

City of Ladue

PROJECT IDENTIFICATION INFORMATION SHEET

Storm Water Management Program
 Phase II: Master Plan
 Ladue, Saint Louis County, Missouri

PROJECT NAME: Pebble Creek at Warson Road Bank Stabilization
LOCATION(S): Pebble Creek B
PROJECT No: 1625.02

STATUS:	
Easements Required:	5
Properties Benefited:	5
Properties Impacted:	5
Project Benefit Points:	364
Property Benefit Multiplier: X	1.00
Priority WGT Multiplier: X	1.15
Adj Prjct Benefit Points:	418.60
EOPC, thousand:	\$500.82
Cost Sharing, MSD:	
Cost Sharing, Other:	
Adj EOPC, thousand:	\$500.82
Benefit to Cost Ratio:	0.84

- Project Source:**
- Citizen Complaint
 - Ladue
 - MSD
 - Other: Geomorphic Assessment
- Coordination Required:**
- MSD
 - Corps of Engineers
 - MO DNR
 - MODOT
 - County Highways
 - City Streets
 - City Parks
 - County Parks
 - Municipality: City of Ladue
 - Railroad:
 - Subivision Trustees
 - Other: Local Utilities

- Problem Categories:**
- | <input checked="" type="checkbox"/> WGT | Description |
|--|---|
| <input checked="" type="checkbox"/> 1.15 | Habitable structural flooding & erosion from overland flow (non-floodplain) |
| <input type="checkbox"/> 1.15 | Public roadway flooding & erosion |
| <input type="checkbox"/> 1.10 | Private roadway flooding & erosion |
| <input type="checkbox"/> 1.05 | Flooding from inadequate sinkhole |
| <input type="checkbox"/> 1.05 | Maintenance of stormwater system facilities |
| <input checked="" type="checkbox"/> 1.05 | Non-habitable structural flooding & erosion |
| <input checked="" type="checkbox"/> 1.00 | Yard erosion & erosion of common ground or unmaintained area |
| <input type="checkbox"/> 1.00 | Yard flooding |
| <input type="checkbox"/> 0.85 | Structural flooding from creeks or rivers (floodplain) |

Benefited Property Definition:

- 1 A benefited property is one at which flooding and/or erosion is reduced;
- 2 A property that does not receive an actual reduction in flooding or erosion from the construction of storm water improvements is NOT a benefited property; and
- 3 A property that only receives a financial gain from the construction of storm water improvements is NOT a benefited property.

Impacted Property Definition:

- 1 An impacted property is one at which physical disturbance occurs to construct storm water improvements.

MSD/MO American Water Base Map Number(s): 18M
 Laclede Gas Map Number(s): 156-14
 FEMA FIRM Map Number(s): 29189C0194K
 USGS Quadrangle Map Number(s): Creve Coeur, MO 7.5min

- Attachments**
- Scope of Work
 - Benefit Points Calculation
 - Engineer's Opinion of Probable Construction Cost
 - Property Contact Information
 - Improvement Concept Plan

Notes: The project is not located in the FEMA 100-yr floodplain; however, a Floodplain Study may still be required.

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SCOPE OF WORK

Problem Description:

The stream segment is rated as fair, with the channel scoring poor for average bank slopes, vegetative bank protection, and bank cutting. Some mass wasting is also occurring in this segment. The erosion is threatening habitable and non-habitable structures. In one location at #1 Chateau Oaks Street, a portion of a retaining wall has failed.

Proposed Solution:

Remove and restore the existing streambank with approximately 883 lineal feet of streambank protection including biostabilization. Construct approximately 51 linear feet of modular block wall at #1 Chateau Oaks Street where an existing retaining wall has failed.

Commentary:

If the project cannot be completed in its entirety as proposed, or construction is phased, additional analysis is highly recommended to account for the dynamic nature of streams and the geomorphic effects of the reduced scope of work.

The project is not located in the FEMA 100-yr floodplain; however, a Floodplain Study may still be required.

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BENEFIT POINTS CALCULATION

PROBLEM SOLVED CATEGORY		Chronic (<=2-Yr) Flooding		Frequent (>2<=15-Yr) Flooding		Infrequent (>15-Yr) Flooding		Total Points		
		Points per Category	No. Lots Affected	Points per Category	No. Lots Affected	Points per Category	No. Lots Affected			
Note: Problem points are awarded only for those problems solved by the proposed solution.										
1.0 STREAM	1.1. FLOODING	1.1.1. Structure Flooding								
		Habitable 1st floor, residential; includes spaces with mechanical equipment (1 lot per structure) Address:	300		150		25			
		Basement (1 lot per structure) Address:	200		100		15			
		Attached Garage (1 lot per structure) Address:	100		50		8			
		Misc. structures including patio/decks, pools, sheds, tennis courts, detached garages, etc.(1 lot per structure) Address:	50		25		4			
		Industrial, office, commercial and warehouse (1 lot per 2,500 sf of floor space flooded) Address:	300		150		25			
		Yard Flooding (1 per lot) Address:	10		5		0			
		1.1.2. Roadway Flooding (allocate 1 lot per 250' of roadway impacted & 2 lots per intersection impacted)								
		Emergency Access restricted (>12" water over only access route to habitable structure), pts per structure Address:	200		100		15			
	Traffic obstruction (> 6" of water) on arterial street Address:	50		25		4				
	Traffic obstruction (> 6" of water) on collector street Address:	25		12		2				
	Traffic obstruction (> 6" of water) on residential street Address:	10		5		1				
	1.2. EROSION	1.2.1. Threatening Structure (Ratio=Height of bank / distance from structure)		Pts. for Ratio > 0.70	No. Lots	Pts. for Ratio 0.36 - 0.70	No. Lots	Pts. for Ratio 0.15- 0.35	No. Lots	
		Habitable structures, residential (1 lot per structure) Address: #215, 221 S. Warson Rd		300		200		50	2	100
		Misc structures including pools, patio/decks, sheds, tennis courts, detached garages, etc.(1 lot per structure) Address: #215, 221 S. Warson Rd		150		100	1	25	1	125
		Industrial, office, commercial and warehouse (1 lot per structure) Address:		300		200		50		
		1.2.2. No. of lots (from 1.2.1) on outside of bend		3	lots	10 points per lot				30
		1.2.3. Threatening Roadway (Ratio=Height of bank / distance from road)		Pts. for Ratio > 0.70	No. Lots	Pts. for Ratio 0.36 - 0.70	No. Lots	Pts. for Ratio 0.15- 0.35	No. Lots	
Arterial Road: Address:		75		50		12				
Collector Road: Address:		35		25		6				
Residential Road: Address:		20		12		3				

CONTINUED:

	PROBLEM SOLVED CATEGORY, CONT.	Chronic (<=2-Yr) Flooding		Frequent (>2<=15-Yr) Flooding		Infrequent (>15-Yr) Flooding		Total Points
		Points per Category	No. Lots Affected	Points per Category	No. Lots Affected	Points per Category	No. Lots Affected	
	Note: Problem points are awarded only for those problems solved by the							
	2.1.1. Structure Flooding							
	Habitable 1st floor, residential; includes spaces with mechanical equipment (1 lot per structure)* Address:	350		250		65		
	Basement (1 lot per structure)* Address:	250		200		50		
	Industrial, office, commercial and warehouse lot per 2,500 sf of floor space flooded)* (1 lot per 2,500 sf of floor space flooded)* Address:	300		200		50		
	* If there is an existing public system and points are taken for any of the 3 items above, add 50 points.	Existing System Y/N						
	Attached Garage (1 lot per structure) Address:	100		75		25		
	Misc. structures including patio/decks, pools, sheds, tennis courts, detached garages, etc.(1 lot per structure) Address:	50		35		12		
	Yard Flooding (1 per lot) Address:	10		6		0		
	2.1.2. Roadway Flooding (allocate 1 lot per 250' of roadway impacted & 2 lots per intersection impacted)							
	Emergency Access restricted (>12" water over only access route to habitable structure), pts per structure Address:	200		150		25		
	Traffic obstruction (> 6" of water) on arterial street Address:	50		35		6		
	Traffic obstruction (> 6" of water) on collector street Address:	25		15		2		
	Traffic obstruction (> 6" of water) on residential street Address:	10		6		1		
	Ponding (per ponding area) Address:	No. Ponds:		Points/pond:		5		
	2.2. Moderate Risk Erosion of misc. structures Address:	No. Lots:		Points/lot:		20		
	2.3. Yard Erosion (1 per lot) Address:	No. Lots:		Points/lot:		10		
	2.4. Age of Existing System Points for Age	>50 yrs (30 pts)		26-50 yrs (15 pts)		<25 yrs (0 pts)		
	Note: Problem points are awarded only for those problems solved by the proposed solution.		TOTAL PROBLEM POINTS					255

CONTINUED:

SOLUTION BENEFIT CATEGORY					
3.0 REGIONAL	3.1. Reduction of flowrate leaving site	% reduction of peak flowrate :		Max points:	1000
	3.2. Combines smaller projects into regional solution (see note)	No. Add'l Projects:		Points per Add'l Proj.:	50
4.0 ENVIRONMENTAL / WATER QUALITY	4.1. Addresses pollutants:	No. Units		Points per Unit	
	Bioswales		PER 100 LF	10	
	Forebays		AC	200	
	Wet Ponds		AC	100	
	Wetlands		AC	50	
	Biostabilization of banks (per bank)	8.9	PER 100 LF	10	89
	Riffle Pool Complex		PER 100 LF	10	
	4.2. Eliminates combined sewer (per project)		EA	100	
4.3	Eliminates inflow into sanitary system (1 each per basement flooded, yard vent overtopped, street inlet or driveway drain connected to sanitary/combined system, etc.)		EA	10	
5.0 MISC.	5.1. Ease of Implementation (No. of Easements)	0-5 (20 pts)	6-10 (10 pts)	11-15 (5 pts)	>15 (0 pts)
	Points for Easements	20	0	0	0
	5.2. Recreational/Educational	Yes = 100, no = 0 pts		0	
TOTAL SOLUTION POINTS					109
TOTAL BENEFIT POINTS					364

Note: A regional solution combines several smaller projects into a watershed or subwatershed solution.

TOTAL COST IN THOUSANDS=

\$500.82

MSD BENEFIT/ COST RATIO= TOTAL POINTS/ TOTAL COST IN THOUSANDS=

0.73

PROJECT NAME:		Pebble Creek at Warson Road Bank Stabilization			
PROJECT No:		1625.02			
<u>ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST</u>					
ITEM NUMBER	PAY ITEM DESCRIPTION	ESTIMATED QUANTITY	UNIT	UNIT PRICE	EXTENDED PRICE
1	Mobilization	1	Lump Sum	\$7,488.03	\$7,488.03
2	Bank Protection - Biostabilization	1,467	Square Yards	\$155.00	\$227,385.00
3	Bypass Pumping	1	Lump Sum	\$7,335.00	\$7,335.00
4	Clearing (Channel Projects)	1	Lump Sum	\$5,868.00	\$5,868.00
5	Excavation Class "A"	6	Cubic Yards	\$190.00	\$1,076.67
6	Excavation Class "B"	1	Cubic Yards	\$55.00	\$31.17
7	Modular Block Wall	51	Square Feet	\$155.00	\$7,905.00
8	Protection and Restoration of Site	1	Lump Sum	\$38,564.00	\$38,564.00
9	Utility Relocation (Allowance)	1	Lump Sum	\$5,142.00	\$5,142.00
*Excavation Class 'C' cost included in unit price					
Sub-Total:					\$300,794.86
Estimated Construction Engineering Fee:					\$6,527.79
Estimated Construction Survey Fee:					\$712.96
Estimated MSD Construction Permit Fee:					\$195.00
Estimated MSD Stormwater Construction Inspection Fee:					
Estimated MSD Sanitary Construction Inspection Fee:					
Estimated area disturbed: 0.30 ac					
Estimated MDNR Land Disturbance Permit Fee:					
Estimated CWA 404/401 Permit Fee:					
Sub-Total:					\$308,230.61
30% Contingency:					\$92,469.18
SUB-TOTAL - CONSTRUCTION:					\$400,699.79
Estimated Design Engineering Fee:					\$36,990.84
Estimated MSD Plan Review Submittal Fee:					
Estimated MSD Conceptual Review Fee:					
Estimated MSD Plan Review Fee:					
<i>Note: MSD submittal & review fees are waived by reciprocal agreement with the City of Ladue.</i>					
CWA 404/401 Permit Application Preparation:					\$3,000.00
MDNR Land Disturbance Permit Application & SWPPP Preparation:					
Sinkhole Report:					
Floodplain Study:					\$15,000.00
No Rise Certification or LOMR:					\$5,000.00
Estimated Geotechnical Engineering Fee: 1 Borings @ \$2000/each =					\$2,000.00
Estimated Property Strip Map Survey Fee:					\$7,500.00
Estimated Topographic Survey Fee:					\$2,376.54
Estimated Property Title/Easement Search Report Fee: 5 ESR's @ \$500/each =					\$2,500.00
Estimated Easement Preparation: 5 Plats @ \$450/each =					\$2,250.00

	Estimated Saint Louis County Recording Fee - Easements:	\$225.00
	Sub-Total:	\$76,842.38
	30% Contingency:	\$23,052.71
	SUB-TOTAL - DESIGN:	\$100,120.09
	TOTAL PROJECT:	\$500,819.89

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PROPERTY CONTACT INFORMATION

BENEFITED PROPERTY OWNERS			
Count	Property Address	Contact Name	Phone Number
1	1 CHATEAU OAKS ST	GOLDBERG KENNETH A	
2	201 S WARSON RD	MULLINS BIRCH M & CATHERINE V H/W	
3	215 S WARSON RD	STUPP JULIA JANE	
4	221 S WARSON RD	RIESER J DAVID JR	
5	KNIGHTBRIDGE LN R/W	KNIGHTBRIDGE LN SUBDIVISION TRUSTEES	
IMPACTED PROPERTY OWNERS			
Count	Property Address	Contact Name	Phone Number
1	1 CHATEAU OAKS ST	GOLDBERG KENNETH A	
2	201 S WARSON RD	MULLINS BIRCH M & CATHERINE V H/W	
3	215 S WARSON RD	STUPP JULIA JANE	
4	221 S WARSON RD	RIESER J DAVID JR	
5	KNIGHTBRIDGE LN R/W	KNIGHTBRIDGE LN SUBDIVISION TRUSTEES	
EASEMENTS REQUIRED			
Count	Property Address	Contact Name	Phone Number
1	1 CHATEAU OAKS ST	GOLDBERG KENNETH A	
2	201 S WARSON RD	MULLINS BIRCH M & CATHERINE V H/W	
3	215 S WARSON RD	STUPP JULIA JANE	
4	221 S WARSON RD	RIESER J DAVID JR	
5	KNIGHTBRIDGE LN R/W	KNIGHTBRIDGE LN SUBDIVISION TRUSTEES	