

November 7, 2014

Mr. Eric Waters
Division Chief
Prevention Division / PIO
Gig Harbor Peninsula Fire District No. 5
10222 Bujacich Rd NW
Gig Harbor, WA 98332


e x e l t e c h
8729 Commerce Place Drive NE
Suite A
Lacey, WA 98516
360.357.8289
Fax 360.357-8225

Re: Raft Island Bridge Replacement
Completion of the New Replacement Bridge Construction

Dear Mr. Watson:

This letter is to inform you that the construction of the new Raft Island Bridge has recently been completed and old Raft Island Bridge has been removed. The new bridge is open to all legal highway loads allowed by Washington State. The design and construction of the new bridge is in accordance with the 2014 Washington State Department of Transportation (WSDOT) Standard Specifications for Road, Bridge and Municipal Construction, WSDOT Bridge Design Manual, WSDOT Highway Design Manual, and American Association of State Highway and Transportation Officials (AASHTO) LRFD Bridge Design Specifications.

Enclosed is copy of the new bridge WSDOT stamped and signed Bridge Rating Summary form dated 11/7/2014 and the Gig Harbor Fire Medic One Vehicle Weights and Wheelbases spreadsheet dated 10/26/2012. We have evaluated the weight limit and load rating of the new bridge for AASHTO, WSDOT, and Gig Harbor Peninsula Fire District No. 5 vehicles. Gig Harbor Peninsula Fire District No. 5 vehicles up to 50 tons may use the new bridge.

The new bridge can be conspicuously posted adjacent to the bridge approaches as follows:

WEIGHT LIMIT
Gig Harbor Peninsula Fire District No. 5
Fire and Medic One Vehicles 50 TONS

Future bridge inspections shall be performed by a WSDOT Certified Bridge Inspector, licensed in the State of Washington as a Civil Engineer. The next bridge inspection of the new bridge will be required in the year 2016, followed by an inspection every four years.

Respectfully Submitted,
EXELTECH CONSULTING, INC.



Karl N. Kirker, PE SE
Senior Bridge Project Manager

Enclosures: Bridge Rating Summary 11/7/2014
Gig Harbor Fire Medic One Vehicle Weights and Wheelbases 10/26/2012

cc: Richard Swenson, RIIA Representative
Roger Hansen, RIIA Owners Representative
Ron Smith, PE, Exeltech Consulting, Inc.

BRIDGE RATING SUMMARY



Bridge Name: Raft Island Bridge
Bridge Number: N/A
Span Types: Prestressed Concrete Girders (Deck Bulb Tee)
Bridge Length: 757 ft
Design Load: HL-93
Rated By: C Cadag - revised by R Smith
Checked By: E Nelson
Date: 8/21/2013 - revised 10-20-2014

Inspection Report Date	N/A	Substructure Condition	8*
Rating Method	LRFR	Deck Condition	8*
Overlay Thickness	0' - 5"	Superstructure Condition	8*

*Assumed for New Bridge

Truck	RF	Y	Controlling Point Location From Left Support
AASHTO 1	2.18	1.00	Span 1 Girder B, 33.750 (Stress)
AASHTO 2	2.03	1.00	Span 1 Girder B, 33.750 (Stress)
AASHTO 3	2.16	1.00	Span 1 Girder B, 33.750 (Stress)
NRL	1.38	1.00	Span 1 Girder B, 33.750 (Stress)
OL-1	1.28	1.00	Span 11 Girder B, (0.5L _s) 33.937 (Yield Stress - Positive Moment)
OL-2	1.28	1.00	Span 11 Girder B, (0.5L _s) 33.937 (Yield Stress - Positive Moment)
<u>Fire Engines and Tankers</u>			
E27, E28 & E29	2.29	1.00	Span 1 Girder B, 33.750 (Stress)
T12, T13 & T14	1.67	1.00	Span 1 Girder B, 33.750 (Stress)

NBI Rating	RF	Controlling Point Location From Left Support
Inventory (HL-93)	1.07	Span 1 Girder B, (Bar Cutoff) 52 (Shear)
Operating (HL-93)	1.51	Span 1 Girder B, 33.750 (Positive Moment)

Remarks:

It was determined through inspection and judgement that crossbeam loading would not control rating due to the way the load is carried from the girders directly to the piles.

Fire engines E20 through E26, E30, E31, U50, T9 and A11 have Rating Factors greater than 2.29.

Gig Harbor Fire Medic One Vehicle Weights and Wheelbases

	Front	Rear	Full
E20			
Rated	12,000	23,000	35,000
Actual	9,860	20,940	30,920
Wheelbase			224"
		Empty	24665

E21			
Rated	12,000	23,000	35,000
Actual	9,840	20,600	30,580
Wheelbase			224"
		Empty	24325

E22			
Rated	18,740	24,000	47,740
Actual	16,540	21,500	38,200
Wheelbase			201"
		Empty	31,945

E23			
Rated	20,000	24,000	44,000
Actual	17,420	22,500	40,020
Wheelbase			201"
		Empty	33765

E24			
Rated	19,500	27,000	46,500
Actual	17,100	20,460	37,560
Wheelbase			178"
		Empty	31305

E25			
Rated	19,500	27,000	46,500
Actual	17,100	20,540	37,720
Wheelbase			178"
		Empty	31465

E26			
Rated	19,500	27,000	46,500
Actual	17,200	20,300	37,640
Wheelbase			178"
		Empty	31385

E27			
Rated	21,500	27,000	48,500
Actual	18,400	21,520	40,800
Wheelbase			182"
		Empty	34545

	Front	Rear	Full
E28			
Rated	21,500	27,000	48,500
Actual	18,400	21,700	40,280
Wheelbase			182"
		Empty	34025

E29			
Rated	21,500	27,000	48,500
Actual	18,480	21,500	40,140
Wheelbase			182"
		Empty	33885

E30			
Rated	19,500	27,000	46,500
Actual	17,440	21,440	39,040
Wheelbase			178"
		Empty	32,785

T12			
Rated	18,000	46,000	64,000
Actual	13,980	36,300	50,660
Wheelbase	171" to Front Tandem		
	54" between rear axles		
		Empty	25640

T13			
Rated	18,000	46,000	64,000
Actual	14,080	37,640	52,120
Wheelbase	171" to Front Tandem		
	54" between rear axles		
		Empty	27100

T14			
Rated	18,000	46,000	64,000
Actual	14,040	37,380	51,740
Wheelbase	171" to Front Tandem		
	54" between rear axles		
		Empty	26720

U50 - Rescue			
Rated	16,000	22,000	38,000
Actual	10,480	16,780	31,040
Wheelbase			193"

T9 - Air 56			
Rated			27,500
Actual	6,060	14,100	20,180
Wheelbase			177"

E31 - Brush 51			
Rated	8,000	13,500	19,500
Actual	6,500	11,520	18,160
Wheelbase			171"

E = Engines / Pumpers

T = Tenders / Tankers

A= Medic Unit/Ambulance

Engines - 750 gal. x 8.34 lbs = 6255 lbs

Tenders - 3000 gal. x 8.34 lbs = 25020 lbs

**Gig Harbor Fire Medic One
Vehicle Weights and Wheelbases**

A11

Rated	4,600	9,450	14,000
Actual	4,600	7,000	11,580
Wheelbase			159"
Transverse front wheelbase			70"