

July 20, 2016

**TO:** Flood Authority Members

**FROM:** Scott Boettcher, Staff

SUBJECT: Bucoda Foundation Flood Openings – Status Update, Lessons Learned

The purpose of this memo is to update provide Flood Authority members on the Bucoda Foundation Flood Opening pilot project and discuss implications for future local flood proofing efforts in the basin. Please feel free to call or email if you have questions (i.e., 360/480-6600, scottb@sbgh-partners.com).

## A. Background/Status Update

- **10 properties** opted for foundation flood openings program:
  - o 4 installed and approved by June 2016.
  - o 2 more to be installed and approved in July 2016.
  - o 1 more to be installed and approved in August 2016.
  - o 2 more to be installed and approved in September 2016.
  - o 1 in question (owner non-responsive).

### Two contractors:

- o 9 properties assigned to one contractor
- o 1 property assigned to the other contractor.

Map (<u>http://arcq.is/1V7FZ8l</u>):





# • Average cost = ~\$8,550:

Parcel	Bid/Cost
<u>64132600501</u>	\$ 10,398.86
61800201600	\$ 8,212.50
61801900000	\$ 19,762.00
64130702000	\$ 7,250.00
64110800500	\$ 6,612.50
64121201200	\$ 8,212.50
64121700700	\$ 8,225.00
64132600502	\$ 8,699.44
73001600901	\$ <b>1,</b> 672.00
73001600901	\$ 1 <b>,</b> 700.00
61800300900	\$ 4,720.63
Total>	\$ 85,465.43

# Engineered Vent:



### • Forms/Process:

Form 1	Form 2	Form 3	Form 4			Clo	osure		
Owner Provides Property Access	Contractor Provides Bid	State Approves Bid	Parties Agree To Install	Final Inspection Approved	Elevation Certificate Issued To Owner	Engineering Certificate Issued To Owner	Non- Conversion, Maintenance Agreement Issued To Owner	Contractor Paid by RCO	Pictures, Documents Posted to EZview Library

[Note: See Attachment A for forms.]

### • Elevation Certificate:

- o Issued by contractor to owner.
- o Essential documentation for owner to establish correct flood insurance rate/premium.
- o See Attachment B for Example Elevation Certificate.



### B. Debrief/Lessons Learned

- **Debrief meeting held 7/13/2016** (Ecology, Bucoda, French Wetmore and Mark Riebau):
  - o 2 properties sold during process, had to restart with new owners.
  - o 1 property owner died, had to work through next-of-kin and state.
  - o 2 property owners are out of state (several owners are out of area), required additional scheduling coordination.
  - Several properties located in unbeknownst unmapped flood zone, had to map (WSE) and update Town's flood ordinance.
  - o 1 contractor didn't perform as required.
  - o Town's building inspector left, replacement had to be found.
  - o Rural community, not everyone uses email (had to use postal mail).
  - o Fits and starts for several folks, requiring additional prompting and outreach.
  - o Several owners signed up later (after initial round of early interest) by seeing contractor in the area, and flood openings being installed (word-of-mouth).
  - o Pilot effort was entirely new (forms, process/sequence, contractors, delivery model, etc.)

### Lessons learned from debrief include:

- o **Forms and processes can likely be streamlined** to remove/minimize/combine discrete steps and bring about timeline improvements (fewer transactions, clearer understanding, etc.). [Note: Scott has permission from RCO and Ecology to again work with State Attorney General Office on the forms and business sequence.]
- Delivery model works where an entity other than the local jurisdiction is responsible for outreach, marketing, contracting, project management, problem-solving, oversight, etc. and the local jurisdiction is only responsible for their typical duties (local permitting, inspection, flood ordinance, administration, etc.).
- Delivery model for foundation flood openings can be applied beyond Bucoda to other local communities.
- o Delivery model should would work for other flood proofing approaches, e.g., home elevations.
- o *Interested local communities* can help themselves in advance by:
  - Mapping any unmapped flood zones.
  - Identifying properties in advance for targeted outreach.
  - Alerting and educating local building officials (air vents and flood vents are not the same).
  - Working with contractor to structure timing and sequence of flood proofing actions (so as to better coordinate permitting, inspections, etc.).



### C. Implications for Future Local Flood Proofing Efforts in the Basin

Through 7/13/2016 debrief, the following were identified as a starting framework for moving forward with local flood-proofing (flood openings, home elevations) in 2017-19:

- Lead -- Ecology and the Office of Chehalis Basin are well-placed and should to lead implementation of future local flood proofing (i.e., outreach, technical assistance, project management/implementation).
- Scope/Scale Flood proofing scope and scale for 2017-19 should consist of:
  - o *Flood Openings* -- With planned streamlining improvements (fewer forms, fewer transactions) the foundation flood opening program should be made available basin-wide.
  - Home Elevations/Home Buyouts Since this would be new, a home elevation effort should first should be piloted in Thurston County and Centralia (on the basis that these jurisdictions have already identified structures for elevation and buy-outs).
- Flood Authority Flood Authority's role for 2017-19 should be to:
  - Help cost-out application of basin-wide flood openings and Thurston County/Centralia home elevations and home buy-outs (i.e., # properties likely to request openings, # properties to be elevated, # properties for buy-out, etc.).
  - o Track and monitor implementation.
  - Support Ecology by streamlining forms and process used in Bucoda pilot to meet a potentially larger universe, and helping Ecology with conceptualizing and operationalizing implementation of home elevations and home buy-outs pilots in Thurston County and Centralia.
- Delivery model Delivery model should again be applied:
  - o Entity other than local is lead (in this case Ecology).
  - o Contractors are hired by Ecology to do the work.
  - o Locals are responsible for typical duties of permitting, inspections, ordinances, etc.
  - o RCO handles financial agreements, amendments, payments, etc.



### **ATTACHMENT A**

# Resources, Additional Information

# I. Flood Authority Website Library (https://www.ezview.wa.gov/site/alias 1492/28124/library.aspx):

# Foundation Flood Opening Program

<u>File Name</u>	<u>File Size</u>	<u>Description</u> ▼
Form 4-2015 Final Foundation Flood Opening Installation Contract 06052015.pdf	84.6 KB	Forms
Form 3-2015 Final State of Washington Approval of Bid 06022015.pdf	72.5 KB	Forms
Form 2-2015 Final Contractor Bid 06022015.pdf	83.3 KB	Forms
Form 1-2015 Final Property Owner Access Permission 06022015.pdf	81.8 KB	Forms
Form 4-2015 Final Additional Terms and Conditions (Non-Conversion Maintenance) 07152016.pdf	49 KB	Forms
🔁 Bucoda Mapping Technical Memo 6-4-2015.pdf	2.6 MB	Bucoda Revised Mapping
Bucoda Floodplain Mapping Presentation 7-28-2015.pdf	2.8 MB	Bucoda Revised Mapping
🕏 Bucoda Revised Ordinance 09-16-2016.pdf	4.3 MB	Bucoda Revised Mapping
Part II Bucoda Community Meeting Presentation 03182015.pdf	1.1 MB	Background Presentation
FPMqt Meeting 4-26-16 Bucoda.pdf	1.8 MB	Background Presentation
🔁 fema tb 1 1 .pdf	5.3 MB	Background
☑ General Process Flow 03092015.pdf	199.4 KB	Background
Application Flood Openings Program 03182015.pdf	80.9 KB	Background



# II. Bucoda Flood Relief Projects Portal

(www.ezview.wa.gov/bucodafloodrelief):



# **Documents**

File Name	File Size	Category	Date Added
Coffman 1 All Forms Signed 1-2-3-4.pdf	4.1 MB	Coffman	07/14/16 05:41 PM
🔀 Coffman 2 Final Inspection Approved.pdf	859 KB	Coffman	07/14/16 05:41 PM
🔁 Coffman 4 Smart Vent Documentation.pdf	2.2 MB	Coffman	07/14/16 05:42 PM
Deatrich 1 All Forms Signed 1-2-3-4.pdf	4.7 MB	Deatrich	07/14/16 05:43 PM
🔁 Leigh 1 All Forms Signed 1-2-3-4.pdf	2.9 MB	Leigh	07/14/16 05:46 PM
🔁 Leigh 2 Final Inspection Approved.pdf	526.8 KB	Leigh	07/14/16 05:46 PM
🔁 Leigh 3 Elevation Certificate (New).pdf	7.8 MB	Leigh	07/14/16 05:47 PM
🔁 Leigh 3a Elevation Certificate (Sent Confirmation).pdf	232.5 KB	Leigh	07/14/16 05:47 PM
🔁 Leigh 4 Smart Vent Documentation.pdf	2.2 MB	Leigh	07/14/16 05:47 PM
Richter 1 All Forms Signed 1-2-3-4.pdf	4.3 MB	Richter	07/14/16 05:49 PM
Richter 4 Smart Vent Documentation.pdf	2.2 MB	Richter	07/14/16 05:49 PM
Roy 1 All Forms Signed 1-2-3-4.pdf	3.7 MB	Roy	07/14/16 05:51 PM
🔁 Roy 2 Final Inspection Approved.pdf	935.3 KB	Roy	07/14/16 05:51 PM
🔁 Roy 4 Smart Vent Documentation.pdf	2.2 MB	Roy	07/14/16 05:51 PM
Starkey 1 All Forms Signed 1, 2, 3, 4 (Vent Install).pdf	2.3 MB	Starkey	07/14/16 05:52 PM
🔀 Starkey 1a All Forms Signed 2, 3 (Elevation Certificate).pdf	1.3 MB	Starkey	07/14/16 05:53 PM

# **Photos**

File Name	File Size	Category	Date Added
Coffman - Smart Vent 007.jpq	1.9 MB	Coffman	07/13/16 12:28 PM
<u> </u>	2.5 MB	Coffman	07/13/16 12:28 PM
Coffman - Smart Vent 012.jpq	2.4 MB	Coffman	07/13/16 12:28 PM
Coffman - Smart Vent 016.jpq	2.8 MB	Coffman	07/13/16 12:29 PM
	1.4 MB	Leigh	07/13/16 12:31 PM
Leigh 002.JPG	1.3 MB	Leigh	07/13/16 12:32 PM

# Links

▶ Further Information -- Background, Forms, Presentations, Etc.



# **ATTACHMENT B**

# **Example Elevation Certificate**

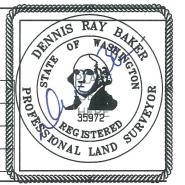
U.S. DEPARTMENT OF HOMELAND SECURITY **ELEVATION CERTIFICATE** OMB No. 1660-0008 FEDERAL EMERGENCY MANAGEMENT AGENCY Expiration Date: July 31, 2015 IMPORTANT: Follow the instructions on pages 1-9. National Flood Insurance Program FOR INSURANCE COMPANY USE **SECTION A - PROPERTY INFORMATION** A1. Building Owner's Name Colleen M. Tee Policy Number: A2. Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or PO. Route and Box No. 303 N. Market Street Company NAIC Number: ZIP Code 98530 State WA City Bucoda A3. Property Description (Lot and Block Numbers, Tax Parcel Number, Legal Description, etc.) Tax Parcel No. 61800300900 A4. Building Use (e.g., Residential, Non-Residential, Addition, Accessory, etc.) Residential
A5. Latitude/Longitude: Lat. 46 degrees 48' 02 62" N Long. 122 degrees 51' 53.65"W Horizontal Datum: NAD 1927 × NAD 1983 A6. Attach at least 2 photographs of the building if the Certificate is being used to obtain flood insurance. A7. Building Diagram Number 8 A8. For a building with a crawlspace or enclosure(s): A9. For a building with an attached garage: 550 a) Square footage of crawlspace or enclosure(s) sq ft a) Square footage of attached garage b) No. of permanent flood openings in the crawlspace or enclosure(s) within 1.0 foot above adjacent grade b) Number of permanent flood openings in the attached garage 4 within 1.0 foot above adjacent grade 512 c) Total net area of flood openings in A8.b Total net area of flood openings in A9.b sq in sq in d) Engineered flood openings? Engineered flood openings? ΠNo ☐ Yes ▼ No SECTION B - FLOOD INSURANCE RATE MAP (FIRM) INFORMATION B1. NFIP Community Name & Community Number Town of Bucoda WA & 530189 B3. State WASHINGTON B2. County Name
THURSTON COUNTY

B4. Map/Panel Number	B5. Suffix	B6. FIRM Index Date	B7. FIRM Par Revised	nel Effective/ Date	B8. Flood Zo	ne(s)		d Elevation(s) (Zor ase flood depth)
53067C0486	E	09/02/1981	10/16	6/2012	AE			255.0'
	B10.Indicate the source of the Base Flood Elevation (BFE) data or base flood depth entered in Item B9:  ☐ FIS Profile ☑ FIRM ☐ Community Determined ☐ Other/Source:							
B11. Indicate elevation da	tum used for BFE	in Item B9: ☐ NGVD	1929	NAVD 1988	☐ Other/So	urce: _		
B12. Is the building locate	d in a Coastal Ba	rrier Resources System (C	BRS) area or	Otherwise Prot	ected Area (OP/	A)? [	☐ Yes	
Designation Date:	0 / _ 0 /	0 CBRS	□ОРА					
	SECTIO	N C - BUILDING ELEV	ATION INFO	RMATION (	SURVEY REC	UIRE	D)	
C1. Building elevations at *A new Elevation Cer		☐ Construction Drawing quired when construction c		uilding Under C is complete.	Construction*	X	Finished Consti	uction
C2.a-h below accord Benchmark Utilized: <sub>-</sub>	C2. Elevations – Zones A1–A30, AE, AH, A (with BFE), VE, V1–V30, V (with BFE), AR, AR/A, AR/AE, AR/A1–A30, AR/AH, AR/A0. Complete Items C2.a–h below according to the building diagram specified in Item A7. In Puerto Rico only, enter meters.  Benchmark Utilized: WSDOT Mon ID 5521/TC: Bucoda & 221 Vertical Datum: NAVD 88							
		elevations in items a) thro st be the same as that us					surement used.	
a) Top of bottom floo	r (including baser	nent, crawlspace, or enclo	sure floor) _	251 . 7		feet	meters	
b) Top of the next high	gher floor		_	256 7		feet	☐ meters	
c) Bottom of the low	est horizontal stru	ictural member (V Zones o	only) _	NA NA		feet	☐ meters	
d) Attached garage (t	top of slab)		_	<u>NA</u> . <u>NA</u>	🛛	feet	meters	
,	,	quipment servicing the bui cation in Comments)	lding _	<u>256</u> . <u>7</u>	🛚	feet	meters	
f) Lowest adjacent (f	finished) grade ne	xt to building (LAG)	_	<u>251 . 6</u>		feet	meters	
g) Highest adjacent (	(finished) grade ne	ext to building (HAG)	_	<u>252 . 1</u>		feet	☐ meters	
		evation of deck or stairs, in	ncluding _	<u>251</u> <u>6</u>		feet	☐ meters	
structural support							03-	03-2016

## SECTION D - SURVEYOR, ENGINEER, OR ARCHITECT CERTIFICATION

This certification is to be signed and sealed by a land surveyor, engineer, or architect authorized by law to certify elevation information, I certify that the information on this Certificate represents my best efforts to interpret the data available. I understand that any false statement may be punishable by fine or imprisonment under 18 U.S. Code, Section 1001.

<ul> <li>☑ Check here if comments are provided on back of form.</li> <li>☑ Check here if attachments.</li> </ul>	licensed land surveyor?		,
Certifier's Name Dennis R. Baker		License Number 35972	
Title Professional Land Surveyor	Company Name LeRoy Surveyors & El	ngineers, Inc.	
Address P.O. Box 740	City <b>Puyallup</b>	State WA	ZIP Code 98371
Signature Wer 130	Date 03/03/2016	Telephone (360) 507-1166	3



### **ELEVATION CERTIFICATE**, page 2

IMPORTANT: In these spaces, copy the corresponding information from Section A.			FOR INSURANCE COMPANY USE	
Building Street Address (including Apt., Unit, \$ 303 N. Market Street	Suite, and/or Bldg. No.) or PO	Route and Box N	0.	Policy Number:
City Bucoda	State WA	ZIP Code 98530		Company NAIC Number:
SECTION D - S	URVEYOR, ENGINEER, O	R ARCHITECT	CERTIFICATION (C	ONTINUED)
Copy both sides of this Elevation Certificate for	or (1) community official, (2) in	nsurance agent/co	mpany, and (3) building	g owner.
	quarters is at 256.7'. The	lowest elevatio		crawl space is at elevation 251.7'. 6.7'. The bottom of the wood stairs
Signature RBL		Date 03/0	3/2016	
SECTION E – BUILDING ELEVATION	N INFORMATION (SURVE	Y NOT REQUIR	ED) FOR ZONE AO	AND ZONE A (WITHOUT BFE)
For Zones AO and A (without BFE), complete It For Items E1–E4, use natural grade, if availabl E1. Provide elevation information for the follow grade (HAG) and the lowest adjacent grade a) Top of bottom floor (including basement	le. Check the measurement u ving and check the appropriat e (LAG).	sed. In Puerto Rice e boxes to show w	o only, enter meters. thether the elevation is	above or below the highest adjacent
b) Top of bottom floor (including basement E2. For Building Diagrams 6–9 with permanent			leet meter	ers above or below the LAG.
the next higher floor (elevation C2.b in the E3. Attached garage (top of slab) is	diagrams) of the building is		feet   mete	
E4. Top of platform of machinery and/or equip E5. Zone A0 only: If no flood depth number is ordinance? ☐ Yes ☐ No ☐ Unknown		ttom floor elevated	in accordance with the	
SECTION F – P	ROPERTY OWNER (OR O	WNFR'S RFPR	FSENTATIVE) CERT	TIFICATION
The property owner or owner's authorized repre				
Zone AO must sign here. The statements in Se Property Owner or Owner's Authorized Represe		t to the best of my	knowledge.	
Address		City	Sta	ate ZIP Code
Signature		Date	Tel	ephone
Comments	3			
				☐ Check here if attachments.
	SECTION G – COMMUNI	TV INFORMATIO	ON (OPTIONAL)	
The local official who is authorized by law or ord				con complete Costions A. D. C. (av. F.) and
G of this Elevation Certificate. Complete the app G1.   The information in Section C was tak who is authorized by law to certify ele G2.   A community official completed Section G3.   The following information (Items G4—	olicable item(s) and sign below en from other documentation evation information. (Indicate on E for a building located in 2	Check the measu that has been si the source and d Cone A (without a F	rement used in Items G gned and sealed by a I ate of the elevation da EMA-issued or commu	8–G10. In Puerto Rico only, enter meters. icensed surveyor, engineer, or architect ta in the Comments area below.)
G4. Permit Number	G5. Date Permit Issued	(	66. Date Certificate Of	Compliance/Occupancy Issued
G7. This permit has been issued for: No. 10 No. 20	g basement) of the building:	antial Improvemer	ot	s Datum
Local Official's Name		Title		
Community Name		Telephone		
Signature		Date		
Comments				
		x		☐ Check here if attachments.

### **BUILDING PHOTOGRAPHS**

See Instructions for Item A6.

IMPORTANT: In these spaces, copy to	FOR INSURANCE COMPANY USE	
Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or P.O. Route and Box No. 303 N. Market Street		Policy Number:
City Bucoda	State ZIP Code WA 98530	Company NAIC Number:

If using the Elevation Certificate to obtain NFIP flood insurance, affix at least 2 building photographs below according to the instructions for Item A6. Identify all photographs with date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8. If submitting more photographs than will fit on this page, use the Continuation Page.



East (front-right) corner of house. Front of house faces southeast to N Market St.

### **BUILDING PHOTOGRAPHS**

Continuation Page

IMPORTANT: In these spaces, copy	FOR INSURANCE COMPANY USE	
Building Street Address (including A 303 N. Market Street	Policy Number:	
City Bucoda	State ZIP Code WA 98530	Company NAIC Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



North (back-right) corner of house. Front of house faces southeast to N Market St.

### **ELEVATION CERTIFICATE**, page 4

### **BUILDING PHOTOGRAPHS**

Continuation Page

IMPORTANT: In these spaces, cop	FOR INSURANCE COMPANY USE	
Building Street Address (including A 303 N. Market Street	Policy Number:	
City Bucoda	State ZIP Code WA 98530	Company NAIC Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



West (back-left) corner of house. Front of house faces southeast to N Market St.

### **BUILDING PHOTOGRAPHS**

Continuation Page

IMPORTANT: In these spaces, cop	FOR INSURANCE COMPANY USE	
Building Street Address (including A 303 N. Market Street	Policy Number:	
City Bucoda	State ZIP Code WA 98530	Company NAIC Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



South (front-left) corner of house. Front of house faces southeast to N Market St.

### **ELEVATION CERTIFICATE**, page 4

### **BUILDING PHOTOGRAPHS**

Continuation Page

IMPORTANT: In these spaces, copy the corresponding information from Section A.  Building Street Address (including Apt., Unit, Suite, and/or Bldg. No.) or PO. Route and Box No.  303 N. Market Street		FOR INSURANCE COMPANY USE Policy Number:

If submitting more photographs than will fit on the preceding page, affix the additional photographs below. Identify all photographs with: date taken; "Front View" and "Rear View"; and, if required, "Right Side View" and "Left Side View." When applicable, photographs must show the foundation with representative examples of the flood openings or vents, as indicated in Section A8.



Northwest (back) of house. Front of house faces southeast to N Market St.