



Grant All-Detail Report Projects and Practices 2015

Grant Title - Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1

Grant ID - C15-1992

Organization - Carnelian-Marine-St. Croix WD

Original Awarded Amount	\$98,200.00	Grant Execution Date	4/10/2015
Required Match Amount	\$24,550.00	Original Grant End Date	12/31/2018
Required Match %	25%	Grant Day To Day Contact	Jim Shaver
Current Awarded Amount	\$98,200.00	Current End Date	12/31/2018

Budget Summary

	Budgeted	Spent	Balance Remaining*
Total Grant Amount	\$98,200.00	\$98,282.54	\$-82.54
Total Match Amount	\$125,748.03	\$92,402.35	\$33,345.68
Total Other Funds	\$0.00	\$0.00	\$0.00
Total	\$223,948.03	\$190,684.89	\$33,263.14

**Grant balance remaining is the difference between the Awarded Amount and the Spent Amount. Other values compare budgeted and spent amounts.*

Budget Details

Activity Name	Activity Category	Source Type	Source Description	Budgeted	Spent	Last Transaction Date	Matching Fund
Administration	Administration /Coordination	Local Fund	CMSCWD	\$2,000.00	\$3,662.50	12/31/2017	Y
Biofiltration Construction	Urban Stormwater Management Practices	Current State Grant	Marine on St. Croix Innovative Stormwater Management Impleme..	\$3,772.00	\$3,772.00	12/31/2017	N

Activity Name	Activity Category	Source Type	Source Description	Budgeted	Spent	Last Transaction Date	Matching Fund
Biofiltration Construction	Urban Stormwater Management Practices	Local Fund	CMSCWD	\$0.00			Y
Community Outreach/Education	Education/Information	Local Fund	CMSCWD	\$3,000.00	\$2,923.50	8/26/2015	Y
Engineering	Technical/Engineering Assistance	Current State Grant	Marine on St. Croix Innovative Stormwater Management Impleme..	\$16,000.00	\$16,033.79	7/31/2016	N
Engineering	Technical/Engineering Assistance	Local Fund	CMSCWD	\$19,282.03	\$18,550.23	6/30/2017	Y
Iron Enhanced Sand Filter Construction	Urban Stormwater Management Practices	Current State Grant	Marine on St. Croix Innovative Stormwater Management Impleme..	\$33,428.00	\$33,428.00	12/31/2017	N
Iron Enhanced Sand Filter Construction	Urban Stormwater Management Practices	Local Fund	CMSCWD	\$45,967.00	\$45,665.00	12/18/2018	Y
Project Development	Project Development	Local Fund	CMSCWD	\$550.00	\$431.50	6/8/2015	Y
Project Development	Project Development	Local Fund	Marine on St. Croix	\$12,500.00	\$12,101.25	8/31/2016	Y
Rain Garden Construction	Urban Stormwater Management Practices	Current State Grant	Marine on St. Croix Innovative Stormwater Management Impleme..	\$45,000.00	\$45,048.75	11/1/2018	N
Rain Garden Construction	Urban Stormwater Management Practices	Local Fund	CMSCWD	\$42,449.00	\$9,068.37	7/31/2018	Y

Activity Details Summary

Activity Details	Total Action Count	Total Activity Mapped	Proposed Size / Unit	Actual Size / Unit
712M - Bioretention Basin	7		7 COUNT	7 COUNT
712M - Bioretention Basin	8		11 COUNT	8 COUNT
712M - Bioretention Basin	1		1 COUNT	1 COUNT

Proposed Activity Indicators

Activity Name	Indicator Name	Value & Units	Waterbody	Calculation Tool	Comments
Rain Garden Construction	VOLUME REDUCED (ACRE-FEET/YEAR)	1.52 ACRE-FEET/YR	St. Croix River	WINSLAMM	
Rain Garden Construction	VOLUME REDUCED (ACRE-FEET/YEAR)	100 ACRE-FEET/YR	St. Croix River	Other	
Iron Enhanced Sand Filters	VOLUME REDUCED (ACRE-FEET/YEAR)	.36 ACRE-FEET/YR	St. Croix River	WINSLAMM	
Biofiltration Swales	VOLUME REDUCED (ACRE-FEET/YEAR)	.3 ACRE-FEET/YR	St. Croix River	BWSR CALC (SHEET AND RILL)	
Rain Garden Construction	PHOSPHORUS (EST. REDUCTION)	8.63 LBS/YR	St. Croix River	WINSLAMM	
Iron Enhanced Sand Filters	PHOSPHORUS (EST. REDUCTION)	3.18 LBS/YR	St. Croix River	BWSR CALC (SHEET AND RILL)	
Biofiltration Swales	PHOSPHORUS (EST. REDUCTION)	1.69 LBS/YR	St. Croix River	BWSR CALC (SHEET AND RILL)	
Rain Garden Construction	SEDIMENT (TSS)	2.54 TONS/YR	St. Croix River	WINSLAMM	
Iron Enhanced Sand Filters	SEDIMENT (TSS)	.56 TONS/YR	St. Croix River	BWSR CALC (SHEET AND RILL)	
Biofiltration Swales	SEDIMENT (TSS)	.42 TONS/YR	St. Croix River	BWSR CALC (SHEET AND RILL)	

Final Indicators Summary

Indicator Name	Total Value	Unit
SEDIMENT (TSS)	3.70	TONS/YR

VOLUME REDUCED (ACRE-FEET/YEAR)	2.29	ACRE-FEET/YR
PHOSPHORUS (EST. REDUCTION)	13.30	LBS/YR

Grant Activity

Grant Activity - Administration		
Description	<p>CMSCWD Administrator Jim Shaver (Manager) will be over-all project manager and will coordinate and be responsible for:</p> <ol style="list-style-type: none"> 1) Interim Reporting 2) Record Keeping 3) Final Reporting 4) Scheduling 5) Communication and Coordination 6) Assurances <p>CMSCWD will use MMC communications consultants for outreach and web updates and press releases to communicate project progress to the wider community.</p> <p>Shaver has an MBA degree from the University of St. Thomas and has been involved in water management administering grants in the area in both non-profit and local government positions for 17 years. He has been CMSCWD Administrator since 2008.</p>	
Category	ADMINISTRATION/COORDINATION	
Start Date	13-Apr-15	End Date
Has Rates and Hours?	No	
Actual Results	<p>Activities for 2016 included updated grant reporting and preparation of the District Website for grants. The Administrator 1) attended most individual design meetings with property owners and raingarden designer. 2) Worked with District Attorney to update assurances form and property owners to answer questions and insure that all forms were received prior to final design. 3) Attended 3 Marine on St. Croix Stormwater Committee meetings to update the City on the progress of the project.</p> <p>2017 Activities:</p> <p>Project bids requested in 2016 came in high and CMSCWD Board directed the Administrator to explore other options. Partnering with Washington County as part of the work on their local road project seemed to be the best alternative to lower project cost as a small part of a much larger project. A cost share and maintenance agreement (see attachments) were prepared with the County and bids were received. Bids were still high but both CMSCWD Board and the City of Marine agreed to cost increases as the best option to maintain project acceptance and momentum with the local residents. Construction began in June with work on the biofiltration basin progressing with the County road work. However, the work on the IESF did not begin until the end of September with the final landscaping and planting delayed to the spring of 2018 with the raingarden portion of the project.</p> <p>The delays required extensive communication with residents who in the end were understanding of the decision to delay</p>	

raingarden construction until 2018.
 6/12/2018- Construction of 7 rain gardens, a biofiltration basin and IESF are substantially complete. Residents are very satisfied at this point with only minor punch list items to go.

Grant Activity - Biofiltration Construction

<p>Description</p>	<p>Biofiltration Construction - 7 biofiltration basins will be constructed along the CSAH 4 road corridor within Washington County ROW. Construction/Observation will be provided by the District Engineer- EOR, Inc. with assistance from the District Administrator as needed. Construction is not anticipated until year 2 of the grant.</p> <p>These 7 biofiltration basins are modeled to remove 4.1 lbs. of P per year and 1.2 tons of sediment per year above and beyond what is required by CMSCWD District Rules. The features are directly tributary to the Mill Stream.</p>		
<p>Category</p>	<p>URBAN STORMWATER MANAGEMENT PRACTICES</p>		
<p>Start Date</p>	<p>22-May-17</p>	<p>End Date</p>	<p>31-Jul-18</p>
<p>Has Rates and Hours?</p>	<p>No</p>		
<p>Actual Results</p>	<p>2017 Results: Some redesign of the biofiltration basin resulted in an infiltration area receiving direct road runoff from several curb inlets. Construction was substantially completed by mid-October as part of the Washington County CSAH 4 reconstruction project . 6/12/2018: Questions on the operation of this basin is a punch list item for design engineer, SEH, and contractor 12/31/2018: After several meetings in fall of 2018, Washington County has agreed to reseed much of the project work in the spring of 2019. Ongoing maintenance will be provided by the County. 65% of the nutrient reductions from these practices exceed permitting requirements and total 4.1 lbs of P per year, and 1.2 tns TSS per year. Total volume reduction exceeding permitting requirements for the entire project are 100,000 CF/yr. Project complete.</p>		

Activity Action - County Activities Exceeding Permitting			
Practice	712M - Bioretention Basin	Count of Activities	8
Description	Combination of infiltration basins, bio-retention basins and IESF added in lieu of 11 raingardens		
Proposed Size / Units	11.00 COUNT	Lifespan	25 Years
Actual Size/Units	8.00 COUNT	Installed Date	31-Jul-18
Mapped Activities	No		

Final Indicator for County Activities Exceeding Permitting			
Indicator Name	PHOSPHORUS (EST. REDUCTION)	Value	4.1
Indicator Subcategory/Units	WATER POLLUTION (REDUCTION ESTIMATES) LBS/YR	Calculation Tool	Unknown
Waterbody	Mill Stream		

Final Indicator for County Activities Exceeding Permitting			
Indicator Name	VOLUME REDUCED (ACRE-FEET/YEAR)	Value	2.29
Indicator Subcategory/Units	STORMWATER MANAGEMENT ACRE-FEET/YR	Calculation Tool	Unknown
Waterbody	Old Mill Stream		

Final Indicator for County Activities Exceeding Permitting			
Indicator Name	SEDIMENT (TSS)	Value	1.2
Indicator Subcategory/Units	WATER POLLUTION (REDUCTION ESTIMATES) TONS/YR	Calculation Tool	Unknown
Waterbody	Old Mill Stream		

Grant Activity - Community Outreach/Education

Description	Significant outreach and education is anticipated with this project starting with a general community meeting in the Spring of 2015. Further homeowner outreach will be conducted on a one-to-one basis. EMWREP and the District's communication consultant MMC will work with community representatives to support project acceptance.		
Category	EDUCATION/INFORMATION		
Start Date	13-Apr-15	End Date	
Has Rates and Hours?	No		
Actual Results	<p>2015 Activity Results:</p> <ol style="list-style-type: none"> 1. Emwrep conducted Rain garden open house in Marine with CMSCWD Administrator and EOR engineer 2. Grant Partners Meeting #1- planning meeting with Marine Storm Water committee, EOR Engineer and CMSCWD Admin. Grant Partners meeting #2 planning kick-off meeting 3. Public Grant Kick Off meeting to gauge individual property owners interest. Sign up for individual site visits 4. Conducted 24 individual site visits <p>2016 Activity Results:</p> <ol style="list-style-type: none"> 1. 3 Meetings with head of the Marine on St. Croix Stormwater Committee for progress updates <p>2017 Activity Results:</p> <p>none in 2017</p> <p>6/12/2018: Many individual contacts with residents regarding design, construction, and planting of raingardens and minor design adjustment related to IESF</p>		

Grant Activity - Engineering

<p>Description</p>	<p>Engineering- Engineering services will be contracted with District and City Engineers, EOR and Bolton/Menck respectively. Contract will include feasibility, preliminary design, final design and specifications, and bidding. Urban Stormwater Management BMPs will be designed to meet or exceed the design criteria identified in the Minnesota Stormwater Manual and will include current media performance specifications. Media test results will be submitted by contractor for engineering approval prior to installation. The District Administrator and District Engineer will continue to coordinate with the County's Planning Committee for reconstruction of County Road 4 through the planning area to avoid conflict with the grant projects and to integrate grant project goals where possible.</p>		
<p>Category</p>	<p>TECHNICAL/ENGINEERING ASSISTANCE</p>		
<p>Start Date</p>		<p>End Date</p>	
<p>Has Rates and Hours?</p>	<p>No</p>		
<p>Actual Results</p>	<p>District Engineer met with 7 individual property owners to plan raingarden design and reviewed with the owners the final design prior to final plans. Completed survey work and final utility locates and 40% completion plans for raingardens. Met and reviewed final locations with City Maintenance Engineers. Prepared 100% plans and bid documents for raingardens. Prepared topographical and utility locates for the Iron Enhanced Sand Filter at Pine and Robert Street. Prepared plan set for review by City engineer and 100 % plans and specs for bidding. Prepared solicitation for bids and tabulated bids on combined raingarden and IESF plans. Reviewed 7 bids and presented to Board with low bid over budget by 20%. Administrator and Engineer continued to strategize regarding negotiated bids or to include work in Washington County's County Road 4 project. Working to include in bid package after preliminary go-ahead from County.</p> <p>District Engineer and Administrator continued attending monthly Project Management Team meetings for the County's road project to coordinate bio-filtration practice as part of County project. Prepared concept plans and consulted with project engineer on biofiltration basin in County Road 4 bid package. Explored other opportunities for coordination of work such as combining projects mentioned above and additional water quality practices that were proposed as a 2016 BWSR grant application.</p> <p>2017 Activity Results:</p> <ol style="list-style-type: none"> 1. Coordinated and revised bid documents for inclusion into Washington County project bid package 2. Assist in evaluating options to include all or some practices into Washington County project when prices came in high. 		

Grant Activity - Iron Enhanced Sand Filter Construction

Description	Iron Enhanced Sand Filter Construction - Two IESFs will be built; one at the corner of Oak Street and Broadway (Cty Rd. 4) and one at the corner of Pine Street and Robert Street. Construction/Observation will be provided by the District Engineer- EOR, Inc. , with assistance from the District Administrator as needed. Construction is not anticipated until year 2 of the grant.		
	These IESFs are modeled to removed 5.0 lbs. of P per year and 0.9 tons of sediment per year above that required by CMSCWD Rules. These features are directly tributary to Mill Stream.		
Category	URBAN STORMWATER MANAGEMENT PRACTICES		
Start Date	18-Sep-17	End Date	28-Sep-18
Has Rates and Hours?	No		
Actual Results	2017 Results: 1. Start and substantial completion of practice with planting and landscaping scheduled for spring of 2018 2. Emmons and Olivier provided construction supervisions and inspection 6/12/2018: Practice complete with punchlist leak still remaining 12/31/2018: Agri-drain re-installed to solve piping issue noted above in September 2018 as part of punchlist items along with minor regrading. Additional costs to be split between County and CMSCWD. Areas to be reseeded in spring of 2019 as a County punchlist item. Project is complete.		

Activity Action - Pine/Robert Iron Enhanced Sand Filter			
Practice	712M - Bioretention Basin	Count of Activities	1
Description	1200 sf iron enhanced sand filter		
Proposed Size / Units	1.00 COUNT	Lifespan	30 Years
Actual Size/Units	1.00 COUNT	Installed Date	23-Oct-17
Mapped Activities	No		

Final Indicator for Pine/Robert Iron Enhanced Sand Filter			
Indicator Name	SEDIMENT (TSS)	Value	1
Indicator Subcategory/Units	WATER POLLUTION (REDUCTION ESTIMATES) TONS/YR	Calculation Tool	Unknown
Waterbody	Old Mill Stream		
Final Indicator for Pine/Robert Iron Enhanced Sand Filter			
Indicator Name	PHOSPHORUS (EST. REDUCTION)	Value	5
Indicator Subcategory/Units	WATER POLLUTION (REDUCTION ESTIMATES) LBS/YR	Calculation Tool	Unknown
Waterbody	Old Mill Stream		

Grant Activity - Project Development

Description	<p>CMSCWD will contract with the project partner engineering firms, Emmons & Olivier and Bolton/Menck, and work with District and Marine on St. Croix Legal staff for surveying, easement preparation, and feasibility. A significant amount of effort is anticipated for current and future planning of both county and local road improvements and utilities. The District will enter into a formal agreement with the City of Marine on St. Croix to assure that the projects are installed as designed and will be operated and maintained throughout their activity lifespans. The agreement will be consistent with BWSR guidance and address easement acquisition, access, ownership, operations and maintenance responsibilities throughout the project lifespan. Refer to the attached resolution of support from the City of Marine on St. Croix for additional information. In the event that portions of the BMP projects need to be located on County Road ROW a similar agreement will be made with Washington County. The City of Marine on St. Croix and the District will obtain maintenance and operations agreements from property owners for all projects on private property which define the owners and the City's responsibilities. These agreements will be submitted to BWSR for approval and in place prior to final design of projects.</p>		
Category	PROJECT DEVELOPMENT		
Start Date	13-Apr-15	End Date	
Has Rates and Hours?	No		
Actual Results	<p>2015 raingarden activities:</p> <ol style="list-style-type: none"> 1. EOR and CMSCWD staff met with 24 individual property owners to gauge suitability of sites. 2. EOR staff visited sites to flag utilities and prepare concept plans 3. EOR staff prepared load reduction calculations and preliminary prioritization 4. Presented prioritization to City and CMSCWD representatives for additional prioritization. 5. Prepared and presented prioritization to landowners for commitment to proceed. <p>2015 IESF and biofiltration activities:</p> <ol style="list-style-type: none"> 1. EOR and CMSCWD staff attended Washington County CSAH 4 project management team meetings to coordinate activities. 2. Utility locates for IESF site 2. Survey of IESF site <p>2016 Activities Include:</p> <ol style="list-style-type: none"> 1.) District Engineer and Administrator met with 7 individual property owners to plan raingarden design and reviewed with the owners the final design prior to final plans. Prepared concept plans and consulted with project engineer on biofiltration basin in County Road 4 bid package. <p>2017 Activity: None</p>		

Grant Activity - Rain Garden Construction

Description	<p>Construction labor and materials for 6 rain garden projects will be bid as part of the Washington County CSAH 4 Street Reconstruction Project. These projects will be installed on Pine Street, 6th Street, Rose Street and Wilke Street in Marine on St. Croix. Construction/Observation will be provided by the District Engineer- EOR, Inc. with assistance from the District Administrator as needed. Construction is not anticipated until year 2 of the grant.</p> <p>These facilities are modeled to remove 5.2 lbs of P per year and 1.5 tons of sediment per year. One-third of these reductions are directly tributary to the St. Croix River, the other 2/3 is tributary to Mill Stream.</p>		
Category	URBAN STORMWATER MANAGEMENT PRACTICES		
Start Date	21-May-18	End Date	12-Jun-18
Has Rates and Hours?	No		
Actual Results	<p>2017 Results: construction delayed to 2018</p> <p>6/12/2018: All raingarden construction complete. Residents have been informed about care and maintenance of raingardens.</p> <p>12/31/2018: Project complete</p>		

Activity Action - Marine rain gardens			
Practice	712M - Bioretention Basin	Count of Activities	7
Description	7 raingardens installed in various locations throughout the city of Marine, 5 in the Old Mill Stream subwatershed, 2 in direct drainage to the St. Croix River		
Proposed Size / Units	7.00 COUNT	Lifespan	10 Years
Actual Size/Units	7.00 COUNT	Installed Date	29-Jun-18
Mapped Activities	No		

Final Indicator for Marine rain gardens

Indicator Name	SEDIMENT (TSS)	Value	1.5
Indicator Subcategory/Units	WATER POLLUTION (REDUCTION ESTIMATES) TONS/YR	Calculation Tool	Unknown
Waterbody	Old Mill Stream		

Final Indicator for Marine rain gardens

Indicator Name	PHOSPHORUS (EST. REDUCTION)	Value	4.2
Indicator Subcategory/Units	WATER POLLUTION (REDUCTION ESTIMATES) LBS/YR	Calculation Tool	Unknown
Waterbody	Old Mill Stream		

Grant Attachments

Document Name	Document Type	Description
06-05-2017_WorkPlan_Revision-Req	Journal	Journal Dated - 06/05/2017
2015 Annual Report- Preliminary Site Map 2015	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
2015 Annual Report- Prioritization Spreadsheet	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
2015 Competitive Grant	Grant Agreement	2015 Competitive Grant - Carnelian-Marine-St. Croix WD
2015 Competitive Grant executed	Grant Agreement	2015 Competitive Grant - Carnelian-Marine-St. Croix WD
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 02/06/2018
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 01/31/2019
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 05/11/2018
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 06/12/2018
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 06/14/2018
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 02/01/2017
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 08/29/2016
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 05/02/2016
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 01/18/2016
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 06/14/2018
All Details Report	Workflow Generated	Workflow Generated - All Details Report - 06/14/2018
Anderson Maintenance Agreement	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Application	Workflow Generated	Workflow Generated - Application - 09/26/2014
BC-comments_04-07-2015	Journal	Journal Dated - 04/07/2015
C15-1992 Final Financial Report	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Financial Report Request for Payment	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
IESF As built Drawings	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1

Document Name	Document Type	Description
Iron Enhanced Sand Filter Plan Set	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Kirn Maintenance Agreement	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Lapos Maintenance Agreement	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
MARINE ON St. Croix Resolution	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Marine Raingarden Prioritization	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Marine on St. Croix 6th Street	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Marine-CMSCWD MOU	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Mowery Maintenance Agreement	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Newcomb Maintenance Agreement	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Raingarden Plan Set	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Schlenker Maintenance Agreement	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Simpson Maintenance Agreement	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1
Work Plan	Workflow Generated	Workflow Generated - Work Plan - 01/28/2015
Work Plan	Workflow Generated	Workflow Generated - Work Plan - 03/27/2015
Work Plan	Workflow Generated	Workflow Generated - Work Plan - 06/05/2017
Work Plan	Workflow Generated	Workflow Generated - Work Plan - 07/25/2017
Work Plan	Workflow Generated	Workflow Generated - Work Plan - 04/07/2015
grantmap_12848_2014-09-26_02-19-10-PM.jpg	Grant	Marine on St. Croix Innovative Stormwater Management Implementation – Phase 1

