



CITY OF FRONTENAC

STORMWATER SYSTEM MASTER IMPROVEMENT PLAN

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UPDATE NO. _____ DATE _____

FIGURE NO. 6-2

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name: FIGURE 6-2 OVERLAND FLOW
Solutions By: EDM INC. **DATE:** 11-5-08

Problem: Yard ponding at Q95 - 11319 Clayton Rd.
Strategy: 1) Install swale to existing inlet. 2) Add Bioswale to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1 Without BMP's	2) Alternative 1 With BMP's
New Swale	LF	79	\$10	\$790	\$790
Regrade Yard	LS	1	\$2,000	\$2,000	\$2,000
Bioswale	LF	79	\$30	\$0	\$2,370
Subtotal				\$2,790	\$5,160
Total Benefit Points				30	38
Individual Benefit Point Ratio				5.13	3.50
Estimated Increased Property Values				\$0	\$2,000

Problem: Yard ponding at Q100 - 11322 Clayton Rd. and yard erosion at Q101 - 11342 Clayton Rd.

Strategy: 1) Install an 8' wide concrete swale along property line to existing culvert going under Clayton Rd. Install berm to divert water along property line to proposed concrete swale. 2) Add Rain Gardens to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1 Without BMP's	2) Alternative 1 With BMP's
8' Wide Concrete Swale	LF	238	\$66	\$15,708	\$15,708
New Berm	LF	393	\$15	\$5,895	\$5,895
Rain Garden	EA	1	\$10,000	\$0	\$10,000
Subtotal				\$21,603	\$31,603
Total Benefit Points				40	45
Individual Benefit Point Ratio				0.88	0.68
Estimated Increased Property Values				\$0	\$2,000

Problem: Yard ponding at Q103 - 11420 Clayton Rd. and Q104 - 11440 Clayton Rd.

Strategy: 1) Install inlet and pipe system to collect water. Tie proposed system into existing system. 2) Add Rain Garden and Bioswale to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1 Without BMP's	2) Alternative 1 With BMP's
Single Area Inlet	EA	5	\$1,750	\$8,750	\$8,750
12" RCP CLASS III	LF	151	\$116	\$17,525	\$17,525
18" RCP CLASS III	LF	360	\$129	\$46,541	\$46,541
21" RCP CLASS III	LF	226	\$137	\$30,937	\$30,937
Rain Garden	EA	1	\$10,000	\$0	\$10,000
Bioswale	LF	238	\$30	\$0	\$7,140
Subtotal				\$103,753	\$120,893
Total Benefit Points				40	69
Individual Benefit Point Ratio				0.18	0.27
Estimated Increased Property Values				\$3,000	\$6,000

Problem: Yard ponding at Q50 - 7 Bridle Ln.

Strategy: 1) Add Raingarden to infiltrate runoff and protect natural channels.

Description	Unit	Quantity	Unit Cost	1) Alternative 1 Without BMP's	2) Alternative 1 With BMP's
Rain Garden	EA	1	\$10,000	\$10,000	\$10,000
Subtotal				\$10,000	\$10,000
Total Benefit Points				35	35
Individual Benefit Point Ratio				1.67	1.67
Estimated Increased Property Values				\$2,000	\$2,000

Total **\$138,146** **\$167,656**

FIGURE 6-2

Utility Relocation	20%	\$27,629	\$33,531
Clearing	5%	\$6,907	\$8,383
Mobilization	4%	\$5,526	\$6,706
Total with Percent Allowances		\$178,208	\$216,276
Contingency	25%	\$44,552	\$54,069
Probable Construction Cost Estimate		\$222,760	\$270,345
Design Engineering and Geotechnical	30%	\$66,828	\$81,104
Total Conceptual Cost Estimate		\$290,000	\$352,000
Total Benefit Points		230	292
Total Benefit Point Ratio		0.79	0.83

Additional Comments: Unit prices based on MSD Unit Prices January 2006 Construction Costs
Conceptual Cost are rounded to the nearest \$1000

FIGURE 6-2