

City of Ladue

PROJECT IDENTIFICATION INFORMATION SHEET

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

PROJECT NAME: Briarwood Drive
LOCATION: Briarwood Subdivision
PROJECT No: 1611.01

STATUS:

Easements Required:	5
Properties Benefited:	5
Properties Impacted:	5
Project Benefit Points:	1522
Property Benefit Multiplier: X	1.00
Priority WGT Multiplier: X	1.15
Adj Prjct Benefit Points:	1750.30
EOPC, thousand:	\$2,047.00
Cost Sharing, MSD:	
Cost Sharing, Other:	
Adj EOPC, thousand:	\$2,047.00
Benefit to Cost Ratio:	0.86

Problem Categories:

- | <input checked="" type="checkbox"/> | <u>WGT</u> | <u>Description</u> |
|-------------------------------------|------------|---|
| <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 checked="" 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 type="checkbox"/> | 1.05 | Non-habitable structural flooding & erosion |
| <input type="checkbox"/> | 1.00 | Yard erosion & erosion of common ground or unmaintained area |
| <input checked="" 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): 19M

Laclede Gas Map Number(s): 155-75; 155-76

FEMA FIRM Map Number(s): 29189C0194K

USGS Quadrangle Map(s): Creve Coeur, MO

Attachments

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

Project Source:

- Citizen Complaint
- Ladue
- MSD
- Other:

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

Notes: The project is located in the FEMA 100-yr floodplain. A Floodplain Study and a No-Rise Certificate or LOMR will be required. Permitting through the USACE will also be required.

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SCOPE OF WORK

Problem Description:

Magnolia Creek runs between North and South Briarwood Dr. Erosion is threatening the road in several places, most notably at the turn near #10090 Briarwood Dr. Attempts to protect the road in this location, including rock and a retaining wall, have failed.

The project reach is rated fair. The reach is scored poor in several categories, including: average bank slope angle, average bank height, vegetative bank protection, bank cutting, and sinuosity. Some mass wasting is also occurring.

Proposed Solution:

Construct approximately 3,463 lineal feet of streambank stabilization, including biostabilization techniques, along both sides of the creek protecting the surrounding road and alleviating yard flooding to the 1:15 level of service.

Commentary:

The project is located in the FEMA 100-yr floodplain. A Floodplain Study and a No-Rise Certificate or LOMR will be required. Permitting through the USACE will also be required.

PROJECT NAME: Briarwood Drive
 PROJECT No: 1611.01

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:10090, 10094 Briarwood	10		5	2	0		10	
		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: 10090 (0.58), 10094 (0.175) Briarwood		300		200	1	50	1	250
Misc structures including pools, patio/decks, sheds, tennis courts, detached garages, etc.(1 lot per structure) Address: 10021 (1.2), 10043 (0.3) Springwood		150	1	100		25	1	175		
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			lots	10 points per lot						
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: Briarwood Dr. Address: North drive (0.67); South Drive (0.80)		75	5	50	6	12		675		
Collector Road: Address:		35		25		6				
Residential Road: Address:		20		12		3				

CONTINUED:

2.0 STORM SEWER / OVERLAND FLOW	2.1. FLOODING	PROBLEM SOLVED CATEGORY, CONT.						Total Points
		Chronic (<=2-Yr) Flooding		Frequent (>2<=15-Yr) Flooding		Infrequent (>15-Yr) Flooding		
		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 wth mechanical equipment (1 lot per structure)* Address:	350		250		65	
		Basement (1 lot per structure)* Address:	250		200		50	
		Industrial, office, commercial and warehouse (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			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: Pedestrian Bridge b/w 10064 & 10065 Briarwood	No. Lots:		1	Points/lot:		20
		2.3. Yard Erosion (1 per lot) Address: #10090 Briarwood	No. Lots:		1	Points/lot:		10
		2.4. Age of Existing System	>50 yrs (30 pts)		26-50 yrs (15 pts)		<25 yrs (0 pts)	
		Points for Age			15			15
		Note: Problem points are awarded only for those problems solved by the proposed solution.						
		TOTAL PROBLEM POINTS						1155

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)		34.7 PER 100 LF	10	347	
	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					367	
TOTAL BENEFIT POINTS					1522	

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

TOTAL COST IN THOUSANDS=

\$2,047.00

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

0.74

PROJECT NAME:		Briarwood Drive			
PROJECT No:		1611.01			
<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	\$33,333.00	\$33,333.00
2	Bank Protection - Biostabilization	6,775	Square Yards	\$155.00	\$1,050,125.00
3	Bypass Pumping	1	Lump Sum	\$33,875.00	\$33,875.00
4	Clearing (Channel Projects)	1	Lump Sum	\$27,100.00	\$27,100.00
5	Protection and Restoration of Site	1	Lump Sum	\$171,665.00	\$171,665.00
6	Utility Relocation (Allowance)	1	Lump Sum	\$22,889.00	\$22,889.00
*Excavation Class 'C' cost included in unit price					
				Sub-Total:	\$1,338,987.00
				Estimated Construction Engineering Fee:	\$22,176.18
				Estimated Construction Survey Fee:	\$3,292.65
				Estimated MSD Construction Permit Fee:	\$195.00
				Estimated MSD Stormwater Construction Inspection Fee:	
				Estimated MSD Sanitary Construction Inspection Fee:	
			Estimated area disturbed:	1.40 ac	
				Estimated MDNR Land Disturbance Permit Fee:	\$500.00
				Estimated CWA 404/401 Permit Fee:	
				Sub-Total:	\$1,365,150.83
				30% Contingency:	\$409,545.25
				SUB-TOTAL - CONSTRUCTION:	\$1,774,696.08
				Estimated Design Engineering Fee:	\$147,841.23
				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:	\$5,000.00
				Sinkhole Report:	
				Floodplain Study:	\$15,000.00
				No Rise Certification or LOMR:	\$5,000.00
Estimated Geotechnical Engineering Fee:		5	Borings @	\$2000/each =	\$10,000.00
				Estimated Property Strip Map Survey Fee:	\$7,500.00
				Estimated Topographic Survey Fee:	\$10,975.50
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:	\$209,291.73

			30% Contingency:	\$62,787.52
			SUB-TOTAL - DESIGN:	\$272,304.25
			TOTAL PROJECT:	\$2,047,000.33

PROJECT NAME: Briarwood Drive
PROJECT No: 1611.01

PROPERTY CONTACT INFORMATION

BENEFITED PROPERTY OWNERS			
Count	Property Address	Contact Name	Phone Number
1	10021 SPRINGWOOD DR	WILSON LIVING TRUST	
2	10043 SPRINGWOOD DR	HARRINGTON ADRIAN ETAL J/T	
3	10090 BRIARWOOD DR	MATTINGLY ANN	
4	10094 BRIARWOOD DR	SANT WILLIAM WEBSTER III & ANNETTE M H/	
5	BRIARWOOD DR R/W	SUBDIVISION TRUSTEES	
IMPACTED PROPERTY OWNERS			
Count	Property Address	Contact Name	Phone Number
1	10021 SPRINGWOOD DR	WILSON LIVING TRUST	
2	10043 SPRINGWOOD DR	HARRINGTON ADRIAN ETAL J/T	
3	10090 BRIARWOOD DR	MATTINGLY ANN	
4	10094 BRIARWOOD DR	SANT WILLIAM WEBSTER III & ANNETTE M H/	
5	BRIARWOOD DR R/W	SUBDIVISION TRUSTEES	
EASEMENTS REQUIRED			
Count	Property Address	Contact Name	Phone Number
1	10021 SPRINGWOOD DR	WILSON LIVING TRUST	
2	10043 SPRINGWOOD DR	HARRINGTON ADRIAN ETAL J/T	
3	10090 BRIARWOOD DR	MATTINGLY ANN	
4	10094 BRIARWOOD DR	SANT WILLIAM WEBSTER III & ANNETTE M H/	
5	BRIARWOOD DR R/W	SUBDIVISION TRUSTEES	

