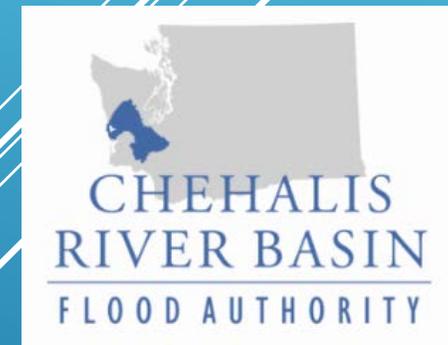
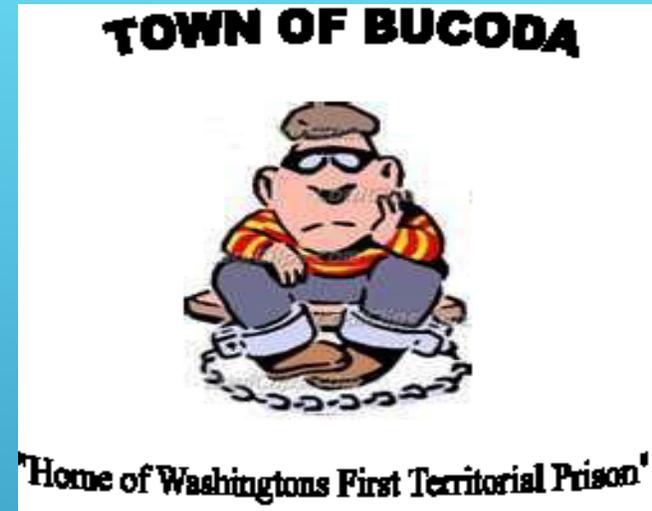


BUCODA MAIN STREET RECONSTRUCTION PROJECT



Project Purpose:

- ▶ Overbank flooding on the Skookumchuck River results in the closure of Main Street near 11th Street. This closure results in isolating approximately 25 percent of the Town's residences. Some of the residents that are isolated are Emergency Services Personnel.
 - ▶ Elevating Main Street would allow ingress/egress and emergency services for those residents that are cut off during periods of flooding.
- 

Project History:

The Scenario of Small Flood Damage Reduction Project Report prepared by HDR, Inc. and Watershed Sciences & Engineering in November 2014 proposes two structures with 75 foot equivalent openings, one across 11th Street and one across Main Street in Attachment A and Figure 4-9 of that report.

The HDR report proposes:

- ▶ Raising Main Street roadway to approximate elevation 246 feet with an additional two feet of elevation at the bridge. The report indicates that raising Main Street would affect approximately 1,500 Main Street.
- ▶ The proposed bridge/culvert geometry assumed a deck thickness of two feet with the low chord at elevation 246 feet.
- ▶ Two 10 ft. driving lanes with 10 ft. gravel shoulders
- ▶ Acquisition of additional Right-of-Way.
- ▶ Retaining Walls to limit impact with road raise near the bridges.

Interagency Agreement between Washington State Recreation and Conservation Office and the Town of Bucoda was executed September 22, 2015 which states that the RCO will reimburse the Town of Bucoda for up to \$3,100,000 for the project.

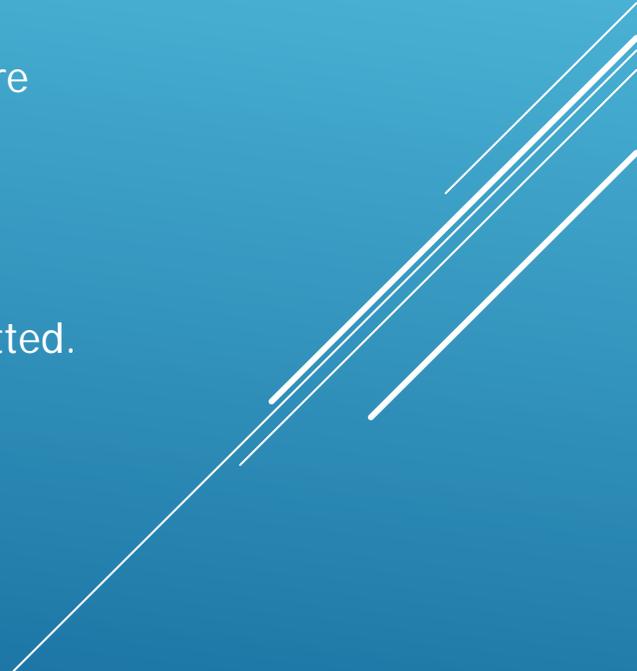
Request for Qualifications were published and the Town of Bucoda selected Jerome W. Morrissette & Associates, Inc. PS from the applicants. The Mayor of Bucoda (Alan Carr) executed the Professional Services Agreement with JWMA on December 22, 2015.

Two Public Outreach Meetings were held to present the project and request Rights-of-Entry to private property to obtain survey data necessary to fully evaluate existing conditions for the design and project impacts upon private properties.

Property owner concerns that were brought up during the February 11, 2016 Public Outreach Meeting:

- ▶ Aesthetics
- ▶ Loss of On-Street Parking
- ▶ Property Use Restrictions
- ▶ Increased Flooding Impacts
- ▶ The Project Could Affect Resale Values
- ▶ Lack of Trust in the Hydraulic Model
- ▶ Concerns about Debris that may Plug the Openings
- ▶ 41 requests for Rights-of-Entry were sent out to affected property owners and to date 17 property owners have granted access.

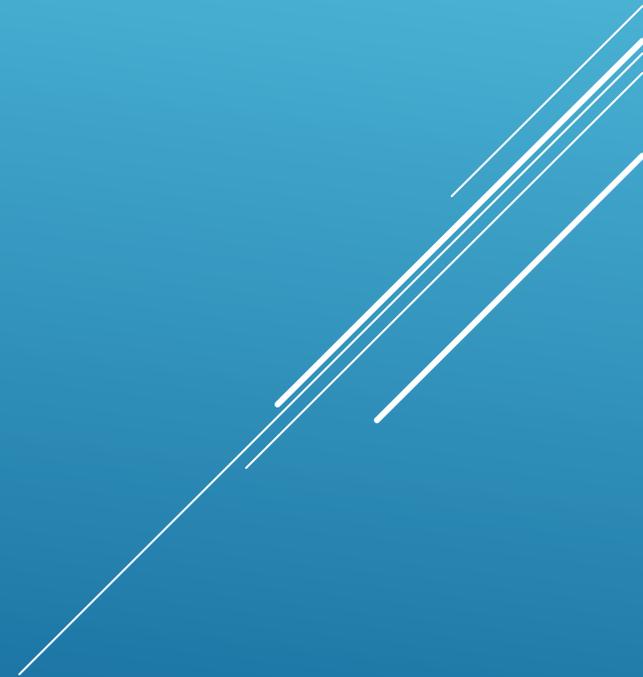
Activities to Date:

- ▶ Two Public Outreach Meetings one on February 11th and the other was held May 19th.
 - ▶ Topographic Survey within the Rights-of-Way has been completed pursuant to the original assumptions.
 - ▶ A Geotechnical Investigation and Report has been completed.
 - ▶ Wetland Delineation and Habitat Reconnaissance has been completed. (Reports are pending.)
 - ▶ Preliminary Hydraulic Modeling has been completed.
 - ▶ 30 Percent Plans have been completed and submitted.
 - ▶ 30 Percent Opinion of Probable Construction Cost has been completed and submitted.
- 

Issues Affecting Project Progress, Scope and Cost:

- ▶ Many owners have not granted Rights-of-Entry to obtain Topographic and Archeological Data this has affected progress.
- ▶ The Hydraulic Model demonstrated that a greater equivalent opening area would be needed to minimize flooding levels upstream of the structure vs. existing conditions.
- ▶ *The Scenario of Small Flood Damage Reduction Project Report* concept did not consider utilities that would require relocation and did not fully consider Hydraulic Freeboard.
- ▶ *The Scenario of Small Flood Damage Reduction Project Report* did not address drainage issues for those properties along the westerly side of Main Street or drainage issues of a new elevated roadway.
- ▶ *The Scenario of Small Flood Damage Reduction Project Report* did not address pedestrian routes. Currently there are sidewalks on both sides of Main Street from 6th Street to 11th Street and sidewalk on the southerly side of 11th to Nenant and sidewalk on the easterly side of Main Street from 11th Street to 12th Street.
- ▶ Raising 11th Street to prevent backwater events results in the need for a stormwater lift station to remove runoff between the existing Railroad grade and Main Street. This includes a stormwater collection and conveyance system.

HYDRAULIC MODELING

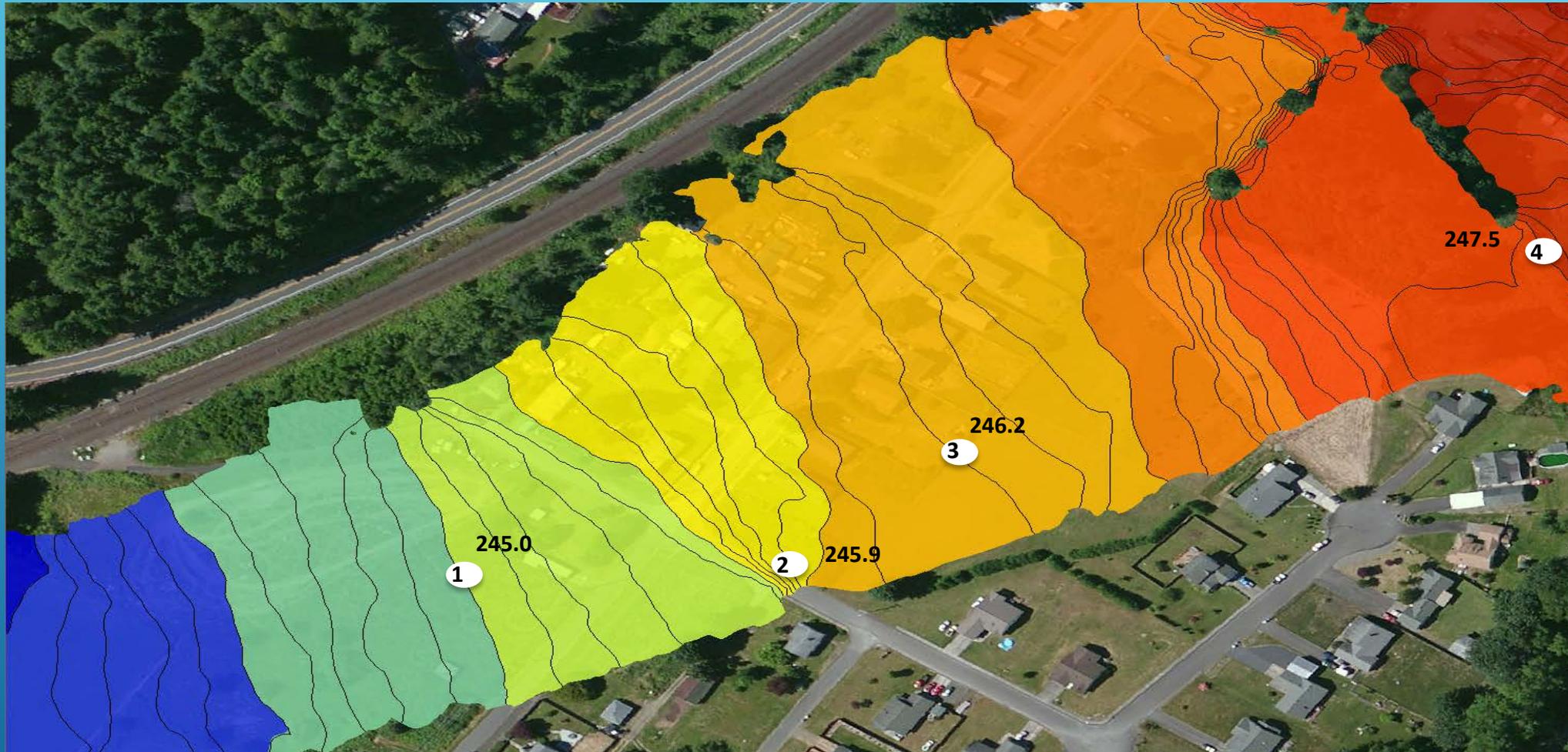


PRELIMINARY EVALUATIONS OF ALTERNATIVE CROSSING SCENARIOS

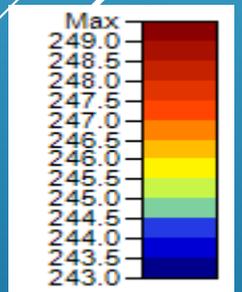
1. Existing Conditions
2. One 90 ft opening under 11th and one 90 ft opening under Main (Two 90 ft openings in series) Initial modeling also considered 75 ft. openings
3. One 90 ft opening under intersection of 11th and Main
4. One 150 ft opening under intersection of 11th and Main
5. One 180 ft opening under intersection of 11th and Main

Alternatives 2-5 also assume that 11th and Main Street would be raised to prevent overtopping

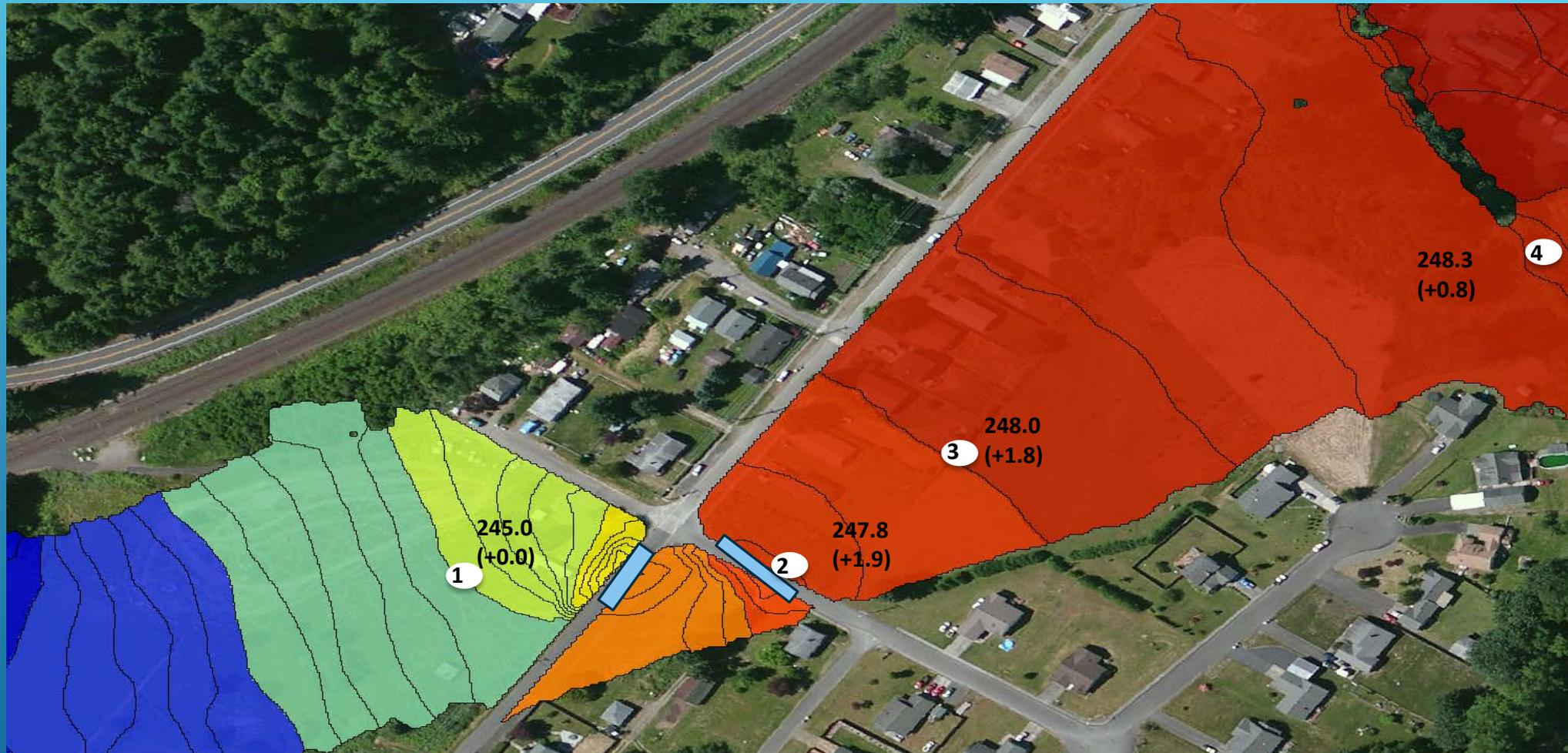
SCENARIO 1 – EXISTING CONDITIONS



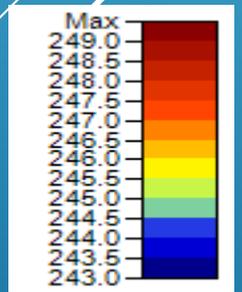
100 Year Water Surface Elevation, ft, NAVD88



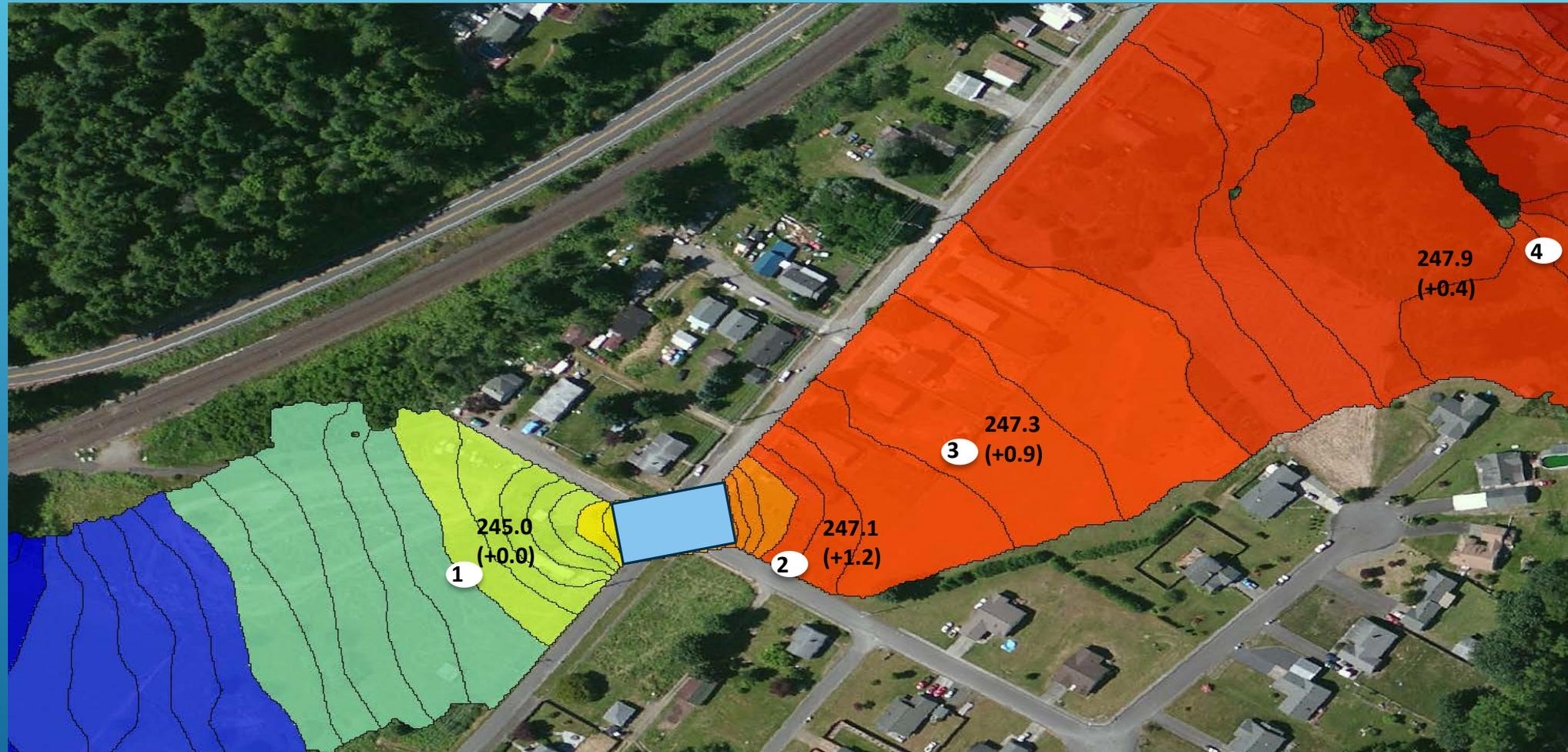
SCENARIO 2 – TWO 90 FT OPENINGS



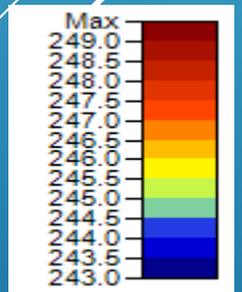
100 Year Water Surface Elevation, ft, NAVD88



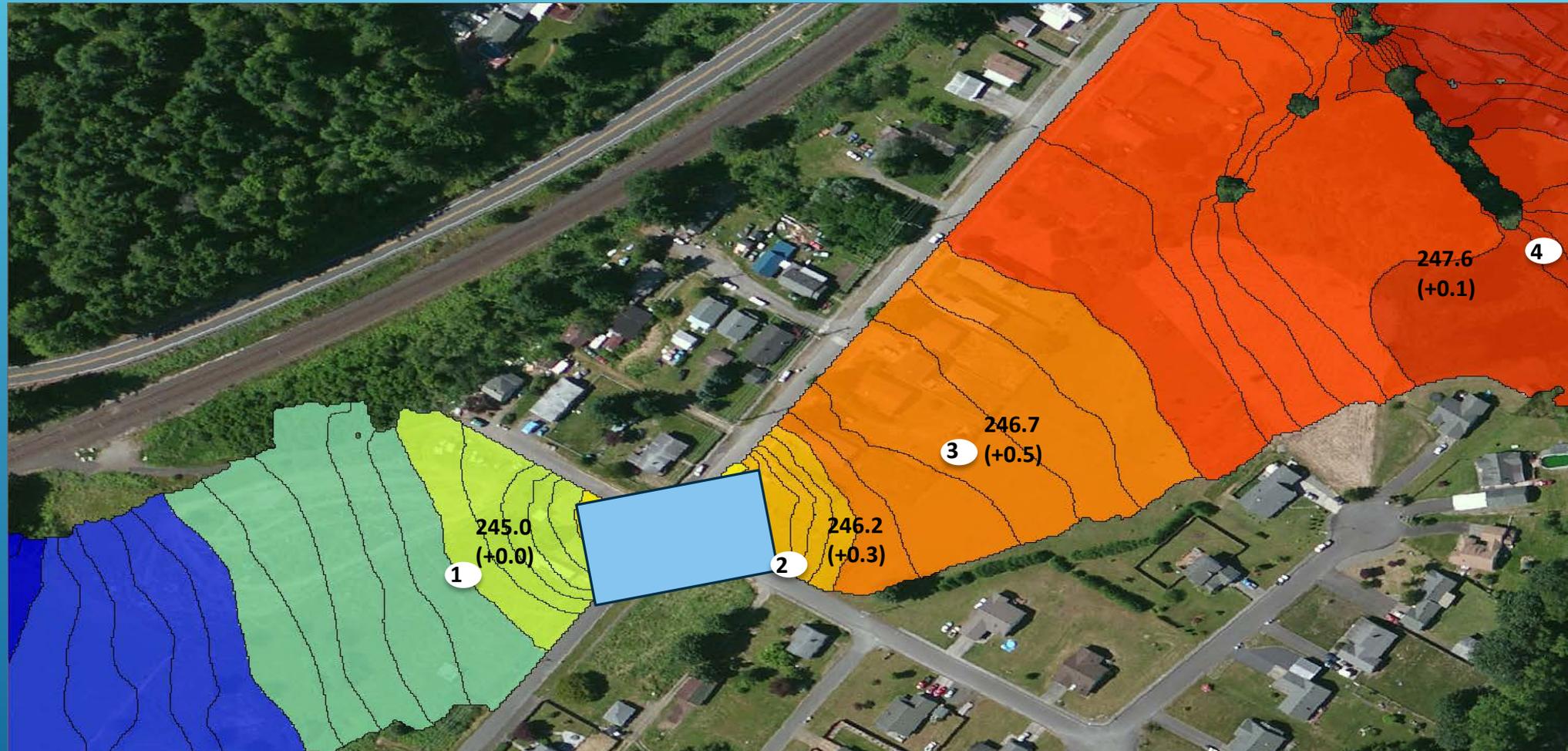
SCENARIO 3 – SINGLE 90 FT OPENING



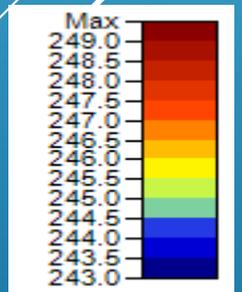
100 Year Water Surface Elevation, ft, NAVD88



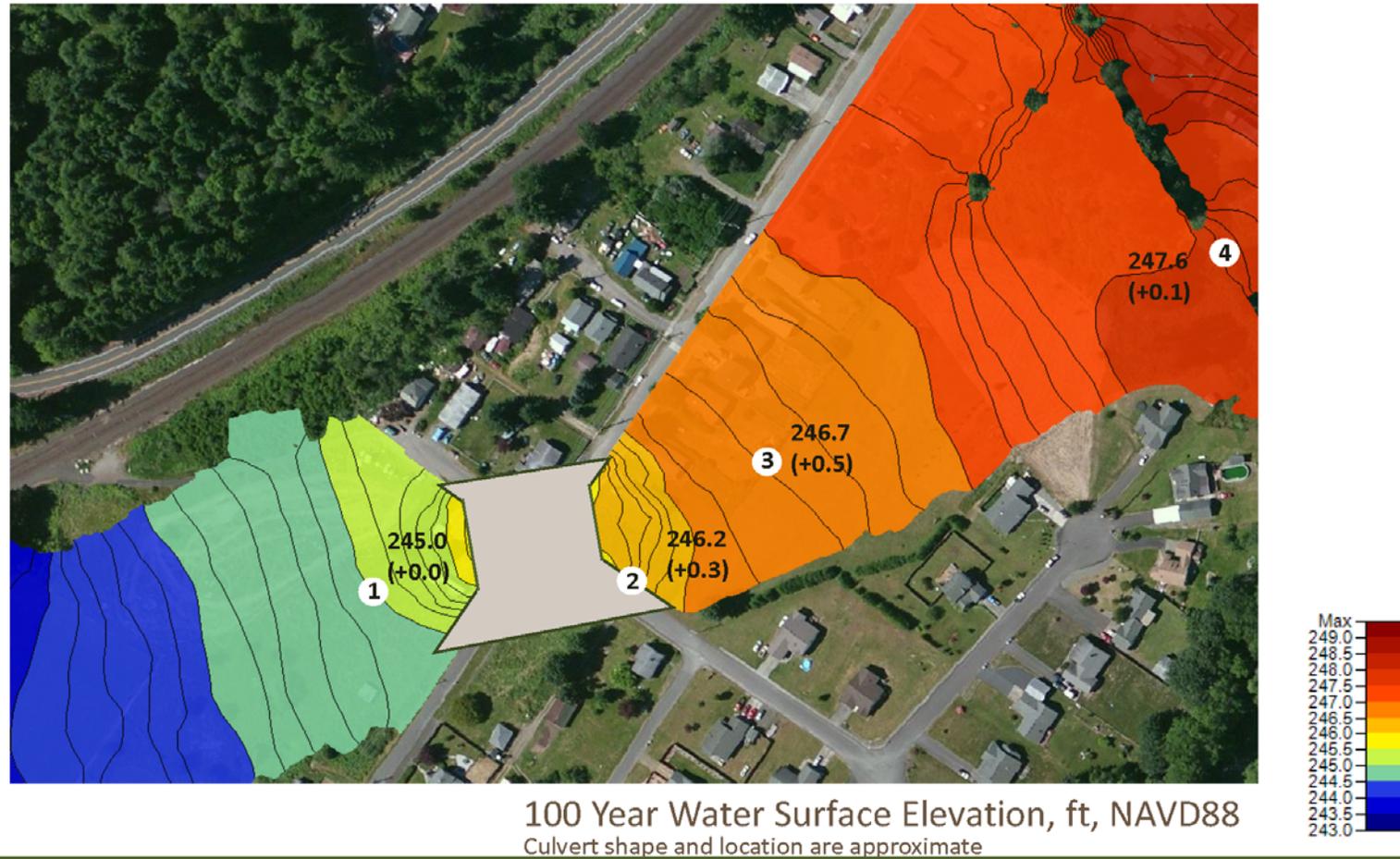
SCENARIO 4 – SINGLE 150 FT OPENING



100 Year Water Surface Elevation, ft, NAVD88



Scenario 5 – 6 30ft Pipe Arch Culverts

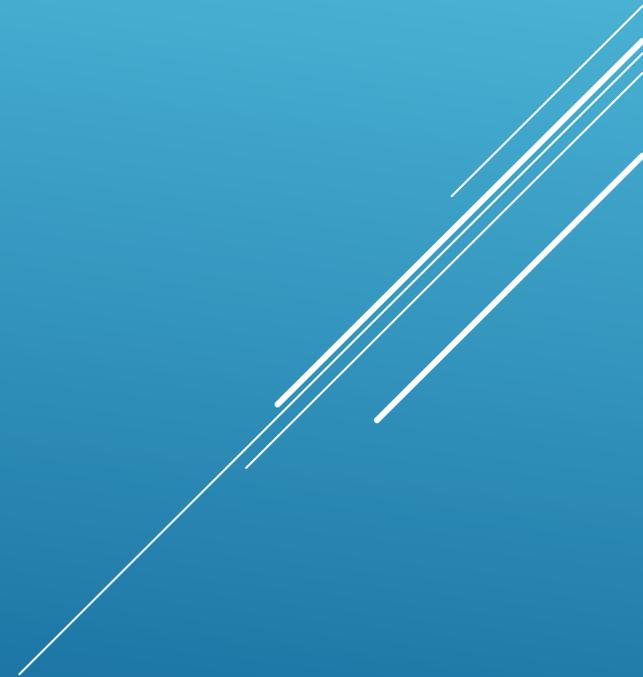


July 20, 2016

Summary of Water Surface Impacts

Location		Alternative								
		Existing	2 Bridges 90-ft		1 Bridge 90-ft		1 Bridge 150-ft		6 30-ft Arches	
		Water Surface	Water Surface	Rise	Water Surface	Rise	Water Surface	Rise	Water Surface	Rise
No.	Description	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
1	DS Main St and 11 th St	245.0	245.0	0.0	245.0	0.0	245.0	0.0	245.0	0.0
2	US Main St and 11 th St	245.9	247.8	1.9	247.1	1.2	246.2	0.3	246.2	0.3
3	225-ft Above Intersection	246.2	248.0	1.8	247.3	0.9	246.7	0.5	246.7	0.5
4	At Old Railroad Grade	247.5	248.3	0.8	247.9	0.4	247.6	0.1	247.6	0.1

PROJECT STATUS AND BUDGET



Current Project Status:

The 30 percent plans and opinion of probable construction cost significantly exceed the current project budget the question then becomes:

- ▶ Should other alternatives be explored? ie: Bypass Channel, Levee other???
- ▶ Go no further with the project?
- ▶ Take the project to a 90 percent level and wait for funding to become available?
- ▶ Next Steps?

Consultant Fees Expended as of June 24, 2016:

6/24/2016	<u>Bucoda Main Street Reconstruction Project</u>					
Jerome W. Morrissette & Associates Inc., P.S. - Expenses to date						\$49,281.47
Plus Subconsultants - Expenses to date						\$36,406.19
Equals Expenses to date total						\$85,687.66
Total Consultant Budget						\$355,222.05
Total Budget Remaining						\$269,534.39

- ▶ Anticipated Budget to Achieve 90 Plans and Opinion of Probable Construction Cost.

Recommended Budget Extension for Delivery of 90 Percent Plans:

(For Decision-Making Purposes; Detailed Breakdown to Follow Later.)

- ▶ This is what the budget extension would look like using the mid to lower end of the Industry Standard Ratios:

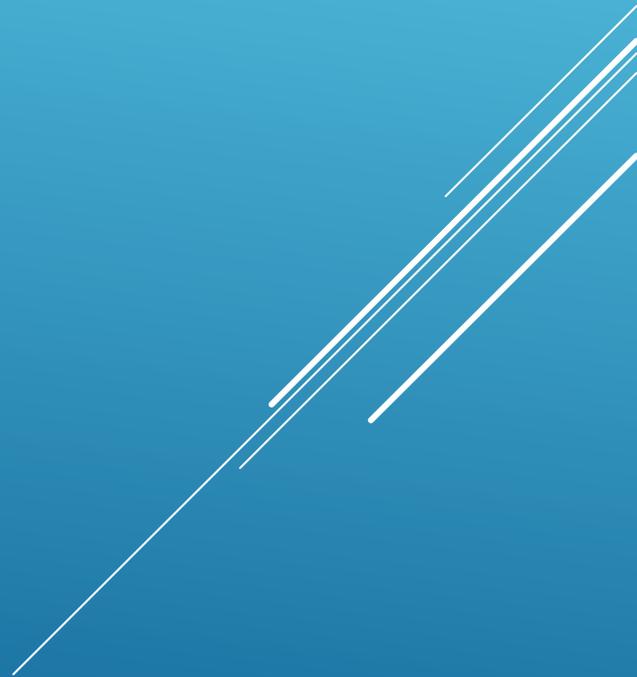
Previous Total Project Budget	Previously Budgeted Consultant Fees	Previously Budgeted Design Fees¹	Fees Used to Get to 30% Design	Remaining Overall Consultant Budget²	Design % of Construction Budget³
\$3,100,000	\$355,222	\$ 265,246	\$85,688	\$269,534	9.6%
New 30% Const. Cost Estimate	9.6% of Cost Estimate	90% Drawings Budget @ 9.6%⁴	Recommended Budget to get to From 30% to 90% Plans⁵	Percentage of 30% Const. Cost Estimate	
\$8,000,000	\$768,000	\$691,200	\$366,500	4.5%	

1. Design Fees include Sub-Consultant Fees and Direct Costs. Bid Call and Construction Phase Services budgeted fees subtracted from Previously Budgeted Consultant Fees.
 $\$355,222 - \$5,975 \text{ (Bid Call Fees)} - \$84,001 \text{ (Const. Phase Fees)} = \$265,246$ Design Fees Budgeted.
2. Remaining Budget Includes Bid Call and Construction Phase Services.
 $\$355,222 - \$85,688 = \$269,534$ Remaining Consultant Fees Budgeted
3. $\$3,100,000 - \$355,222$ Previously Budgeted Consultant Fees = $\$2,744,778$ Remaining for Construction
 $\$265,246$ Previously Budgeted Design Fees / $\$2,744,778$ Previous Construction Budget = 9.6%
4. This budget number represents a completed Project Manual/Specifications but does not include monies for Bid Call or Construction Phase Services.
 $\$768,000 \times 90\% = \$691,200$ Estimated Design Budget
5. The Recommended Budget to prepare 90 percent plans moving forward with the 30 percent concept includes the Consultant overall budget plus \$97,000. This works out to be approximately 4.5% of the Estimated Construction Budget. See Exclusions below.

Exclusions:

- ▶ Bid Call and Construction Phase Services
- ▶ Property Acquisition Services
- ▶ Project Manual (Specifications)
- ▶ Final Permitting

PHOTOS AND SAMPLES





5TH STREET LOOKING EAST



E 6TH STREET LOOKING EAST



ASPHALT LIFTED AND DISPLACED NEAR 11TH AND MAIN STREETS



FLOATING PROPANE TANK NEAR 7TH AND MARKET



SIMILAR CONDITIONS SHOWING ELEVATED ROADWAY WITH MULTIPLE BOX CULVERT OPENINGS



SKEWED OPENING WITH A CAST IN PLACE CONCRETE HEADWALL

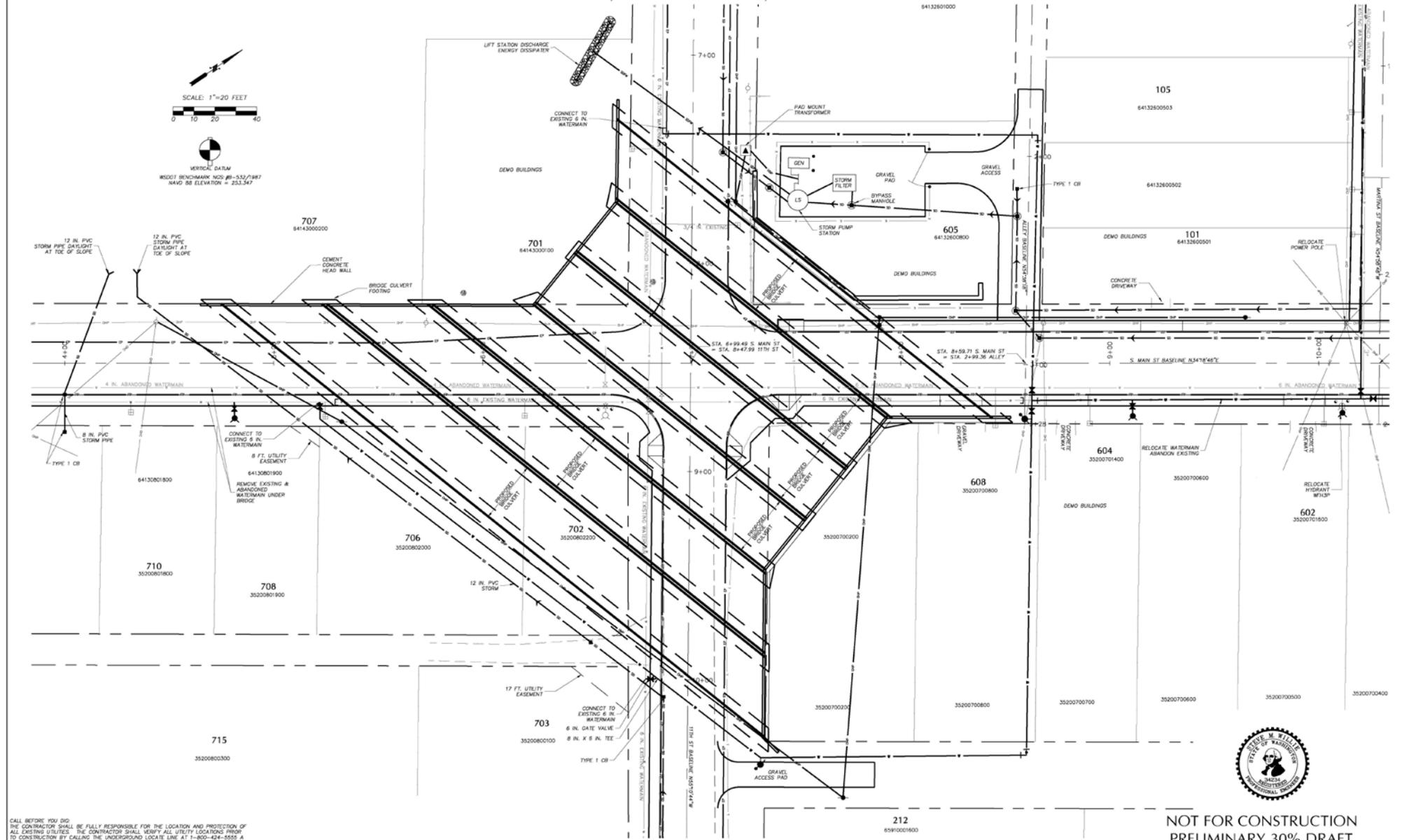


FORMING FOR CONCRETE HEADWALL



TEXTURE AND PIGMENT ADDED FOR A MORE AESTHETIC LOOKING HEADWALL

SECTION 12, TOWNSHIP 15 N, RANGE 2 WEST



CALL BEFORE YOU DIG
 THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE LOCATION AND PROTECTION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL VERIFY ALL UTILITY LOCATIONS PRIOR TO CONSTRUCTION BY CALLING THE UNDERGROUND LOCATE LINE AT 1-800-424-5555 A MINIMUM OF 48 HOURS PRIOR TO ANY CONSTRUCTION.

NO.	DATE	BY	APPR.	REVISIONS

JWMSA Civil • Municipal • Geotechnical • Land Surveying
Jerome W. Morrisette & Associates Inc., P.S.
 1700 Cooper Pt. Road S.W. #B-2, Olympia, Wa. 98502-1110 Ph 360.352.9456 Fx 360.352.9990

DESIGNED BY: 1/29/2014 DATE
 M.D.: 1/29/2014 DATE
 C.A.D.S. BY: DATE
 S.W.: 1/29/2014 DATE
 CHECKED BY: 1/30/2014 DATE
 DATE PLOTTED

Town of Bucoda

NOT FOR CONSTRUCTION
 PRELIMINARY 30% DRAFT

Main Street Reconstruction
 Bridge Culvert Layout





RENDERED PHOTO OF SITE WITH PLAIN CONCRETE SURFACE FINISH



RENDERED PHOTO OF SITE SHOWING TEXTURED AND PIGMENTED HEADWALL AT 11TH AND MAIN STREETS