

Scott Boettcher

From: Scott Boettcher
Sent: Tuesday, July 3, 2018 10:33 AM
To: Anthony Waldrop
Cc: Tom Kollasch; Brandon Carman; colronjanaverill@comcast.net
Subject: RE: Flood Authority Small Projects Proposal

Thank you Anthony. Your proposal has been rec'd on time.
Scott

Scott Boettcher, Staff
Chehalis River Basin Flood Authority
360/480-6600
scottb@sbgh-partners.com

From: Anthony Waldrop <ghcdwater@gmail.com>
Sent: Tuesday, July 3, 2018 9:46 AM
To: Scott Boettcher <scottb@sbgh-partners.com>
Cc: Tom Kollasch <tkollasch@willapabay.org>; Brandon Carman <cdfishtech@gmail.com>
Subject: Flood Authority Small Projects Proposal

Hi Scott,

Attached is a proposal sponsored by the Grays Harbor Conservation District. Let me know if there is anything else you need.

Thanks,
-Anthony

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Anthony Waldrop
Grays Harbor Conservation District
330 Pioneer Avenue West
Montesano, WA, 98563
Phone: 360-249-8532



**2019-21 Local Projects Recruitment Form
Chehalis Basin Local Flood Relief**

A. What are local flood relief projects? -- In general, local projects provide predominantly localized, quantifiable benefit, are capable of being completed within the funding cycle, are supported by the jurisdiction within which the project is proposed, and are vetted and advanced through a public entity like a City, County, Conservation District, Port, etc. Local projects are additionally envisioned as helping with local flood relief (reducing flood damage and impacts), not adverse to fish, wildlife, or habitat, and (where possible) providers of multiple, quantifiable benefits (per Part IV below).

B. What kinds of local flood relief projects are likely to be logical funding candidates for 2019-21?

- Projects that complete an effort previously funded/started.
- Projects that advance improved emergency response.
- Projects that advance improved public infrastructure protection.
- Projects that advance improvements in local or community flood hazard reduction, including local flood proofing projects (e.g., elevations, buy-outs, foundation venting, etc.).
- Projects that advance Conservation District initiated flood hazard reduction (e.g., farm pads, evacuation routes, bank erosion/bank stabilization, etc.)
- Projects that demonstrate innovation (e.g., thinking beyond traditional bank stabilization techniques in favor of natural system designs), partnerships, cost-sharing/leveraging resources, multiple benefits, public engagement and community planning, and proactive vetting with agencies and tribes.
- Projects that demonstrate informed decision-making through hydraulic analysis/understanding.
- Projects that demonstrate early planning involvement, information exchange with regulatory agencies.
- Projects typically not in excess of \$3M for the stage/phase being funded.

C. Are there projects that would not be good candidates?

- Projects that seek to utilize State Capitol Budget dollars for uses not typically allowed (e.g., maintenance and repair work, cost-sharing under select circumstances, etc.).
- Projects likely to increase potential for flood damage upstream or downstream.
- Projects with unmitigable adverse environmental impacts, significant uncertainty regarding potential environmental impacts, or significant concerns about obtaining regulatory approval.
- Projects not sponsored by a public entity.
- Projects not located in the Chehalis Basin.
- Projects that do not show quantifiable benefit.

Instructions:

- a. Please submit project requests (via this form) to scottb@sbgh-partners.com no later than 5:00 p.m., 7/03/2018.
- b. Please submit one request form for each project proposed, even past projects previously or partially funded.
- c. Note: Parts III and IV [marked by "(**)"] will be scored for review/evaluation. Parts I, II, and V will not be scored.
- d. See Appendix A for overview of 2019-21 Local Projects Recruitment Process (and schedule), or https://www.ezview.wa.gov/site/alias_1492/37282/2019-21-Local-Projects-Recruitment-Process.aspx.

Part I General	
1. Date:	7-3-2018
2. Project Name:	Wynoochee Home Relocation
3. Project Location -- Please identify location of the project as precisely as possible, including providing decimal degree latitude/longitude coordinates.	Parcels: 190833240010; 190833240030; 190833240040 Coordinates: 47.088323, -123.689752
4. Project Contact -- Please identify who will be responsible for overseeing and managing the project (i.e., name, email, telephone number, etc.).	Anthony Waldrop ghcdwater@gmail.com 360-249-8532
5. Sponsor -- Please identify the sponsor, lead organization, primary entity, etc. responsible for this project. Please identify key partners responsible for assisting in delivery or implementation of project.	Grays Harbor Conservation District

Part II Description, Timing, and Cost	
6. Project Description -- Please describe the project, what is intended to be accomplished, the benefits to be accrued (flood hazard reduction and otherwise) and to whom. Please also identify what phase/stage of the project funding is being sought for (e.g., planning, preliminary engineering, final design and permitting, construction, etc.).	<p>The home in question is experiencing ever increasing threat from flooding and erosion due to the shifting main channel of the Wynoochee. After considering other options the District and the landowner agree that it would be best to move the home to high ground on another part of the same property.</p> <p>The home was originally built more than ¼ mile away from the stream and did not flood for decades but now floods surround the home multiple times each year. Access to the home is dangerous or impossible during these floods. While the home is 350 ft away from the river there is a risk that the main channel will avulse behind the home, cutting it off completely.</p> <p>The problems began in 1997/98 when a landslide occurred north of this property, shifting the main Wynoochee river channel to the west and directing the river at this property's bank. As a result, this property has experienced annual bank erosion (~400 feet since 2005) and flooding events, which have gotten worse over the past decade. In 2009, the river took out a significant portion of the driveway (~600'), which exposed PUD and phone cables. The driveway had to be relocated and the utility cables replaced along the newly routed section of driveway. During that same winter, residents of the property were evacuated by emergency services and floodwaters were observed surrounding the house. In the winter of 2015-16, five separate flooding events flooded the driveway and made access to the residence unmanageable and dangerous. Sometimes the only way to access the house was by using a canoe.</p> <p>A survey in 2016 demonstrated that 30 acres of property had been lost through river induced erosion. In 2017, riparian plantings were established to</p>

	<p>aid in bank stability, which were subsequently washed away during the next winter. During the current winter (2017/18), an additional 18'-20' of bank washed away along a 1200' foot stretch of bank. Even when floodwaters recede, the driveway is impassable until deposited logs and ~8" layers of silt are removed. Emergency access is impossible for extended periods during and after flooding.</p> <p>The landowner is concerned that in the near future erosion will remove sections of the 'new' driveway and once again expose power and phone lines. The landowner is also concerned that if issues are not addressed, her home could be threatened, as it is only 350 feet from the river and in the path of immediate channel migration. Furthermore, we are concerned that the river could avulse into a relic side channel which would completely isolate this home from the county access road and potentially threaten other homes.</p> <p>This project proposes to relocate the home to a section of the landowner's property that is ~5 feet higher in relative elevation than the current location and ~1000 feet away from the eroding bank. The new location will remove the house from the immediate channel migration zone and position it next to the county road, making landowner and emergency access much more feasible. Project funding will also cover the installation of a new septic field, public utility installation, laying the foundation, well installation, driveway rocking and the removal of this respective infrastructure from the initial home site.</p> <p>This project is in line with the overarching goal of the Chehalis Basin Strategy, which is to reduce flood damage and improve aquatic species habitat. The Chehalis Strategy Aquatic Species Restoration Plan (ASRP) Early Action Reach (EAR) process has identified Wynoochee river mile 13.5-15 (of which this property makes up 0.5 miles of riverfront) as one of two candidate reaches for a full-scale restoration design process. This reach was chosen due to its potential for restoration to provide ecological uplift, improve salmon habitat, reinstate natural processes, and it has a high potential of success due to landowner willingness. By relocating this house and associated infrastructure to a section of the property away from the river, it allows the EAR design process to pursue additional habitat restoration opportunities. The EAR Design Team has already identified moving the house as critical to the success of aquatic habitat restoration in this reach, due to the enhanced opportunities for side-channel reconnection and establishment of riparian plantings to slow bank erosion. Thus, this project would have both aquatic species and community flood resilience benefits.</p>
<p>7. Project Timeline -- Please describe the timeline and phases for completion of the overall project and describe the timeline for completion of the phase to be funded by 19-21 funding.</p>	<p>It is expected that moving the house and associated infrastructure will be completed by the end of the fall of 2019. Moving the house as well as installing septic, foundation, PUD, and a well will occur simultaneously so as to reduce the time of non-residence.</p>

8. **Project Cost and Funding --**
 What is the cost of the overall project (or anticipated cost)?
 What is the cost of the phase to be funded by 19-21 funding?
 What are the on-going maintenance and operation requirements and costs? Is it clear who will be responsible for covering on-going maintenance and operation costs?

These project costs are based on estimates acquired by the landowner and GHCD:

Robison House Move Budget				
	<u>Contractor</u>	<u>Estimate</u>	<u>Taxes (8.8%)</u>	<u>Total</u>
Foundation	Myron Fields Construction	\$11,500	\$1,012.00	\$12,512
House Move	Dent National Inc.	\$20,000	\$1,760.00	\$21,760
Permitting	Grays Harbor County	\$3,337	\$294.00	\$3,631
PUD	Grays Harbor PUD	\$13,000	\$1,144.00	\$14,144
Septic Install	Black Creek LLC	\$15,000	\$1,320.00	\$16,320
Septic Design	Ewing Engineering	\$1,500	\$132.00	\$1,632
Demolition/Clean-up of foundation/septic/well	TBD	\$5,000	\$440.00	\$5,440
Driveway	Vessey and Sons, Inc.	\$8,500	\$748.00	\$9,248
Well	A.H. Smith Inc.	\$4,840	\$425.92	\$5,266
No Rise Certification	Grays Harbor County	\$5,000	\$440.000	\$5,440
Project Administration	GHCD	\$8,000	-	\$8,000
Direct Costs	GHCD	\$640	-	\$640
Total Budget				\$104,033

The landowner will be responsible for covering on-going maintenance and operation costs.

9. **Other Funding --** Please explain the extent to which other funding sources, funding partners are available for this phase and any other phase of the project.

There are no other funding sources being pursued for this project.

Part III (**)

Completion, Doability, Alternatives, and Impacts

- | | |
|---|--|
| 10. Project Completion -- Does the funding requested | This is a new project. The funding will be sufficient to |
|---|--|

complete, substantially complete, or continue a project already started? If so, please explain.	complete the entire project.
11. Project Doable -- Can this project or the stage/phase for which funding is sought be completed by June 30, 2021? Please describe any circumstances with potential to impact the project's doability or timeline (e.g., permitting or regulatory unknowns, lack of availability of other cost-share funding resources, etc.). Please describe any advance coordination or vetting with agencies, tribes, other entities, etc. and the outcomes of that effort.	The project is doable, and it is expected that it will be completed well before the end of the biennium (June 30, 2021). The likeliest obstacle to completing the work on time is unfavorable weather for equipment use, which could cause delays. Work should be completed during 2019 as long as there are no unforeseen setbacks.
12. Project Alternatives -- Please describe alternatives to the project that were considered (including doing nothing), and the rationale for selecting the project described, proposed here.	<p>Raising of house alternative – Floodproofing the home through raising was considered as an option, however it was ultimately not pursued for a number of reasons. For one, it would not solve the egress/ingress problems that come from the driveway becoming unusable during and after high flow conditions, and the high potential for the driveway to erode away. Also, because the house is located in an area that the channel is actively migrating towards, leaving the house in this location would still put the house in danger from bank erosion or increasing flooding. If bank erosion were to threaten the home there would be the potential for emergency rip-rap installation to save the home, which would be detrimental to the aquatic habitat restoration goals of this system. Bio-engineered bank protection could be used; however, this would only slow the rate of erosion, still leading to eventual property/infrastructure loss.</p> <p>Raised driveway alternative – We considered constructing an alternate driveway that was raised enough to allow house access during times of high flow. However, we determined that permitting for this type of project would be prohibitive because of regulations against adding fill in floodplain areas. Furthermore, the driveway would most likely need to be armored to protect against being undercut by the migrating channel. This would be detrimental for the aquatic habitat restoration goals of this system and a protected driveway would essentially act as a dike, thereby artificially constricting flows and diverting flow energy to downstream properties. These issues around an alternate driveway would be avoided if a bridge were to be built, however that was deemed to be cost-prohibitive. Finally, constructing an alternate driveway would not solve the problem that the house is still within the path of eventual channel migration, even if the erosion rates were to be slowed by bioengineering bank stabilization.</p>

	<p>No action alternative – This would result in continued property loss through bank erosion, increased danger for home egress/ingress during flooding, the loss of property value due to the decreasing livability of the home on the parcel, decreased productive land through bank erosion, and the potential loss of the home to the river. If the home were to be taken by the river, materials from home infrastructure, such as septic, utilities, and home products could potentially be washed into the river, creating a water quality issue. Furthermore, if no action is performed, the likelihood of re-establishing functional river processes through this stretch of river is lessened due to the constraints of restoring river function near residential infrastructure.</p>
<p>13. Project Impacts Avoided, Mitigated -- Please identify how project impacts will be avoided and mitigated, and if that mitigation will be accomplished by June 30, 2021?</p>	<p>This project does not have impacts that require mitigation.</p> <p>To avoid any runoff caused by the use of heavy equipment during the project, the project will be scheduled to occur during the summer months when the property is relatively dry.</p>

<p>Part IV (**) Benefits Stated and Quantified</p>	
<p>14. Emergency Response Benefits -- Please describe (and quantify) how this project enhances emergency response in a flood emergency (e.g., does it keep critical access roads and transportation facilities open/functional, does it enable easy movement of cattle, equipment and farm chemicals out of harm's way, is it part of a larger hazard mitigation plan, etc.).</p>	<p>This project enhances emergency response by providing more reliable ingress/egress to a property along the Wynoochee river. It also will reduce the need for emergency response for this property by moving the structure out of the river's path of erosion and providing safer access for the property owner during times of flooding. Accessing the house via canoe during flood events increases the potential for emergency situations. Past evacuations of residents during flooding indicate that this is already a dangerous situation that will only get worse if no action is taken. In fact, the landowner has reached out to the District about emergency assistance options for potential damage to the driveway, house and utilities during the upcoming winter.</p>
<p>15. Essential Infrastructure Protection Benefits -- Please describe (and quantify) how this project protects essential infrastructure and the risks or consequences of not acting this funding cycle.</p>	<p>By moving the house and associated infrastructure away from the actively eroding channel, there is a decreased threat of infrastructure impact downstream. Any large pieces of the landowner's infrastructure that are washed into the river pose a threat to downstream public infrastructure such as the Wynoochee-Wishkah Road bridge. By not acting this funding cycle, repeated flooding may wash the house into the river and cause damage downstream.</p>
<p>16. Public Health, Safety and Welfare Benefits -- Please describe (and quantify) how this project</p>	<p>The water quality impacts from the house and infrastructure of this property washing into the river will</p>

<p>protects public health, safety, and welfare.</p>	<p>have negative impacts on public health, safety, and welfare. By moving the house and infrastructure out of immediate threat, this impact will be avoided. For example, if the septic system were to be washed into the river, water quality would be negatively impacted downstream due to increased levels of fecal coliform bacteria. Also, if any large or sharp pieces of debris from the property are taken by the river during flooding, this could pose safety risks to downstream river users and landowners.</p>
<p>17. Residential, Commercial and/or Agricultural Protection Benefits -- Please describe (and quantify) how this project protects residential communities, commercial, and/or agricultural interests and benefits of acting (or consequences of not acting) this funding cycle. Consider factors like number of structures and people at risk, historic frequency of flood damage, magnitude of benefit for the cost, etc.</p>	<p>The direct benefit of this project is to protect a residence from flood damage and provide safe access for the landowner to the residence. If no action is taken, access to the residence will become progressively more dangerous and the house may be lost due to flooding/erosion.</p> <p>This project will have numerous indirect benefits. Moving the house and associated infrastructure will open up opportunities for protecting downstream assets. Immediately downstream of this property is a cattle processing business and several residences that experience annual flooding issues. One goal of the ASRP early action reach process is to consider habitat restoration projects that benefit both fish and landowners. This project will allow the ASRP restoration process to more effectively pursue projects that both enhance aquatic habitat and lessen flooding impacts upon residential, commercial and/or ag interests in this reach of the Wynoochee.</p> <p>If no action is taken, this reach will continue on a trajectory of flooding and bank erosion, which will cause further economic losses for residents and business operations.</p>
<p>18. Habitat Benefits – Please describe (and quantify) how this project benefits or improves existing or future habitat conditions.</p>	<p>This project is crucial for improving river processes and function in this reach of the Wynoochee, which will enhance aquatic species habitat. The Chehalis Basin Salmon Habitat Restoration and Preservation Strategy for WRIA 22 and 23 has identified riparian habitat, floodplain function, water quality, and sediment deposition as concerns for Wynoochee River salmonids. In fact, the Wynoochee is the second largest contributor to sediment levels in the Chehalis Basin, of which agricultural land bank erosion is a component. If the house and driveway are moved, side channels on the property can be reopened (providing valuable habitat for rearing coho) and bioengineered structures can be constructed along the eroding bank to reduce high rates of erosion (reduces sedimentation of salmon spawning</p>

	<p>gravel). The riparian area can be replanted with native vegetation, which when established will prevent further erosion, reduce sediment runoff, and moderate stream temperatures. The installation of a live cottonwood flood fence along the eroding bank would accelerate riparian stabilization and prevent further woody debris from flowing towards downstream residences and onto pastures. During ASRP Early Action Reach analysis, the movement of this house and associated infrastructure was identified as a key component for enabling the above types of restoration actions in the reach. If no action is taken to move the house, restoration actions would be less feasible due to the need to protect the residence and ingress/egress.</p> <p>Another habitat benefit is that the project would prevent future water quality impacts from repeated flooding of the house and associated infrastructure. Flooding increases the risk of river contamination from the septic system and the home eventually washing into the river. House debris in the river and the use of equipment for in stream clean-up efforts would negatively impact aquatic habitat.</p>
<p>19. Costs and Benefits – Project funders (and the public they represent) value cost-effective, sound funding decisions. To that end, please describe (and quantify) in general terms benefits gained for funds requested and frequency, time-scale benefits will be realized. Please also describe (and quantify):</p> <ol style="list-style-type: none"> Funds requested. Costs avoided if funded (and on what frequency, time-scale). Costs incurred if funded (and on what frequency, time-scale). Benefits gained if funded (and on what frequency, time-scale). Impacts incurred if funded (and on what frequency, time-scale). Impacts and implications of not funding (and on what frequency, time-scale). <p>Guidance Note (1): For this question, it will be helpful to think in terms of what will be the dollar value of assets protected, dollar value of impacts avoided, dollar value of monies retained or recouped, etc. for the amount of public monies invested.</p> <p>Guidance Note (2): Part V is intended to help project reviewers concisely summarize, compare funding requests. Answers here (and in related questions</p>	<p>Funds Requested: \$104,033</p> <p>Costs avoided if funded: \$178,662. This is an estimate based on a new home of similar size from Hi-Line homes out of Satsop, WA and includes the estimate for a new well, septic, foundation, PUD wire installation, and county permitting. If funded, this project will instantly realize these savings as the house and associated infrastructure are no longer located in the active channel migration zone, thus no longer in danger.</p> <p>Costs incurred if funded: Only costs incurred are the funds requested</p> <p>Benefits gained if funded:</p> <ul style="list-style-type: none"> - Improved emergency response access to residence by the winter of 2019 - Reduced local and downstream infrastructure damage risk by the winter of 2019 - Reduced possibility of fecal coliform contamination in the Wynoochee by the winter of 2019 - Increased likelihood of habitat restoration access at site <p>Impacts incurred if funded: The main impacts are due to the establishment of a new footprint upon the property</p>

on this form) should be consistent with Part V.	<p>from the laying of a foundation and installation of infrastructure. We expect some vegetation and soil disturbance from construction activities, though those will largely occur in areas already disturbed from agricultural practices. We will minimize this disturbance as much as possible by working within a dry period of the year.</p> <p>Impacts and implications of not funding: If not funded, the house, septic and well on this property risk being swept into the Wynoochee river over the next decade. Even worse, the landowner could find herself trapped at the house at a time where emergency responders cannot reach her. According to the landowner, these events happen multiple times per year with the only access to her house being by foot or canoe.</p>
20. Other Project Benefits -- Please describe (and quantify) any other project benefits not already discussed. This could include how this project compliments, leverages, or implements another project or planning process already underway.	<p>This project will be a demonstration on how the Chehalis Strategy can potentially address flood damage reduction projects that have multiple benefits. It can be used as a 'pilot' to more effectively determine costs and benefits for relocating infrastructure out of imminent flood damage. The Grays Harbor and Lewis County Conservation Districts are frequently contacted by landowners who are experiencing bank erosion and flooding issues that threaten residential infrastructure. The development of a program to assist landowners with projects that both reduce flood damage and enhance habitat would be a beneficial tool for the overall Chehalis Strategy.</p>
21. Anything Else -- Please offer any additional information (e.g., photos, maps, video, drawings, drone, etc.) that would help to better understand the scope, timing, and benefits of this project.	<p>Photos and maps are located on the next few pages</p>

Part V Summary of Benefits, Impacts, Costs			
	22. Benefits -- Please summarize, tally project economic and non-economic benefits as described.	23. Impacts -- Please summarize, tally project economic and non-economic impacts as described.	24. Costs -- Please summarize, tally project economic and non-economic costs as described.
Quantify	<ul style="list-style-type: none"> - Direct: One house relocated out of channel migration zone - Indirect: Wynoochee river mile reach from 13.5-15.5 opened up for 	<ul style="list-style-type: none"> - House relocated to newly laid foundation - Installation of new septic field - Installation of new well - Relocation of public 	<ul style="list-style-type: none"> - \$104,033 for funding request

	habitat restoration and further flood damage reduction projects	utilities - Minimal vegetation disturbance from construction activities	
Describe	There are both flood damage reduction and habitat benefits from this project	Project impacts are due to house siting and infrastructure installation	Costs are due to the funding request for house relocation

Photos from December 7, 2015 flooding event. One of five flooding events during the 2015-16 winter season.



Figure 1: Looking northwest from piece of property with house; woody debris is being deposited on landowner's property



Figure 2: Looking northwest from piece of property with house; driveway is under water

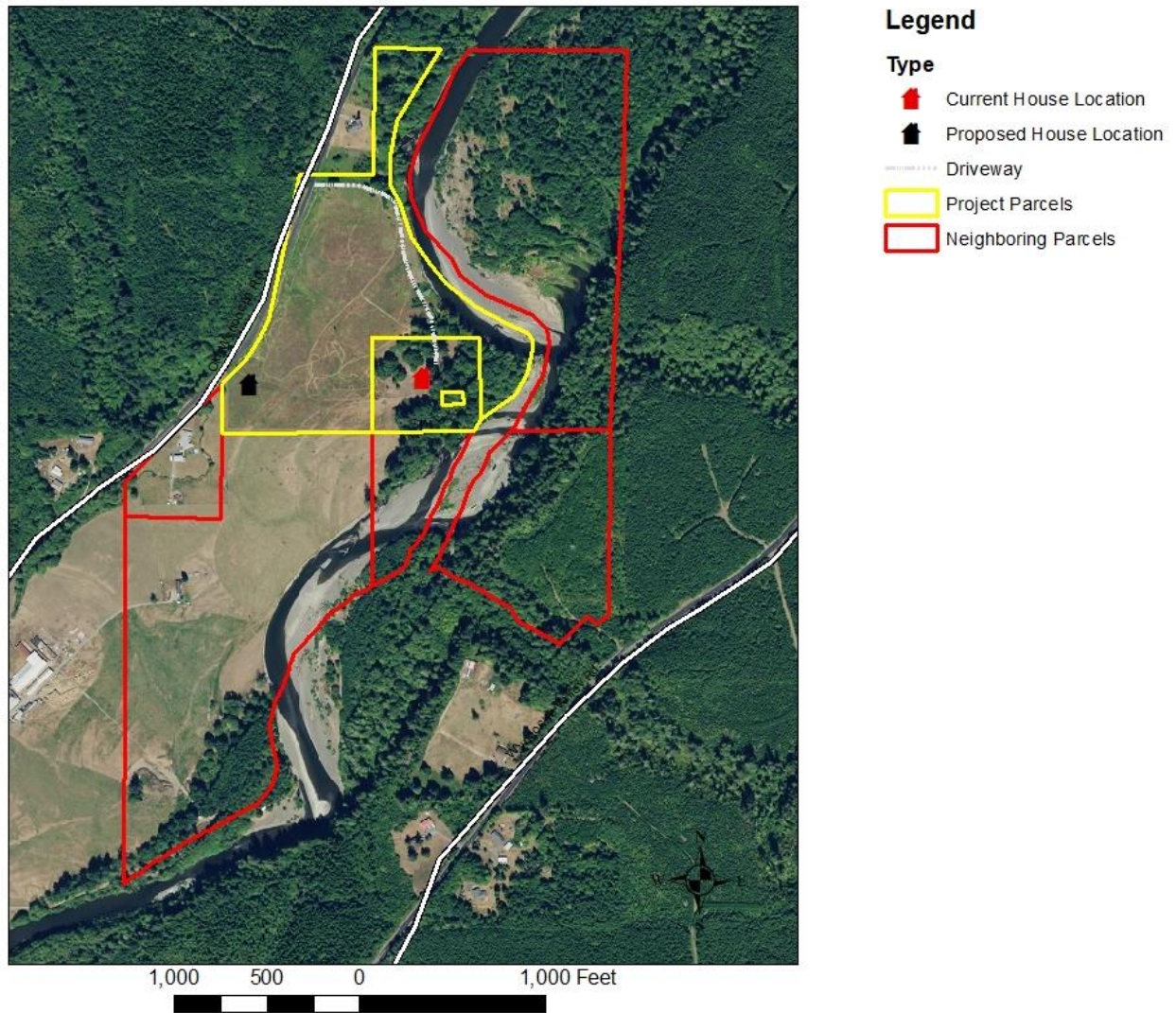


Figure 3: Parcel Lines Approximate. Aerial image is summer of 2017.

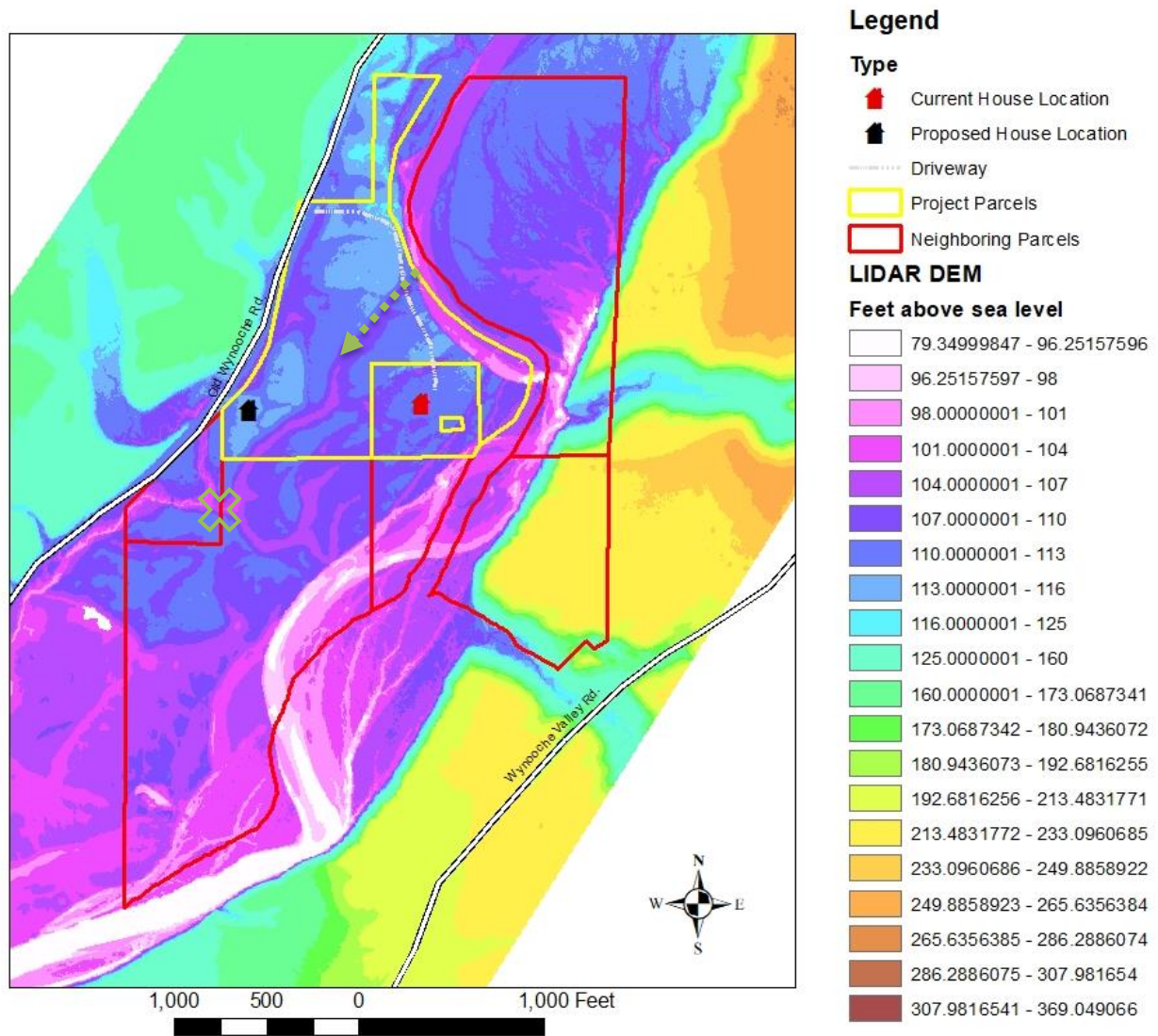
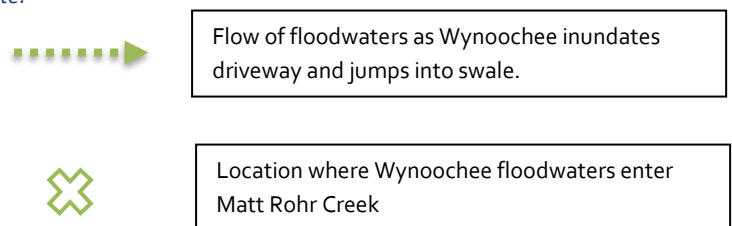


Figure 4: Digital elevation map of project area. Parcel lines approximate.



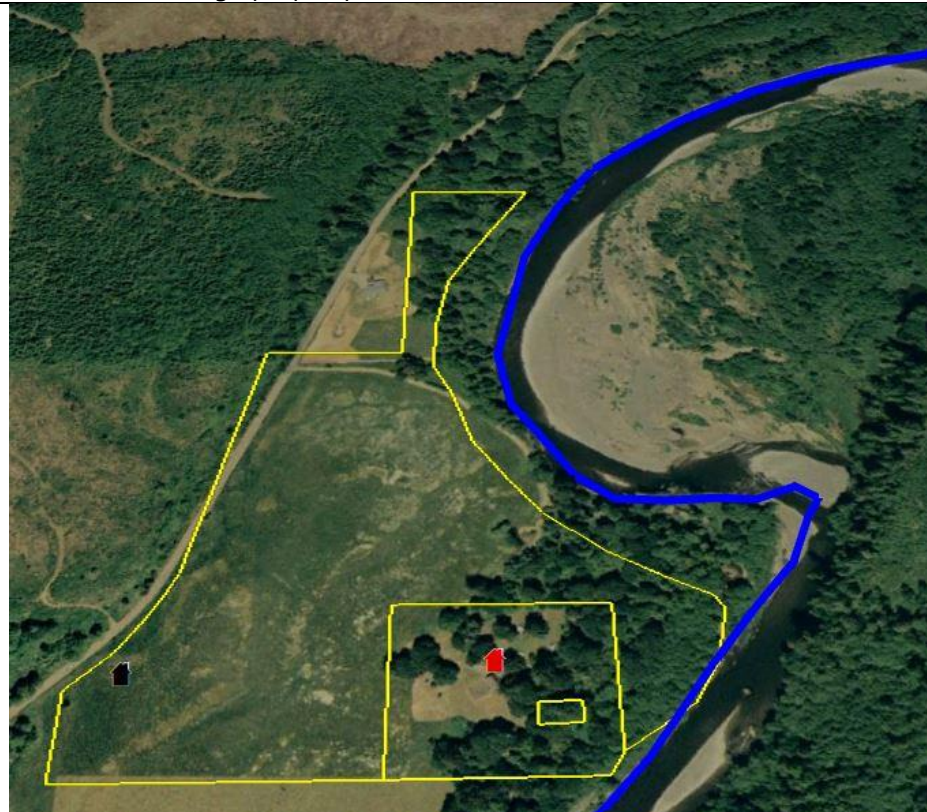
River Migration from 1990-2017 (red house = current house location; black house = proposed house location)

1990



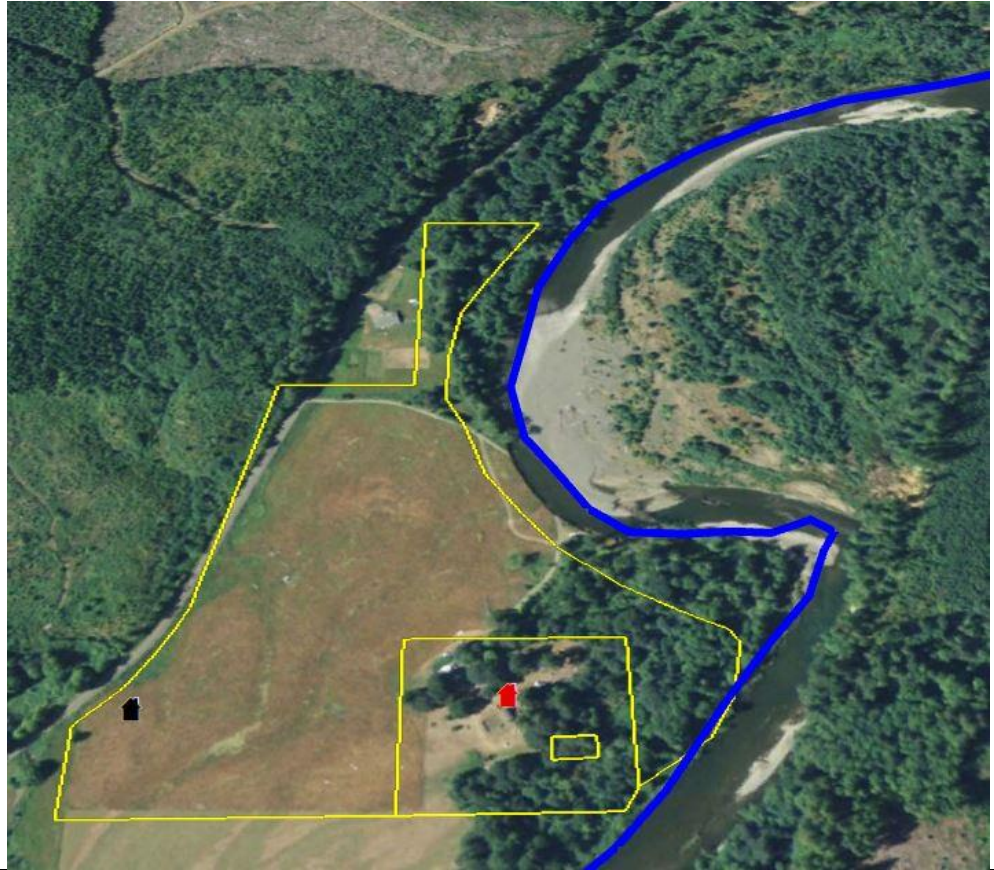
Dashed lines indicate approximate former parcel lines before significant river movement through property.

2006

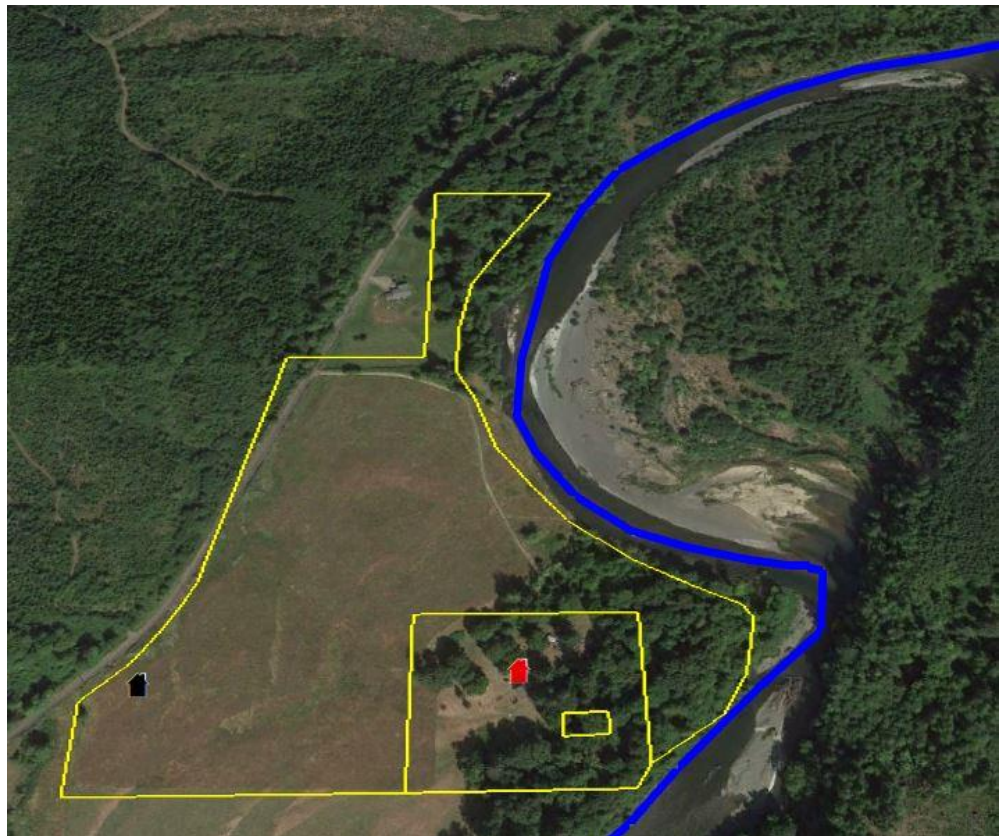


Note how driveway location moves further southwest as river migrates.

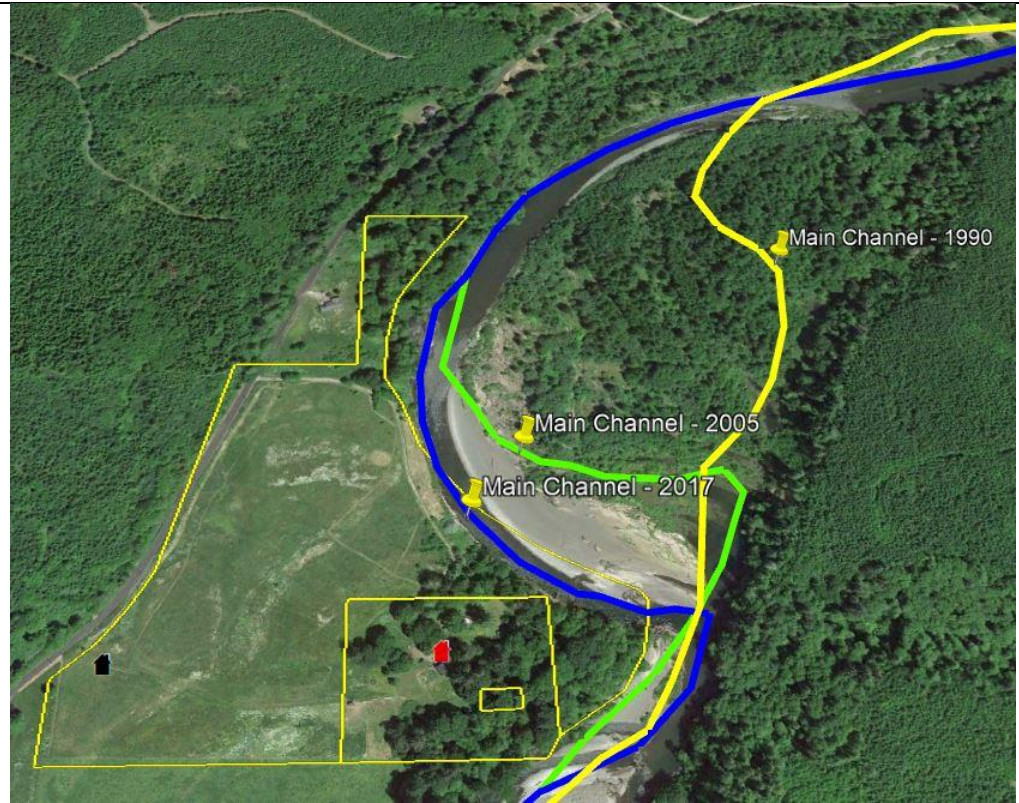
2009



2011



2017



Appendix A

Process/Schedule Overview (current as of 6-12-2018)	
June 12, 2018	<ul style="list-style-type: none"> Post and distribute local projects recruitment request. Allow three weeks for project proposals/submittals (i.e., due no later than 5:00 p.m., Tuesday, July 3, 2018). Due to Scott Boettcher, scottb@sbgh-partners.com.
July 3, 2018	<ul style="list-style-type: none"> Receive proposals/submittals.
July 5, 2018 (or July 12, 2018)	<ul style="list-style-type: none"> Update Chehalis Basin Board on numbers received, types of projects received, distribution, dollar value, etc.
July 19, 2018 (or August 16, 2018)	<ul style="list-style-type: none"> Update Flood Authority on numbers received, types of projects received, distribution, dollar value, etc.
September 20, 2018	<ul style="list-style-type: none"> Update Flood Authority on status of Projects Committee's effort to review, rank, discuss with Tribes, discuss with agencies, sort and rank, etc. Review/discuss PRELIMINARY DRAFT ranked and prioritized list.
October 4, 2018	<ul style="list-style-type: none"> Update Chehalis Basin Board on status of Projects Committee's effort to review, rank, discuss with Tribes, discuss with agencies, sort, and rank, etc. Review/discuss DRAFT ranked and prioritized list.
October 18, 2018 (SPECIAL MEETING)	<ul style="list-style-type: none"> Seek Flood Authority approval of FINAL ranked and prioritized list.
November 8, 2018	<ul style="list-style-type: none"> Seek Chehalis Basin Board approval of FINAL ranked and prioritized list.
June 2018 through November 2018	<ul style="list-style-type: none"> Work with agency, OCB, and CBB technical staff on refining and finalizing recruitment instrument, scoring criteria, scoring instrument, categorization, and ranking, developing draft and final lists, etc.

Legend:

Chehalis Basin Board	Flood Authority
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