

**ROUTINE BRIDGE INSPECTION REPORT  
FEDERAL-AID PROJECT NO. BRIS-NBIS(080)  
CONTRACT NO. SC-DDC-2200014**

**FARRINGTON HIGHWAY BRIDGE NO. 2 OVER HUNEHUNE STREAM  
BRIDGE NO. 924  
STRUCTURE NO. 003924001100001**

**DATE OF INSPECTION: September 3, 2021**



Prepared For:

City and County of Honolulu  
Department of Design and Construction

Prepared By:  
Team Leader:  
Glenn Miyasato  
(Certification Date: 06/15/2017)

MKE Associates LLC  
99-205 Moanalua Road, Suite 205  
Aiea, Hawaii 96701  
Telephone: (808) 488-7579

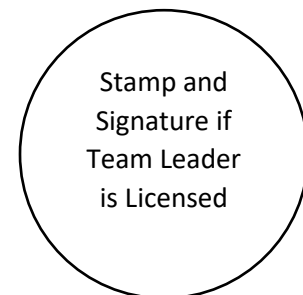




TABLE OF CONTENTS

**SECTION 1.0 – INSPECTION SUMMARY**..... 1

1.1 BRIDGE DESCRIPTION..... 1

1.2 PARKING, BRIDGE ACCESS, AND SAFETY HAZARDS ..... 2

1.3 OVERALL CONDITION..... 2

**SECTION 2.0 – LOAD RATING SUMMARY** ..... 2

**SECTION 3.0 – BrM ELEMENT AND SI&A REPORTS**..... 5

APPENDICIES

APPENDIX A – Photographs

APPENDIX B – Figures

## SECTION 1.0 – INSPECTION SUMMARY

### 1.1 BRIDGE DESCRIPTION

Year Built	1940
Lanes on Bridge	2 vehicle lanes
Sidewalk(s)	None
No. of Spans	1
Bridge Posting Sign(s)	Posting on Signs: - Weight Limit: 18 tons - EV Weight Limits: 9 tons (single axle), 18 tons (tandem)  Sign Locations: - East approach on Farrington Highway - West approach on Farrington Highway - Missing sign on Kowelo Avenue
Approach Slab Material and Location	N/A
Deck Wearing Surface	Asphalt Wearing Surface
Culvert Material and Type	N/A
Deck Material and Type	Reinforced concrete slab
Superstructure Material and Type	Reinforced concrete slab
Substructure Material and Type	Reinforced concrete abutments
Bearing Type	Roofing paper above Abutment 1
Bridge Railing Material	Reinforced concrete railing
Bridge Railing Height	2'-0" upstream concrete railing 1'-6" downstream concrete railing

Record drawings on file at the City and County of Honolulu, Department of Design and Construction, Civil Division, include the following:

- Job Number: F.A.P. 4-D(1)
- Structure Name: Farrington Highway Bridge No. 2
- Project Name: Bridge No. 2: Sta. 122+25.19 to 122+53.43, Waianae Road
- Year Approved: 1940
- File Number: 4468.14 to 4468.18

Abutment 1 and Abutment 2 are at the east and west ends of the bridge, respectively.

## 1.2 PARKING, BRIDGE ACCESS, AND SAFETY HAZARDS

Parking to Perform Bridge Inspection	On shoulder along Farrington Highway
Access to Underside of Bridge	Upstream west side of bridge
Equipment Used to Access Underside of Bridge	Ladder
Traffic Control	N/A
Water Depth at Time of Inspection	0"

## 1.3 OVERALL CONDITION

The bridge structure is generally in satisfactory condition. Periodic bridge inspections are recommended to not exceed 24-month intervals as specified in the National Bridge Inspection Standards. National Bridge Inspection (NBI) Ratings for the previous inspection and the current inspection are as follows:

NBI ITEM		NBI RATINGS	
		PREVIOUS INSPECTION	CURRENT INSPECTION
#36	Traffic Safety Features (Bridge Railings, Transitions, Approach Guardrail, Approach Guardrail Ends) <small>(Per BrM Database)</small>	0, N, 0, 0	0, N, 0, 0
#58	Deck	6	6
#59	Superstructure	6	6
#60	Substructure	6	6
#61	Channel & Channel Protection	5	5
#62	Culvert	N	N
#67	Structural Evaluation	3	3
#71	Waterway Adequacy Comments: Observed conditions appear similar to the previous inspection. No analysis was performed to evaluate flood/overtopping risk.	6	6
#113	Scour Comments: No scour observed.	8	8

## SECTION 2.0 – LOAD RATING SUMMARY

The bridge is currently posted for reduced load carrying capacity. Load posting signs were observed at bridge approaches. Based on visual observations at the time of this inspection, there appears to be no immediate signs of overstress or increased distress for the bridge that would affect rating calculations since the last inspection report dated October 18, 2019 by Nagamine Okawa Engineers, Inc. The most recent load rating was performed on December 3, 2019 by Nagamine Okawa Engineers, Inc. See the following load rating summary sheets.

**CITY AND COUNTY OF HONOLULU  
DEPARTMENT OF DESIGN AND CONSTRUCTION  
CIVIL DESIGN AND ENGINEERING DIVISION**

**Existing Bridge Data**

**Bridge Load Rating Summary**

Structure Number:	003924001100001	Last Load Rating Date:	2/27/2015
Bridge Name:	Farr Hwy Bridge No.2	Last Inspection Date:	10/18/2019
Bridge Number:	924	Inspected By:	Nagamine Okawa
District:	Waianae	Fracture Critical Member (Y/N):	N
Span Type:	RC Slab	Item 58, Deck Rating:	6
Bridge Plans Available (Y/N):	Y	Item 59, Superstructure Rating:	6
Design Loading:	-	Item 60, Substructure Rating:	6
Past Inventory Rating (HL93):	0.46	Bridge Load Posted (Y/N):	N
Past Operating Rating (HL93):	0.60	Posted Weight Limit:	-

**Bridge Load Rating Summary**

<b>Dead Load Data</b>		<b>LRFR Evaluation Factors</b>	
Overlay Type:	AC	Surface Roughness Rating:	3
Overlay Depth (IN):	2	Condition Factor:	1.00
Was Overlay Depth Measured (Y/N):	Y	System Factor:	1.00
Weight of Utilities:	n/a	ADTT (one way):	Unknown
Weight of other Non-Structural Attachments:	n/a		

**Superstructure/Deck Rating Summary**

	Vehicle Type	Vehicle GVW (Kips)	Rating Factor	Controlling Member	Controlling Load Effect	IM	Live Load Distribution Factor
Design Load	HL-93 (INV)	N/A	0.39	Interior Strip	Flexure	33%	0.600
	HL-93 (OPR)	N/A	0.50	Interior Strip	Flexure	33%	0.600
	Type 3	50.0	0.96	Interior Strip	Flexure	33%	0.600
Legal Load	Type 3S2	72.0	1.05	Interior Strip	Flexure	33%	0.600
	Type 3-3	80.0	1.01	Interior Strip	Flexure	33%	0.600
	NRL	80.0	0.96	Interior Strip	Flexure	33%	0.600
	SU4	54.0	0.96	Interior Strip	Flexure	33%	0.600
	SU5	62.0	0.96	Interior Strip	Flexure	33%	0.600
	SU6	69.5	0.96	Interior Strip	Flexure	33%	0.600
	SU7	77.5	0.96	Interior Strip	Flexure	33%	0.600
	EV2	57.5	0.54	Interior Strip	Flexure	33%	0.600
Permit Load	EV3	86.0	0.59	Interior Strip	Flexure	33%	0.600
	HP1	120.0	0.89	Interior Strip	Flexure	33%	0.600
	HP2	157.1	0.54	Interior Strip	Flexure	33%	0.600
	HP3	209.9	1.06	Interior Strip	Flexure	33%	0.600

**Substructure Rating Summary**

Substructure Rated (Y/N):	N
---------------------------	---

Vehicle Type	Vehicle GVW (Kips)	Rating Factor	Controlling Member	Controlling Load Effect	IM	Live Load Distribution Factor
HL-93 (INV)	N/A					
HL-93 (OPR)	N/A					
Legal Load						
Permit Load						

**Posting Analysis Summary**

Legal Load	Governing Legal Load Rating Factor:	0.96
	Governing Legal Load Model:	Type 3
	Posting Recommended (Y/N):	Y
	Recommended Posting Load:	23 Tons
EV	EV2 Rating Factor	0.54
	EV3 Rating Factor	0.59
	Recommended Single Axle Posting	9 Tons
	Recommended Tandem Posting	18 Tons
	Recommended GVW Posting	N/A

**Please check the following boxes that apply:**

- Bridge load rating is not governed by deck rating
- Bridge load rating is not governed by substructure rating
- Connections do not control the bridge load rating
- Exterior girder controls the bridge load rating
- Bridge plans do not exist - Rating based on judgement and current loading

**Remarks/Recommendations for Bridges without Plans**

**Quality Control/Quality Assurance**

Load Rating Engineer  
 - Name: Norman Nagamine  
 - License No.: 5479-S  
 - Signature: *Norman Nagamine*  
 Load Rating Checked By: Colin Kodama  
 Quality Assurance By: Karl Umemoto  
 Load Rating Date: 12/3/2019

**CITY AND COUNTY OF HONOLULU**  
**DEPARTMENT OF DESIGN AND CONSTRUCTION**  
**CIVIL DESIGN AND ENGINEERING DIVISION**  
**Bridge Load Rating Summary**

**Existing Bridge Data**

Structure Number:	003924001100001	Last Load Rating Date:	2/27/2016
Bridge Name:	Farr Hwy Bridge No.2	Last Inspection Date:	10/18/2019
Bridge Number:	924	Inspected By:	Naigamine Okawa
District:	Waianae	Fracture Critical Member (Y/N):	N
Span Type:	RC Slab	Item 58, Deck Rating:	6
Bridge Plans Available (Y/N):	Y	Item 59, Superstructure Rating:	6
Design Loading:	-	Item 60, Substructure Rating:	6
Past Inventory Rating (HL-93):	0.46	Bridge Load Posted (Y/N):	N
Past Operating Rating (HL-93):	0.60	Posted Weight Limit:	-

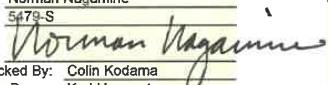
**Bridge Load Rating Summary**

<b>Dead Load Data</b>		<b>LRFR Evaluation Factors</b>	
Overlay Type:	AC	Surface Roughness Rating:	3
Overlay Depth (IN):	2	Condition Factor:	1.00
Was Overlay Depth Measured (Y/N):	Y	System Factor:	1.00
Weight of Utilities:	n/a	ADTT (one way):	Unknown
Weight of other Non-Structural Attachments:	n/a	ADT:	-

**Superstructure/Deck Rating Summary**

	Vehicle Type	Vehicle GVW (Kips)	Rating Factor	Travel	Controlling Member	Controlling Load Effect	IM	Live Load Distribution Factor
Refuse Vehicles	REF1	51.00	0.87	No	Interior Strip	Flexure	33%	0.600
	REF2	57.18	0.81	No	Interior Strip	Flexure	33%	0.600
	REF3	45.94	0.96	No	Interior Strip	Flexure	33%	0.600
	REF4	57.50	0.83	No	Interior Strip	Flexure	33%	0.600
Buses	BUS1	30.99	0.80	No	Interior Strip	Flexure	33%	0.600
	BUS2	39.60	0.65	No	Interior Strip	Flexure	33%	0.600
	BUS3	39.60	0.65	No	Interior Strip	Flexure	33%	0.600
	BUS4	64.38	0.64	No	Interior Strip	Flexure	33%	0.600
	BUS5	67.24	0.57	No	Interior Strip	Flexure	33%	0.600
	BUS6	67.78	0.59	No	Interior Strip	Flexure	33%	0.600
	BUS7	66.79	0.59	No	Interior Strip	Flexure	33%	0.600
	BUS8	39.90	0.60	No	Interior Strip	Flexure	33%	0.600
	BUS9	39.60	0.65	No	Interior Strip	Flexure	33%	0.600
	BUS10	39.60	0.65	No	Interior Strip	Flexure	33%	0.600
	BUS11	42.54	0.59	No	Interior Strip	Flexure	33%	0.600
Honolulu Fire Department Trucks	HFD1	38.40	0.82	No	Interior Strip	Flexure	33%	0.600
	HFD2	42.74	0.82	No	Interior Strip	Flexure	33%	0.600
	HFD3	43.50	0.82	No	Interior Strip	Flexure	33%	0.600
	HFD4	49.80	0.73	No	Interior Strip	Flexure	33%	0.600
	HFD5	49.80	0.73	No	Interior Strip	Flexure	33%	0.600
	HFD6	49.80	0.73	No	Interior Strip	Flexure	33%	0.600
	HFD7	52.20	0.63	No	Interior Strip	Flexure	33%	0.600
	HFD8	62.74	0.69	No	Interior Strip	Flexure	33%	0.600
	HFD9	73.50	0.76	No	Interior Strip	Flexure	33%	0.600
	HFD10	59.24	0.82	No	Interior Strip	Flexure	33%	0.600
	HFD11	60.00	0.98	No	Interior Strip	Flexure	33%	0.600
	HFD12	51.18	1.03	Yes	Interior Strip	Flexure	33%	0.600
	HFD13	58.00	0.98	No	Interior Strip	Flexure	33%	0.600
	HFD14	44.00	0.66	No	Interior Strip	Flexure	33%	0.600
	HFD15	44.00	0.66	No	Interior Strip	Flexure	33%	0.600
	HFD16	44.00	0.82	No	Interior Strip	Flexure	33%	0.600
	HFD17	42.74	0.82	No	Interior Strip	Flexure	33%	0.600
HFD18	76.60	0.64	No	Interior Strip	Flexure	33%	0.600	
HFD19A	77.56	0.98	No	Interior Strip	Flexure	33%	0.600	
HFD19B	77.56	0.76	No	Interior Strip	Flexure	33%	0.600	
HFD20A	87.56	0.98	No	Interior Strip	Flexure	33%	0.600	
HFD20B	87.56	0.76	No	Interior Strip	Flexure	33%	0.600	
HFD21	42.00	0.82	No	Interior Strip	Flexure	33%	0.600	
HFD22	37.00	0.85	No	Interior Strip	Flexure	33%	0.600	

**Substructure Rating Summary**

Substructure Rated (Y/N):	N
<b>Recommended Refuse Vehicle</b>	
Recommended Refuse LR Factor:	0.96
Recommended Refuse Load Model:	REF3
Recommended Max Payload:	5 Tons
*Payload is the Allowable Vehicle Load Carrying Capacity	
<b>Quality Control/Quality Assurance</b>	
Load Rating Engineer	
- Name:	Norman Nagamine
- License No.:	5479-S
- Signature:	
Load Rating Checked By:	Colin Kodama
Quality Assurance By:	Kari Umemoto
Load Rating Date:	12/3/19
<b>Please check the following boxes that apply:</b>	
<input type="checkbox"/> Bridge load rating is not governed by deck rating	
<input type="checkbox"/> Bridge load rating is not governed by substructure rating	
<input type="checkbox"/> Connections do not control the bridge load rating	
<input type="checkbox"/> Exterior strip controls the bridge load rating	
<input type="checkbox"/> Bridge plans do not exist - Rating based on judgement and current loading	
<b>Remarks/Recommendations for Bridges without Plans</b>	
*Refuse (REF) vehicles may travel over the bridge at the reduced allowable payload indicated.	

### **SECTION 3.0 – BrM ELEMENT AND SI&A REPORTS**

BrM Element and SI&A Reports for this inspection cycle are provided on the following pages.



STATE OF HAWAII  
CITY & COUNTY OF HONOLULU  
BRIDGE INSPECTION REPORT

Inspection Date: September 03, 2021

Bridge Number: 003924001100001 Bridge Name: FARRINGTON HWY BRIDGE # 2

County Oahu Route No: 09107 Milepost: 0 Facility: FARR HWY

NBI ITEM 36 - TRAFFIC SAFETY FEATURES		List any maintenance work required: (ie: defects, missing bolts, collision damage, etc.)
36A	Bridge Railings	36A: See Element Defects below. 36C, 36D: See Appendix A.
36B	Transitions	
36C	Approach Guardrail	
36D	Approach Guardrail Ends	

ELEMENT INSPECTION								
ELEM NO.	ELEMENT / DEFECT DESCRIPTION	ENV.	TOTAL QUANTITY	UNIT	CS 1 (Good)	CS 2 (Fair)	CS 3 (Poor)	CS 4 (Severe)
DEFECT								
38	Re Concrete Slab	1	1,013	sq.ft	913	0	100	0
1120	Efflorescence/Rust Staining		100	sq.ft	0	0	100	0
510	Wearing Surfaces		557	sq.ft	557	0	0	0
Defect No. 1120: - Longitudinal crack with built-up efflorescence (25SF CS3) on slab soffit over full length of span, 28' from upstream side (Photo 15) - Longitudinal crack with built-up efflorescence (25SF CS3) on slab soffit over full length of span, 30' from upstream side (Photo 16) - Longitudinal crack with built-up efflorescence (25SF CS3) on slab soffit over full length of span, 32' from upstream side (Photo 17) - Longitudinal crack with built-up efflorescence (25SF CS3) on slab soffit over full length of span, 45' from upstream side (Photo 18)								
215	Re Conc Abutment	1	155	ft	140	13	2	0
1130	Cracking (RC and Other)		15	ft	0	13	2	0
Defect No. 1130: - Moderate width cracks (13FT CS2) on both abutments (Photo 20) - Wide crack (1FT CS3) on Abutment 1, 25' from upstream end (Photo 21) - Wide crack (1FT CS3) on Abutment 1, 45' from upstream end (Photo 22)								
316	Other Bearing	1	1	each	1	0	0	0
331	Re Conc Bridge Railing	1	62	ft	62	0	0	0

NBI ITEM CONDITION RATINGS			Describe defects noted during bridge inspection. Provide sketches, diagrams, and photographs where possible.
58	Deck	6	See bridge element/defect notes and descriptions listed for defects noted during inspection. See also report, photographs and figures for defects noted during inspection.
59	Superstructure	6	
60	Substructure	6	
61	Channel and Channel Protection	5	
62	Culvert	N	
71	Waterway Adequacy	6	

NBI ITEM 93 - CRITICAL FEATURE INSPECTION		REQUIRED	FREQUENCY	CURRENT	NEXT
93A	Fracture Critical Details	N			1/1/01
93B	Underwater Inspection	N		12/21/11	1/1/01

OTHER FEATURES			REMARKS
Posted Status (NBI Item 41)	P - Posted for load		EV Posted Weight Limits: Single Axle = 9 tons, Tandem = 18 tons
Posted Weight Limit	(Posted limit (Tons) or 'N' if not applicable)	18	
Signing for Posting Legible/Visible? (Provide 2 pictures of signs. 1 on each end of bridge)	(Y or N)	Y	
Riding Surface (Roughness) Rating	(3 - smooth, 2 - Avg, 1 - Poor)	2	

REPAIRS, IMPROVEMENTS AND RECOMMENDATIONS
List all work done to this bridge since last inspection (ie: structural repair work, cleaning, maintenance work, etc.)
List proposed and/or recommended work for this bridge including estimated cost (ie: structural repair work, cleaning, maintenance, etc.)
<ul style="list-style-type: none"> <li>- Upgrade approach guardrails and guardrail end treatments to current acceptable standards ( Off-Bridge Repair Item)</li> <li>- Upgrade bridge railings to current acceptable standards (Est. Cost = \$130,000)</li> <li>- Repair CS3 cracks in abutments (Est. Cost = \$1,000)</li> <li>- Remove vegetation in channel at upstream and downstream sides of bridge (Est. Cost = \$20,000)</li> </ul>
Other comments or observations.

Inspector: **Signature:** \_\_\_\_\_ **Phone:** 808-488-7579  
 Noe Lum

Inspector: **Signature:** \_\_\_\_\_ **Phone:** 808-488-7579  
 Amar P Jaishi



State of Hawaii  
Department of Transportation  
Structure Inventory and Appraisal Sheet (English Units)

Name: **FARRINGTON HWY BRIDGE # 2** Bridge No: **003924001100001**

Inspection Date: 09/03/2021

IDENTIFICATION					
Rte.(On/Under)	<b>5A:</b>	Route On Structure	State	<b>1:</b>	15 Hawaii
Rte. Signing Prefix	<b>5B:</b>	5 City Street	Facility Carried	<b>7:</b>	FARR HWY
Level of Service	<b>5C:</b>	0 None of the below	Place Code	<b>4:</b>	
Route Number	<b>5D:</b>	09107	SHD District	<b>2:</b>	25 Oahu
Directional Suffix	<b>5E:</b>	0 N/A (NBI)	Feature Intersected	<b>6:</b>	FARR HWY/HUNEHUNE STRM
Border Bridge Code	<b>98:</b>	Unknown (P)	County Code	<b>3:</b>	Oahu
Border Bridge Number	<b>99:</b>	NA	Location	<b>9:</b>	TMK: 9-1-17
Mile Post	<b>11:</b>	NA	Latitude	<b>16:</b>	21° 21' 28"
Struc Num	<b>8:</b>	003924001100001	Longitude	<b>17:</b>	158° 00' 34"
INSPECTION					
Inspection Date	<b>90:</b>	9/3/2021	Frequency	<b>91:</b>	24 months
FC Inspection Date	<b>93A:</b>	NA	FC Frequency	<b>92A:</b>	
UW Inspection Date	<b>93B:</b>	NA	UW Frequency	<b>92B:</b>	
			Next Inspection:		9/3/2023
			Next FC Inspection:		NA
			Next UW Inspection:		NA
CONDITION					
Deck	<b>58:</b>	6 Satisfactory	Super	<b>59:</b>	6 Satisfactory
Culvert	<b>62:</b>	N N/A (NBI)	Sub	<b>60:</b>	6 Satisfactory
			Channel/Channel Protection	<b>61:</b>	5 Bank Prot Erode
				<b>SD/FO:</b>	ND
				<b>SUFF RATE:</b>	57.9
LOAD RATING AND POSTING					
Inventory Rating Method	<b>65:</b>	8 LRFR (HL93)	Operating Rating Method	<b>63:</b>	8 LRFR (HL93)
Inventory Rating	<b>66:</b>	0.39	Operating Rating	<b>64:</b>	0.50
Design Load	<b>31:</b>	1 M 9 (H 10)	Posting	<b>70:</b>	1 30.0-39.9%below
Posting Status	<b>41:</b>	P - Posted for load			
GEOMETRIC DATA					
Length Max Span	<b>48:</b>	17.06 ft	Structure Length	<b>49:</b>	27.89 ft
Width Curb to Curb	<b>51:</b>	39.37 ft	Curb/Sdwk Width L	<b>50A:</b>	8.53 ft
Approach Roadway width (w/ shoulders)	<b>32:</b>	34.12 ft	Curb/Sidewalk Width R	<b>50B:</b>	7.87 ft
Deck Area:		1,184.03 sq. ft	Width Out to Out	<b>52:</b>	42.32 ft
Skew	<b>34:</b>	42.00°	Median	<b>33:</b>	0 No median
Vertical Clearance	<b>10:</b>	99.99 ft	Structure Flared	<b>35:</b>	0 No flare
Min. Vert. Cl. Over Bridge	<b>53:</b>	99.99 ft	Horizontal Clearance	<b>47:</b>	21.98 ft
Min. Vert. Undercl. Ref.	<b>54A:</b>	N Feature not hwy	Min. Lat. Undercl. Ref. R	<b>55A:</b>	N Feature not hwy or RR
Min. Vert. Undercl.	<b>54B:</b>	0.00 ft	Min. Lat. Undercl. R	<b>55:</b>	0.00 ft
			Min. Lat. Undercl. L	<b>56:</b>	0.00 ft
AGE AND SERVICE					
Year Built	<b>27:</b>	1941	ADT	<b>29:</b>	5,472
Type of Service on	<b>42A:</b>	1 Highway	Year Reconstructed	<b>106:</b>	
Type of Service under	<b>42B:</b>	5 Waterway	Detour Length	<b>19:</b>	9.9 mi
Lanes on	<b>28A:</b>	2	Truck ADT	<b>109:</b>	0%
Lanes under	<b>28B:</b>	0	Year of ADT	<b>30:</b>	1980
STRUCTURE TYPE AND MATERIALS					
Deck Type	<b>107:</b>	1 Concrete-Cast-in-Place	Number of Spans Main Unit	<b>45:</b>	1
Wearing Surface	<b>108A:</b>	6 Bituminous	Main Span Material Design	<b>43A:</b>	1 Concrete
Membrane	<b>108B:</b>	0 None	Main Span Material Design	<b>43B:</b>	01 Slab
Deck protection	<b>108C:</b>	None	Number of Approach Spans	<b>46:</b>	0

State of Hawaii  
 Department of Transportation  
 Structure Inventory and Appraisal Sheet (English Units)

APPRAISAL			
Bridge Rail	36A:	0	Substandard
Transition	36B:	N	N/A or not required
Str Evaluation	67:	3	Intolerable - Correct
Waterway Adequacy	71:	6	Equal Minimum
Scour Critical	113:	8	Stable Above Footing
Approach Rail	36C:	0	Substandard
Approach Rail Ends	36D:	0	Substandard
Deck Geometry	68:	5	Above Tolerable
Approach Alignment	72:	6	Equal Min Criteria
Vert. & Horiz. Undercl.	69:	N	Not applicable (NBI)
CLASSIFICATION			
Defense Highway	100:	0	Not a STRAHNET hwy
Direction of Traffic	102:	2	2-way traffic
Highway System	104:	3	On free road
Defense Hwy	110:	0	Not on NHS
Toll Facility	20:	0	Not a STRAHNET hwy
Owner	22:		County Hwy Agency
Parallel Structure	101:		No    bridge exists
Temporary Structure	103:		Unknown (NBI)
NBIS Length	112:		Long Enough
Functional Class	26:	02	Rural Other Princ
Historical Significance	37:	5	Not eligible for NRHP
Custodian	21:		County Hwy Agency
PROPOSED IMPROVEMENTS			
Bridge Cost	94:	\$0	
Roadway Cost	95:	\$0	
Total Cost	96:	\$194,000	
Year of Cost Estimate	97:		Unknown
Type of Work	75:	38	Other Structural
Length of Improvement	76:	0.0	ft
Future ADT	114:	6,840	
Year of Future ADT	115:	2025	
NAVIGATION DATA			
Navigation Control	38:		Permit Not Required
Vertical Clearance	39:	0.0	ft
Pier Protection	111:		Unknown (NBI)
Horizontal Clearance	40:	0.0	ft
Lift Bridge Vert. Cl.	116:		

# **APPENDIX A: PHOTOGRAPHS**



**PHOTO 1** EAST APPROACH LOOKING WEST



**PHOTO 2** WEST APPROACH LOOKING EAST



**PHOTO 3** UPSTREAM ELEVATION



**PHOTO 4** DOWNSTREAM ELEVATION





**PHOTO 5** LOAD POSTING SIGNS ON FARRINGTON HIGHWAY AT EAST APPROACH TO BRIDGE



**PHOTO 6** LOAD POSTING SIGNS ON FARRINGTON HIGHWAY, WEST OF KOWELO AVENUE



**PHOTO 7** UPSTREAM EAST APPROACH GUARDRAIL



**PHOTO 8** UPSTREAM WEST APPROACH GUARDRAIL



**PHOTO 9** DOWNSTREAM EAST APPROACH GUARDRAIL COVERED BY HEAVY VEGETATION



**PHOTO 10** DOWNSTREAM WEST APPROACH GUARDRAIL COVERED BY HEAVY VEGETATION



**PHOTO 11** METAL GUARDRAIL ATTACHED TO UPSTREAM  
CONCRETE BRIDGE RAILING



**PHOTO 12** METAL GUARDRAIL ATTACHED TO DOWNSTREAM  
CONCRETE BRIDGE RAILING



**PHOTO 13** 2'X1' DELAMINATION ON CURB AT BASE OF  
DOWNSTREAM CONCRETE BRIDGE RAILING, NEAR  
WEST END OF BRIDGE



**PHOTO 14** WEARING SURFACE



**PHOTO 15** LONGITUDINAL CRACK WITH BUILT-UP EFFLORESCENCE (25SF 1120 CS3) ON SLAB SOFFIT, 28' FROM UPSTREAM SIDE



**PHOTO 16** LONGITUDINAL CRACK WITH BUILT-UP EFFLORESCENCE (25SF 1120 CS3) ON SLAB SOFFIT, 30' FROM UPSTREAM SIDE



**PHOTO 17** LONGITUDINAL CRACK WITH BUILT-UP EFFLORESCENCE (25SF 1120 CS3) ON SLAB SOFFIT, 32' FROM UPSTREAM SIDE



**PHOTO 18** LONGITUDINAL CRACK WITH BUILT-UP EFFLORESCENCE (25SF 1120 CS3) ON SLAB SOFFIT, 45' FROM UPSTREAM SIDE



**PHOTO 19** PROTRUDING ROOFING PAPER ALONG TOP OF ABUTMENT 1



**PHOTO 20** TYPICAL MODERATE WIDTH CRACK (1130 CS2) ON BOTH ABUTMENTS





**PHOTO 21** WIDE CRACK (1FT 1130 CS3) ON ABUTMENT 1, 25' FROM UPSTREAM END



**PHOTO 22** WIDE CRACK (1FT 1130 CS3) ON ABUTMENT 1, 45' FROM UPSTREAM END



**PHOTO 23** STREAM CHANNEL UNDER BRIDGE LOOKING UPSTREAM, WITH UTILITY PIPE ALONG ABUTMENT 2



**PHOTO 24** UPSTREAM CHANNEL WITH HEAVY VEGETATION AND EXISTING ABANDONED BRIDGE



**PHOTO 25** DOWNSTREAM CHANNEL WITH HEAVY VEGETATION

# **APPENDIX B:**

## **FIGURES**

TO KAPOLEI

TO WAIPAHU



FLOW

EXISTING ABANDONED BRIDGE

GUARDRAIL, TYP

CONCRETE PARAPET, TYP

9'-6" SHOULDER 22'-0" ROADWAY 7'-10" SHOULDER

CL FARRINGTON HWY

ABUTMENT 2 BELOW

ABUTMENT 1 BELOW

18" PIPE

Symbol	Element No.	Defect No.	Severity	Defect Quantity	Photo No.
①	38	1120	CS3	25 SF	15
②	38	1120	CS3	25 SF	16
③	38	1120	CS3	25 SF	17
④	38	1120	CS3	25 SF	18
⑤	215	1130	CS3	1 FT	21
⑥	215	1130	CS3	1 FT	22

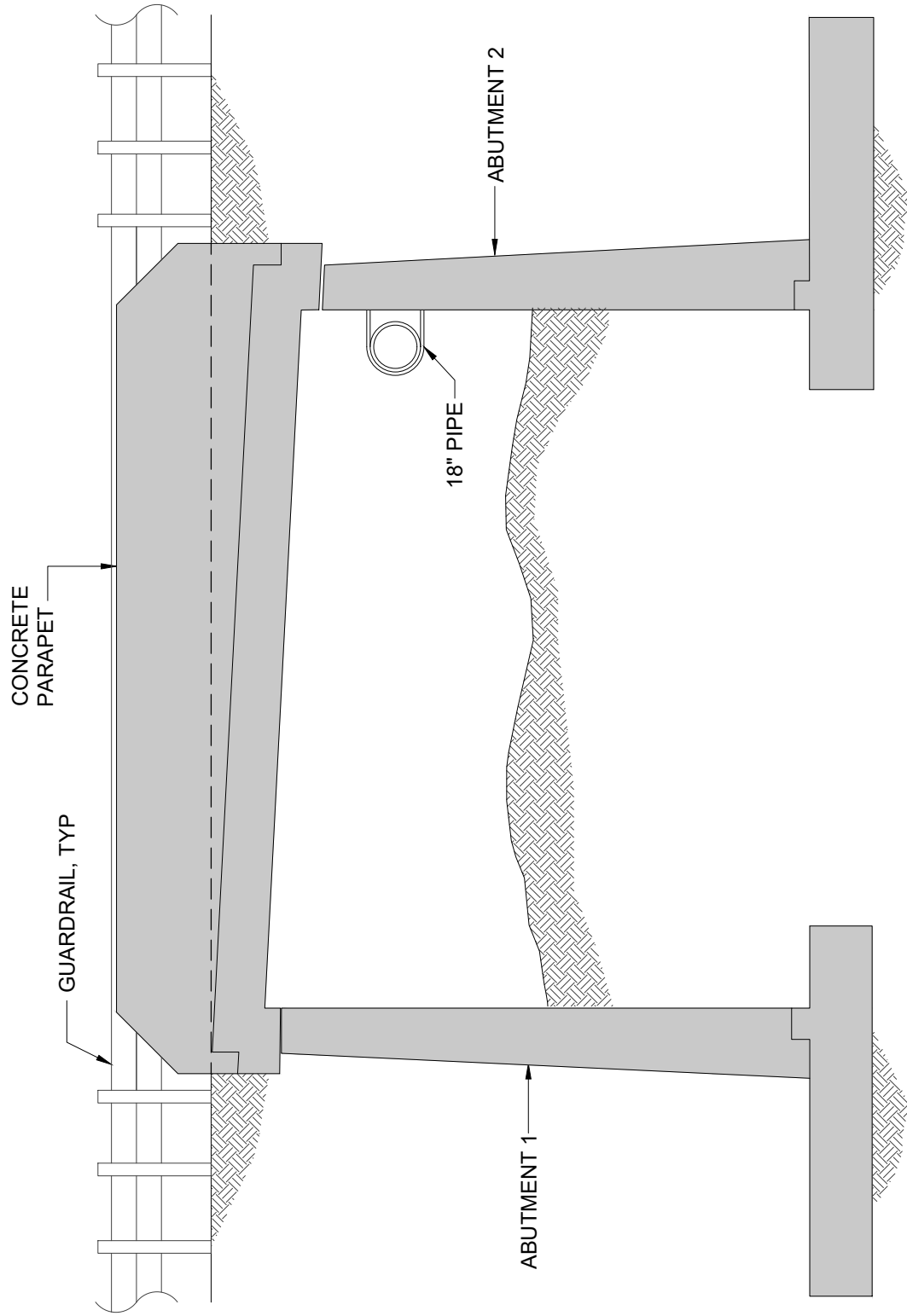
BRIDGE PLAN

NOT TO SCALE

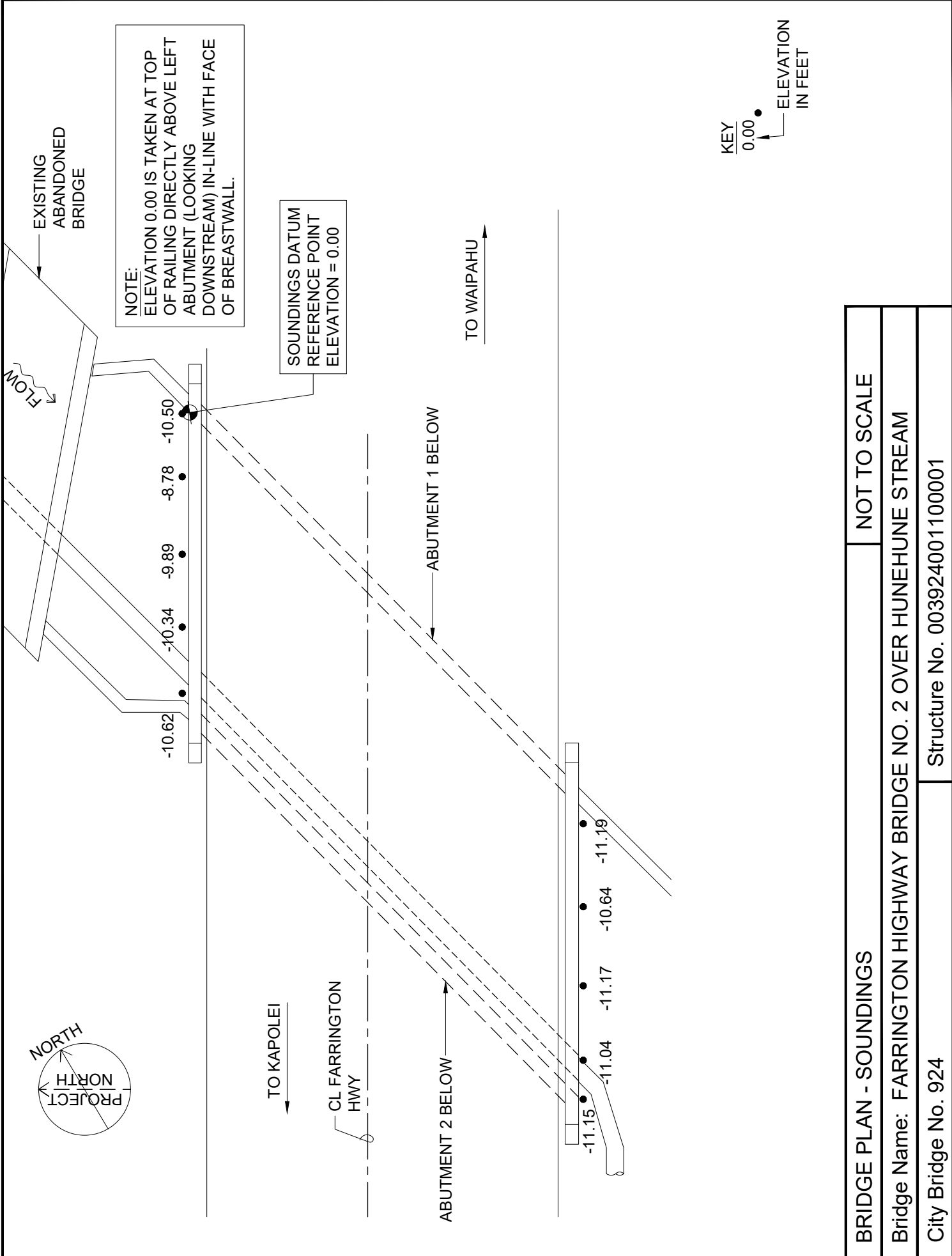
Bridge Name: FARRINGTON HIGHWAY BRIDGE NO. 2 OVER HUNEHUNE STREAM

City Bridge No. 924

Structure No. 003924001100001

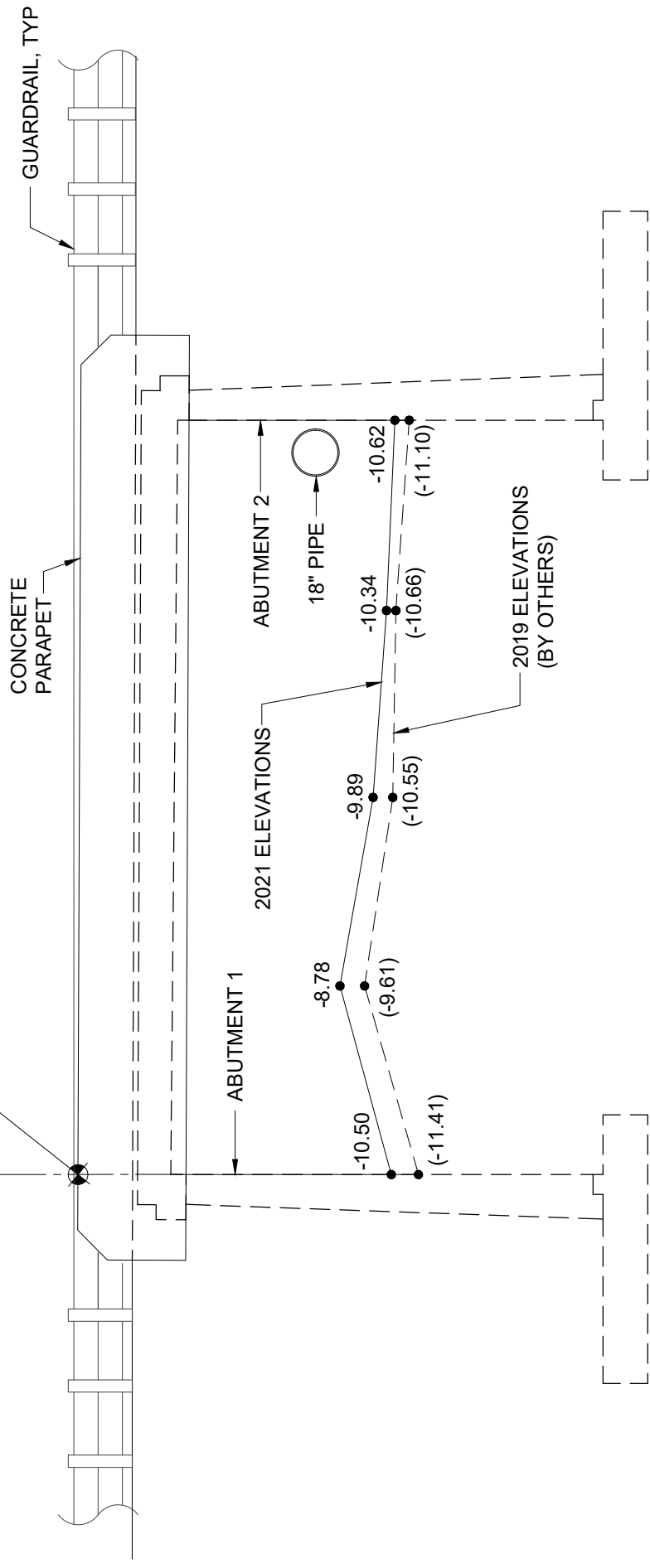


TRANSVERSE SECTION	NOT TO SCALE
Bridge Name: FARRINGTON HIGHWAY BRIDGE NO. 2 OVER HUNEHUNE STREAM	
City Bridge No. 924	Structure No. 003924001100001



BRIDGE PLAN - SOUNDINGS	NOT TO SCALE
Bridge Name: FARRINGTON HIGHWAY BRIDGE NO. 2 OVER HUNEHUNE STREAM	
City Bridge No. 924	Structure No. 003924001100001

SOUNDINGS DATUM  
REFERENCE POINT  
ELEVATION = 0.00

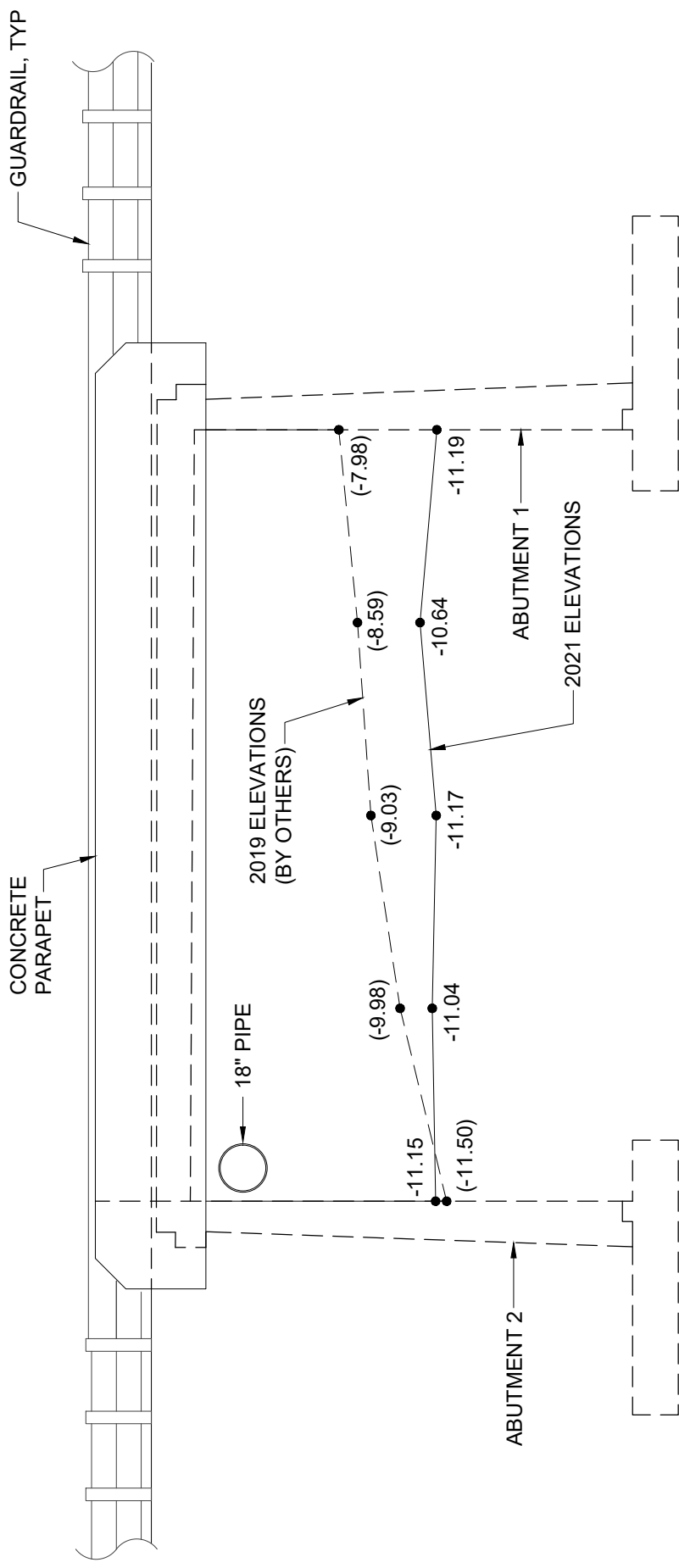


BASED ON 1940 AS-BUILTS  
BOTTOM OF SPREAD  
FOOTING ELEVATION:  
ABUTMENT 1 = - 19.09  
ABUTMENT 2 = - 18.99

KEY  
(0.00) ● --- ELEVATION IN FEET (2019 ELEVATIONS BY OTHERS)  
0.00 ● --- ELEVATION IN FEET (2021 ELEVATIONS)

UPSTREAM ELEVATION - SOUNDINGS	NOT TO SCALE
Bridge Name: FARRINGTON HIGHWAY BRIDGE NO. 2 OVER HUNEHUNE STREAM	
City Bridge No. 924	Structure No. 003924001100001

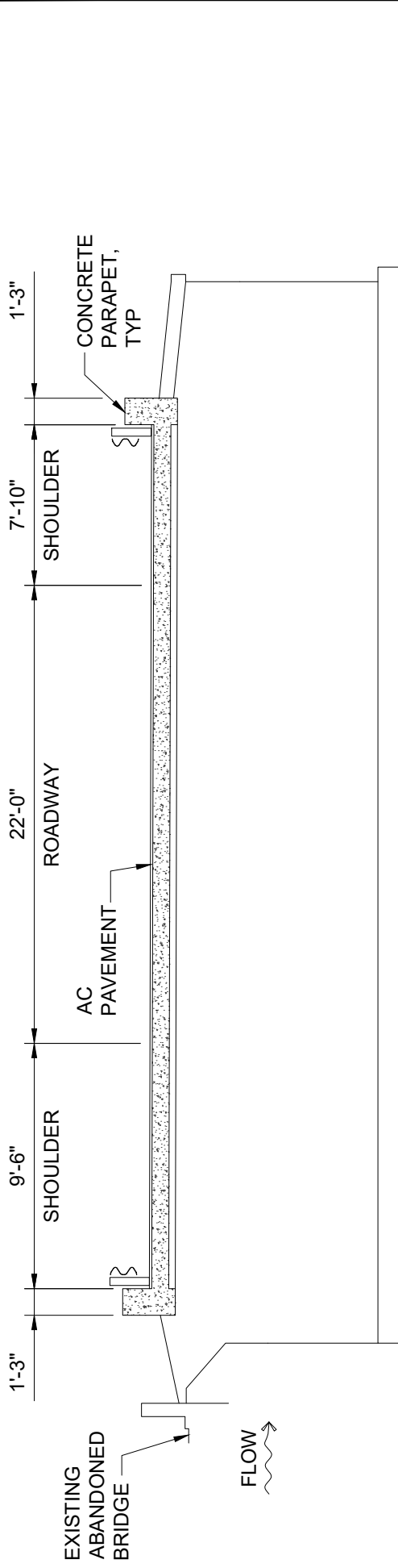




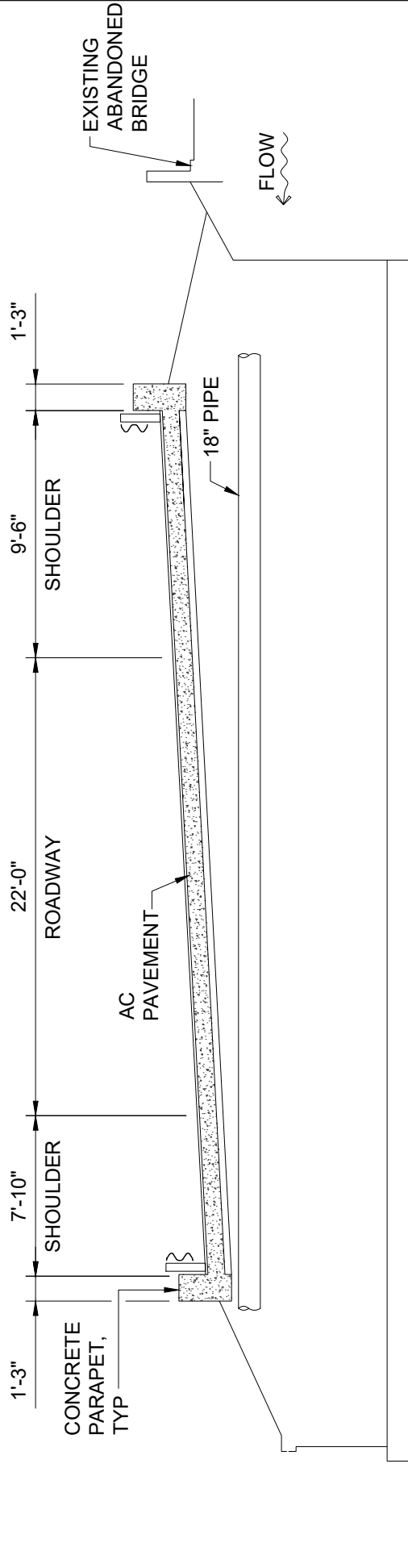
**KEY**  
 (0.00) ——— ELEVATION IN FEET (2019 ELEVATIONS BY OTHERS)  
 0.00 ——— ELEVATION IN FEET (2021 ELEVATIONS)

BASED ON 1940 AS-BUILTS  
 BOTTOM OF SPREAD  
 FOOTING ELEVATION:  
 ABUTMENT 1 = - 18.94  
 ABUTMENT 2 = - 15.84

DOWNSTREAM ELEVATION - SOUNDINGS	NOT TO SCALE
Bridge Name: FARRINGTON HIGHWAY BRIDGE NO. 2 OVER HUNEHUNE STREAM	
City Bridge No. 924	Structure No. 003924001100001



**ABUTMENT 1 ELEVATION**



**ABUTMENT 2 ELEVATION**

ABUTMENTS	NOT TO SCALE
Bridge Name: FARRINGTON HIGHWAY BRIDGE NO. 2 OVER HUNEHUNE STREAM	
City Bridge No. 924	Structure No. 003924001100001