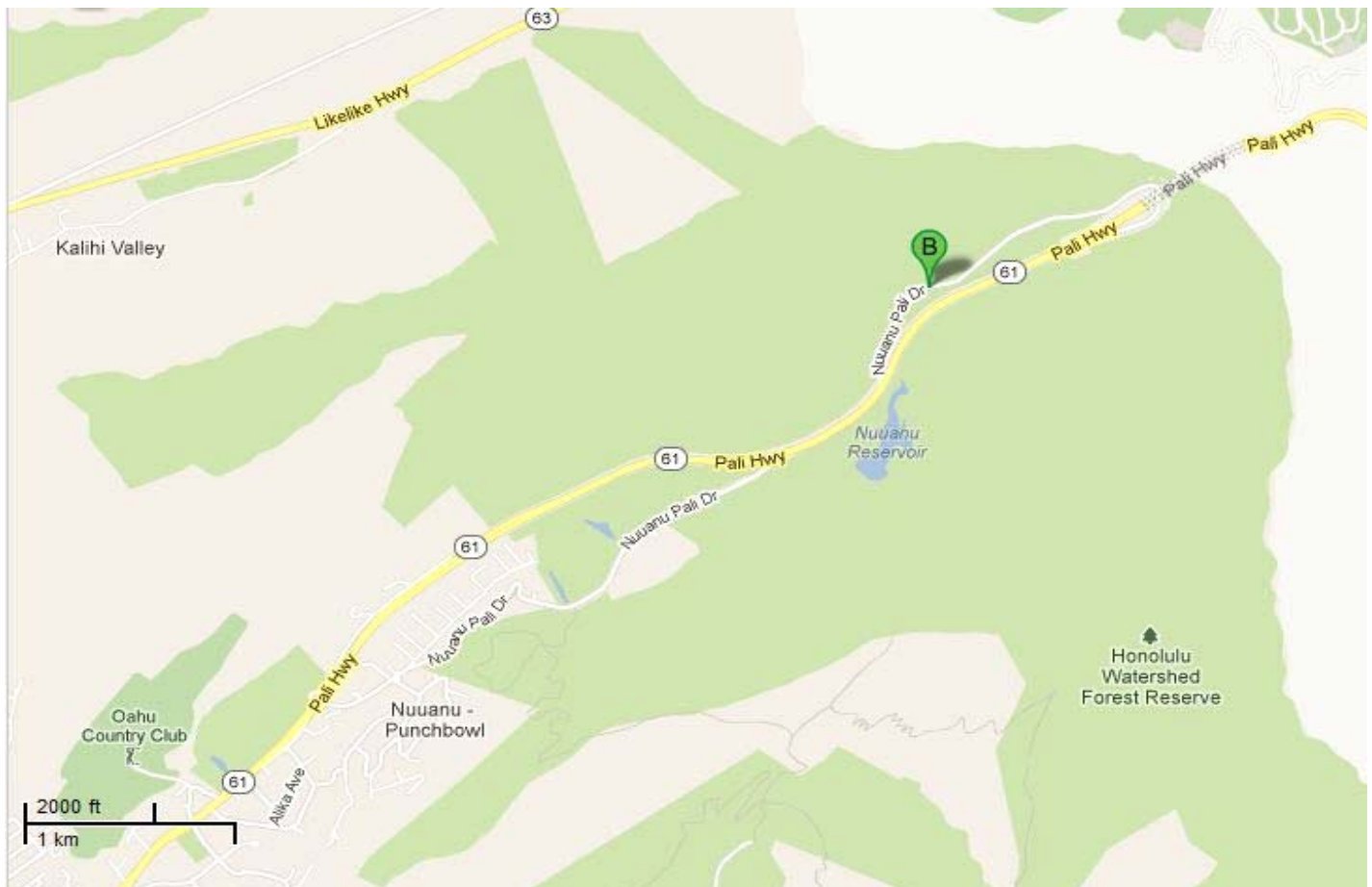
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003265001200001		
<b>Popular Name:</b> Nuuanu Pali Drive Bridge-Nuuanu Stream		
<b>Feature Crossed:</b> Nuuanu Stream		
<b>Feature Carried:</b> Nuuanu Pali Drive		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-49m-14.80s		<b>Latitude:</b> 21d-20m-49.47s
<b>Location:</b> TMK: 2-2-54		
<b>Historic Name:</b> Nuuanu Pali Drive Bridge-Nuuanu Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1931	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 24.0 ft.	<b>Total Length:</b> 26.0 ft.	<b>Deck Width:</b> 32.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Nuuanu Pali Drive Bridge carries Nuuanu Pali Drive across Nuuanu Stream. This single-span reinforced concrete girder bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has concrete parapets with arched voids and caps. Panel detail concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by concrete abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1930's reinforced concrete bridge that is typical of its materials, method of construction, craftsmanship, and design. It is also associated with historic Nuuanu residential development.

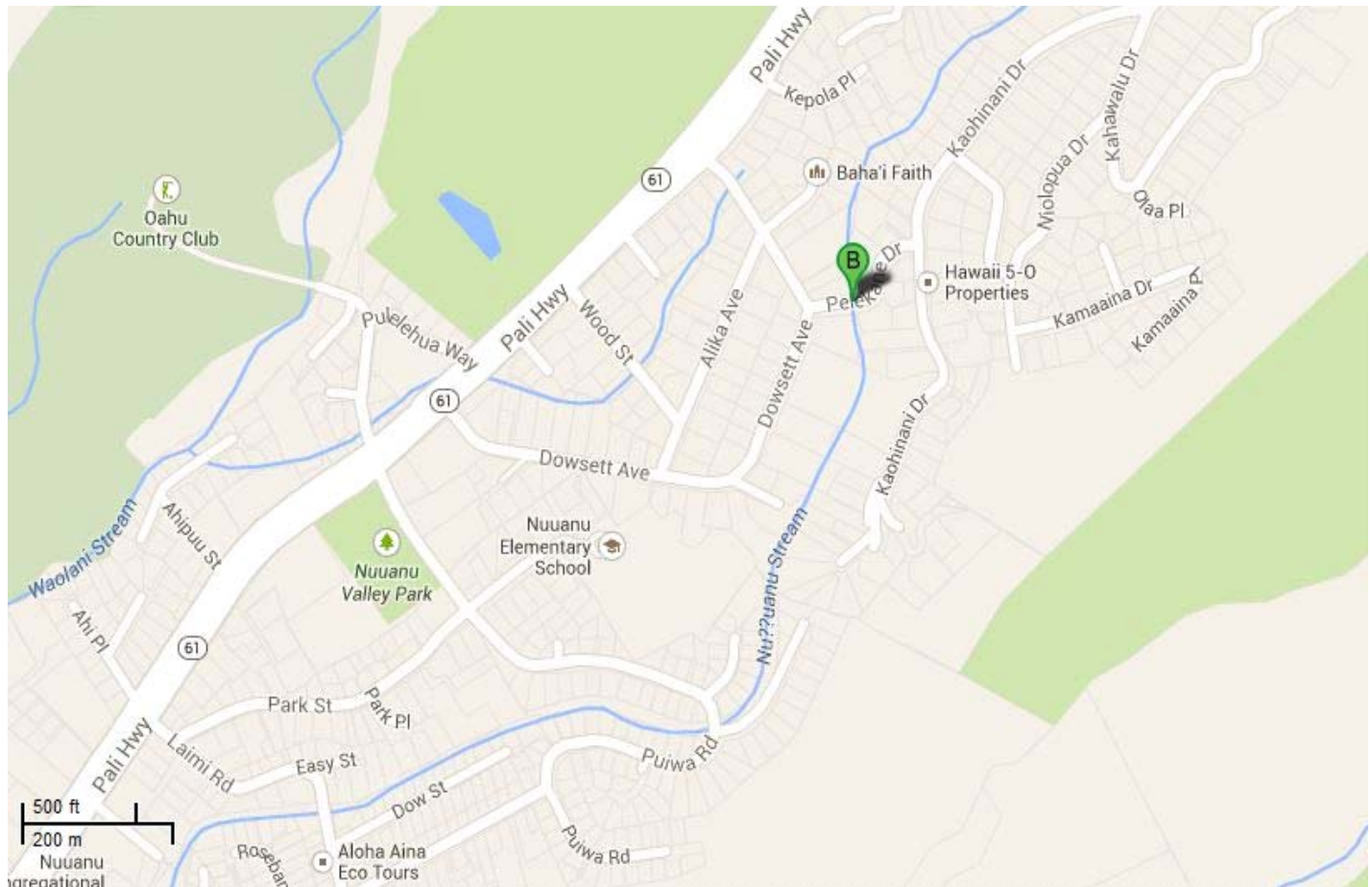
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003267001200001	
<b>Popular Name:</b> Pelekane Drive Bridge-Nuuanu Stream	
<b>Feature Crossed:</b> Nuuanu Stream	
<b>Feature Carried:</b> Pelekane Drive	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-49m-55.87s <b>Latitude:</b> 21d-20m-19.71s	
<b>Location:</b> TMK: 2-2-46	
<b>Historic Name:</b> Pelekane Drive Bridge-Nuuanu Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1930	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 38.0 ft.	<b>Total Length:</b> 43.0 ft.	<b>Deck Width:</b> 40.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Pelekane Drive Bridge carries Pelekane Drive across Nuuanu Stream. This single-span reinforced concrete multi-girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete panel parapets with caps and panel detail concrete end posts with caps flank the approaches of the parapet. The concrete deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**


This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of the 1930's reinforced concrete bridge that is typical of its materials, method of construction, craftsmanship, and design. It is also associated with historic Nuuanu residential development.



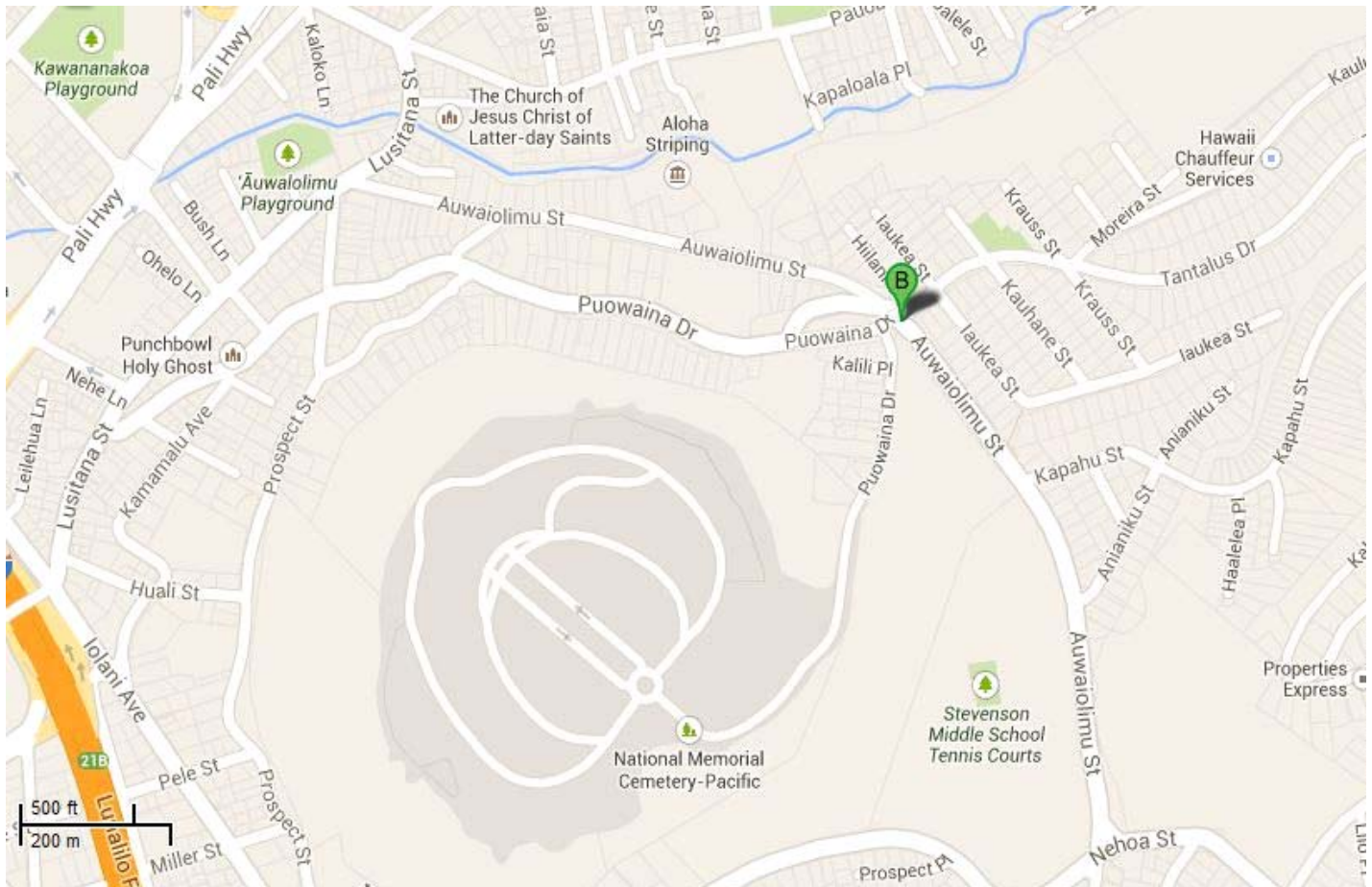
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003236001200001	
<b>Popular Name:</b> Puowaina Drive Bridge-Auwaiolimu Street	
<b>Feature Crossed:</b> Auwaiolimu Street	
<b>Feature Carried:</b> Puowaina Drive	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-50m-30.80s <b>Latitude:</b> 21d-18m-57.86s	
<b>Location:</b> TMK: 2-2-15	
<b>Historic Name:</b> Puowaina Drive Bridge-Auwaiolimu Street	
<b>Designer/Engineer:</b> W. F. Way	
<b>Builder/Contractor:</b> James Glover Ltd.	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1936	<b>Replaced?</b> No
<b>Altered?</b> Yes	<b>Alteration Date(s):</b> 2013	
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Raised the railing height to meet code		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 61.0 ft.	<b>Total Length:</b> 122.0 ft.	<b>Deck Width:</b> 44.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b> Bridge name and date of construction incised on end piers; high stepped end piers			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> A, C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Transportation		
<b>Narrative Description:</b> <p>The Puowaina Bridge carries Puowaina Drive across Auwaiolimu Street in urban Honolulu. The bridge is a reinforced concrete continuous tee beam structure built on reinforced concrete trestles. The Puowaina Bridge remains in its original location adjacent to Punchbowl Crater. The Pauoa area, in which the bridge is located, has retained its residential character despite extensive development in urban Honolulu since the 1960s. The bridge's original continuous tee beam design and reinforced concrete material remain intact. The fine workmanship of the bridge is apparent with no evidence of additions or major repairs. The engineering of the bridge was complex for its time due to the continuous tee beam design of the structure, which eliminates the need for expansion joints in the deck, and because of its exceptional height. The bridge's historic associations as a 1930s-era county bridge are apparent only to informed observers. However, interpretation is aided by the inscription of the bridge name and date of construction on the end piers. The bridge retains its historic feeling primarily due to its relatively narrow width which is typical of bridges of this period in Hawaii. The parapet was modified/raised to meet current safety codes, but are re-constructed in a similar historic style.</p>		

**Significance Statement:**

The Puowaina Bridge is significant for its contributions to the fields of engineering and transportation in Hawaii. The 1936 bridge is an excellent example of reinforced concrete tee beam construction with an open concrete rail typical of 1930s bridges. The Puowaina Bridge is eligible under Criterion A for its associations with important public works projects initiated by the county government. The bridge contributed to the economic development of urban Honolulu by providing reliable vehicular access to the area. It is eligible under Criterion C as a representative example of a 1930s-era bridge utilizing an advanced engineering technology: continuous reinforced concrete tee-beam construction.

The Puowaina Bridge was constructed in 1936 during the general upgrading of Honolulu's roadways utilizing Federal Depression-relief (Work Progress Administration) funds. The bridge is located in Pauoa, a residential area near the volcanic Punchbowl Crater in downtown Honolulu. The structure is an important transportation link for the community; its construction spanned Auwaiolimu Street, identified on the construction drawings as the "Pensacola Street Extension".

The bridge is the most ambitious and striking example of the bridges constructed by the county in the 1930s. The design and height of the bridge are representative of the rapid advances made in engineering technology in the early decades of the twentieth century. The engineer W.F. Way was with the City and County of Honolulu, Department of Public Works. The builder is James Glover Ltd., the Hawaii Island contracting company that built many of the roads and bridges on that island, as well as the Punchbowl National Memorial Cemetery, the Ala Wai Yacht Harbor and sections of the H-1 Freeway.<sup>(1)</sup> James Glover was a well-known entrepreneur who owned Kahuku Ranch near South Point on Hawaii Island.

At the time of its construction it was the only bridge on Oahu to cross a road.

(1) "Jas. W. Glover Celebrates 60th Anniversary," Building Industry (September 1995), 69-71.

# Inventory Form

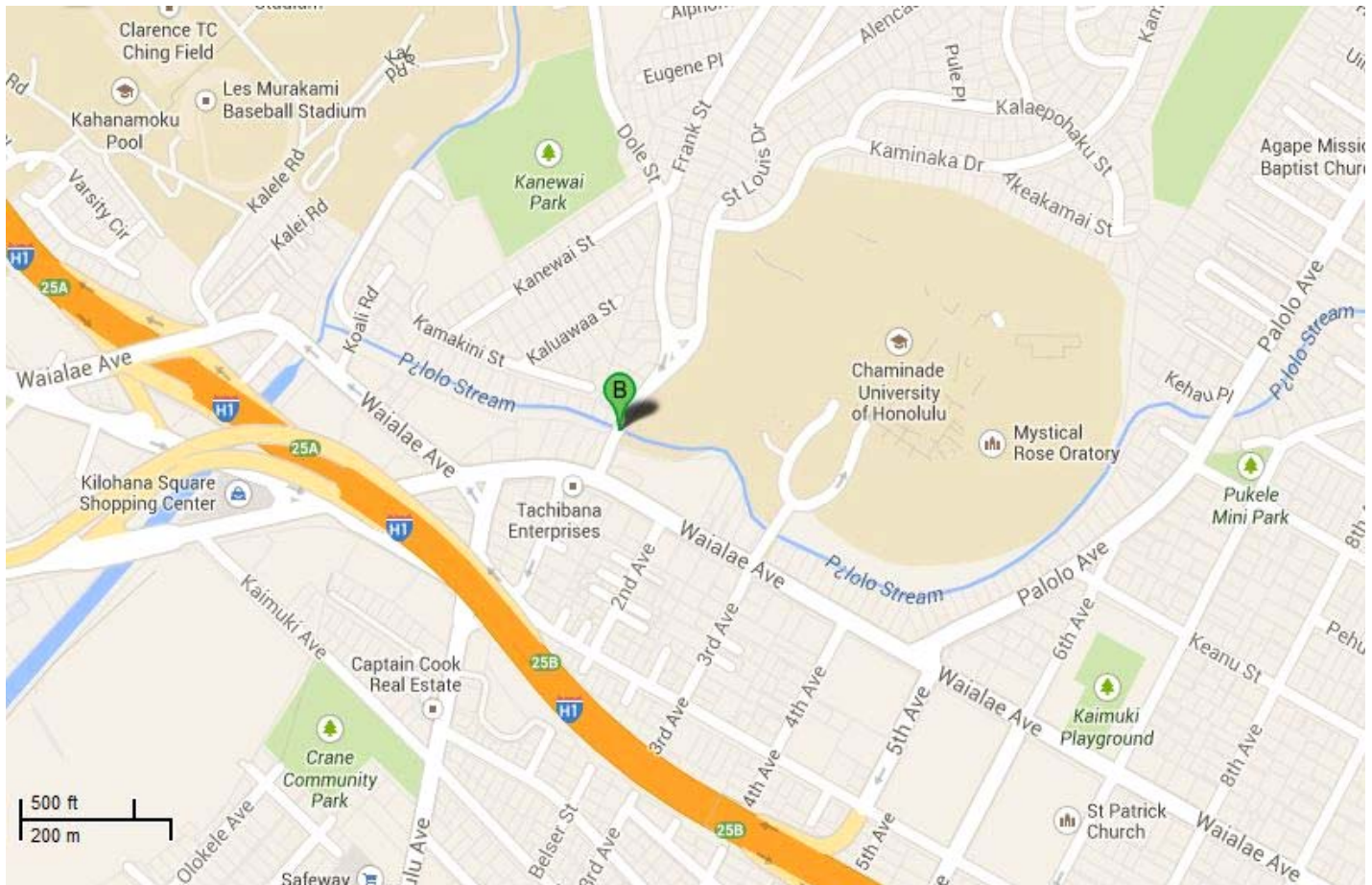
(County/Private)

## General Information

<b>Bridge Number:</b> 003083061400136	
<b>Popular Name:</b> Saint Louis Drive Bridge-Palolo Stream	
<b>Feature Crossed:</b> Palolo Stream	
<b>Feature Carried:</b> Saint Louis Drive	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-48m-39.64s	<b>Latitude:</b> 21d-17m-22.32s
<b>Location:</b> 200 Feet North of Waialae Avenue	
<b>Historic Name:</b> Saint Louis Drive Bridge-Palolo Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Open Spandrel Arch	<b>Construction Date:</b> 1929	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b> 2013, 2014		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Metal horizontal railings will be added in between the existing concrete horizontal railings		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 60.0 ft.	<b>Total Length:</b> 122.0 ft.	<b>Deck Width:</b> 60.0 ft.
<b>Superstructure:</b> Concrete Open Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Palolo Stream Bridge carries Saint Louis Drive across Palolo Stream. This single-span arch girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has reinforced concrete parapets each with two rows of rectangular horizontal voids and concrete caps. Wide horizontal end posts with horizontal detailing flank the ends of the parapets. The concrete deck is supported by reinforced concrete abutments over a channeled stream. The workmanship of the bridge has not been obscured by additions or repairs however, in 1958 the bridge was widened and the parapets were added to in 2013. Metal horizontal rails will be added in between the existing concrete horizontal parapets.</p>		




**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1920's and 1930's reinforced concrete arch bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. Arch bridges are also an uncommon bridge type.

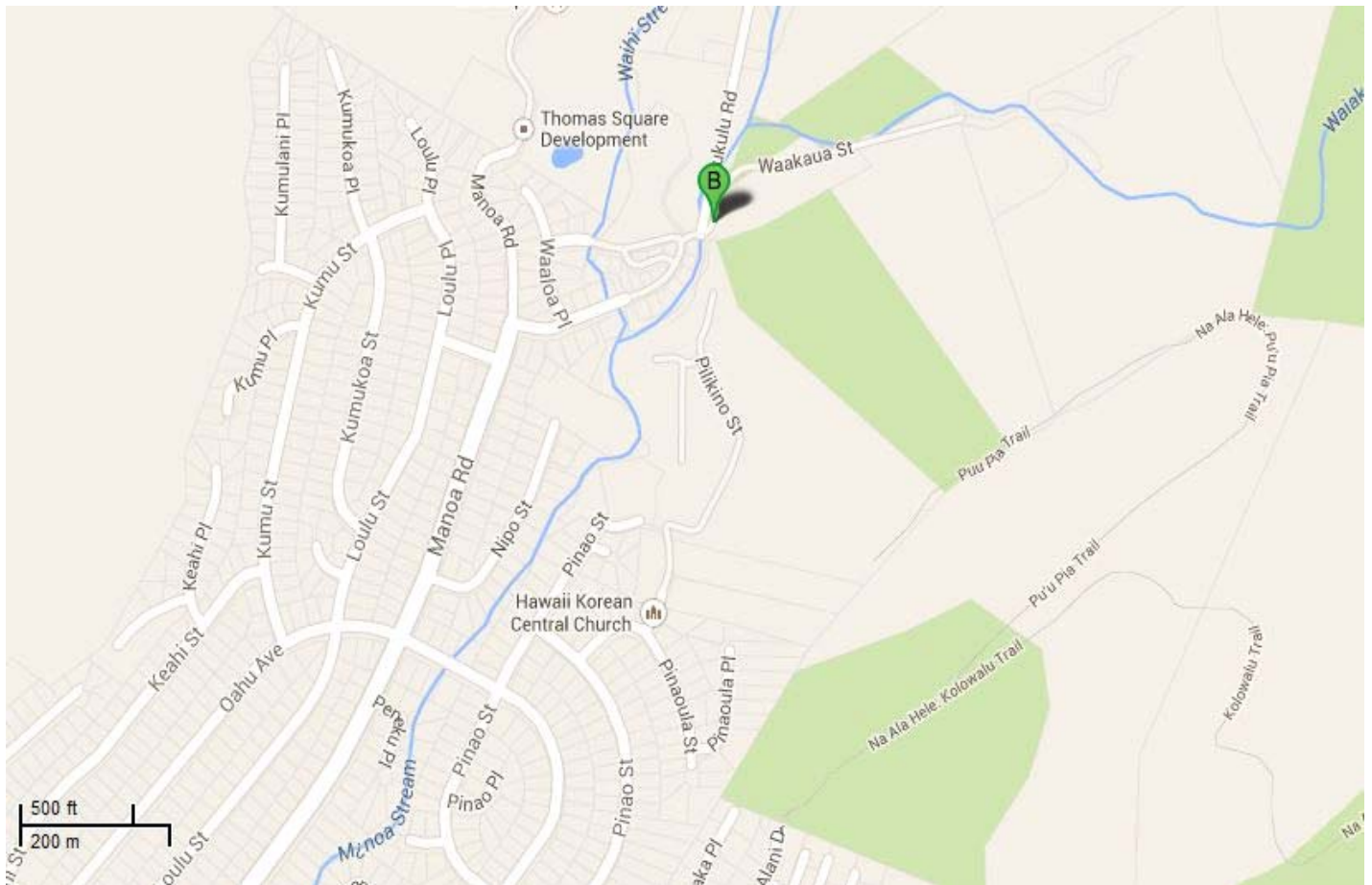
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003268001200001		
<b>Popular Name:</b> Waaloa Way Bridge No.2-Manoa Stream		
<b>Feature Crossed:</b> Manoa Stream		
<b>Feature Carried:</b> Waaloa Way		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-47m-58.00s		<b>Latitude:</b> 21d-19m-42.00s
<b>Location:</b> TMK: 2-9-54		
<b>Historic Name:</b> Waaloa Way Bridge No.2-Manoa Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Steel Stringer	<b>Construction Date:</b> 1965	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 28.0 ft.	<b>Total Length:</b> 28.0 ft.	<b>Deck Width:</b> 14.1 ft.
<b>Superstructure:</b> Steel Multi-Girder			
<b>Substructure:</b> Masonry Abutment			
<b>Floor/Decking:</b> Timber Deck			
<b>Parapets/Railings:</b> Wood			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Construction		
<b>Narrative Description:</b> <p>The Waaloa Bridge No. 2 carries Waaloa Way across Waiakeakua Stream. This single-span steel stringer bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has painted 2-2x6 timber rails attached to W6x posts which are attached to exterior steel beams below. The deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs. The bridge is not publicly accessible and is utilized as a Board of Water Supply maintenance bridge.</p>		


**Significance Statement:**

The use of steel was uncommon in Hawaii due to the extreme marine environment. Since very little steel is used for bridge construction in Hawaii, this bridge is eligible under criterion C for its distinctive structural type. It is a good example of a 1960's steel girder bridge atypical of its period in its use of materials and design.

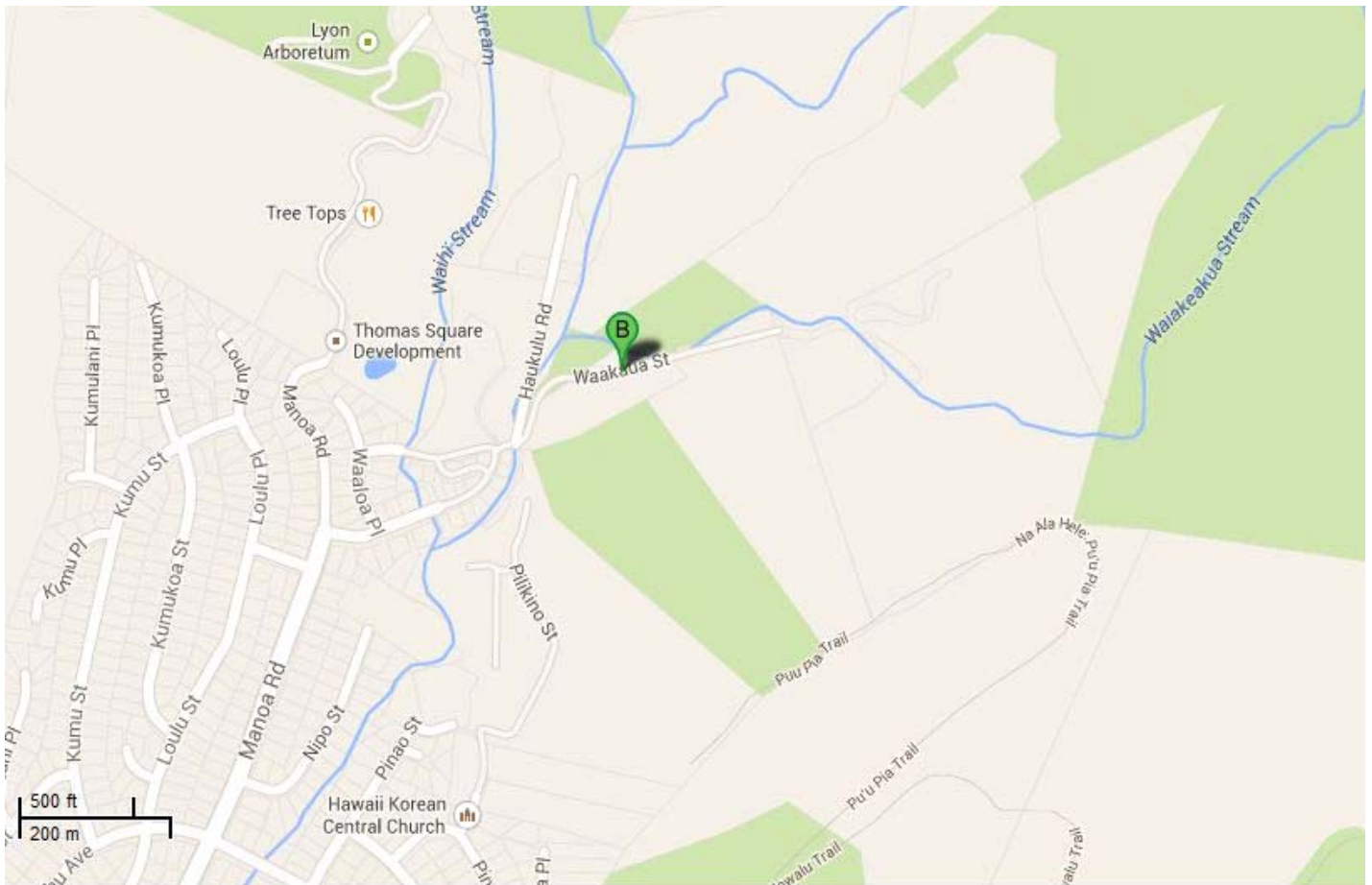
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003244001200001	
<b>Popular Name:</b> Waaloa Way Bridge No. 3-Waiakeakua Stream	
<b>Feature Crossed:</b> Waiakeakua Stream	
<b>Feature Carried:</b> Waaloa Way	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-47m-54.00s <b>Latitude:</b> 21d-19m-45.00s	
<b>Location:</b> TMK: 2-9-54	
<b>Historic Name:</b> Waaloa Way Bridge No. 3-Waiakeakua Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Steel Stringer	<b>Construction Date:</b> 1967	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 21.0 ft.	<b>Total Length:</b> 21.0 ft.	<b>Deck Width:</b> 13.0 ft.
<b>Superstructure:</b> Steel Multi-Girder			
<b>Substructure:</b> Masonry Abutment			
<b>Floor/Decking:</b> Timber Deck			
<b>Parapets/Railings:</b> Wood			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering, Construction		
<b>Narrative Description:</b> <p>The Waaloa Bridge No. 3 carries Waaloa Way across Waiakeakua Stream. This single-span steel stringer bridge is in its original location, is in fair condition, and its materials remain intact. The bridge has wood rails and a 4x12 wood timber deck. The deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs. The bridge is not publicly accessible and is utilized as a Board of Water Supply maintenance bridge.</p>		


**Significance Statement:**

The use of steel was uncommon in Hawaii due to the extreme marine environment. Since very little steel is used for bridge construction in Hawaii, this bridge is eligible under criterion C for its distinctive structural type. It is a good example of a 1960's steel girder bridge atypical of its period in its use of materials and design.

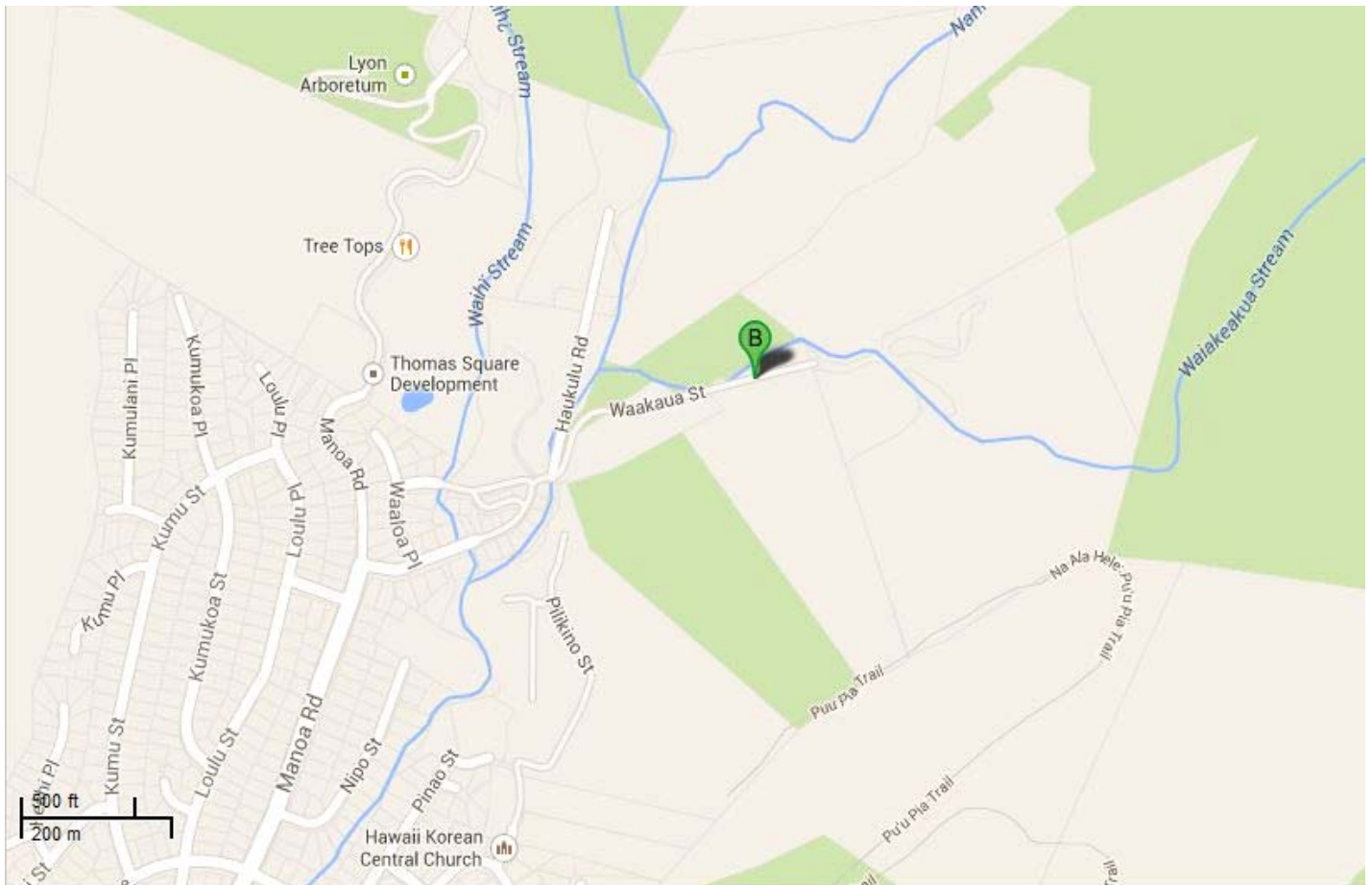
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003245001200001		
<b>Popular Name:</b> Waaloa Way Bridge No. 4-Waiakeakua Stream		
<b>Feature Crossed:</b> Waiakeakua Stream		
<b>Feature Carried:</b> Waaloa Way		
<b>Milepost:</b>	<b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-47m-49.00s	<b>Latitude:</b> 21d-19m-45.00s	
<b>Location:</b> TMK: 2-9-54		
<b>Historic Name:</b> Waaloa Way Bridge No. 4-Waiakeakua Stream		
<b>Designer/Engineer:</b>		
<b>Builder/Contractor:</b>		

## Location Map:



## Construction Information

<b>Bridge Type:</b> Timber Stringer	<b>Construction Date:</b> 1963	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 2	<b>Max Span:</b> 15.0 ft.	<b>Total Length:</b> 31.0 ft.	<b>Deck Width:</b> 13.0 ft.
<b>Superstructure:</b> Timber Stringer			
<b>Substructure:</b> Masonry Abutment and Concrete Double Column Pier			
<b>Floor/Decking:</b> Timber Deck			
<b>Parapets/Railings:</b> Wood			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waaloa Way Bridge No. 4 carries Waaloa Way across Waiakeakua Stream. This double-span wood bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has wood rails and a 4x12 wood timber deck. The bridge deck is supported by boulder concrete rock masonry abutments. The workmanship of the bridge has not been obscured by additions or repairs. The bridge is not publicly accessible and is utilized as a Board of Water Supply maintenance bridge.</p>		

**Significance Statement:**

The bridge is eligible under Criterion C for its association with post-war wood bridge construction in Hawaii. It is a good example of a wood bridge in the 1960s in its use of materials, method of construction, craftsmanship, and design.



# Inventory Form

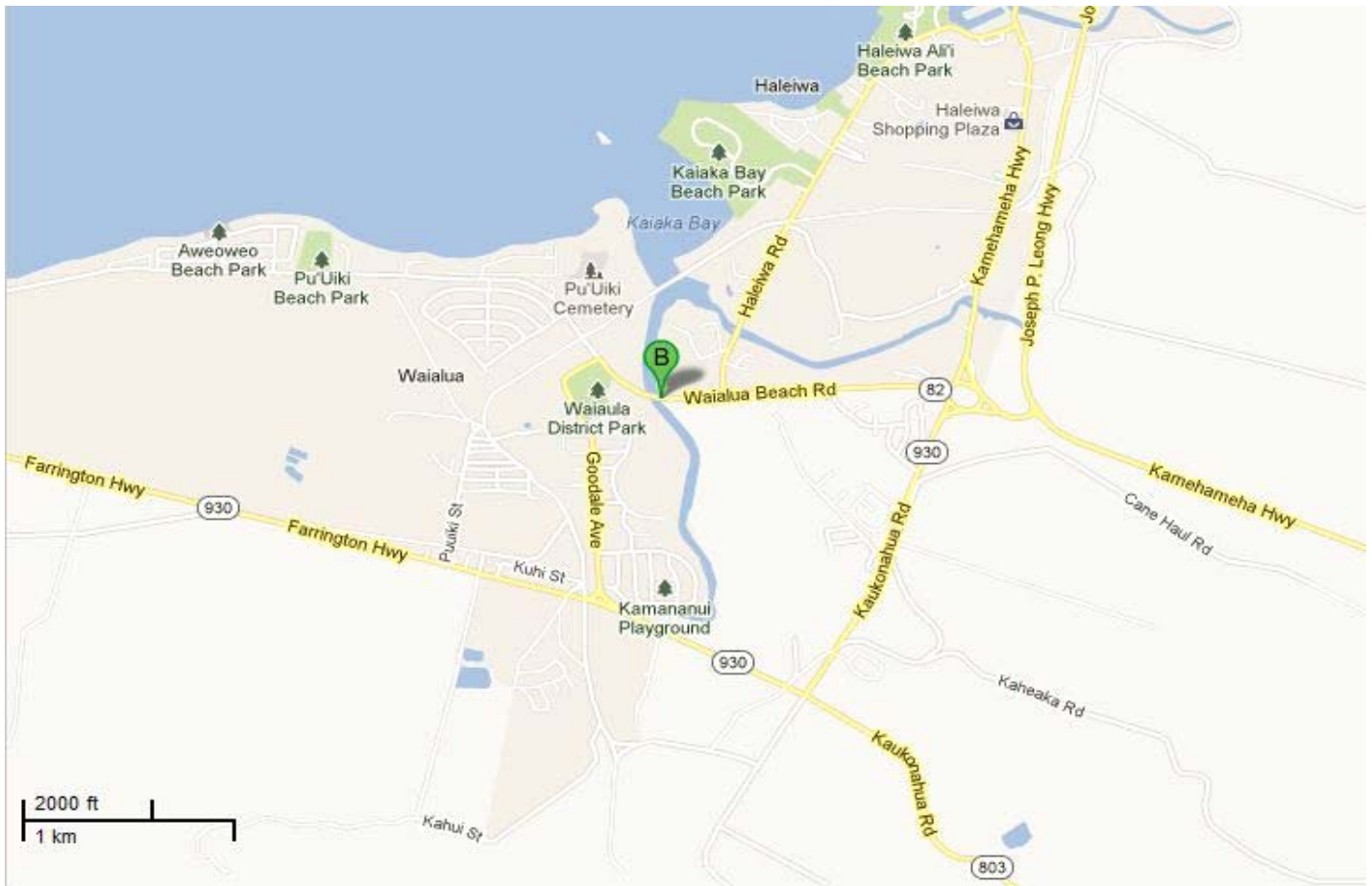
(County/Private)

## General Information

<b>Bridge Number:</b> 003605001100001	
<b>Popular Name:</b> Waialua Beach Road Bridge-Kiikii Stream	
<b>Feature Crossed:</b> Kiikii Stream	
<b>Feature Carried:</b> Waialua Beach Road	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 158d-07m-12.22s	<b>Latitude:</b> 21d-34m-32.62s
<b>Location:</b> TMK: 6-7-01	
<b>Historic Name:</b> Waialua Beach Road Bridge-Kiikii Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b> E. E. Black, Ltd.	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1950	<b>Replaced?</b> No
<b>Altered?</b> Yes <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Replaced timber deck		

## Bridge Information

<b>Number of Spans:</b> 4	<b>Max Span:</b> 35.0 ft.	<b>Total Length:</b> 141.0 ft.	<b>Deck Width:</b> 38.5 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Pile Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Horizontal			
<b>Setting:</b>			
<b>Other Features:</b> Sidewalk one side; stepped end piers			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> B	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Significance with a Person		
<b>Narrative Description:</b> <p>The Kiikii Stream Bridge was built in 1950 and carries Waialua Beach Road over Kiikii stream in Waialua near the Waialua Elementary School. The bridge is part of the Haleiwa cut-off from Weed Junction to Waialua, created in 1952. It has four spans and is concrete tee beam construction. The Kiikii Stream Bridge is in its original location and has retained its original rural setting in the rural agricultural area of Waialua. The bridge's continuous tee beam construction remains intact and no apparent alterations have been made to the structure. Despite minor damage and the addition of removable flared guardrails to the end piers, the bridge's original workmanship remains evident. The guard railings are composed of a reinforced concrete balustrade of two horizontal rails with intermittent pairs of vertical supports common to the post-war era. The incised name and date on the end piers aid interpretation of the bridge. There is a bronze dedication plaque on one of the endposts. The bridge was dedicated in August 1952 to Howard Misayuki Kurio, a section engineer with the Territorial Department of Public works. Kurio was fatally injured on the jobsite during the construction of the bridge.</p>		


**Significance Statement:**

The Kiikii Stream Bridge is eligible under criterion B – due to its close association with a significant person. Howard Hisayuki Kurio was a respected member of the Wahiawa community. He had a seventeen year career with the Territorial Department of Public Works where he began in 1932 as a rodman. At the time of his death, he was a section engineer. Prior to joining the Department of Public Works, Howard Kurio was the Postmaster at Wahiawa.

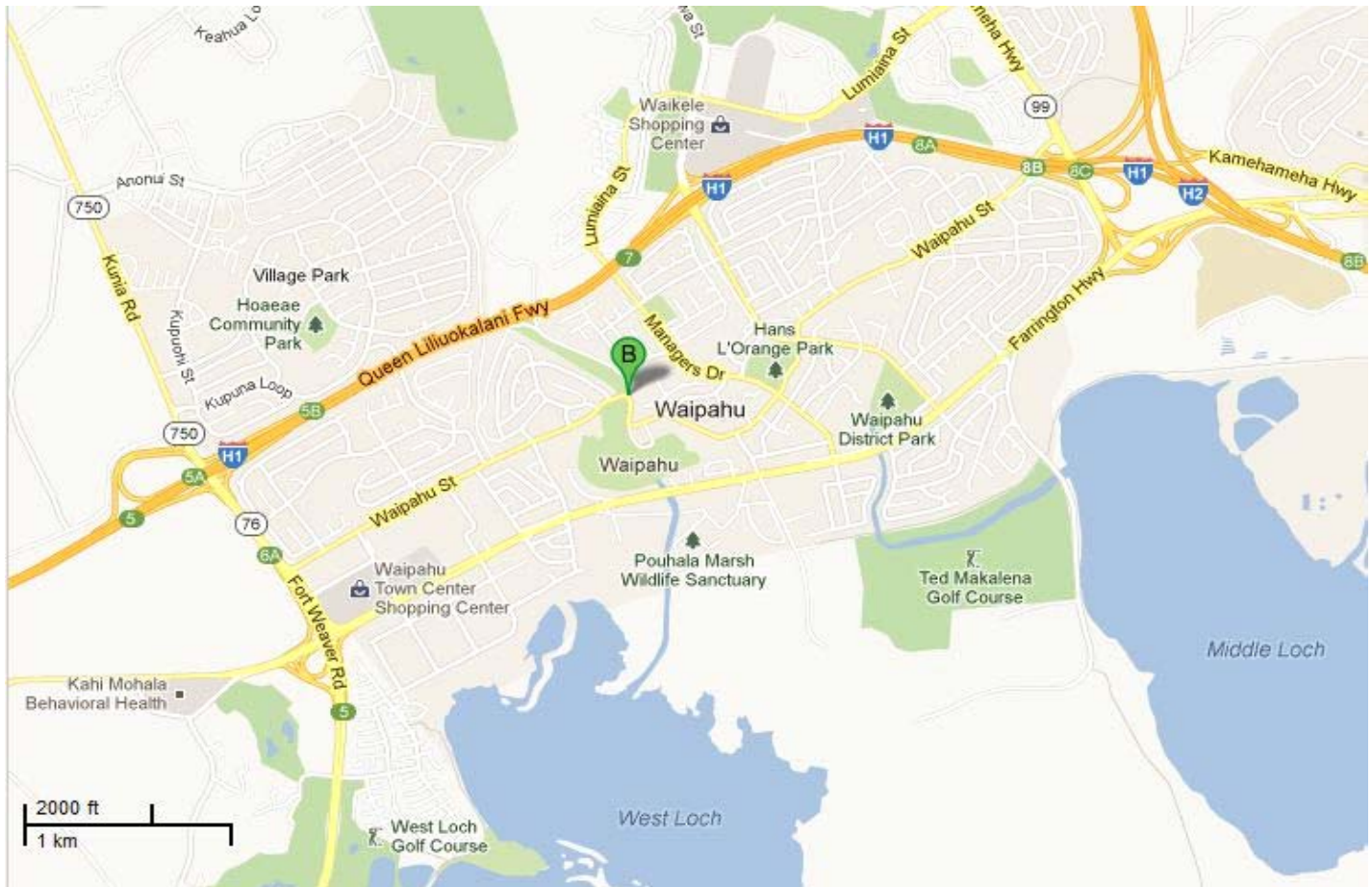
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083661400104	
<b>Popular Name:</b> Waipahu Street Arch Bridge-Waikele Stream	
<b>Feature Crossed:</b> Waikele Stream	
<b>Feature Carried:</b> Waipahu Street	
<b>Milepost:</b> <b>County Private:</b> Honolulu	
<b>Longitude:</b> 158d-00m-46.08s <b>Latitude:</b> 21d-23m-14.19s	
<b>Location:</b> 200 Feet East of Awamoi Street	
<b>Historic Name:</b> Waipahu Street Arch Bridge-Waikele Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:



## Construction Information

<b>Bridge Type:</b> Closed Spandrel Arch	<b>Construction Date:</b> 1905	<b>Replaced?</b> No
<b>Altered?</b> Yes	<b>Alteration Date(s):</b> 1982	
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b> Pedestrian walkway added in 1982.		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 40.0 ft.	<b>Total Length:</b> 54.1 ft.	<b>Deck Width:</b> 27.6 ft.
<b>Superstructure:</b> Concrete Closed Spandrel Arch			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> AC Pavement			
<b>Parapets/Railings:</b> Concrete Solid with Cap			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> High Preservation Value	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waikele Stream Bridge carries Waipahu Street across Waikele Stream. This single-span closed arch bridge is in its original location and its materials remain intact. The bridge has solid concrete parapets with horizontal caps and has been painted various colors including white and brown. The concrete deck is supported by concrete abutments. A pedestrian walkway with a chain-link fence has been added on one side behind the parapet and metal in 1982. Thrie Beams have been bolted to all approaches of the parapets. The workmanship of the bridge has not been obscured by additions or repairs however, the chain-link fence has detracted from the historic feeling.</p>		



**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of an early 1900's closed spandrel arch bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design. Arch bridges are also an uncommon bridge type.

# Inventory Form

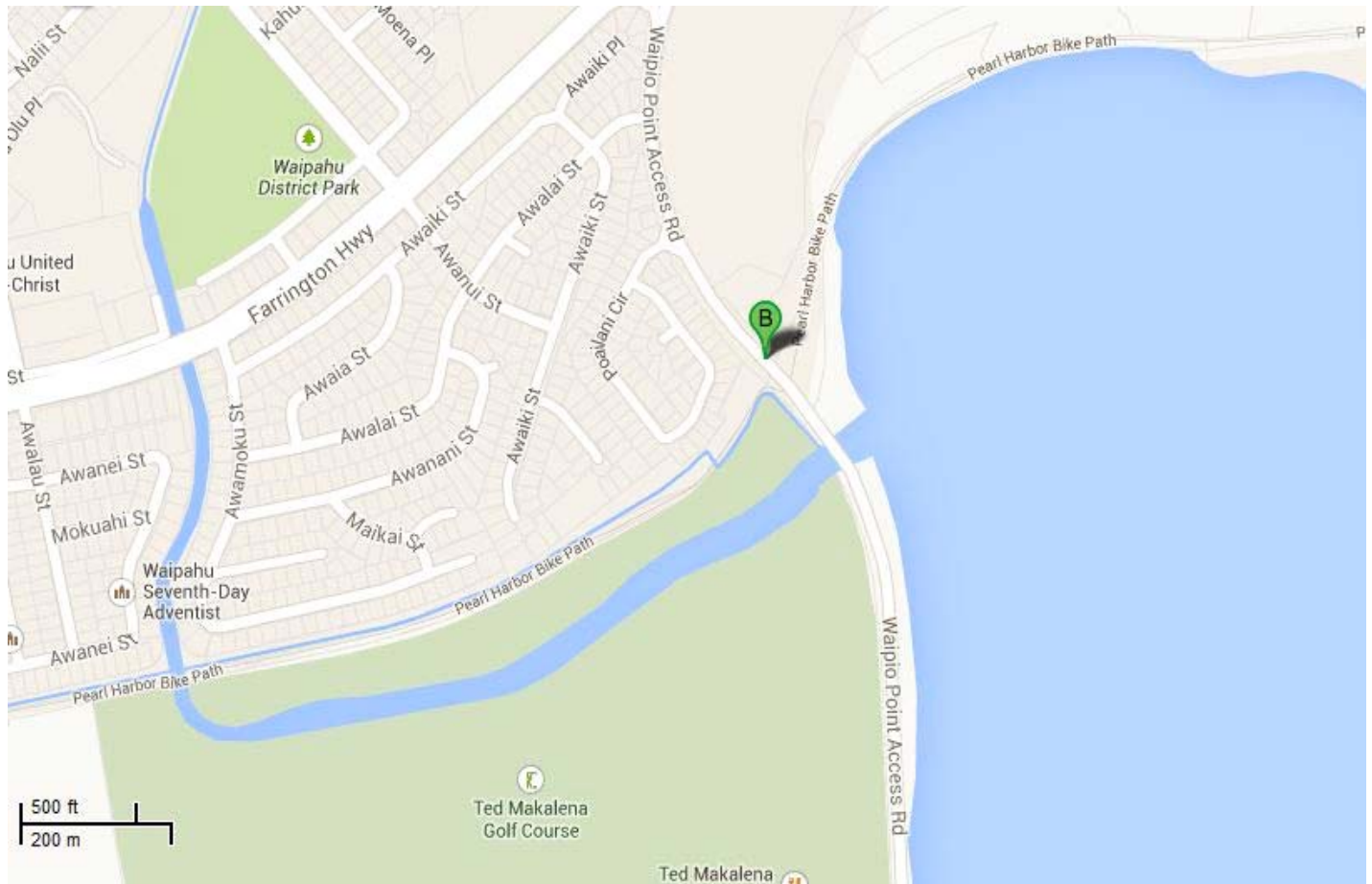
(County/Private)

## General Information

<b>Bridge Number:</b> 003903001100001	
<b>Popular Name:</b> Waipio Pt. Access Rd. Bridge No.1-Railroad ROW	
<b>Feature Crossed:</b> Railroad Right of Way	
<b>Feature Carried:</b> Waipio Point Access Road	
<b>Milepost:</b>	<b>County Private:</b> Honolulu
<b>Longitude:</b> 157d-59m-36.04s	<b>Latitude:</b> 21d-23m-04.90s
<b>Location:</b> TMK: 9-4-50	
<b>Historic Name:</b> Waipio Point Access Road Bridge No.1-Railroad Right of Way	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	



## Location Map:



## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1946	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 3	<b>Max Span:</b> 50.0 ft.	<b>Total Length:</b> 84.0 ft.	<b>Deck Width:</b> 33.0 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall and Concrete Multi-Column Bent			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Greek Cross			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waipio Pt. Access Road Bridge No. 1 carries Waipio Pt. Access Road across a railroad right of way. This two-span reinforced cast-in-place concrete bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has concrete parapets with cross shaped voids and caps. Wide end posts flank the ends of the parapets. The concrete deck is supported by concrete abutments, two piers, and spread footings. The workmanship of the bridge has not been obscured by additions or repairs.</p>		


**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. This is a unique example of a 1940's concrete tee beam bridge in its materials, method of construction, craftsmanship, and design.

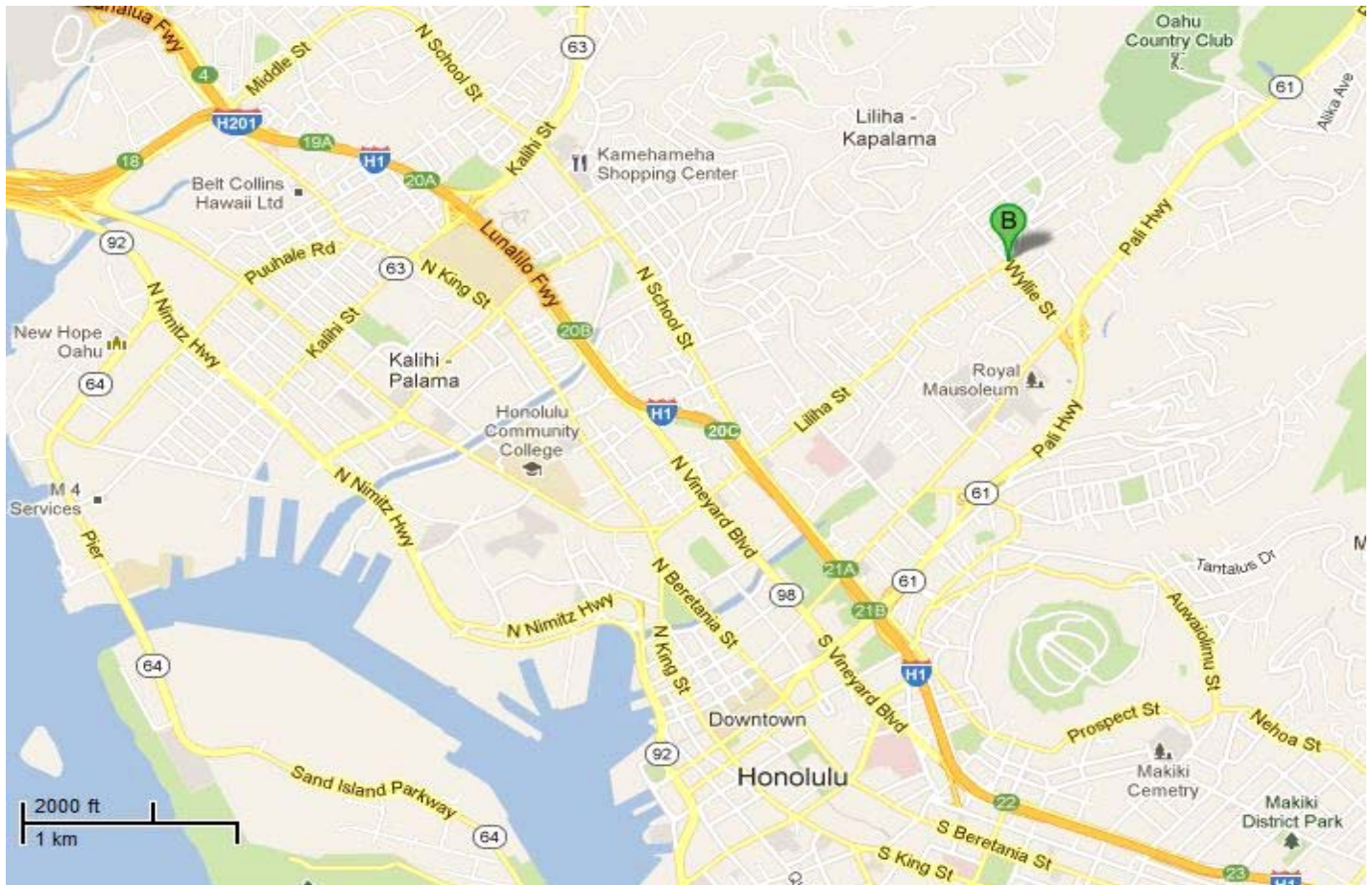
# Inventory Form

(County/Private)

## General Information

<b>Bridge Number:</b> 003083681400001	
<b>Popular Name:</b> Wyllie Street Bridge-Waolani Stream	
<b>Feature Crossed:</b> Waolani Stream	
<b>Feature Carried:</b> Wyllie Street	
<b>Milepost:</b> 0.01 mi. <b>County Private:</b> Honolulu	
<b>Longitude:</b> 157d-50m-54.09s <b>Latitude:</b> 21d-19m-49.47s	
<b>Location:</b> TMK: 1-8-05	
<b>Historic Name:</b> Wyllie Street Bridge-Waolani Stream	
<b>Designer/Engineer:</b>	
<b>Builder/Contractor:</b>	

## Location Map:





## Construction Information

<b>Bridge Type:</b> Concrete Tee Beam	<b>Construction Date:</b> 1931	<b>Replaced?</b> No
<b>Altered?</b> No <b>Alteration Date(s):</b>		
<b>Alteration Type(s):</b>		
<b>Alteration Description(s):</b>		

## Bridge Information

<b>Number of Spans:</b> 1	<b>Max Span:</b> 28.0 ft.	<b>Total Length:</b> 33.0 ft.	<b>Deck Width:</b> 56.8 ft.
<b>Superstructure:</b> Concrete Tee Beam			
<b>Substructure:</b> Concrete Abutment Wall			
<b>Floor/Decking:</b> Concrete Deck with AC Overlay			
<b>Parapets/Railings:</b> Concrete Open Arched			
<b>Setting:</b>			
<b>Other Features:</b>			

## Historic Association

<b>Eligibility Status:</b> Eligible	<b>Criteria:</b> C	<b>State/National Registered?</b> No
<b>Current Function:</b> Bridge	<b>Historic Function:</b> Bridge	
<b>Area of Significance:</b> Engineering		
<b>Narrative Description:</b> <p>The Waolani Stream Bridge carries Wyllie Street across Waolani Stream. This single-span reinforced concrete girder bridge is in its original location, is generally in good condition, and its materials remain intact. The bridge has solid concrete capped parapets with arched voids and decorative end posts. The concrete deck is supported by concrete abutments. The workmanship of the bridge has not been obscured by additions or repairs.</p>		

**Significance Statement:**

This bridge is eligible under Criterion C for its association with early developments in concrete bridge construction in Hawaii. It is a good example of a 1930's concrete tee-beam bridge that is typical of its period in its use of materials, method of construction, craftsmanship, and design.