



2015-17 Small Projects Recruitment Form

"Additional Local Flood relief Projects"
(for 2015-17 biennium)

Chehalis River Basin Flood Relief

What are small projects? -- In general, small projects are those projects that provide predominantly localized 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 the Chehalis River Basin Flood Authority's Chehalis Basin Projects Committee.

What are additional local flood relief projects? – Additional local flood relief projects are small projects seeking to utilize surplus 2015-17 small project monies as a result of other small projects coming in under budget, being re-scoped or otherwise resulting in surplus resources. Additional local flood relief projects, like small projects are to be completed within the funding cycle, supported by the jurisdiction within which the project is proposed, and vetted and advanced through the Chehalis River Basin Flood Authority's Chehalis Basin Projects Committee.

Instructions:

- a. Please submit additional local flood relief project requests (via this form) to Scott Boettcher (scottb@sbgh-partners.com) no later than 5:00 p.m. April 1, 2016.
- b. Please submit individual project request forms for each project in your jurisdiction, even those projects previously or partially funded in the past.
- c. Note: Parts III and IV below [marked by "(**)"] will be scored as part of the Chehalis Basin Projects Committee's review and evaluation. Part I and II will not be scored.

Part I General	
1. Date:	April 1, 2016
2. Project Name:	Lower Satsop Floodplain Restoration and Erosion Reduction-Construction Phase 1
3. Project Location -- Please identify the location of the project as precisely as possible, preferable with latitude/longitude coordinates.	Lower 2.5 miles of Satsop River with 100 year floodplain south of SR 12 to the confluence with the Chehalis River (see attached map)
4. Project Contact -- Please identify who will be	Michelle Cramer



<p>responsible for overseeing and managing the project (i.e., name, email, telephone number, etc.).</p>	<p>Washington Department of Fish and Wildlife 600 Capitol Way North Olympia, WA 98501 360.902.2610 michelle.cramer@dfw.wa.gov</p>
<p>5. Lead Organization -- Please identify the lead organization, agency, entity, etc. responsible for this project. Please identify key partners responsible for assisting in the delivery or implementation of the project.</p>	<p>Washington Department of Fish and Wildlife (WDFW), lead agency Grays Harbor Conservation District (GHCD), key partner</p>
<p>Part II Description, Timing and Cost</p>	
<p>6. Project Description -- Please describe the project, what it is intended to accomplish, and the benefits that will accrue and to whom.</p>	<p>Washington Department of Fish and Wildlife has been working with landowners in the lower Satsop River to develop a multi-benefit project to enhance floodplain connectivity for habitat restoration, to protect infrastructure and agricultural soils from bank erosion and to reduce flooding. We used engineering studies, hydrodynamic modeling and analysis to develop eight alternatives and vetted these with stakeholders and regulatory agencies. We have selected a preferred alternative and are preparing design and permit materials. With current funding through the Chehalis River Basin Flood Authority, we will complete 60% design of the preferred alternative and prepare permit application materials by summer 2016. We have received funding through the Chehalis Habitat Restoration and Protection Projects to complete final design and permitting by February 2017.</p> <p>Grays Harbor Conservation District (GHCD) will formally join WDFW as project partner for the construction phase of the project. GHCD will focus outreach to local landowners to build on the community meetings and individual/small group meetings that have already taken place. The lower Satsop River is an agricultural community such that GHCD's experience in on-the-ground conservation through technical assistance and education is highly desirable to build a comprehensive project portfolio to address local community needs.</p> <p>Our preferred alternative includes construction of a high flow channel at the lower river (see attached-WDFW</p>

	<p>property # 1) to reduce velocities within the main channel during erosive flows (see Sheet 3) and floodplain connection and habitat improvement at the WDFW property #2. There is much interest in the local community in large scale gravel removal and bar scalping for river management, along with riprap bank protection. Our proposal attempts to balance habitat restoration and loss of agricultural terrace soils from accelerated bank erosion exacerbated by artificial channel confinement by Keys Road and channel revetments.</p> <p>We propose to complete the construction in several construction phases. Phase 1 is proposed for funding from this grant; additional funding will be sought for future phases.</p> <ol style="list-style-type: none"> 1. Excavate a high flow channel at the site of a historic channel to reduce velocities at eroding sites along the lower right bank of the river that are eroding rapidly. This work is on the WDFW property #1 near the confluence with the Chehalis River. 2. Remove ~80,000 cubic yards of spoils between Ponds A and B from the floodway at WDFW property #2, partially reslope side slopes and shallow Pond B. Spoils removed from the floodway will be used for beneficial reuse for livestock pad construction. The GHCD has previously used spoils from this site for livestock pads and will use some of the spoils for 2 livestock pad projects and stockpile remaining spoils for future pads. Storage and disposal of any unused spoils will be hauled to an approved disposal site. <p>Phase 2 (not being requested at this time) will remove the remainder of spoils, all of the dikes, shallow Pond A and construct side channels.</p>
<p>7. Project Timeline -- Please describe the overall timeline for completion of the project as well any interim stages or phases.</p>	<p>Complete Preliminary Design: May 2016 Permit Package submittal: June 2016 Complete Final Design: February 2017 Remove Spoils, Reslope/shallow Pond B: April-June 2017 Excavate High Flow Channel: May-June 2017 Construct 2 Livestock Pads with Spoils: June 2016-June 2017</p>



<p>8. Project Cost and Funding -- What is the cost of this project? What are the on-going maintenance and operation requirements? Is it clear who will be responsible for on-going maintenance and operations costs?</p>	<p>Phase 1 construction consists of construction work on two sites:</p> <p>Site #1: Excavate a high flow channel at the site of a historic channel to reduce velocities at eroding sites along the lower right bank of the river that are eroding rapidly. Cost estimate: \$120,000</p> <p>Site #2: Remove 80,000 cubic yards of spoils between Ponds A and B from the floodway, partially reslope side slopes and shallow Pond B, construct 2 livestock pads. Cost estimate Phase 1: \$580,000</p> <p>TOTAL COST: \$700,000</p>
<p>9. Other Funding -- Please explain the extent to which other funding sources or funding partners are available.</p>	<p>We have received funding through the Chehalis Restoration and Protection Projects to complete final design and permitting.</p> <p>We will seek additional funds for Phase 2 construction which includes removal of all dikes and remaining spoils from the floodway, shallow Pond A and construct side channels. We will also pursue funding for a feasibility study to relocate Keys Road. We see this as a logical and essential next step once the floodplain spoils and dikes are removed.</p>
<p>Part III (**) Completion and Doability by June 30, 2017</p>	
<p>10. Project Completion -- Does the funding requested complete (or substantially complete) a project that has already been started? If so, please explain.</p>	<p>Yes. In 2012, the Chehalis River Basin Flood Authority funded the "Satsop River Floodplain Restoration" project to study removing the rip rap revetment on WDFW land and develop 25+ alternatives for floodplain restoration. Analysis indicated that rip rap removal as a stand-alone project would not meet the project's floodplain restoration goals. In 2014, the Chehalis River Basin Flood Authority funded the "Lower Satsop River Floodplain Restoration Project, Phase 2" to restore natural fluvial processes and floodplain connectivity along the lower Satsop River to reduce bank erosion, preserve agricultural soils, and improve fish and wildlife habitat. The Chehalis Restoration and Protection Projects recently awarded funding to WDFW to complete final designs and permits, and study amphibians and native fish response to restoration treatments in the ponds.</p>
<p>11. Project Doable -- Can this project or the stage/phase for which funding is sought be</p>	<p>We will have 60% design plans completed by summer 2016. We have been working with landowners and</p>



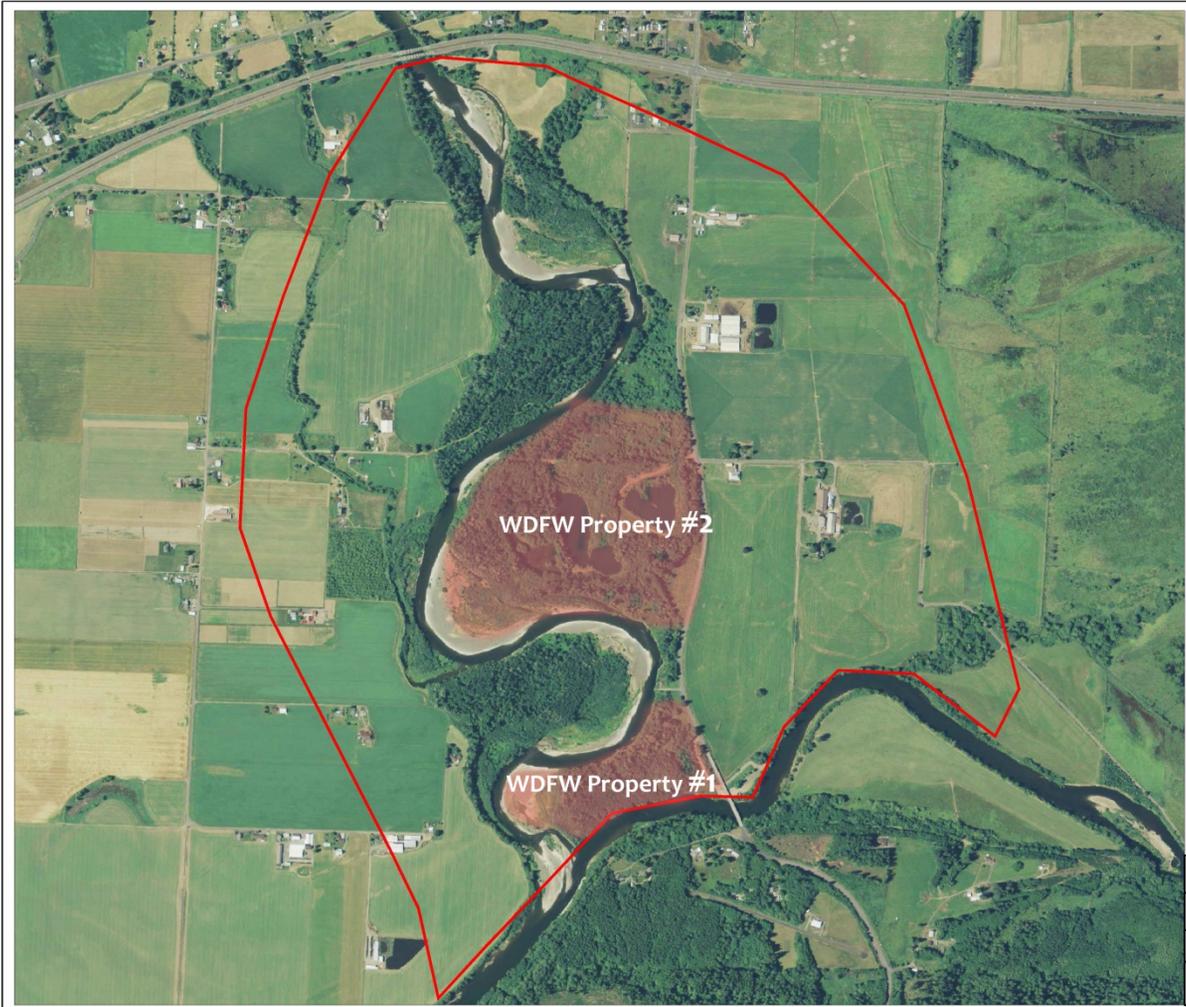
<p>completed by June 30, 2017? Does the project face problem areas that could impact its doability and timeline, e.g., permitting or regulatory unknowns.</p>	<p>stakeholders in both community meetings and individual/small group meetings to develop these plans since 2014. In addition, we have been discussing permitting with regulatory agencies for over a year and will submit permit applications by June 2016. WDFW has been awarded funds through the Chehalis Restoration and Protection Projects to complete final design by February 2017. We expect to be shovel-ready by April 2017.</p> <p>Both removal of the spoils pile and construction of the high flow channel will be done above the OHWM and outside the in-water work window. There is a possibility in-water work will be needed for the construction of the high flow channel in which case, we will request a time extension to complete during the in-water work windows. Although we have been working with regulatory agencies on development of the project, it is possible that permitting will delay project implementation. Given the recent changes at the proposed high flow channel location, the amount of work proposed is minimal and may be more easily permitted than previously indicated.</p> <p>Community outreach and stakeholder coordination will continue throughout the project.</p>
<p>12. Project Impacts -- Please identify how any project impacts will be mitigated and if that mitigation will be accomplished by June 30, 2017?</p>	<p>We expect mitigation requirements to be identified through the permitting phase. A wetland delineation has been completed for the proposed project and we have been meeting with regulatory agencies for over a year as the project elements develop. The proposed high flow channel may impact forested wetlands and may require mitigation and monitoring. Much of the proposed work at WDFW property #2 is beneficial to wetlands and may be available to offset any wetland changes due to the high flow channel construction.</p>
<p>Part IV (**) Benefits Stated and Quantified</p>	
<p>13. Emergency Response -- Please explain how this project enhances our ability to respond in a flood emergency (e.g., does it keep critical access roads, transportation facilities, etc. open and functional.)</p>	<p>The goals of the Lower Satsop project are to reduce flood and bank erosion impacts to agricultural properties along the river. Actions have been identified to address future erosion along Keys Road which will help prevent road closure of Keys Road during a flood. The applicable actions and feasibility of relocating Keys Road will take place in future phases. We have and will continue to work with stakeholders and the community to identify the river corridor and treatments to reduce flood impacts outside</p>



	<p>of this identified corridor. While this may not specifically enhance flood response capacity, the flood reduction work will assist in limiting the need for response in some locations.</p>
<p>14. Essential Infrastructure Protection -- Please explain how this project protects essential infrastructure (as well the risks or consequences of not acting this funding cycle).</p>	<p>There are approximately 75 structures (houses, barns, garages, Port well, and 5 other roads) at risk in the project area. The river frequently floods Keys Road and results in repetitive road closures. Keys Road was constructed through several abandoned channels of the Satsop River and it's only a matter of time before the river captures an abandoned channel and threatens/destroys parts of Keys Road. In the meantime, removing the spoils and dikes will provide for additional flood storage capacity. Protection of Keys Rd along the project site will be a design component.</p> <p>WDFW will seek funds (likely through Floodplains by Design and/or future Chehalis Basin funding opportunities) to study the feasibility of relocating Keys Road. We see this as a logical and essential next step once the floodplain spoils and dikes are removed. If the project is not funded, flood storage capacity and the erosion threat to Keys Road (in the vicinity of the project site) will remain the same.</p>
<p>15. Public Health, Safety and Welfare -- Please explain how this project protects public health, safety and welfare.</p>	<p>By constructing the high flow channel and removing spoils from the floodway, there will be a reduction of velocities and flow depths along the actively eroding agricultural streambanks of the lower Satsop River and additional flood storage on and surrounding WDFW property, as well as improved habitat conditions for fish and wildlife. Actions will be taken as needed to protect Keys Road from bank erosion along the project site.</p>
<p>16. Residential, Commercial and/or Agricultural Protection -- Please explain how this project protects residential, commercial and/or agricultural interests and communities and the benefits of acting (or consequences of not acting) this funding cycle. Consider factors like number of structures at risk, number of people at risk, historic frequency of flood damage, magnitude of benefit to be gained for the cost, etc.).</p>	<p>The goals of the Lower Satsop project are to reduce flood and bank erosion impacts to agricultural and residential properties along the river. The project is intended to develop a coordinated approach to flood reduction and bank protection with effective results rather than addressing bank erosion and flooding impacts on a site by site basis.</p> <p>If the project is not funded, additional loss of agricultural soils will continue; the river has migrated 600 feet from 2009-2016 along the lower right bank near the confluence with the Chehalis River. This is a significant amount of soil</p>



	<p>loss and the rate of erosion has been exacerbated by the construction of Keys Road within the Channel Migration Corridor. Providing a high flow channel to alleviate the velocities and flow depths along the right bank will reduce the rate of erosion and basically buy time until a more comprehensive approach, such as relocating Keys Road and addressing the chronic sources of sediment from upstream sources, can be developed.</p> <p>Currently bank armoring and floodplain fill have exacerbated flooding impacts and bank erosion along agricultural properties. In addition, approximately 75 structures (houses, barns, garages, Port well, Keys Road and 5 other roads) are potentially at risk of flooding and impacts from bank erosion. Without action, additional bank hardening will continue along the river corridor (often resulting in additional erosion to neighboring properties) as well as continued loss of agricultural lands and infrastructure.</p>
<p>17. Other Project Impacts -- Please explain how this project impacts or is potentially impacted by another project.</p>	<p>This project builds on the previously funded projects, as identified in the project description (#6). In addition, the Port of Grays Harbor is studying the feasibility to transfer water rights from the existing well along the lower Satsop River. We are currently taking steps to work with the Port to implement the relocation of the well, complementing the Port's engineering work toward water right transfer process. Also, the Grays Harbor Conservation District (GHCD) has received funding from the Conservation Commission (CC) to design and construct livestock pads in the lower Chehalis basin. GHCD proposes to use the sediment in the spoils to construct livestock pads. This will save on haul and disposal costs and will allow the GHCD to build two pads in addition to the pads funded by the CC.</p>
<p>18. Anything Else -- Please feel free to offer any additional information (e.g., photos, maps, drawings, etc.) that would be helpful to better understand the scope, timeline and benefits of this project.</p>	<p>The partnership with the Grays Harbor Conservation District is very important to meeting the goals of the overall project. Please contact Mike Nordin of the Grays Harbor Conservation District at 360-208-4451 if you have additional questions about this aspect of the project.</p> <p>The focus of this phase of the project is flood relief for agricultural soil loss in construction of the high flow channel and supporting a beneficial re-use of spoils that we'll remove from the floodplain project to provide livestock pad materials.</p>



Lower Satsop River Habitat Restoration Project Area

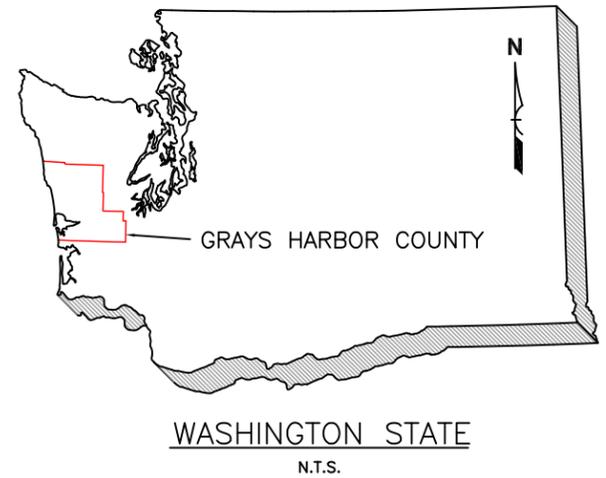
— Project area outline

Lower Satsop Phase III Project Area		
Washington Department of Fish & Wildlife, Grays Harbor County, WA		
 WATERSHED SCIENCE & ENGINEERING	SCALE: 1" = 1,000'	PLATE
110 Pretontaine Pl S, Suite 508 Seattle, WA, 98104 (206) 521-3000	DATE: Sep. 2014	1
	JOB NO: 14-004	



Vertical Datum
NAVD 88

NORTH



Sheet Index	
1	Cover Sheet
2	High Flow Channel Plan View
3	High Flow Channel Plan View (20 Scale)
4	High Flow Channel Profile & Sections
5	Pond Area - Existing Conditions
6	Pond Area - Plan View Phase 1
7	Pond Area - Plan View Phase 2

Survey Disclaimer
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Directions to Site
Site is South of Highway 12 on Keys Road along the Satsop River. For Pond Area access use entrance through WDFW gate at the west side of Keys Road. For High Flow Channel access enter Staging area Shown above.

AREA MAP
SCALE: 1" = 250'

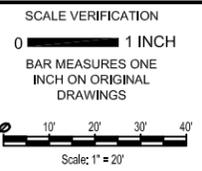


STATE OF WASHINGTON
DEPARTMENT OF FISH & WILDLIFE
HABITAT PROGRAM

SYM	DATE	BY	REVISION DESCRIPTION



PROJECT NO: xx-xxxx
DESIGNED BY: M. Cramer
CHECKED BY: D. Small
DRAWN BY: K. Corwin
FILE: EG Pilot Channel Area cropped.dwg

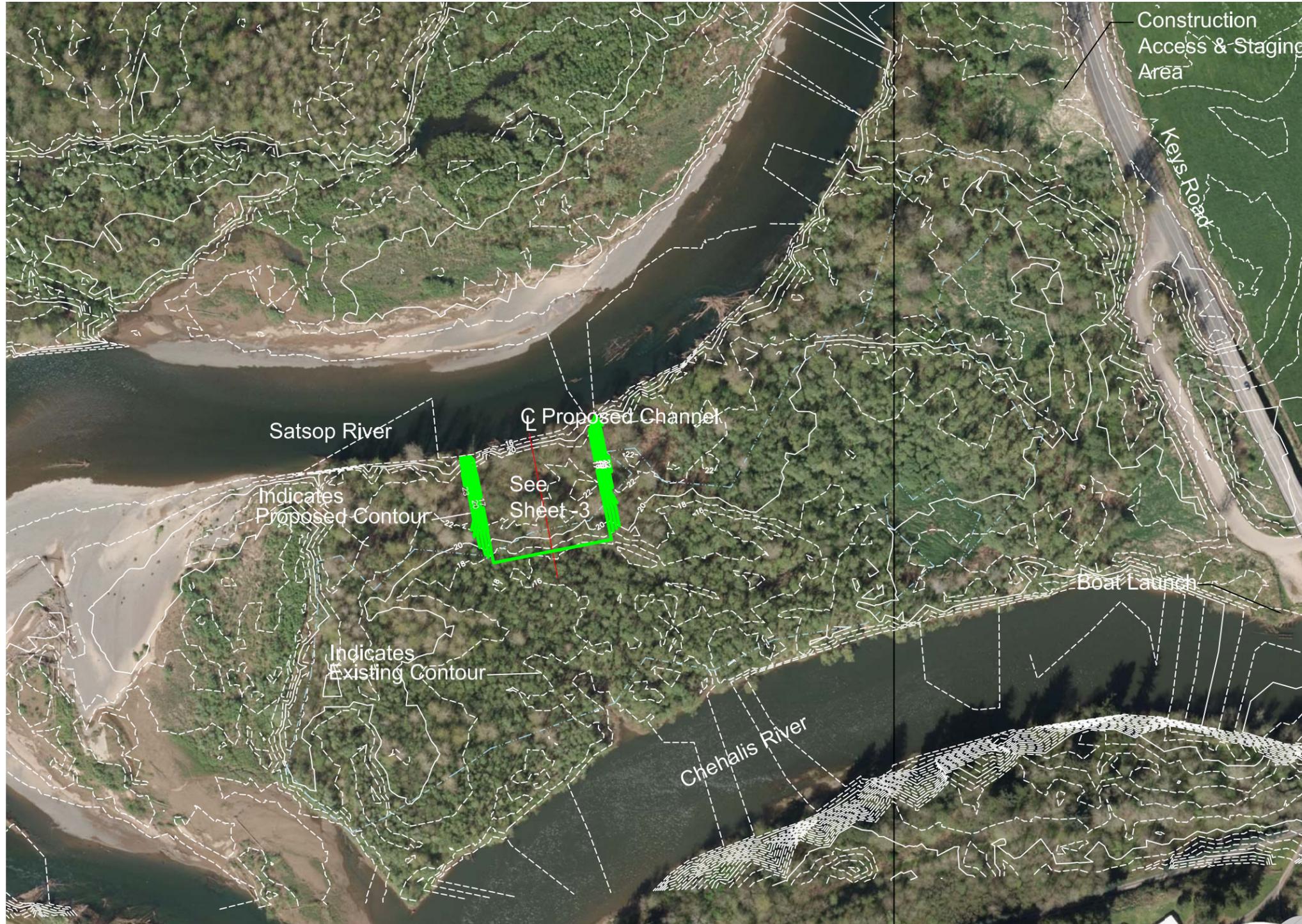
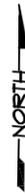


Lower Satsop River Habitat Restoration
Biological Monitoring and Final Design
Cover Sheet

Date:
1- 7 - 16
Sheet:
1 of 7



Vertical Datum
NAVD 88



High Flow Channel Plan View

SCALE: 1" = 100'

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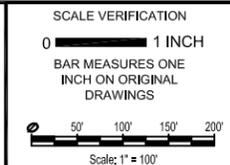


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SYM	DATE	BY	REVISION DESCRIPTION



PROJECT NO: xx-xxxx
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FILE: EG Pilot Channel Area cropped.dwg



Lower Satsop River Habitat Restoration
Biological Monitoring
and Final Design
High Flow Channel Plan View

Date:
1-7-16
Sheet:
2 of 7



High Flow Channel Plan View

Scale: 1" = 20'

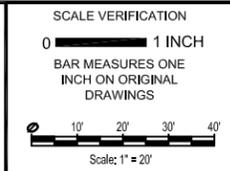


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FILE: EG Pilot Channel Area cropped.dwg

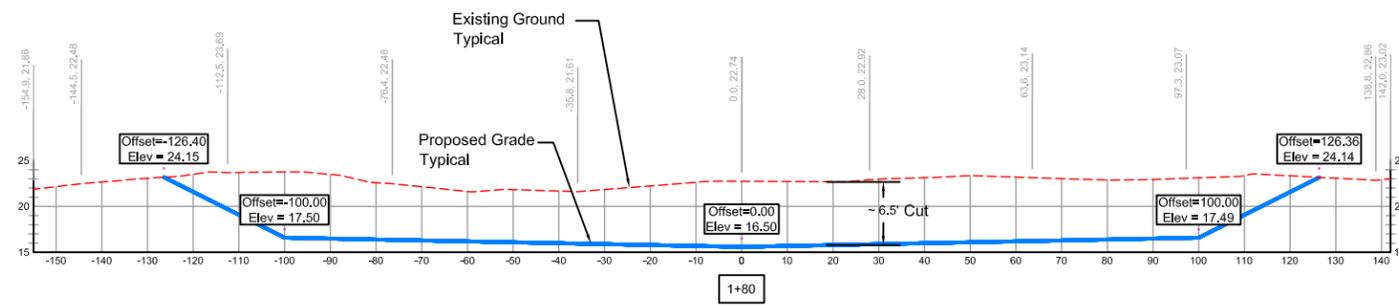
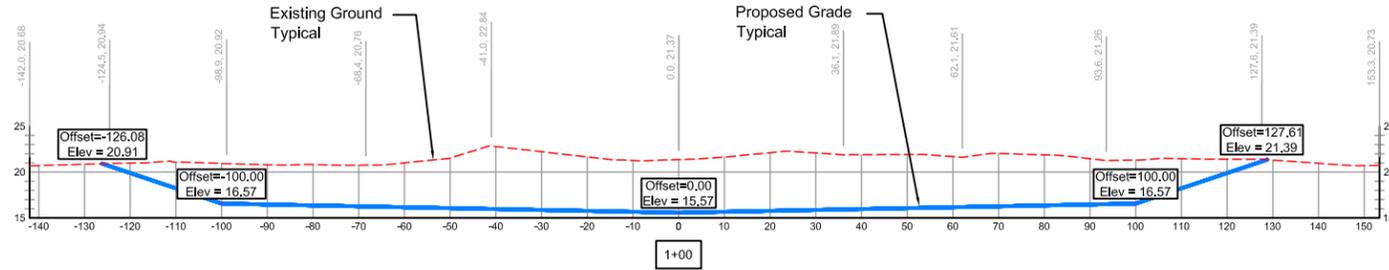
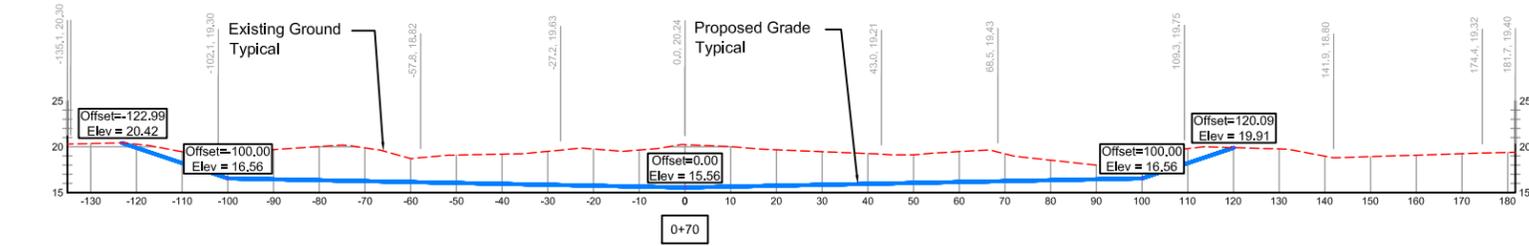


Lower Satsop River Habitat Restoration
Biological Monitoring
and Final Design
High Flow Channel Plan View

Date:
1-7-16
Sheet:
3 of 7

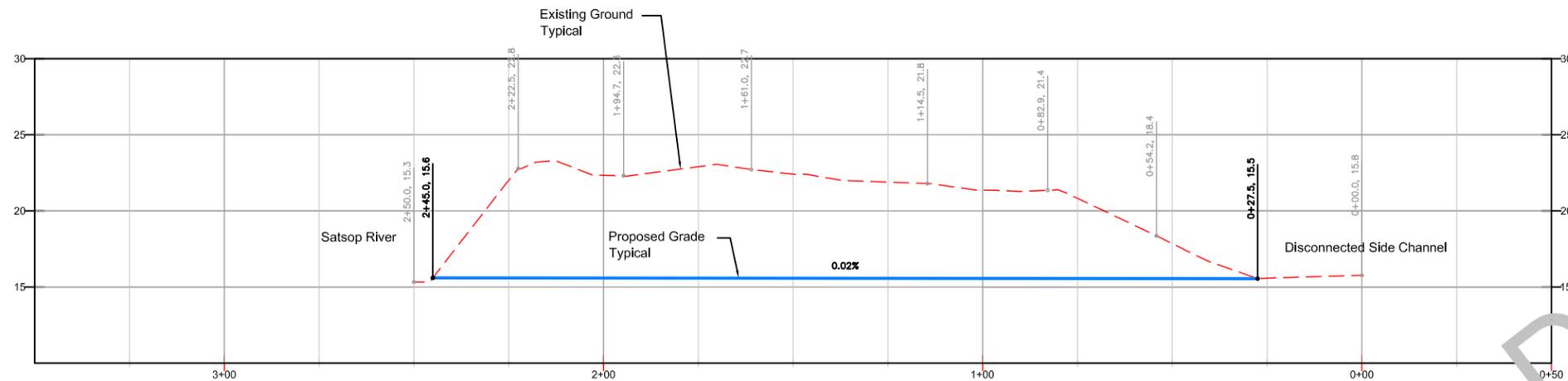


Vertical Datum
NAVD 88



High Flow Channel Sections

Scale: 1" = 20' Horiz., 1" = 10' Vert.



High Flow Channel Profile

Scale: 1" = 20' Horiz., 1" = 20' Vert.

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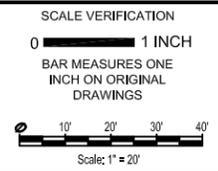


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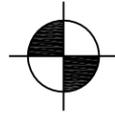


PROJECT NO: xx-xxxx
DESIGNED BY: M. Cramer
CHECKED BY: D. Small
DRAWN BY: K. Corwin
FILE: EG Pilot Channel Area cropped.dwg



Lower Satsop River Habitat Restoration
Biological Monitoring and Final Design
High Flow Channel Profile and Sections

Date:
1-7-16
Sheet:
4 of 7



Vertical Datum
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NORTH



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EXISTING CONDITIONS AREA MAP

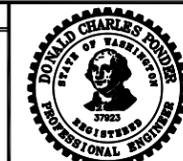
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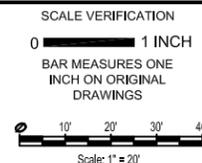


STATE OF WASHINGTON
DEPARTMENT OF FISH & WILDLIFE
HABITAT PROGRAM

SYM	DATE	BY	REVISION DESCRIPTION



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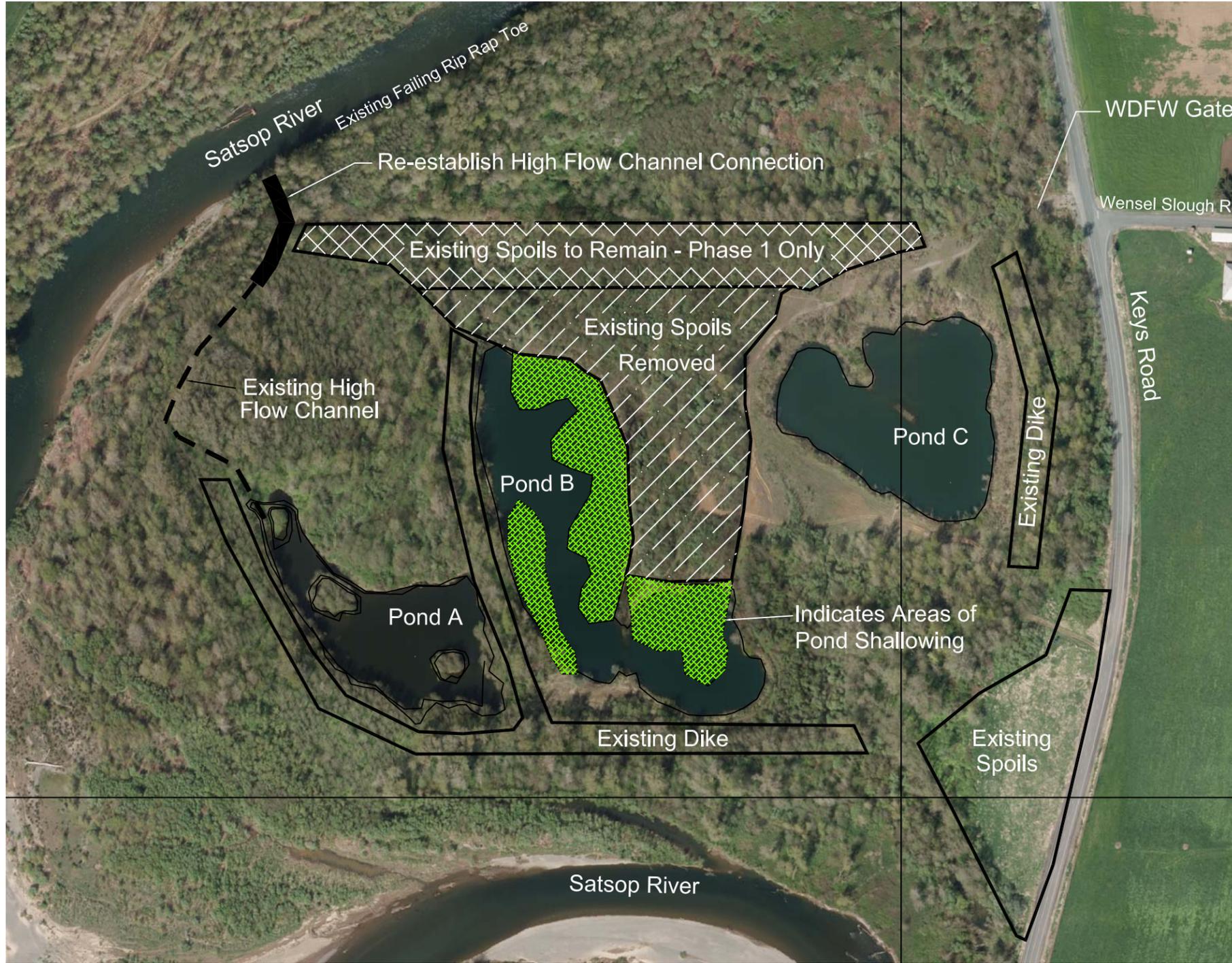
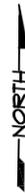


Lower Satsop River Habitat Restoration
Biological Monitoring
and Final Design
Pond Area - Existing Conditions

Date:
1-7-16
Sheet:
5 of 7



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Phase 1 - Removal of Spoils & Pond B Modifications

SCALE: 1" = 150'

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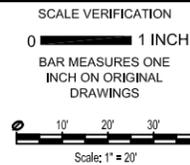


STATE OF WASHINGTON
DEPARTMENT OF FISH & WILDLIFE
HABITAT PROGRAM

SYM	DATE	BY	REVISION DESCRIPTION



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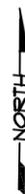


Lower Satsop River Habitat Restoration
Biological Monitoring
and Final Design
Pond Area - Phase 1

Date:
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Sheet:
6 of 7



Vertical Datum
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Phase 2 - Removal of Spoils & Pond C Modifications

SCALE: 1" = 150'

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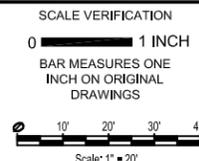


STATE OF WASHINGTON
DEPARTMENT OF FISH & WILDLIFE
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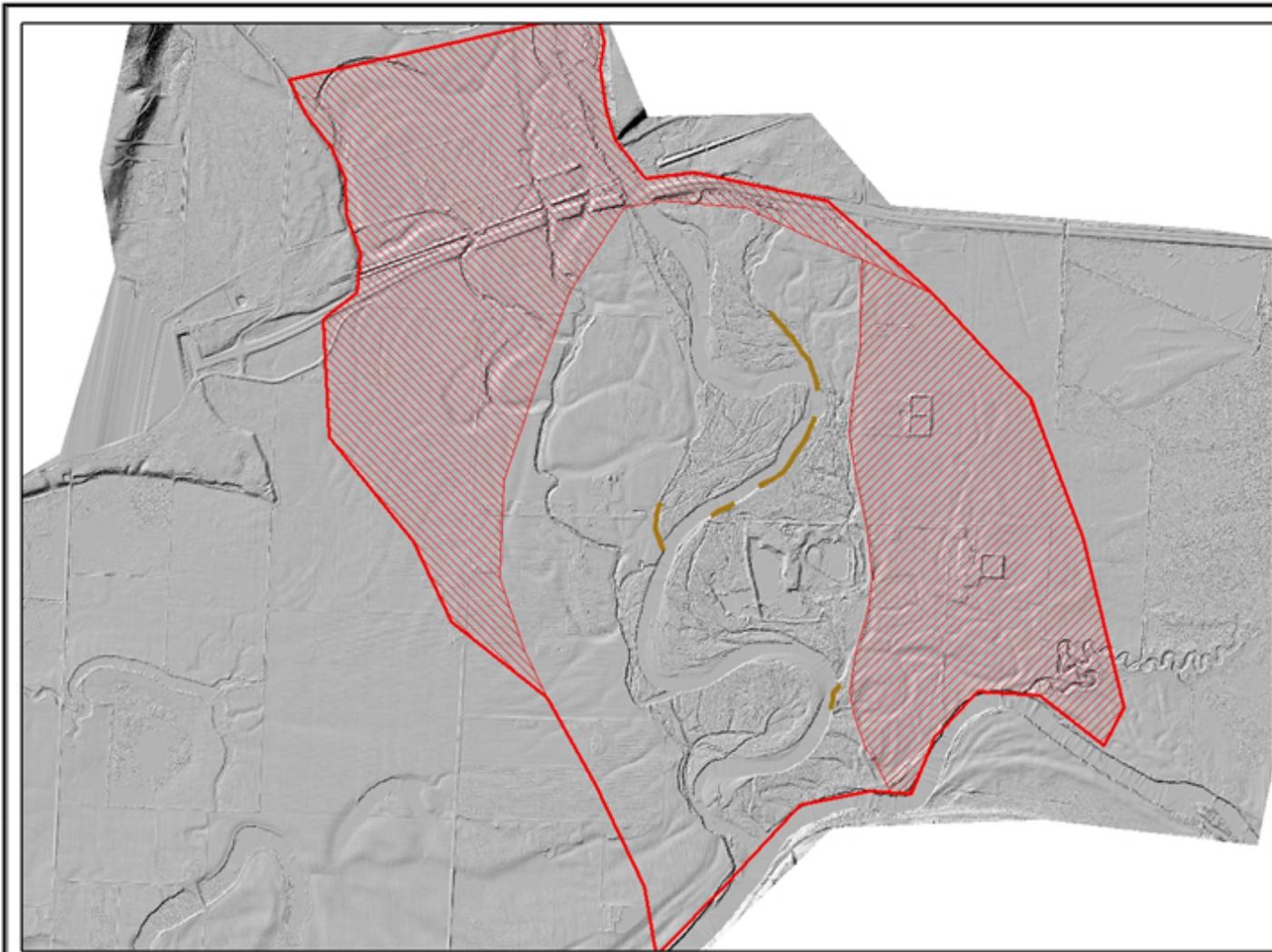


PROJECT NO: xx-xxxx
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CHECKED BY: D. Small
DRAWN BY: K. Corwin
FILE: EG_Pilot_Channel_Area_cropped.dwg



Lower Satsop River Habitat Restoration
Biological Monitoring
and Final Design
Pond Area - Phase 2

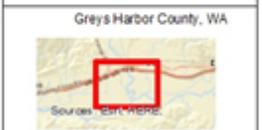
Date:
1- 12 - 16
Sheet:
7 of 7



Satsop River Alluvial Fan Alterations

Legend

-  Historic Fan
-  Fan Loss from Keys Road
-  Fan Loss from Highway/RR
-  revetments



0 810 1,620 Feet

Scale: 1:16,000
NAD83 Washington South 4

06 Oct 2015





1938 Aerial Photo