

ATTACHMENT A



King County
Department of Development and Environmental Services
900 Oakesdale Avenue SW
Renton, WA 98055-1219
(206) 296-6600

Project Name: South Park Bridge No.3197 Replacement (CIP 300197)
Parcel Number(s): Adjacent to Bridge 2185600070 DDES Project Number: A09PM242/

Boyd 2068

Section A (this section to be completed by King County personnel)

The proposed development site lies at least partially within the King County regulatory floodplain based on review and determination from any of the following sources:

- FEMA Flood Insurance Rate Map (FIRM): Panel # 640 Panel date: April 19, 2005
- Special Study as required by section 4.4.2 of the King County Surface Water Design Manual
- Other: (please note source)

Based on section 21A.24.250 of the King County code, and section 4.4.2 of the King County Surface Water Design Manual, the proposed development can not create a detectable change to the water surface elevation or energy grade line for the 100-year flood event (base flood elevation). This is to be determined and certified by a registered professional engineer using standard methods and practices accepted by the King County Department of Development and Environmental Services (DDES) and will be referred to as a "zero-rise analysis".

Based on a review of the potential impacts of this project, a "zero-rise analysis":

- Is required. Completion of Section B of this form by a registered professional engineer is a condition of the issuance of this permit.
- Is not required for the following reasons:
 - Improvement to an existing structure without increasing the foundation footprint of the structure.
 - Post and pier foundation system with no significant impedance to flow.
 - Coastal "A" zone
 - Shallow flooding area (AO/AH zone) not adjacent to a riverine system. (explain)
 - Ineffective flow area. (explain)
 - Proposed project lies within a hydraulic shadow. (explain)
- Other (explain) See Attached

NOTE: Section A of this worksheet relates only to zero-rise analysis. Compensatory storage analysis and documentation requirements apply regardless of whether or not a zero-rise analysis is required.

Approved by: [Signature]
By _____
DDES Engineer

By [Signature]
DNRP/FHRS Engineer

Date: DEC 17, 2009

Date: 7/29/10

Section B

King County Flood Hazard Certification

I have considered the hazards represented in of the Flood Insurance Study for King County, dated April 19, 2005, and the supporting documentation. I have also searched for and considered all other available information including: Preliminary Flood Insurance Rate Maps (P-FIRMs) 640 and 645; Preliminary Flood Insurance Studies; Draft flood boundary work maps and associated technical reports; Critical areas reports prepared in accordance with FEMA standards set forth at 44 C.F.R. Part 65 and consistent with the King County Surface Water Design Manual provisions for floodplain analysis set forth at section 4.4.2; Letter of Map Amendments (LOMAs); Letter of Map Revisions (LOMRs); Channel migration zone maps and studies; Historical flood hazard information; and Site topography and ground elevations. All sources are clearly identified in the attached report. In addition, I have created new data where existing sources are not sufficient to assure compliance, and the attached report clearly documents my methods and assumptions.

I certify that the attached technical data supports the fact that the project named above will meet King County requirements for protection of floodplain storage and floodplain conveyance, as set forth in King County Code Title 21A. Compliance is achieved as described below.

Code Requirement	Analytical Methodology (check one or more)	Engineering Certification Required?
No impact to 100-year flood elevations, floodway elevations and floodway widths (no encroachments or obstruction of floodwaters). No reduction in floodplain conveyance both onsite and on adjacent properties, during 100-year flood event ("zero-rise" floodplain).	<input type="checkbox"/> Hand calculations showing that flood conveyance ($K=1.49/nAR^{2.49}$) will equal or exceed existing values at every location.	
	<input type="checkbox"/> HEC-RAS analysis showing that neither the water surface nor the energy grade will rise by even 0.01 ft. at any location when proposed conditions are compared to existing conditions.	
	<input type="checkbox"/> Other: See attached information.	
Compensatory floodplain storage provided (no net fill)	<input type="checkbox"/> Volumetric calculations to show that with project flood storage volume is no less than existing condition at each one-foot elevation contour up to base flood elevation.	
	<input type="checkbox"/> Other: See attached information.	NO

Attached is all support data and calculations.

Professional Engineer's stamp, if methodology requires certification.

 , P.E.
 (signature)
 Dec 12, 2009
 (date)
 Timothy J. Nordin, P.E.
 (name)
 Senior Civil Engineer
 (title)
 HNTB
 (Company)
 600 - 108th Avenue NE - Suite 900
 (Address)
 Bellevue, WA 98004
 (City, State, Zip)
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 (Phone)

Date Approved Nov 22, 2010

By Don Gauthier
 DDES Engineer