Parametrix
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SENT VIA EMAIL

July 12, 2016
Parametrix No. 217-1678-043

Rocky Howard
City Of Montesano
112 Main Street North
Montesano, Washington 98563

Re: Wynoochee River Bank Protection Progress Report and Invoice through June 30, 2016.

Dear Rocky:

After conducting a geomorphic analysis and simulating three overbank protection alternatives in the developed SRH-2D hydraulic model, WEST Consultants believe that the proposed alternatives may not have the desired effect of permanently protecting the bank of the Wynoochee River near of the City of Montesano Wastewater Treatment Plant (WWTP).

The geomorphic analysis suggests that the rates of lateral migration of the Wynoochee River are greater immediately to the south of the WWTP, and smaller (but still towards the east) north of the WWTP. The hydraulic modeling of existing conditions and three project alternatives shows that existing overbank velocities are small, and probably too small to cause significant overbank erosion, and that while groin placement would further reduce velocities near the WWTP, they would have little effect on near-bank velocities in the Wynoochee River.

Overall, while we believe that the hardening of the WWTP with its sheet-pile wall, and the placement of one or more overbank groins might further slow lateral channel migration upstream of the WWTP, there are two potential concerns. The first is that the overbank groins might not completely eliminate lateral migration upstream of the WWTP, and eventually the river might migrate behind the upstream extent of the groin(s) and cut a channel to the east of the WWTP over the long term. The second is that the continuing lateral channel migration to the south of the WWTP might eventually enter the relic channels of the Wynoochee River, moving the entire lower river towards the east, and over the longer term potentially threaten SR 107 between the Chehalis River and the WWTP. We believe that it would be useful to explore alternatives that might better prevent lateral channel migration or cause a re-establishment of the historic Wynoochee River channel towards the west. Thank you for the opportunity to be of service.

CHANNEL STABILZATION ALTERNATIVES

There are three methods we might consider to slow or eliminate the threat of lateral migration of the Wynoochee River towards the east that involve either “resistance” or “flow training”:

1. Hardening the east bank of the Wynoochee River upstream of the WWTP,

2. Place pile structures around the bend of the river that would accumulate wood and form a “natural” hardening of the bank and direct flow towards the river’s center, and

3. Encouraging the Wynoochee River to take a course further towards the west.

Resistance methodology generally uses structures of some sort placed in the path of the channel migration to resist the natural course of channel migration and prevent further movement. Flow Training methods, on the other hand, uses structures to redirect flow into more desirable patterns, which allows the natural channel processes to continue, and may cause the channel to move away from the area that is endangered. Flow training options are generally better long-term solutions, but can require more permitting and approvals for their construction.

Milestones completed to date include:

- Established Horizontal Control relative to NAD 83/91.
- Established Vertical Control relative to NAVD88.
- Coordinated with project biologist and locate Ordinary High Water locations.
- Established a minimum of 3 project benchmarks to be shown on Plans.
- Compiled topographic information into a 1"=20' scale base map in AutoCAD, Version 2014.
- Performed a bathymetric survey of Wynoochee River near WWTP
- Performed a Geomorphic Analysis
- Developed a 2D hydraulic model of the area using the model SRH-2D.

Future milestones dates are dependent on City's preferred channel stabilization alternative.

Sincerely,

Parametrix, Inc.

Deena Hueneka

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Project Manager