

Rupert Engineering, Inc.

CONSULTING ENGINEERS/CIVIL AND STRUCTURAL

September 26, 2014

Patricia Cosgrove, Museum Director
Daryl Faber, Parks Director

RE: Bridge at Mary Olson Farm

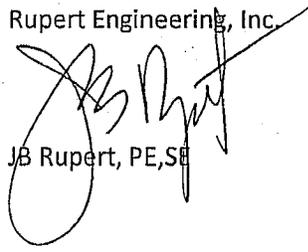
Attached are sketches of a preliminary Bridge Design. Below are comments regarding this design.

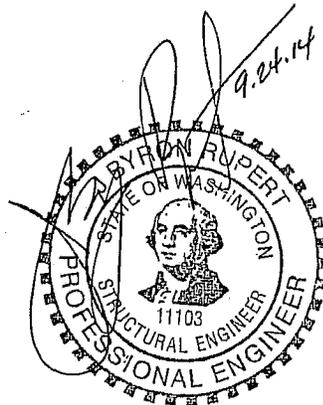
- Design is based on a 40'-0" span
- Discussion with Tom Using, City of Auburn Building Official, Superimposed Live Load for a pedestrian bridge = 100 PSF
- The 12" Prestressed Hollow Core Slab is good for 175 PSF superimposed Load
- The abutment reaction with LL=100PSF & 150PSF bridge weight is 20,000 lb +/-
- (2)-3" pin pile good for 24,000 lb
- Museum possibly can hire a contractor without bidding because of the amount of the contract
- Waters & Woods general contractors (they are an approved Auburn small works contractor) Has given me a firm cost estimate that this design can be built for \$30,000 +/- . Items that will affect this price are:
 1. Does the City Project have to pay Sales Tax (9.8%)
 2. Does the contractor have to pay "Prevailing Wages"
 3. Price is for Doug Fir decking, Cedar Decking could add \$5000 +/-
 4. Waters and Wood has their own Pin Pile Hammer
 5. Waters and Woods may elect to mix concrete on site since the abutments create only 2→3 Cubic yards.

Call if you have any questions:

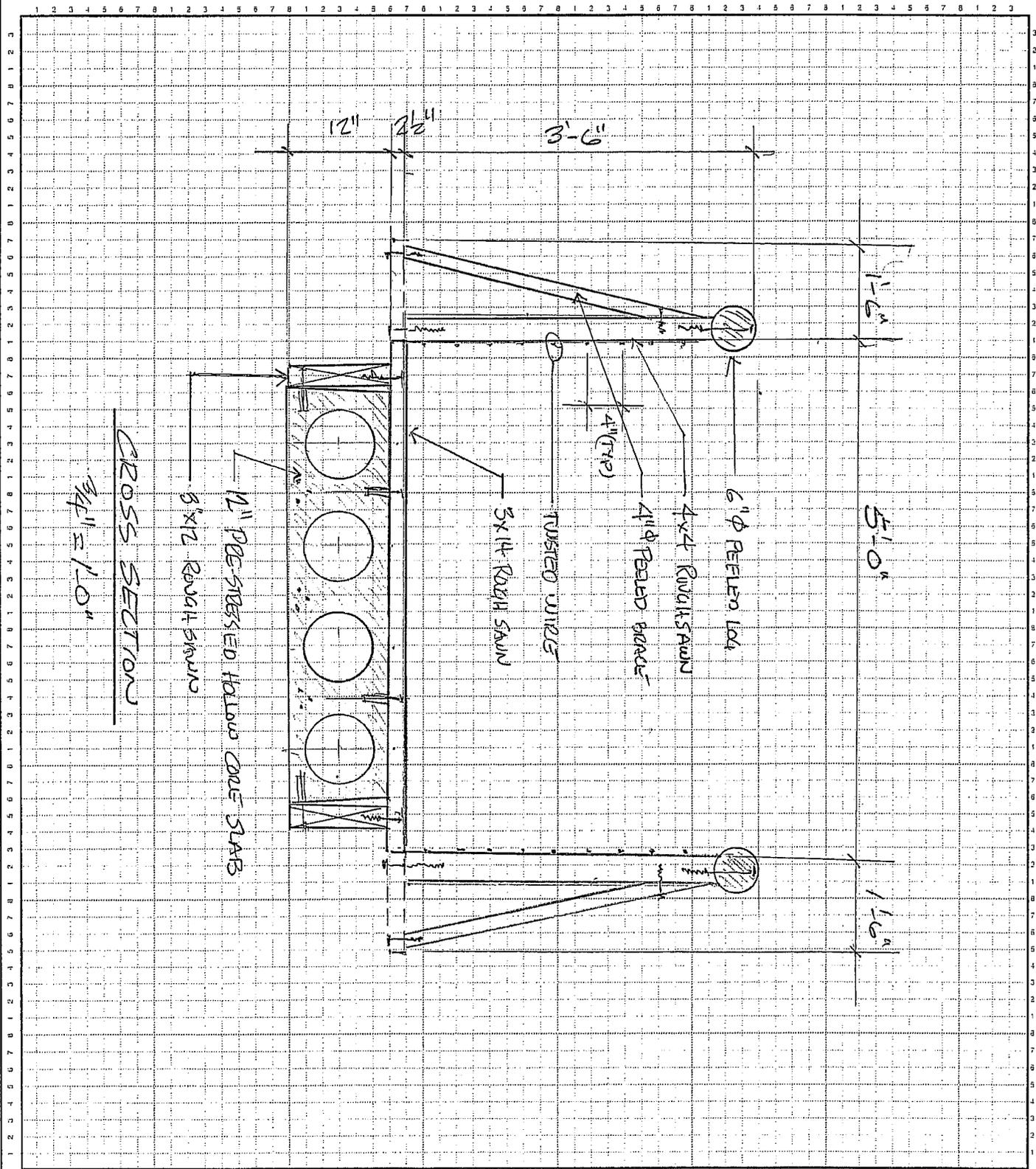
Sincerely,

Rupert Engineering, Inc.


JB Rupert, PE, SE

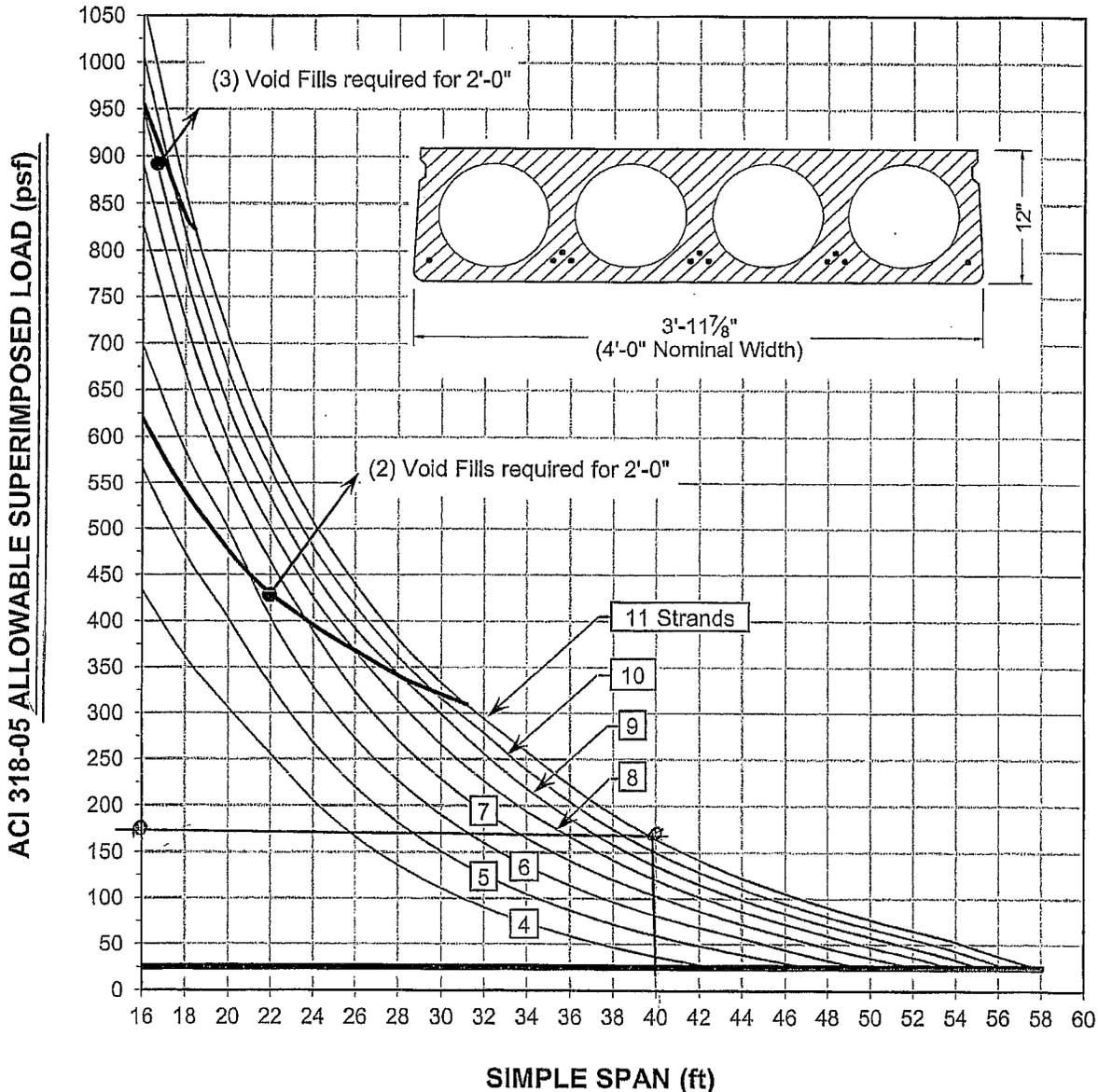


1519 West Valley Highway North/Suite 101/Auburn, WA 98001
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12" HOLLOW CORE SLAB



SECTION PROPERTIES (with shear key grouted)

$I = 5,270 \text{ in}^4$	$S_t = 878 \text{ in}^3$	$S_b = 878 \text{ in}^3$	$A = 289 \text{ in}^2$
$w = 77 \text{ psf}$	$y_t = 6.00 \text{ in}$	$y_b = 6.00 \text{ in}$	

NOTES:

1. The values given in this chart are in compliance with ACI 318-11.
2. The values given in this chart are based on hollow core slabs without shear reinforcement. See SHEAR for discussion.
3. Refer to DEFLECTIONS for discussion of deflection criteria.
4. This Span-Load Chart is Intended as an aid to preliminary sizing only, and must be interpreted using sound engineering judgment.



McDowell NW Pile King, Inc.
TYPICAL * REFUSAL CRITERIA
PIPE PILE HYDRAULIC HAMMERS

Defined as less than 1" of penetration in "X" seconds
 * for penetration into 50 blow count soils.

HAMMER	WEIGHT	SECONDS PER INCH			
		2" PIPE	3" PIPE	4" PIPE	6" PIPE
(pneumatic) Jack Hammer	90 lbs.	60			
Hydraulic TB 100	135 lbs.	40			
Hydraulic TB 125	400 lbs.	14	25		
Hydraulic TB 225	650 lbs.	8	15	20	
Hydraulic TB 325	850 lbs.	6	10	16	
Hydraulic TB 425	1100 lbs.		6	10	20
Hydraulic TB 725	2000 lbs.			6	15

SPECIFICATION CHART

Model Number	Hammer Weight (Actual)	Ft. Lb. Class	BPM (Blows per minute) depending on oil flow	BPM at 80% Operating Throttle	Oil Flow Required gpm range	Working Pressure psi range	Tool Diam. Inches
TB 100	135 lbs.	125	1000-1200	1200	4.7-5.5	1000-1300	1.57"
TB 125	400 lbs.	350	600-1200	1000	5-9	1150-2000	2"
TB 225	650 lbs.	550	550-1100	1000	7-12	1400-2150	2.3"
TB 325	850 lbs.	850	550-1100	900	9-16	1400-2300	3"
TB 425	1100 lbs.	1100	550-1100	900	12-21	1400-2300	3.75"
TB 725	2700 lbs.	2000	450-700	600	18-29	1600-2400	4.50"

PIPE SIZE	O.D.	WALL	HAMMER SIZE *	TYPICAL PILE CAPACITY ASSUMES 2X SAFETY FACTOR
2"	2.375"	.218" sch 80	400 lb.	4-6 kps ←
3"	3.5"	.216" sch 40	650 or 850 lb.	12 kps ←
4"	4.5"	.237" sch 40	850 or 1100 lb.	20 kps
6"	6.625"	.280" sch 40	2000 lb.	30 kps

Revised
9/23/03

