



---

# Salem Stream Mitigation Bank

---

2021 Annual Program Report  
Township 8 South, Range 3 West, Section 23BB  
Salem, Marion County, Oregon

JANUARY 10, 2022

## **Background**

The Salem Stream Mitigation Bank (SMB) Program has been developed to provide compensatory mitigation for unavoidable impacts to jurisdictional streams resulting from City projects. As an “Umbrella Bank” it provides a framework for the establishment, use, operation, and maintenance of multiple compensatory mitigation sites within the City’s urban growth boundary (UGB), targeted at specific watershed goals. At this time only the Waln Creek Stream Bank site is approved and active.

The goals of the City’s SMB Program are to: 1) provide a basis for planning and implementation of cost-effective stream restoration projects; and 2) streamline the Removal-Fill and Section 404/401 permit evaluation process by providing a means for quantifying and compensating for unavoidable in-stream impacts.

## **Total Credit Additions**

In February 2016 the Oregon Department of State Lands (DSL) and the Army Corps of Engineers (Corps) released the first 30% of credits to the bank. This included 2,633 instream credits and 589 riparian credits for a total release of 3,222 credits.

The next release occurred in August 2018 with an additional 45%, or 4,833 credits, released to the bank, including 3,949 instream and 884 riparian credits, bringing the cumulative total to 8,055 credits.

DSL and Corps approved the release of final 25% of credits in November 2021 after completion and approval of the site’s Long Term Management Plan. The final release included 2,194 instream credits and 492 riparian credits for a total of 2,286 new credits and a cumulative total of 10,741 credits (8,776 instream and 1965 riparian).

See Attachment 1 for the Program Ledger. See Attachment 2 for the Letters of Release.

## **Total Credit Subtractions**

There has been one debit of riparian credits from the bank and no debits of instream credits. In July 2016, 58 riparian credits were used by the City of Salem Public Works Department to mitigate for loss of riparian vegetation resulting from the Summer Street Culvert Replacement.

See Attachment 3 for Credit Receipt. See Attachment 4 for Summary Table.

## **2021 Activity**

The Long-Term Management Plan (LTMP) for the Waln Creek Stream Bank Site was finalized in May 2021 and subsequently reviewed by the IRT and approved by DSL and Corps in November 2021. The completion of the LTMP resulted in the final release of credits as noted above.

## **Site Management – Waln Creek**

Throughout 2021 the City continued to inspect the bank site and address issues of litter, weed management, and beaver pressure. Live stakes of native shrubs including dogwood, willows, and

Pacific ninebark were planted to replace losses from beaver foraging and to shade out reed canary grass. Trash was cleaned up, reed canary grass was mowed, blackberry was cut and pulled, and maintenance of the pond leveler installed at the beaver dam near the north end of was performed by a contractor.

### **Future Activity**

The City is anticipating utilizing the stream mitigation bank to compensate for impacts associated with a channel erosion repair project on Shelton Ditch. The project is currently in the engineering design phase. Environmental permitting for the project is expected to be completed by September 2022, in preparation for construction to begin in 2023. Other small debits may occur as the City continues to replace, improve, and upgrade culverts and other stream/roadway crossings within the bank's service area.

Preliminary design and engineering analysis will begin in 2022/23 for future improvement projects from the Master Plan, such as a new bridge crossing of Battle Creek. No construction projects are planned for Battle Creek Park in 2022. All park projects will take place outside of the SMB project area.

### **Recommendations**

As we continue to accrue experience operating the SMB, the City will monitor our rate of credit sales and evaluate whether the rate of credit sales warrants keeping those sales exclusively for City projects or if there is enough capacity in the SMB to offer credit sales to outside organizations, such as private developers. For now, the SMB will continue to be restricted to City projects only.

### **Attachments**

1. 2021 Program Ledger
2. Letters of Release
3. Summer Street Culvert Replacement Credit Receipt
4. Summer Street Culvert Replacement Summary Table

# ATTACHMENT 1: 2021 PROGRAM LEDGER

## Waln Creek Stream Bank Mitigation Site - Phase 1

### Credit Ledger

Total Credits Available from Bank after all conditions met: 10,741

Total Instream Credits Available    Total Riparian Credits Available

8776	1965
------	------

Transaction Date	Applicant Name	Project Name	Transaction Type	# Total Credits Active	State Permit #	Federal Permit #	Instream Credit	Riparian Credit
2/26/2016	City	Waln Creek Stream Bank	1st Release (30%)	3222			2633	589
7/18/2016	City	Summer Street Culvert	Withdrawal	3164	58725-GP	NWP 2013-286-1	0	-58
8/27/2018	City	Waln Creek Stream Bank	2nd Release (45%)	7997			3949	884
2019	City	No Activity		7997				
2020	City	No Activity		7997				
11/19/2021	City	Waln Creek Stream Bank	Final Release (25%)	10683			2194	492
<b>End of 2021</b>		<b>Balance</b>		10683			<b>8776</b>	<b>1907</b>

## ATTACHMENT 2: LETTERS OF RELEASE

DSL, 2016, First Release of Credits

Corps, 2016, First Release of Credits

DSL, 2018, Second Release of Credits

Corps, 2019, Second Release of Credits

DSL, 2021, Third/Final Release of Credits

Corps, 2021, Third/Final Release of Credits



# Oregon

Kate Brown, Governor

## Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

[www.oregon.gov/dsl](http://www.oregon.gov/dsl)

February 26, 2016

### State Land Board

Patricia Farrell  
City of Salem  
Public Works Department, rm 325  
555 Liberty St  
Salem, OR 97301-3513

Kate Brown  
Governor

Jeanne P. Atkins  
Secretary of State

Ted Wheeler  
State Treasurer

RE: First release of credits for Waln Creek Stream Mitigation Bank

Dear Patricia;

I am pleased to announce that we have received the necessary documentation for the initial credit release following approval of the Salem Stream Mitigation Bank Instrument (MBI). We have received the as-built drawings, and evidence that initial plantings have been completed at the Waln Creek site. Therefore, according to the credit release schedule in the Waln Creek Mitigation Plan Agreement, the Department hereby releases 2,633 instream and 589 riparian credits, for a total of **3,222** credits under the Salem stream mitigation protocol. This represents **30%** of the total expected credits for this site.

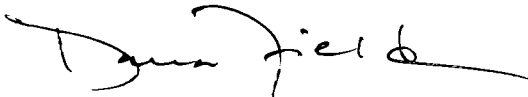
These newly released credits are hereby available for city use or for purchase by parties within your service area who have submitted Removal-Fill permit applications to perform regulated activities in waters of the State of Oregon, or to resolve enforcement cases. Please note you will also need to secure the credit release from the Corps before any of these credits can be sold as compensatory mitigation for a Clean Water Act 404 permit.

Credits may be used or sold only when: 1) a permit application has been submitted wherein the applicant requests approval to use/purchase stream credits instead of conducting their own mitigation, 2) the DSL Resource Coordinator and the Corps Permit Evaluators concur that the stream functions and values proposed to be impacted by the project requiring the permit will be adequately compensated for by the mitigation bank, and 3) if the sale is for resolution of an enforcement case, the agency staff involved have agreed to the manner of resolution. Please note that the number of debits must be determined using the Salem stream mitigation calculation protocol included in the approved Bank Instrument.

For each credit use or sale, please send a copy of the receipt to each agency's permit coordinators, to Tom Taylor at the Corps, and to me. The receipt should identify the date, applicant name, project name, DSL and/or Corps permit file numbers, and the number of instream and riparian credits used or sold.

We wish to recognize the considerable effort in planning and development of the stream function evaluation tool pioneered by City of Salem staff, and also for the design and site management for the Waln creek bank thus far. If you have any questions, please contact me at 503-551-5617.

Sincerely,

A handwritten signature in black ink, appearing to read "Dana Field". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Dana Field  
Mitigation Specialist

CC: Tom Taylor, Corps of Engineers  
IRT  
Mike DeBlasi, DSL



**DEPARTMENT OF THE ARMY**  
PORTLAND DISTRICT, CORPS OF ENGINEERS  
POST OFFICE BOX 2946  
PORTLAND, OREGON 97208-2946

March 22, 2016

Regulatory Branch  
Corps No.: NWP-2010-591

Ms. Patricia Farrell  
Planning & Development  
City of Salem Public Works Department  
555 Liberty Street SE  
Salem, Oregon 97301-3503

Dear Ms. Farrell:

The U.S. Army Corps of Engineers (Corps) has received your request dated February 25, 2016, to release credits for the Waln Creek Enhancement and Battle Creek Culvert Removal Mitigation Bank. This initial release is based on the City of Salem completing the initial plantings at the bank site and submitting the as-built report. Both of these requirements have been met (*i.e.*, in early 2013 and September 2015, respectively).

The Corps is releasing 2,633 and 589, or 30 percent of the 8,776 and 1,965 instream and riparian credits, respectively, which are projected to be available at the bank site. This constitutes Release 1 as specified in the City of Salem Stream Mitigation Program Umbrella Mitigation Bank Instrument, Appendix A, Waln Creek Enhancement and Battle Creek Culvert Removal Project Mitigation Plan, Section IX, Credit Determination and Credit Release Schedule. A total of 3,222 credits (30 percent) have now been released.

You are reminded to include with each submitted credit sale receipt the information listed in Exhibit G - Sample Credit Receipt of the Stream Mitigation Program, Umbrella Mitigation Bank Instrument. Please submit the receipts electronically to Mr. Tom Taylor using the e-mail information below.



Thank you for your efforts to create a successful mitigation bank. If you have any questions, please contact Mr. Taylor at the letterhead address, by telephone, at (503) 808-4386 or via e-mail at: [thomas.j.taylor@usace.army.mil](mailto:thomas.j.taylor@usace.army.mil).

Sincerely,

*for* Shawn H. Zinszer  
Chief, Regulatory Branch

Copy Furnished (electronically):

Oregon Department of State Lands (Field)  
Oregon Department of Environmental Quality (Nayar)  
U.S. Fish and Wildlife Service (Ginger)  
U.S. Environmental Protection Agency (Nadeau)  
Oregon Department of Fish and Wildlife (Vaughan)  
National Marine Fisheries Service (Liverman)



# Oregon

Kate Brown, Governor

## Department of State Lands

775 Summer Street NE, Suite 100

Salem, OR 97301-1279

(503) 986-5200

FAX (503) 378-4844

[www.oregon.gov/dsl](http://www.oregon.gov/dsl)

August 27, 2018

Patricia Farrell  
City of Salem  
Public Works Department, rm 325  
555 Liberty St  
Salem, OR 97301-3513

### State Land Board

Kate Brown  
Governor

Dennis Richardson  
Secretary of State

RE: Second release of credits for Waln Creek Stream Mitigation Bank

Tobias Read

State Treasurer

Dear Patricia;

Thank you for your efforts to continue the success of the stream mitigation project. Our annual inspections and your recent monitoring reports confirm that the vegetation has established as expected and that the re-aligned channel is stable and performing the expected functions. We agree with the recommendations of the 2017 monitoring report that additional trees receive beaver protection cages, as tall woody vegetation is an important component of the credit accounting protocol.

According to the credit release schedule in the Waln Creek Mitigation Plan Agreement, the project now qualifies for another credit release. The Department hereby releases 3949 instream and 884 riparian credits, for a total of **4833** credits under the Salem stream mitigation protocol. This represents **45%** of the expected credits and brings the cumulative releases to 8055, or 75% of the expected total for this site.

These newly released credits are hereby available for city use or for purchase by parties within your service area who have submitted Removal-Fill permit applications to perform regulated activities in waters of the State of Oregon, or to resolve enforcement cases. Please note you will also need to secure the credit release from the Corps before any of these credits can be sold as compensatory mitigation for a Clean Water Act 404 permit.

Credits may be used or sold only when: 1) a permit application has been submitted wherein the applicant requests approval to use/purchase stream credits instead of conducting their own mitigation, 2) the DSL Resource Coordinator and the Corps Permit Evaluators concur that the stream functions and values proposed to be impacted by the project requiring the permit will be adequately compensated for by the mitigation bank, and 3) if the sale is for resolution of an enforcement case, the agency staff involved have agreed to the manner of resolution. Please note that the number of debits must be determined using the Salem stream mitigation calculation protocol included in the approved Bank Instrument.

For each credit use or sale, please send a copy of the receipt to each agency's permit coordinators, to Tom Taylor at the Corps, and to me. The receipt should identify the date, applicant name, project name, DSL and/or Corps permit file numbers, and the number of instream and riparian credits used or sold. If you have any questions, please contact me at 503-986-5238.

Sincerely,

A handwritten signature in blue ink that reads "Dana Field". The signature is fluid and cursive, with a large initial "D" and a long horizontal stroke at the end.

Dana Field  
Mitigation Specialist

CC: Tom Taylor, Corps of Engineers  
IRT  
Fred Small, consultant  
Mike DeBlasi, DSL



**DEPARTMENT OF THE ARMY**  
**CORPS OF ENGINEERS, PORTLAND DISTRICT**  
P.O. BOX 2946  
PORTLAND, OREGON 97208-2946

January 23, 2019

Regulatory Branch  
Corps No.: NWP-2011-100

Ms. Patricia Farrell  
Planning & Development  
City of Salem Public Works Department  
555 Liberty Street SE  
Salem, Oregon 97301-3503  
pfarrell@cityofsalem.net

Dear Ms. Farrell:

The U.S. Army Corps of Engineers (Corps) has reviewed your Mitigation Monitoring Reports for Year 4 (2016) and Year 5 (2017) dated January 2017 and December 2017, and an e-mail dated August 23, 2018, that conveys recent field observations from Ms. Dana Field (Oregon Department of State Lands), for the combined Waln Creek Enhancement and Battle Creek Culvert Removal Mitigation Project (Project). As provided in the credit release schedule of the Project mitigation plan<sup>1</sup>, the City of Salem is eligible for a credit release.

To date the Corps has released 30 percent of the total 8,776 instream credits and 1,965 riparian credits, which are projected to be available at the Project site. The current release is based on the Waln and Battle creeks Project site (i.e., channel and riparian community) generally demonstrating stability and the City sufficiently meeting all performance standards for Years 4 and 5.

The Corps is releasing 3,949 instream credits and 884 riparian credits, or 45 percent of the credits projected to be available at the Project site. This constitutes Release 2 as specified in the Project mitigation plan. A cumulative total of 8,055 (75%) of the expected total credits for this site has now been released.

You are reminded to include with each submitted credit sale receipt the information listed in Exhibit G - Sample Credit Receipt of the Stream Mitigation Program, Umbrella Mitigation Bank Instrument. Please submit the receipts electronically to Mr. Tom Taylor

---

<sup>1</sup> City of Salem Stream Mitigation Program Umbrella Mitigation Bank Instrument (NWP-2010-591), Appendix A, Waln Creek Enhancement and Battle Creek Culvert Removal Project Mitigation Plan, Section IX, dated May 8, 2014

using the e-mail information below. In the meantime we look forward to receiving your Year 6 monitoring report, which is due on January 31, 2019.

Thank you for your continued efforts to create a successful mitigation bank. If you have any questions, please contact Mr. Taylor at the letterhead address, by telephone, at (503) 808-4386 or via e-mail at: [thomas.j.taylor@usace.army.mil](mailto:thomas.j.taylor@usace.army.mil).

Sincerely,

William D. Abadie  
Chief, Regulatory Branch

cc:

Oregon Department of State Lands ([dana.field@state.or.us](mailto:dana.field@state.or.us))  
Oregon Department of Environmental Quality ([sara.christensen@state.or.us](mailto:sara.christensen@state.or.us))  
U.S. Fish and Wildlife Service ([shauna\\_everett@fws.gov](mailto:shauna_everett@fws.gov))  
U.S. Environmental Protection Agency ([Nadeau.tracie@epa.gov](mailto:Nadeau.tracie@epa.gov))  
Oregon Department of Fish and Wildlife ([joy.r.vaughan@state.or.us](mailto:joy.r.vaughan@state.or.us))  
National Marine Fisheries Service ([marc.liverman@noaa.gov](mailto:marc.liverman@noaa.gov))



# Oregon

Kate Brown, Governor

## Department of State Lands

775 Summer Street NE, Suite 100  
Salem, OR 97301-1279  
(503) 986-5200  
FAX (503) 378-4844  
[www.oregon.gov/dsl](http://www.oregon.gov/dsl)

November 19, 2021

Jennifer Mongolo and Patricia Farrell  
City of Salem  
Public Works Department, rm 325  
555 Liberty St  
Salem, OR 97301-3513

### State Land Board

Kate Brown  
Governor

Shemia Fagan  
Secretary of State

RE: Final release of credits for Waln Creek Stream Mitigation Bank

Tobias Read  
State Treasurer

Dear Jennifer and Patricia;

The Department is pleased to approve the Long Term Management Plan dated April 2021 on the cover, finalized May 17, and reviewed at the May 20, 2021 IRT meeting. I apologize for my delay in responding to your submittal; it does not reflect any concerns with the quality of the long-term plan.

The project now qualifies for the final release of credits. The final 25% of credits includes 2194 instream credits and 492 riparian credits for a total of 2,286. This brings the total credits released for sale or transfer to 100%, consisting of 8776 instream and 1965 riparian credits, for a total of 10,741. Please note you will also need to secure the credit release from the Corps before any of these credits can be sold as compensatory mitigation for Corps permits.

We appreciate that the City voluntarily pioneered a unique method of quantifying stream impacts and mitigation measures. We are also aware that there has only been a single use of mitigation credits from the bank to date, possibly due to difficulties determining the necessary number of debits using the Salem stream mitigation calculation protocol in the Bank Instrument, or possibly due to the small service area. We are open to future conversion of the resource gains at the Waln Creek site to the new stream credit accounting protocol that is under development by DSL, the Corps, and EPA. Once this protocol becomes available, you may seek an amendment of the MBI to include the accounting and perhaps expand the service area.

Since construction in 2012 the site has met performance standards, vegetation has established as expected, and the re-aligned channel is stable and performing the expected functions. As long as credits are available for sale or transfer, we will need to confirm that resource gains are still meeting expectations. This may be accomplished with photo monitoring and/or periodic walk-throughs by agency staff. If there is evidence of deterioration of the restored functions and values, DSL may request repair and further monitoring before credit sales. We encourage ongoing protection of trees from beaver damage to retain shade over the stream.

For each credit use or sale, please email a copy of the receipt to each agency's permit coordinators and to the mitigation bank leads, Thomas Sentner for the Corps and Grey Wolf for DSL. Each receipt should identify the date, applicant name, project name, DSL and/or Corps

permit file numbers, and the number of instream and riparian credits used or sold. If you have any questions, please contact Grey Wolf at 503-986-5321. Thank you for your efforts to maintain the success of the stream mitigation project.

Sincerely,

A handwritten signature in blue ink that reads "Dana Field". The signature is written in a cursive style with a large, looped "D" and a long, sweeping underline.

Dana Field  
Mitigation Specialist

EC: Thomas Sentner, Andrea Seager, Corps of Engineers  
Grey Wolf, Carrie Landrum, DSL  
IRT



**DEPARTMENT OF THE ARMY**  
**U.S. ARMY CORPS OF ENGINEERS, PORTLAND DISTRICT**  
**P.O. BOX 2946**  
**PORTLAND, OR 97208-2946**

November 26, 2021

Regulatory Branch  
Corps No. NWP-2011-100

Jennifer Mongolo and Patricia Farrell  
City of Salem  
Public Works Department  
555 Liberty Street Southeast, Room 325  
Salem, Oregon 97301-3513

Dear Jennifer Mongolo and Patricia Farrell:

The U.S. Army Corps of Engineers (Corps) received your April 20, 2021 letter requesting the final credit release for the Waln Creek Enhancement and Battle Creek Culvert Removal Project (Project). You have requested the Corps release up to 100% credit related to the credit release schedule located in the Salem Umbrella Mitigation Bank Instrument, Appendix A, entitled "Waln Creek Enhancement and Battle Creek Culvert Removal Project Mitigation Plan." (Plan) To date, the Corps has released a total of 6,582 instream credits and 1,473 riparian credits for a total of 8,055 credits, representing seventy-five percent (75%) of the total credits for the Project.

The long-term management plan (LTMP) has been reviewed by the IRT and no concerns were raised. The Corps approves the LTMP. Additionally, all performance standards continue to be met as of the year 2020 report.

Based on expectations set in the Plan, including Section IX. Credit Determination and Credit Release Schedule, the final 2,194 instream credits and 492 riparian credits for a total of 2,286 (25%) credits will be released based on approval of the LTMP. This amount reflects the 100% release, consisting of 8,776 instream and 1,965 riparian credits, for a total of 10,741 credits.

Please continue to provide annual documentation of site performance until all credits have been sold. When credits are sold, please ensure you provide a copy of the sales receipt to the Corps. You may mail them to the above address, to the attention of Thomas Sentner or you may e-mail them to him at the e-mail below.



If you have any questions regarding this credit release, please contact Thomas Sentner by phone at (503) 808-4959 or e-mail: [Thomas.f.sentner@usace.army.mil](mailto:Thomas.f.sentner@usace.army.mil).

Sincerely,

A handwritten signature in blue ink, appearing to read 'W. Abadie', is positioned above the typed name.

For: William D. Abadie  
Chief, Regulatory Branch

Enclosure

cc:

Oregon Department of State Lands (Grey Wolf, [Grey.Wolf@dsl.state.or.us](mailto:Grey.Wolf@dsl.state.or.us))  
Oregon Department of Environmental Quality (Haley Teach, [haley.teach@state.or.us](mailto:haley.teach@state.or.us))  
Oregon Department of Fish and Wildlife (Joy Vaughan, [joy.r.vaughan@state.or.us](mailto:joy.r.vaughan@state.or.us))  
U.S. Environmental Protection Agency (Tracie Nadeau, [nadeau.tracie@epa.gov](mailto:nadeau.tracie@epa.gov))  
U.S. Fish and Wildlife Service (Shauna Everett, [shauna\\_everett@fws.gov](mailto:shauna_everett@fws.gov))  
National Marine Fisheries Service (Kate Wells, [Kathleen.Wells@noaa.gov](mailto:Kathleen.Wells@noaa.gov))

ATTACHMENT 3  
**Credit Receipt**  
 Salem Stream Mitigation Bank

*The bank sponsor will complete a credit receipt using the template below for every sale or transfer of credits, and immediately provide a copy of each receipt to both co-chair agencies, regardless of jurisdiction.*

Date: July 18, 2016

Number of instream  
 credits sold:0

Number of riparian  
 credits sold:58

Permittee Name: Jim Bonnet/City of Salem

Project Name: Summer Street Culvert Replacement

Corps Permit Number: NWP 2013-286-1

DSL Permit Number: 58725-GP

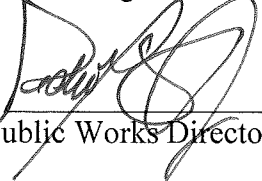
Other Project Identifier: Summer Street at Clark Creek (T 7S, R 3W, Section 34)

Impact HUC: 170900070301

Please provide impact area and best professional judgment function and value rating for each impact site in the following table. Provide a written discussion of rationale for function and value ratings using direct measurement or observation of indicators.(Note: see Joint Permit Application for discussion of functions and values rating).

Impact Site	Impact Area	Functions and Values Ratings			
		Hydrologic	Geomorphic	Biological	Chemical and Nutrient
Clark Creek	0.015 acre	Modified, perennial	Low-moderate	Moderate	Low

By selling credits to the permittee, CITY OF SALEM, hereby assumes responsibility for fulfilling the mitigation obligation of the Permit(s) listed above.

Sponsor signature:   
 Peter Fernandez, Public Works Director, City of Salem

ATTACHMENT 4: 2016 SUMMARY TABLE FOR SUMMER ST CULVERT REPLACEMENT

**CITY OF SALEM STREAM MITIGATION PROCESS (Ver. 1.0) - Page 5 - PROJECT SUMMARY AND SCORES**

Project Name:	Summer Street Culvert at Clark Creek	Date:	07/01/16
Impact Stream Name:	Clark Creek	Reach #:	1
Mitigation Stream Name:	Clark Creek	Reach #:	1
Location:	2925 & 2960 Summer Street SE (north of Vista Ave SE)	Evaluator(s):	JVS/SE

**Table 5A: Project Summary**

Instream Impact Duration:	Permanent	In-Kind:	Category 1	Location:	Off-site
---------------------------	-----------	----------	------------	-----------	----------

Type of Instream Impact:	Span Structure	Utility Crossings	Armoring	Impoundment	Morphologic	Culvert/Pipe	
Instream Impact Length:			4			20	26.6

Riparian Impact:	Low	Left Herb/Low Shrub	182	Left Tree/Tall Shrub		Right Herb/Low Shrub	18	Right Tree/Tall Shrub	
	Medium	Left Herb/Low Shrub		Left Tree/Tall Shrub		Right Herb/Low Shrub		Right Tree/Tall Shrub	
	High	Left Herb/Low Shrub		Left Tree/Tall Shrub		Right Herb/Low Shrub		Right Tree/Tall Shrub	

**INSTREAM NET IMPROVEMENT FACTORS - ABOVE BANKFULL STAGE**

Laying back bank:	Right Side	40	Left Side	41
-------------------	------------	----	-----------	----

**INSTREAM NET IMPROVEMENT FACTORS - AT OR BELOW BANKFULL STAGE**

Bioengineering:	Left Side		Right Side		Changing straightened channel to an appropriate conformation:		Adding habitat structures		
Removal of bank armoring:	Right Side		Left Side		Replacing undersized culvert with fish-passable culvert or bridge:	41.5	Removing dams or adding fish ladders		
Removing man-made debris below ordinary high water:					Increasing culvert size or adding culverts to increase floodplain connectivity:				
Bench Creation:	Left Side		Right Side		Laying back bank:	Right Side	40	Left Side	20

Riparian area to be enhanced:	Low	Left Herb/Low Shrubs	228	Left Tree/Tall Shrub		Right Herb/Low Shrub	290	Right Tree/Tall Shrub	
	Medium	Left Herb/Low Shrubs		Left Tree/Tall Shrub		Right Herb/Low Shrub		Right Tree/Tall Shrub	

**Table 5B: Summary of Scores**

Total Instream Debits (from Table 2):	H	190
Total Riparian Debits (from Table 2):	I+J	56
Total Debits (from Table 2):	K	247

Total Instream Credits (from Table 3A):	JJ	166
Total Riparian Credits (from Table 4B):	PP	23
Total Credits: FF+SS	QQ	189

Mitigation balance: a negative number indicates how much additional mitigation credit is needed; a positive number indicates the amount of surplus mitigation credit		58
----------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	----

At least 25% of the mitigation must be instream and below the bankfull elevation. Required credits are:		47.60
Instream mitigation (below bankfull elevation) requirement:	Exceeded by:	71
	Insufficient by:	