

John B Semrau, PE & PLS  
Presentation to Hearing Examiner for SSDP PL12-0191  
April 24, 2013 and June 12, 2013

**Introduction:**

My name is John Semrau. I am a professional Land Surveyor and Professional Civil Engineer, licensed by the State of Washington. I am a partner in the firm Semrau Engineering & Surveying in Mount Vernon and I reside in Mount Vernon at 1005 Digby Road.

**History:**

I began work on this levee system in 1997 and I have been involved as a consultant for Dike District 12 throughout this project.

This application is for a Shoreline Substantial Development Permit pursuant to WAC 173-27-040. This project involves work on the top and landward side of the levee. This project will be within shorelines of state-wide significance (RCW 90.58.030). Portions of this project will be within the Skagit River shoreline within a Rural Residential designation. The master program provision applicable to this development is the Skagit County Shoreline Management Master Program, SCC 14.26.

The levee system has existed for more than 100 years, and clearly existed prior to June 1, 1971 and WAC 173-27-040. This part of the Dike District No. 12 levee system was established in 1895.

This project is the construction phase of the first of three projects presented within the July 16, 2010, "FINAL ENVIRONMENTAL IMPACT STATEMENT TO ADOPT A STRATEGIC PROGRAM FOR COMPREHENSIVE FLOOD HAZARD MITIGATION IN THE BURLINGTON URBAN AREA AND ADJACENT LAND WITH A RANGE OF STRUCTURAL AND NON-STRUCTURAL COMPONENTS." This EIS includes three projects and 8 program actions. Summary of these projects and programmatic actions can be found on the 2 page fact sheet, the first two pages of the EIS.

The portion of the plan that is covered by this permit is found on pages 68 through 76 of the EIS. **OFFER to Submit Copy of Plans or Whole EIS.**

This project is located both within Skagit County and the City of Burlington. The plan for the portion in the City of Burlington, pages 62-68 in EIS, is permitted under Shoreline Substantial Development Permit SMA 1-12. Hearing for this permit was on June 20, 2012 with the appeal period ending in July 2012.

**Exhibit 18- Submit a copy** to Hearing Examiner of Burlington Staff Report and hearing minutes.

**Vicinity Map - Show Copy of Exhibit 2 from Golder Report**, Burlington Levee Project Areas from the “Final Report, Geotechnical Investigation and Levee Analysis...”, Golder Associates, November 2009.

This Project relates strictly to the enlarging of both width and height of the existing levee in place for the 1.53 mile portion within Skagit County. Project extends from the Burlington City limits at Gardner Road north to the terminus south of the BNSF Railroad on Lafayette Road. Construction will occur on top of and landward of the existing levee. This Project is undertaken for the protection of life and property in the City of Burlington and Skagit County, and for maintenance of flood control facilities relating to the Skagit River.

**Show Copy of Figure 13 – Golder Cross sections**

The top three, red, pink and green are in this reach of the project.

**Explanation of difference between Certification, Accreditation and Community Rating.**

Certification is done by the team of engineers and scientists that design and then certify after construction that the levee is built to the Corps Standards.

Accreditation is done by FEMA after a levee has been certified and submitted for that approval.

Community Rating is a process that a City or region goes through for adjustment of their insurance rates paid by the landowners into the Flood Insurance program. Burlington region would get a break on the insurance premiums if they achieve a 25 year rating.

FEMA does not include non-accredited levees in their flood modeling. Currently there are no certified and accredited levees along the Skagit River.

“Once levees are accredited by FEMA, they can be included in the hydraulic modeling that is conducted to define the 100-year floodplain.”, page 10 EIS. Golder Geotechnical study found that “the levees in general were already constructed soundly enough to withstand significant flooding, which has been

confirmed in 1990, 1995, 2003 and 2006. These floods have return intervals ranging from 25 to 50 years.”

The primary constriction in the floodway is the BNSF Bridge. This bridge can only pass 150,000 CFS. (page 11 & 12 EIS)

**An Explanation of Freeboard is found on pg. 10 of the EIS**

FEMA requires riverine levees to have a minimum freeboard of 3 feet and in some cases 0.5 feet additional along the length of tieback levees and an additional foot either side of structures such as bridges. In other words – the top 3 to 4 feet of this levee will be freeboard to the Corps and FEMA guidelines for the certification and accreditation. This portion of the levee is above the flood water level and does not change the flow of the flood waters. This is what prevents the overtopping and potential catastrophic failure or breach of the levee during a flood event.

At this point there is no proposal for a tieback levee and Burlington and DD12 are hopeful FEMA will consider benefits of conveying some of the peaks out of the system. (Discussion found on pages 10 and 11 EIS) Tie back levees can affect upstream and downstream properties.

If the GI study determines that a tie back levee is required then this would also need to be constructed before accreditation. If a high ground tie back is required, this could occur to Sedro Woolley, Sterling Hill or Burlington Hill – this is a GI question that needs to be answered. The proposed project will take from 5 to 6 years to build and a tieback levee will take longer. This proposed project has always been an integral part of the GI study.

The discussion on page 10 of the EIS also answers the questions raised by the County on the exceptions to a tie back. Because a tie back will likely affect the upstream and downstream properties – this question is left for the GI study to answer.

“A key component of developing the levee certification project is addressing the impacts of the proposed action on the upstream and downstream areas. The choice to proceed with work to certify the current levee gives the GI another 5 to 6 years to determine the bigger flood picture. Reducing the flood risk every year

**Hydrology:**

Skagit River hydrology used for the design of this Project has been performed independently by the Corps of Engineers, Pacific International Engineering (PIE), and Northwest Hydraulic Consultants (NHC). A synopsis for the differences in their work can be found on page 44 in the EIS. Corps hydrology is approximately 1.9 to 3.3-feet higher than PIE (pg. 23 Golder). Golder was provided with both Corps and PIE hydrology and they used both in their certification analysis.

<sup>47</sup>  
Pg 46 EIS - Uncertified Existing Levee – COE Hydrology

Pg 47 EIS - Uncertified Existing Levee – PIE Hydrology

<sup>48</sup>  
Pg 49 EIS - Proposed Certified Levee – PIE Hydrology

Pg 50 EIS - Proposed Certified Levee – COE Hydrology

**Pg 57 EIS - ALT 2 – 100 year Certified Levee PIE Hydrology – this is the Alternate proposed by this project with 0.1 FT BFE impact.**

The EIS was completed in July 2010. In January 2012, Northwest Hydraulic Consultants prepared a report for Skagit County Public Works using the Corps Hydrology, “Skagit River Flood Risk Management Study, Hydraulic Effectiveness of Measures, FINAL DRAFT.”

**EXHIBIT 19 - Submit Copy of NWH January 12, 2012**

In this report they called the “Northeastern Levee” the “Burlington Urban Levee” (BURL) and performed an analysis for both the 50 year and 100 year events. On page 16, the results were 0.1 ft and 0.4 ft respectively at the Sterling Area. This study included projects such as the Mount Vernon Flood Wall which is under construction.

The measures considered in the final work by Northwest Hydraulic Consultants were defined in a series of meetings of the Skagit River Flood Risk Management General Investigation Study (Skagit GI) Project Delivery Team (PDT), and defined in discussions with several of the project stakeholders.

**Summary:**

In summary I want to quote from page 11 of the EIS.

“In the case of the riverine levee in the Skagit River delta area, the “protection” goal for Burlington is to have a levee system that will solidly withstand the 100-year flood event, lower Base Flood Elevations in the City, remove a percentage of the City from the 100-year floodplain, and ensure that the established Base Flood Elevations adequately communicate the best estimates of 100-year water surface elevations to property owners.”

Essentially you have a levee improvement project that proposes to minimize upstream and downstream impacts on existing conditions, while maintaining or enhancing current levels of flood protection and achieving FEMA accreditation of a segment of levee. Most of the new height is freeboard required in order to certify the levees to the current level of protection. It has no more impact to the upstream and downstream portions of the system as indicated by the NHC 2012 report. The 20 foot top will provide more stability during an overtopping situation and the levee can be further raised in the future to meet the crest of the higher Corps Hydrology.

“This alternative of enlarging the upstream levees will not remove the risk of flooding; however, it will reduce the risk of a catastrophic levee failure, and make the specific flood risk for each individual property easier to quantify through modeling of water surface levels at various river discharges.” Pg. 17 EIS.

In regard to the SSDP

Page 2 – The parcel numbers are not complete. Not all parcels or all pieces of right-of-way of the District have parcel numbers. There are a couple of property acquisitions still in progress at this time. An Exhibit letter has been submitted to clarify number either 22, 23, or 24.

Development Schedule – Construction will start mid July 2013. We have a five year construction schedule at this time. It will be somewhat dependent on the availability of free material that meets the specifications. Work will only occur in the summer months.

No. 11 - 7.16, 1B, pg. 5-6 – This should reference the 2012 work by Northwest Hydraulics.

No. 13, pg. 10 – I want to make sure the wording of this does not preclude us from being able to get a 1 year extension.

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**EXHIBIT 22, 23 and 24 by SES**

I submitted three additional letters into the record to address and correct the Parcel Number Discrepancies noted above, in regard to fill and grade permits in this reach and in response to the verbal request to delay this work until after the GI study.

Fill and Grade Permit BP 07-0267 has been extended for 6 months and will expire on November 14, 2013.