

Wasco County Soil & Water Conservation District Rock Creek Restoration and Enhancement – Mosier, Oregon

Project Scope

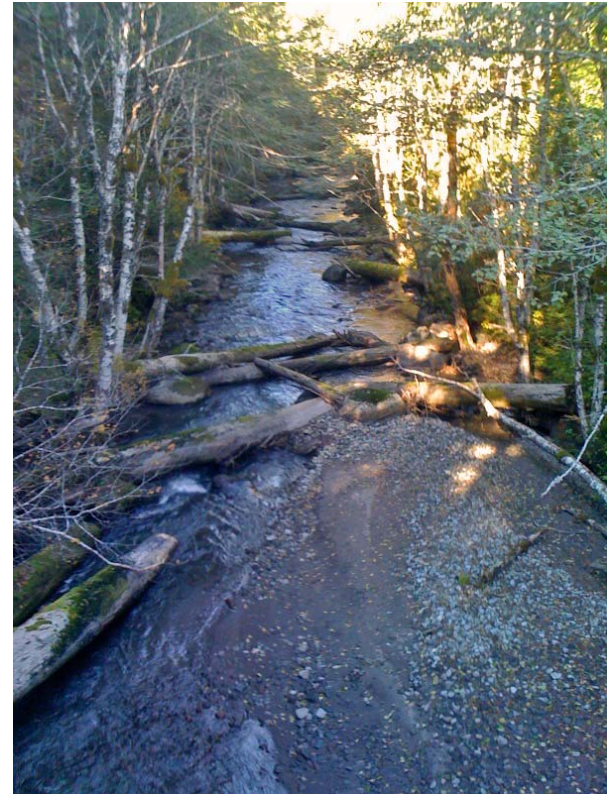
- Review existing data
- Reconnaissance survey – Oct 2012
- Identify priority project sites
- Topographic survey – Nov 2012
- Hydrology/Hydraulics
- Project designs
 - Concept – Dec 2012
 - Final – Feb 2013
- Permitting - JPA
 - Oregon Department of State Lands
 - U.S. Army Corp of Engineers



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Project Overview

- Rock Creek Watershed – 14 mi²
- Target species
 - Mid-Columbia River Steelhead (MCRS)
- Habitat benefits
 - Spawning habitat enhancement
 - Refuge and foraging habitat enhancement
 - Floodplain access enhancement
- 5 projects sites (A-E) located between RM 0.45 and 0.6
- Total impact area ~ 0.3 acres



Rock Creek Mosier, OR

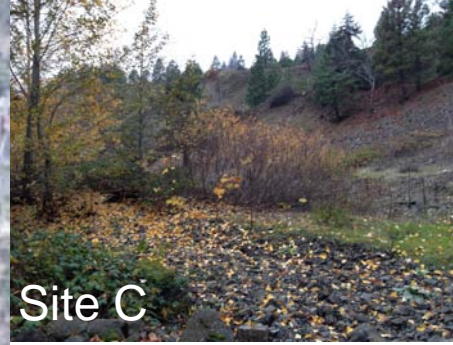
Site E



Site D



Site B



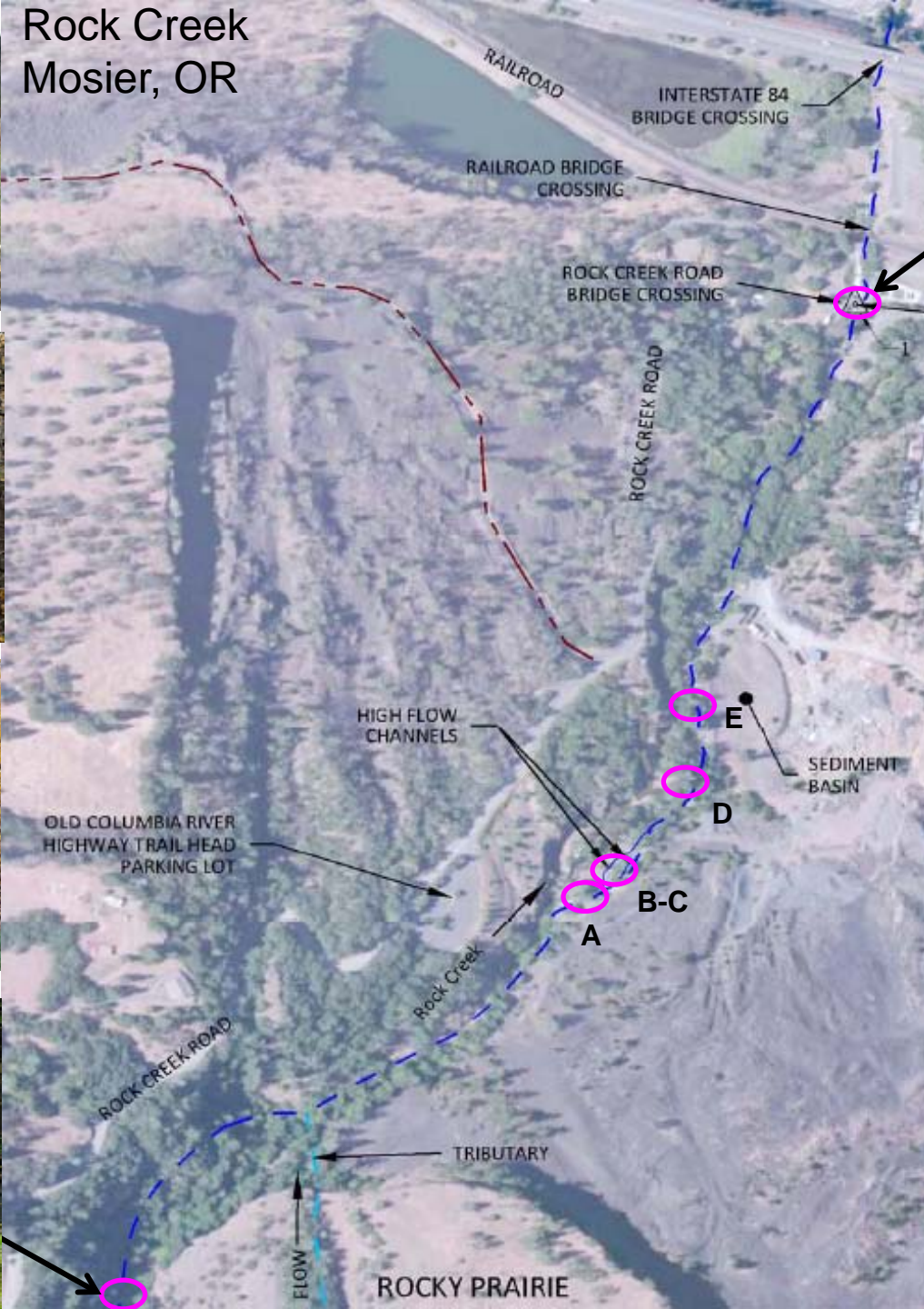
Site C



Site A-B



Site A





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Project Considerations

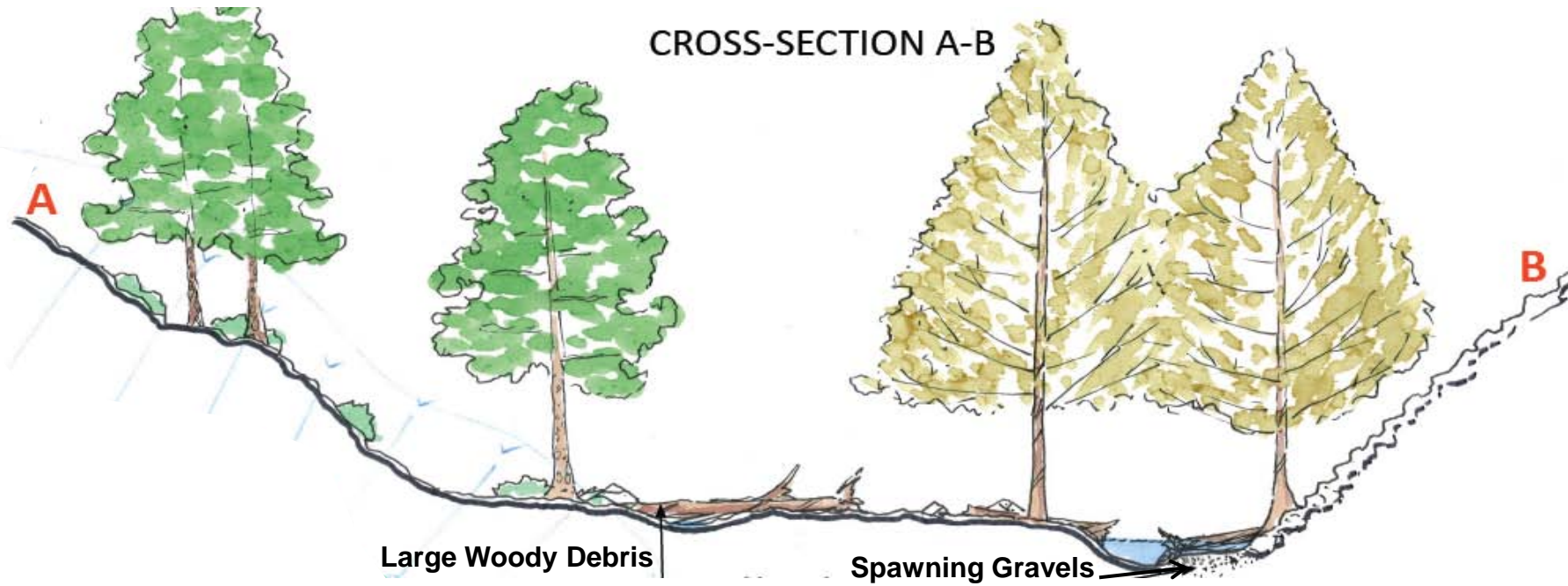
- Bedrock system – minimal natural supply of spawning gravels & LWD
- Steep, eroding slopes adjacent to channel
- Natural erosion and transport of colluvial material to downstream infrastructure
- Lower ~0.6 miles dries up during summer and fall
- Majority of spawning currently occurring near mouth with Columbia River (anecdotal)
- Rearing occurring between RM 0.6 and RM 1.5 (two natural barriers)
- Channelization and lack of floodplain
- Steelhead vs. Coho
 - ODFW focus on Steelhead (MCRS)
- Areas of sparse vegetation



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Project Enhancements

- Addition of spawning gravels
- Addition of large woody debris
 - Ballasted with boulders and cable
- Slope and channel grading
- Toe protection rock



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Hydrology

Flood Frequency	Eastern Oregon OWRD Regression Flood Flows¹ (cfs)	Basin Comparison Method² (cfs)
1-yr	76 ³	24
2-yr	330	226
5-yr	661	527
10-yr	902	828
25-yr	1284	1350
50-yr	1587	1858
100-yr	2002	2483

¹ Regional regression equations for Rural Unregulated Streams in Eastern Oregon (OWRD, 2006).

² A basin comparison was completed for estimating flood flows using USGS gage data from the gage on Mosier Creek (USGS 14113200) analyzed using Log Pearson Type III flood frequency method.

³ The OWRD regression equations were not able to predict the 1-yr flood event. USGS regional regression equations for estimating low-flow frequency statistics (annual P5 – flow duration percentile) for unregulated streams in Oregon were used (USGS, 2008).



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Hydraulic Modeling Results

- **Spawning gravels will mobilize below 2-yr event**
 - LWD will assist with maintaining gravels longer
 - 2-yr event will mobilize 10” minus
 - Spawning gravel size is 3.5” minus
- **Toe protection rock**
 - Design event = 25-yr
 - Factor of safety of 1.3
 - Rock size = 24” minus
- **Boulder Ballast**
 - Factor of safety of 1.5
 - Assume ponderosa pine
 - 20 inch diameter, 30 ft length
 - Boulder size & quantity depend on site hydraulic conditions:


Site ID	Boulder Ballast Sizes & Quantities		
	42"	44"	48"
Site A		16	
Site B	12		
Site C	8		
Site D			12
Site E		20	
Total Quantity	20	36	12




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Permitting

- **Oregon Department of State Lands**
 - Removal/Fill Permit
- **U.S. Army Corp of Engineers 404 Permit**
 - NWP No. 27 – Aquatic Habitat Restoration, Establishment, and Enhancement Activities
- **Local permitting**
 - Outside City of Mosier limits but within urban growth boundary
 - Exempt from scenic area and floodplain (FEMA) permitting



**Joint Permit
Application Form**



US Army Corps of Engineers (Portland District) Oregon Department of State Lands No. _____

SEND ONE SIGNED COPY OF YOUR APPLICATION TO EACH AGENCY

US Army Corps of Engineers District Engineer ATTN: CENWP-CD-GPPO Box 2946 Portland, OR 97208-2946 503-508-4373	DIST - West of the Cascades State of Oregon Department of State Lands 775 Summer Street, Suite 100 Salem, OR 97301-1279 503-986-5200	DIST - East of the Cascades State of Oregon Department of State Lands 1643 NE Forbes Road, Suite 112 Bend, Oregon 97701 541-385-6112	Send DFL Application Fee to: State of Oregon Department of State Lands 775 Summer Street, Suite 100 Salem, OR 97301-1279 (Attach a copy of the first page of the application)
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(1) APPLICANT INFORMATION

Applicant Name and Address	Business Phone #
	Home Phone #
	Fax #
	Email
Authorized Agent Name and Address	Business Phone #
Check one	Home Phone #
Consultant <input type="checkbox"/>	Fax #
Contractor <input type="checkbox"/>	Email
Property Owner Name and Address	Business Phone #
If different from above ¹	Home Phone #
	Fax #
	Email

(2) PROJECT LOCATION

Street, Road or Other Descriptive Location	Legal Description (attach map for map ²)			
	Township	Range	Section	Quarter/Quarter
In or near (City or Town)	County	Tax Map #	Tax Lot # ²	
Welland/Waterway (pick one)	River Mile (if known)	Latitude (in DD.DDDD format)	Longitude (in DD.DDDD format)	
Directions to the site				

¹ If applicant is not the property owner, permission to conduct the work must be attached.
² Attach a copy of all six maps with the project area highlighted.
 • Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.

v. 07-07-09





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Thanks to Our Project Partners

- Oregon Department of Transportation
- Oregon Parks & Recreation Department
- Oregon Department of Fish & Wildlife
- Kathleen Fitzpatrick – Mosier City Council
- Mike Igo – Botanist Extraordinaire
- Brian Bieger – Riverwood Restoration





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Questions?

