

Date: February 1, 2011
From: Dave Muller, Lewis County PUD
Subject: Raising Levee - Impact of Fill

The local FEMA mapping team which includes the City of Chehalis, Centralia, Lewis County, Port of Chehalis, Centralia-Chehalis Chamber and the Airport Board asked if we have data that shows the impact of raising the Centralia-Chehalis Airport levee to a level above the 2007 had been done by Northwest Hydraulics Consultants (NHC) as part of their work on flood study Phase 2B. I said that it had so I contacted Larry Karpach, until recently, the Principal Hydrologist and Hydraulic Engineer for NHC who gave me the following response:

NHC was hired by Lewis County in 2008 and is currently hired by FEMA to model floods in the Chehalis River basin. Recently NHC calculated the impact on downstream communities of fill and the levee around the Chehalis-Centralia Airport.

What NHC learned is that if the Airport levee had been raised a level higher than the hundred year flood event so that no flood water was inside the levee that the flood elevation at Mellen Street would have increased 0.11 feet or 1.2 inches. The increase during the 2007 flood at Mellen Street would have been 0.2 feet or 2.4 inches. The elevation increase of the 2007 flood at Grand Mound would have been 0.08 feet or slightly less than 1 inch.

The area behind the existing levee at the Airport is 385 acres, of which 60 acres, of 16 percent of the total, have been filled. Raising the levee to keep out all flood water around the airport has the same effect downstream as if the entire 385 acres was filled behind the levee to a level high enough to be above the 2007 flood water elevation. Thus, the actual impact of fill behind the Chehalis-Centralia levee in the 2007 flood was less than 2.4 inches at Mellen Street or 1 inch at Grand Mound.

NHC also modeled the 2007 flood elevations as if one upper basin water retention structure holding 80,000 acre feet of flood water had been in place. That structure would have reduced the flood crest at Mellen Street by 3.1 feet and 1.9 feet at Grand Mound.

Larry Karpach
206-521-3000