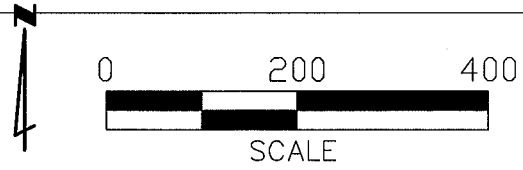



 CITY OF FRONTENAC
 
 STORMWATER SYSTEM MASTER IMPROVEMENT PLAN


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UPDATE NO. _____ DATE _____
 FIGURE NO. 1-3

City of Frontenac
Stormwater System Master Improvement Plan
CONCEPTUAL LEVEL ANALYSIS

Project Name: FIGURE 1-3 OVERLAND FLOW
Solutions By: EDM INC. **DATE:** 11-5-08

Problem: Yard ponding at Q402 - 725 Timber Trail Rd.
Strategy: 1) Install inlet and pipe system to collect water. Attach to existing system. 2) Add rain garden to infiltrate runoff and protect natural channels.

| Description | Unit | Quantity | Unit Cost | 1) Alternative 1 | 2) Alternative 1 |
|--|------|----------|-----------|------------------|------------------|
| | | | | Without BMP's | With BMP's |
| Single Area Inlet | EA | 2 | \$1,750 | \$3,500 | \$3,500 |
| 12" RCP CLASS III | LF | 40 | \$116 | \$4,642 | \$4,642 |
| Rain Garden | EA | 1 | \$10,000 | \$0 | \$10,000 |
| Subtotal | | | | \$8,142 | \$18,142 |
| Total Benefit Points | | | | 30 | 35 |
| Individual Benefit Point Ratio | | | | 1.76 | 0.92 |
| Estimated Increased Property Values | | | | \$0 | \$2,000 |

Problem: Yard ponding at Q436 - 1600 Wycliff Ln.
Strategy: 1) Install inlet and pipe system to collect water. Replace undersized existing system. 2) Add rain garden to infiltrate runoff and protect natural channels.

| Description | Unit | Quantity | Unit Cost | 1) Alternative 1 | 2) Alternative 1 |
|--|------|----------|-----------|------------------|------------------|
| | | | | Without BMP's | With BMP's |
| Single Area Inlet | EA | 3 | \$1,750 | \$5,250 | \$5,250 |
| Single Inlet | EA | 1 | \$1,850 | \$1,850 | \$1,850 |
| Double Inlet | EA | 1 | \$3,150 | \$3,150 | \$3,150 |
| Manhole | EA | 1 | \$1,500 | \$1,500 | \$1,500 |
| 12" RCP CLASS III | LF | 17 | \$116 | \$1,973 | \$1,973 |
| 18" RCP CLASS III | LF | 196 | \$129 | \$25,339 | \$25,339 |
| 21" RCP CLASS III | LF | 302 | \$137 | \$41,341 | \$41,341 |
| 24" RCP CLASS III | LF | 116 | \$144 | \$16,646 | \$16,646 |
| 27" RCP CLASS III | LF | 257 | \$150 | \$38,578 | \$38,578 |
| 27" FES | EA | 1 | \$1,700 | \$1,700 | \$1,700 |
| Erosion Protection | LS | 1 | \$3,000 | \$3,000 | \$3,000 |
| Rain Garden | EA | 1 | \$10,000 | \$0 | \$10,000 |
| Subtotal | | | | \$140,327 | \$150,327 |
| Total Benefit Points | | | | 30 | 35 |
| Individual Benefit Point Ratio | | | | 0.10 | 0.11 |
| Estimated Increased Property Values | | | | \$0 | \$2,000 |

Problem: Yard ponding at Q434 - 1521 Woodgate Dr. and Q432 - 1509 Woodgate Dr.
Strategy: 1) Install inlet and pipe system to collect water. Regrade swale by asphalt path and direct towards new inlet. Add Rain Gardens to infiltrate runoff and protect natural channels.

| Description | Unit | Quantity | Unit Cost | 1) Alternative 1 | 2) Alternative 1 |
|--|------|----------|-----------|------------------|------------------|
| | | | | Without BMP's | With BMP's |
| Single Area Inlet | EA | 1 | \$1,750 | \$1,750 | \$1,750 |
| 12" RCP CLASS III | LF | 181 | \$116 | \$21,007 | \$21,007 |
| 6" PVC | LF | 61 | \$15 | \$915 | \$915 |
| Trench Drain | LF | 28 | \$20 | \$560 | \$560 |
| Grading along asphalt path | LF | 152 | \$20 | \$3,040 | \$3,040 |
| Rain Garden | EA | 1 | \$10,000 | \$10,000 | \$10,000 |
| Subtotal | | | | \$37,272 | \$37,272 |
| Total Benefit Points | | | | 45 | 45 |
| Individual Benefit Point Ratio | | | | 0.58 | 0.58 |
| Estimated Increased Property Values | | | | \$5,000 | \$5,000 |

Total **\$185,741** **\$205,741**

FIGURE 1-3

| | | | |
|--|-----|------------------|------------------|
| Utility Relocation | 20% | \$37,148 | \$41,148 |
| Clearing | 5% | \$9,287 | \$10,287 |
| Mobilization | 4% | \$7,430 | \$8,230 |
| Total with Percent Allowances | | \$239,606 | \$265,406 |
| Contingency | 25% | \$59,902 | \$66,352 |
| Probable Construction Cost Estimate | | \$299,508 | \$331,758 |
| Design Engineering and Geotechnical | 30% | \$89,852 | \$99,527 |
| Total Conceptual Cost Estimate | | \$390,000 | \$432,000 |
| Total Benefit Points | | 160 | 180 |
| Total Benefit Point Ratio | | 0.41 | 0.42 |

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

FIGURE 1-3