City of O'Fallon

Stormwater Annual Report-MS4
NPDES Phase II Permit

June 13, 2015
Through
June 12, 2016

This is the annual stormwater report for O'Fallon's Stormwater General Operating Permit MO-RO40039, with an original issue date of April 23, 2003, which provides updates to our current five (5) year SWMP that is in place to implement and maintain the six (6) minimum control measures to ensure full compliance with the permit issuance for Small Municipal Separate Storm Sewer System regulations.

This report covers the reporting period for June 13, 2015 to June 12, 2016

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

STORM WATER ANNUAL REPORT – SMALL MS4 PERMITS

(MUNICIPAL SEPARATE STORM SEWER SYSTEMS)

Return completed form to:
Water Protection Program
P.O. Box 176
Jefferson City, MO 65102-0176

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Each section **must** be completed. Please print or type.

A. PERMITTEE INFORMATION

1. PERMITTEE (AGENCY NAME) City of O'Fallon	CHECK BOX IF THIS IS A NEW NAME ☐
2. NAME OF CONTACT PERSON Michele Gremminger	
3. MAILING ADDRESS 100 N. Main St.	CHECK BOX IF THIS IS A NEW ADDRESS ☐
4. CITY, STATE AND ZIP CODE O'Fallon MO 63366	CHECK BOX IF THIS IS A NEW CITY, STATE, ZIP ☐
5. FACILITY TELEPHONE NUMBER WITH AREA CODE 636-379-7632	CHECK BOX IF THIS IS A NEW NUMBER ☐
6. PERMIT NUMBER MO-R040039	
7. HAVE ANY AREAS BEEN ADDED OR REMOVED FROM THE MS4 DUE TO ANNEXATION OR OTHER LEGAL MEANS SINCE THE MOST RECENT PERMIT APPLICATION WAS SUBMITTED? IF YES, INCLUDE UPDATED MAP. ☒ Yes ☐ No	
8. WHAT IS THE CURRENT ESTIMATED POPULATION OF YOUR MS4 THIS REPORTING PERIOD? 79,329	
9. IF COUNTY MS4, WHAT IS THE CURRENT POPULATION OF YOUR MS4 WITHIN THE URBANIZED AREA?	

B. REPORTING PERIOD

(CHECK ONE) REPORT IS DUE BY JULY 28 OF EACH YEAR

- ☐ Jan. 01, 2008 to June 12, 2009
- ☐ June 13, 2009 to June 12, 2010
- ☐ June 13, 2010 to June 12, 2011
- ☐ June 13, 2011 to June 12, 2012
- ☐ June 13, 2012 to June 12, 2013
- ☐ June 13, 2013 to June 12, 2014
- ☐ June 13, 2014 to June 12, 2015
- ☒ June 13, 2015 to June 12, 2016

or ☐ alternative/agreed upon reporting period: _____ - _____

C. PROGRAM AREAS (ATTACHMENT)

As an attachment to this form, address each of the following items for **each** of the six program areas (public education, public participation/involvement, illicit discharge detection and elimination, construction, post-construction and good housekeeping for municipal operations.) The status of each program area must be addressed, even if the program area was completed and fully implemented in a previous reporting year. It is important to report on activity and task commitments identified in the Storm Water Management Program Plan, or SWMP, and provide an explanation for any changes to those commitments.

If another entity is a co-permittee, the annual report information under sections C and D of this form must also be provided for each such entity.

(Depending on the size of the municipality and the complexity of the programs, the attachments for this section will likely contain one to five pages per program area.)

1. Implementation status.
   a. General summary
   b. SWMP elements changed or refined since previous report or permit application. Include a summary of any changes made in accordance with Section 4.4 of the permit that have already been submitted to the Department, and any additions made in accordance with Section 4.4 of the permit.
   c. Status of Measurable Goals
   d. Provide:
      1. The completion date for any measurable goals completed during the reporting period.
      2. An explanation for any measurable goals scheduled for completion during the reporting period that were not completed. (Any modified goals/deadline should be listed in item 5, below.)

2. Overall compliance with permit conditions and SWMP.
   a. Assessment of the appropriateness of the identified Best Management Practices, also known as BMPs. Factors to consider in determining appropriateness include, but are not limited to, effectiveness for local population, pollution sources, receiving water concerns and integration with local management procedures.

b. Progress to achieve the statutory goal of reducing the discharge of pollutants to the maximum extent practicable. Include a general discussion on your assessment of the overall program effectiveness at protecting water quality. See Small MS4 Annual Report Addendum Water Quality Program Assessment for recommendations on completing this section. The form is available online at www.dnr.mo.gov/forms/780-2049.

3. Results of information collected and analyzed, if any, during the reporting period, including any monitoring data used to assess the success of the program at reducing the discharge of pollutants to the maximum extent practicable. Discharge monitoring is not a requirement under the general permit, unless otherwise directed by the Department (e.g. TMDL monitoring). However, if you did collect any monitoring data for storm water discharges within your jurisdiction, or if any program element included data collection of some sort, submit a short summary of the information and any analysis completed. Examples of data sources include survey or polling results, miles of riverbank cleaned up, number of hits on a Web site before and after a public education campaign, etc. (Data recorded under Item 1.c, Measurable Goals, does not need to be repeated here.)

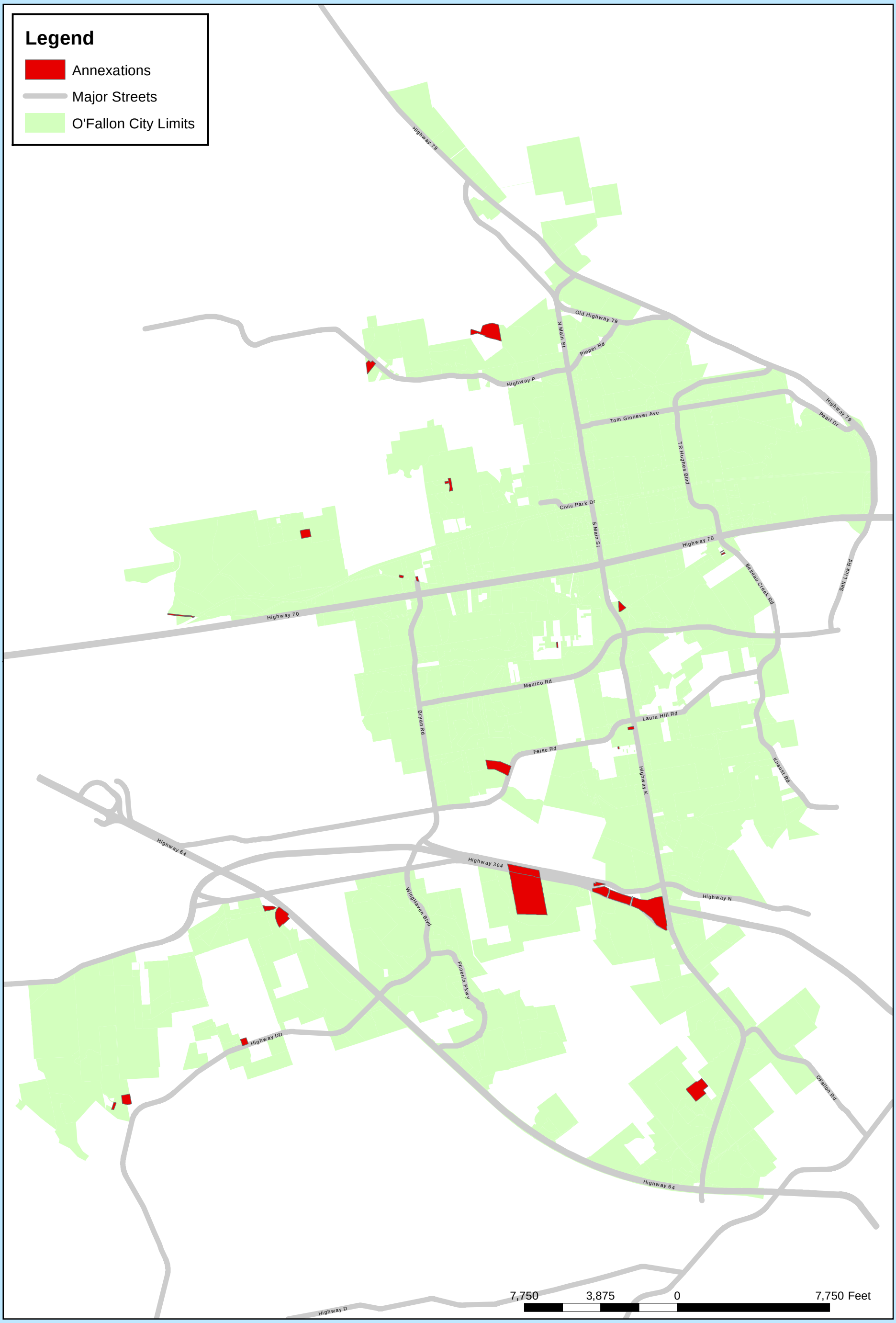
4. Brief summary of storm water activities you plan to undertake during the next reporting cycle (including an implementation schedule). Provide a short summary based on your existing Missouri State Operating Permit Storm Water Management Program implementation schedule. If any changes are planned from the original descriptions provided in the SWMP or previous reports, they should be summarized in item 5.

5. Proposed changes to the program area and documented SWMP.
   a. Changes to BMPs
   b. Changes to Measurable Goals
   Provide a summary of proposed changes or additions to information previously submitted in reports or the permit application. Significant changes that involve replacing or deleting an ineffective or unfeasible BMP may require program review as outlined in Section 4.4 of the permit.

D. CERTIFICATION

I certify under penalty of law this document and all attachments were prepared under my direction or supervision in accordance with a system designed to ensure qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

SIGNATURE OF PERMITTEE (LEGALLY RESPONSIBLE PERSON)	DATE SIGNED
Michele Gremminger	7/18/2016
NAME (PRINTED or TYPED)	TITLE
Michele Gremminger	Stormwater Management Coordinator



Planning & Development
Geographic Information Systems
O'Fallon, Missouri

Annexation Areas Since 2013

Current through August 2016

Printed: 08/04/2016

Path: M:\Maps\Storm_Sewers\2013 - Annexations.mxd

MISSOURI DEPARTMENT OF NATURAL RESOURCES
WATER PROTECTION PROGRAM

STORM WATER ANNUAL REPORT – SMALL MS4 PERMITS ADDENDUM - WATER QUALITY PROGRAM ASSESSMENT (MUNICIPAL SEPARATE STORM SEWER SYSTEMS)

INSTRUCTIONS

You are not required to complete this ADDENDUM. However, the Department of Natural Resources strongly recommends this form as a way to satisfy Section 2b of the Small MS4 Annual Report, or at a minimum thoroughly address the items included in this addendum.

The purpose of this report is to contribute information to an evaluation of the National Pollutant Discharge Elimination System, or NPDES, small municipal separate storm sewer system (MS4) permit program. Consistent with Missouri storm water regulations 10 CSR 20-6.200 and federal regulations 40 CFR §9, 122, 123, 124 the Department is evaluating the status of your program. A "no" answer to a question does not necessarily mean noncompliance with your permit or with the state and federal regulations. In order to establish the range of variability in the program, it is necessary to ask questions along a fairly broad performance continuum. The Department of Natural Resources may use some of this information as one component of compliance evaluation.

A. WATER QUALITY PRIORITIES

1. Does your MS4 discharge to waters listed as impaired on Missouri's most recently approved 303(d) list or to waters for which a TMDL has been approved by EPA and is currently in effect? For more information visit www.dnr.mo.gov/env/wpp/waterquality/303d.htm.

   ☑ Yes ☐ No

2. If yes, identify each impaired water, the impairment(s), whether a TMDL has been approved by EPA for each, and whether the TMDL identifies your MS4 as a source of the impairment.

Impaired Water	Impairment	Approved TMDL	MS4 Assigned to WLA
Peruque Creek	Inorganic Sediment	☐ Yes ☑ No	☐ Yes ☑ No
Dardenne Creek	Inorganic Sediment	☐ Yes ☑ No	☐ Yes ☑ No
		☐ Yes ☐ No	☐ Yes ☐ No
		☐ Yes ☐ No	☐ Yes ☐ No

3. What specific sources of these pollutants of concern are you targeting? Sediment, but, these are upstream of O'Fallon and not within City Limits

4. Do you have discharges to any Wild and Scenic Riverways, drainages thereto, or Outstanding State Resource Waters? (a list of these waters can be found in 10 CSR 20-7.031 tables D and E).

   ☐ Yes ☑ No

5. Are you implementing additional specific provisions to ensure their continued integrity?

   ☐ Yes ☑ No

B. PUBLIC EDUCATION AND PUBLIC PARTICIPATION

1. Is your public education program targeting specific pollutants and sources of those pollutants?

   ☑ Yes ☐ No

2. If yes, which of the following pollutants did your public education program target this reporting period?

☑ Suspended Solids	☑ Pesticides	☐ Temperature
☑ Nutrients/Fertilizers	☑ Oils and Greases	☐ Other
☑ Chlorides	☑ Polycyclic Aromatic Hydrocarbons (PAHs)	

3. What sources of pollution did you target for these pollutants (for education) this reporting period? All

4. Note specific successful outcome(s) (e.g., quantified reduction in fertilizer use; NOT tasks, events, publications) fully or partially attributable to your public education program during this reporting period.

   N/A

5. Do you have an advisory committee or other body comprised of the public and other stakeholders that provides regular input on your storm water program?

   ☑ Yes ☐ No

C. CONSTRUCTION

1. Do you have an ordinance or adopted policies stipulating:
   a. Erosion and sediment control requirements?
      ☑ Yes ☐ No
   b. Other construction waste control requirements?
      ☑ Yes ☐ No
   c. Requirement to submit construction plans for review?
      ☑ Yes ☐ No
   d. MS4 inspection authority?
      ☑ Yes ☐ No
   e. MS4 enforcement authority?
      ☑ Yes ☐ No

C. CONSTRUCTION (CONTINUED)

2. Do you have written procedures for:
   a. Reviewing construction plans that include erosion and sediment control?
      ☑ Yes ☐ No
   b. Performing erosion and sediment control inspections?
      ☑ Yes ☐ No
   c. Responding to erosion and sediment control violations?
      ☑ Yes ☐ No

3. Identify the number of active construction sites ≥ 1 acre in operation in your jurisdiction at any time during the reporting period.
   Non-municipal 21 Municipal 1

4. How many of the sites identified in # 3 did you inspect this reporting period?
   Non-municipal All Municipal All

5. Describe, on average, the frequency with which your program conducts construction site inspections.
   Non-municipal 3-5 x/wk Municipal 5x/wk

6. Do you prioritize certain construction sites for more frequent inspections? ☑ Yes ☐ No
   If Yes, based on what criteria? Sites with newer grading activities get reviewed first for erosion and sediment control

7. Do you require development of a storm water pollution prevention plan, or SWPPP, for construction activities, and ensure standards comply with NPDES Phase II requirements?
   ☑ Yes ☐ No

8. Do your municipal projects comply with state and local requirements for erosion and sediment control?
   ☑ Yes ☐ No

9. Identify which of the following types of enforcement actions you used during the reporting period for construction activities; indicate the number of actions or note those for which you do not have authority:

☐ Yes	Notice of Violation	#_____	No Authority ☐
☐ Yes	Administrative Fines	#_____	No Authority ☐
☐ Yes	Stop Work Orders	#_____	No Authority ☐
☐ Yes	Civil Penalties	#_____	No Authority ☐
☐ Yes	Criminal Actions	#_____	No Authority ☐
☐ Yes	Administrative Orders	#_____	No Authority ☐
☐ Yes	Other _____	#_____	

10. Do you use an electronic tool (e.g., GIS, data base, spreadsheet) to track the locations, inspection results and enforcement actions of active construction sites in your jurisdiction?
    ☑ Yes ☐ No

11. What are the three most common types of violations documented during this reporting period?
    a. Maintenance-Lack of Vegetation
    b. Erosion and Sediment Control proper maintenance
    c. Sediment off site

12. How often do municipal employees receive training about the construction program? once per year (minimum)

D. ILLICIT DISCHARGE ELIMINATION

1. Have you completed a map of all outfalls and receiving waters of your storm sewer system?
   ☐ Yes ☑ No

2. Have you completed a map of all storm drain pipes of your storm sewer system?
   ☐ Yes ☑ No

3. Identify the number of outfalls in your storm sewer system. Outfalls are noted in most current GIS map included in annual report

4. Do you have documented procedures, including frequency, for screening outfalls and open conveyances?
   ☑ Yes ☐ No

5. Of the outfalls identified in # 3, how many have been screened for dry weather discharges at any time since you obtained MS4 permit coverage? 95%

6. What is your frequency for screening outfalls for illicit discharges? .
   a. Describe any variation based on size/type. Based on report or visualization of discharge.

7. Describe your approach to screening open conveyances for illicit discharges. color, odor, substance, trace to clear, sample at outfall, locate violator

8. Do you have an ordinance or other regulatory mechanism that effectively prohibits illicit discharges?
   ☑ Yes ☐ No

9. Do you have an ordinance or other regulatory mechanism that provides authority for you to take enforcement action or recover costs for addressing illicit discharges?
   ☑ Yes ☐ No

D. ILLICIT DISCHARGE ELIMINATION (CONTINUED)

10. During this reporting period, how many illicit discharges or illegal connections have you discovered? 5

11. Of those illicit discharges and illegal connections discovered or reported, how many have been eliminated? 5

12. How often do municipal employees receive training about the illicit discharge program? 1 time per year or as needed

E. STORM WATER MANAGEMENT FOR MUNICIPAL OPERATIONS

1. Have storm water pollution prevention plans (or an equivalent plan) been developed for:
   a. All public parks, ball fields, other recreational facilities and other open spaces.
      ☑ Yes ☐ No
   b. All municipal construction activities, including those disturbing less than 1 acre.
      ☑ Yes ☐ No
   c. All municipal turf grass/landscape management activities.
      ☑ Yes ☐ No
   d. All municipal vehicle fueling, operation and maintenance activities.
      ☑ Yes ☐ No
   e. All public works, parks and other municipal maintenance yards.
      ☑ Yes ☐ No
   f. All municipal waste handling and disposal areas.
      ☑ Yes ☐ No
   g. Other municipal operations.
      ☑ Yes ☐ No

2. Are storm water inspections conducted at these facilities?
   ☑ Yes ☐ No

3. If Yes, at what frequency are inspections conducted? Each facility does makes their own schedule

4. List activities for which operating procedures or management practices specific to storm water management have been developed? (such as road repairs, catch basin cleaning, landscape management, etc.)
   ☐ Yes ☐ No Inspection of storm sewer infrastructure, clean/repair, erosion/sediment control for road maintenance

5. Do you prioritize certain municipal activities or facilities for more frequent inspections?
   ☑ Yes ☐ No
   a. If Yes, at what frequency are inspections conducted? High flow events

6. On average, how frequently are catch basins and other inline treatment systems inspected? Written schedule and additional concerns reported

7. Do all municipal employees overseeing planning and implementation of storm water-related activities receive comprehensive training about storm water management?
   ☑ Yes ☐ No

8. If yes, do you also provide regular updates and refreshers?
   ☑ Yes ☐ No
   a. If so, how frequently or under what circumstances? minimum of once per year via email articles, seminars/webinars, staff meetings

9. How often do other municipal employees and contractors performing duties that can impact storm water receive training about storm water management?

F. NEW AND REDEVELOPMENT (POST-CONSTRUCTION) STORM WATER MEASURES

1. Do you have ordinances or other mechanisms to require:
   a. Pre-site design meetings with developers?
      ■ Yes ☐ No
   b. Site plan reviews for storm water quality of all new and re-development projects of an acre or more?
      ☑ Yes ☐ No
   c. Reasonable mimicking of pre-construction storm water runoff quality in all new development projects of an acre or more?
      ☑ Yes ☐ No
   d. An incremental improvement of existing storm water runoff quality in redevelopment projects of an acre or more?
      ☑ Yes ☐ No
   e. Long-term operation and maintenance of storm water management controls?
      ☑ Yes ☐ No
   f. Retrofitting to incorporate long-term storm water management controls?
      ☑ Yes ☐ No

2. If you have retrofit requirements, what are the circumstances or criteria? N/A

3. What are your criteria for determining which new/re-development storm water plans you will review for water quality? (such as all projects, projects disturbing greater than one acre, etc.) Same as new development. Must appeal to Planning and Development (BMP ordinance/WQV)

4. Do your ordinance(s) or other regulatory mechanism(s) allow for:
   a. Non-structural site design options to allow for optimal water quality management in long-term storm water runoff? (such as minimized/disconnected impervious surfaces, cluster housing in exchange for green space, resource protection boundaries, etc.)
      ☑ Yes ☐ No
   b. Structural contemporary, dispersed micro-infiltration/filtration practices such as grassed swales, sand filters, neighborhood roundabouts with rain gardens, etc.?
      ☑ Yes ☐ No

F. NEW AND REDEVELOPMENT (POST-CONSTRUCTION) STORM WATER MEASURES (CONTINUED)

5. Do you require water quality design standards or performance standards, either directly or by reference, be met for new development and re-development?
   - [x] Yes
   - [ ] No

6. Do these design standards/performance measures require pre-construction runoff conditions in new development be met for:
   a. Flow volumes.
      - [x] Yes
      - [ ] No
   b. Peak discharge rates.
      - [x] Yes
      - [ ] No
   c. Discharge frequency.
      - [ ] Yes
      - [x] No
   d. Flow duration.
      - [x] Yes
      - [ ] No
   e. Water quality.
      - [x] Yes
      - [ ] No

7. Please provide the Web address/reference where all post-construction storm water management standards are located.

8. Do your zoning bylaws, ordinances or other regulatory processes allow or enable:
   a. Flexible site design criteria such as smaller lot sizes, reduced setbacks and narrow streets in exchange for functional green space and optimal water quality management in storm water runoff.
      - [x] Yes
      - [ ] No
   b. Established regulatory controls over tree clearance and removal of mature trees or forest stands?
      - [x] Yes
      - [ ] No
   c. Green space residential developments (cluster development or conservation subdivision design)?
      - [x] Yes
      - [ ] No
   d. The location of bioretention areas, rain gardens, filters strips, swales and constructed wetlands in required setback areas?
      - [x] Yes
      - [ ] No
   e. Construction of low impact development, or LID, storm water management techniques (bioretention, swales, filter strips) on land held in common (when appropriate)?
      - [x] Yes
      - [ ] No
   f. Use of permeable paving for parking stalls and spillover parking areas?
      - [x] Yes
      - [ ] No
   g. Limited clearing within the right-of-way to the minimum necessary to construct roadway, drainage, sidewalk and utilities, and to maintain site lines?
      - [x] Yes
      - [ ] No

9. Does your review and approval process include using a water quality checklist?
   - [x] Yes
   - [ ] No

10. If yes to # 9, please check all of the following checklist items that apply:
    a. Existing and proposed mapping and plans (recommended scale of 1" = 50'.) which illustrate:
       1. Existing and proposed topography (minimum of 2-foot contours recommended).
          - [x] Yes
          - [ ] No
       2. Compatibility with watershed plans, land use plans, comprehensive plans, (contemporary street standards) etc.
          - [x] Yes
          - [ ] No
       3. Perennial and intermittent streams.
          - [x] Yes
          - [ ] No
       4. Mapping of predominant soils from USDA soil surveys as well as location of any site-specific borehole investigations that may have been performed.
          - [ ] Yes
          - [x] No
       5. Boundaries of existing predominant vegetation and proposed limits of clearing.
          - [x] Yes
          - [ ] No
       6. Location and boundaries of resource protection areas such as wetlands, lakes, ponds and other setbacks (e.g., stream buffers, drinking water well setbacks, septic setbacks).
          - [x] Yes
          - [ ] No
       7. Grading plan with location of existing and proposed roads, buildings and other structures.
          - [x] Yes
          - [ ] No
       8. Location of existing and proposed utilities (e.g., water, sewer, gas, electric) and easements.
          - [x] Yes
          - [ ] No
       9. Location of existing and proposed conveyance systems such as grass channels, swales and storm drains.
          - [x] Yes
          - [ ] No
       10. Flow paths.
           - [x] Yes
           - [ ] No
       11. Location of floodplain/floodway limits and relationship of site to upstream and downstream properties and drainages.
           - [x] Yes
           - [ ] No
       12. Location and dimensions of proposed channel modifications, such as bridge or culvert crossings.
           - [x] Yes
           - [ ] No
       13. Location, size, maintenance access and limits of disturbance of proposed structural storm water management practices.
           - [x] Yes
           - [ ] No

F. NEW AND REDEVELOPMENT (POST-CONSTRUCTION) STORM WATER MEASURES (CONTINUED)

14. Location of proposed community recreation/green space areas.
    ☑ Yes ☐ No
15. Functional landscape plan.
    ☑ Yes ☐ No

b. Narrative and supporting calculations describing:

1. Representative low-impact development techniques (with supporting evidence that technique is compatible with site characteristics) such as on-lot bioretention, tree clearing minimization, minimizing directly connected impervious surfaces, open section roads (also called roadside swales), etc.
   ☑ Yes ☐ No
2. Zoning, acreage, types and amounts of land uses. (e.g., parking spaces, density, green areas, building footprint areas)
   ☑ Yes ☐ No
3. Traffic analysis estimating average daily trips for street network and parking requirements.
   ☑ Yes ☐ No
4. Site impervious area (including effective disconnections).
   ☑ Yes ☐ No
5. Reforestation and/or resource conservation protection measures.
   ☑ Yes ☐ No
6. Comparison of proposed development data with allowable density, land use, etc.
   ☑ Yes ☐ No
7. Development phasing or implementation sequence.
   ☐ Yes ☑ No
8. Other?

11. How many development and redevelopment project plans were reviewed during the reporting period to assess impacts to water quality and receiving stream protection? N/A

12. How many of the plans identified in # 11 were approved? N/A

13. How many privately owned permanent storm water management practices/facilities were inspected during the reporting period?

14. How many of the practices/facilities identified in # 13 were found to have inadequate maintenance? N/A

15. How long do you give operators to remedy any operation and maintenance deficiencies identified during inspections? 5-30 days

16. Do you have authority to take enforcement action for failure to properly operate or maintain storm water management practices/facilities? ☑ Yes ☐ No

17. How many formal enforcement actions (i.e., more than a verbal or written warning) were taken for failure to adequately operate or maintain storm water management practices/facilities? 2

18. Do you use an electronic tool (e.g., GIS, database, spreadsheet) to track post-construction BMPs, inspections and maintenance? ☑ Yes ☐ No

19. Do all municipal departments or staff (as relevant) have access to this tracking system? ☑ Yes ☐ No

20. How often do municipal employees receive training about the post-construction program? several times per yr via email articles, local seminars/webinars

G. PROGRAM RESOURCES

1. What was the annual expenditure to implement MS4 NPDES permit requirements this reporting period? 2016 Budget =568,385 (operating)

2. What is next year's budget for implementing the requirements of your MS4 NPDES permit and SWMP? 2017 Budget=585,437 (operating)

3. This year what is your source(s) of funding for the storm water program and annual revenue (amount or percentage) derived from each? Parks/ SW Sales Tax

Source: Parks/Stormwater Sales Tax Fund	Amount $: 1,244,515	OR %:
Source:	Amount $:	OR %:
Source:	Amount $:	OR %:

4. How many full time equivalent employees does your municipality devote to the storm water program (specifically for implementing the storm water program versus municipal employees with other primary responsibilities)? 6 (1-SW mgmt coord. and 5-infrastructure maintenance employees)

5. Do you share program implementation responsibilities with any other entities?
   ☑ Yes ☐ No

Entity: Engineering	Activity/Task/Responsibility: Supervisor	Your Oversight/Accountability Mechanism: Program Direction
Entity: Street Dept	Activity/Task/Responsibility: Maintenance Crew	Your Oversight/Accountability Mechanism: Program Direction
Entity: Project Management	Activity/Task/Responsibility: CIP Projects	Your Oversight/Accountability Mechanism: Program Direction

H. EVALUATING AND MEASURING PROGRESS

1. What indicators do you use to evaluate the overall effectiveness of your storm water management program? How long have you been tracking them and at what frequency? These are not measurable goals for individual management practices or tasks, but large-scale or long-term metrics for the overall program, such as in-stream macroinvertebrate community indices, measures of effective impervious cover in the watershed, indicators of in-stream hydrologic stability, etc.

Indicator	Began Tracking (year)	Frequency	Number of Locations
Example: E. coli	2003	Weekly April–September	20

2. What environmental quality trends have you documented over the duration of your storm water program? Reports or summaries can be attached electronically, or provide the Web address where they are located. MDNR 303 (d) list, EPA, Center for Watershed Protection, Stormwater Magazine, Erosion Control Magazine, IECA

Introduction

The City of O'Fallon has maintained a positive approach towards compliance with all aspects of the NPDES Phase II Permit requirements since the inception of the program in 2003 and as stated in our most current submitted Stormwater Management Plan (SWMP). We have continued to make improvements and changes to our SWMP, ordinances and policies to make adjustments, trained our employees, educated the public and will continue these efforts to strive to improve the water quality and address water quantity issues in our community. The City of O'Fallon website contains valuable information relating to public education, permit applications, reference guides, and ordinance information. We continue to encourage the general public, builders, developers, etc. to visit the site at http://www.ofallon.mo.us and/or contact staff with any questions that they may have.

We have continued implementation of our five year SWMP for years 2013-2018. This report is a result of our successes and challenges since the program was implemented in 2003. The plan implementation process proposed is a direct reflection of growth in the program and the direction that it will go.

This reporting cycle will encompass the dates June 13, 2015 - June 12, 2016 as requested by the Missouri Department of Natural Resources. The MCM Individual Responsibility information has been updated as well as the goals for each of the six MCMs. See **Appendix L** for implementation of the most recent SWMP 2013-2018 Operation Plan for each MCM.

MCM 1-Public Education and Outreach

1. Implementation Status

General Summary

The City of O'Fallon, Missouri has implemented items which provide educational opportunities for the public and outreach documents for the citizens of O'Fallon. **Five (5)** outreach and education sessions were held with a total of **1185** residents/employees educated. See **Appendix A** for further detail.

Program Elements Changed or Refined Since Previous Report

Due to the continued success of Public Works Day, the City has continued to hold this event annually and Stormwater Management continues to participate. Informational brochures, trinkets, and an educational display were used to educate the public about the importance of keeping our storm sewer system, creeks and stream clean. We continue to work with the schools located in City limits, community groups, etc. as requested. The Stormwater Management Coordinator is in contact with the local schools each year to visit the schools to continue to educate about the importance of water quality. She is certified to educate with Project, Wet, Wild and Learning Tree curriculum. This curriculum and activities utilized in this program is Missouri State Board of Education approved.

In order to promote recycling and bring to attention the over use of plastic water bottles and the harm that they can inflict on the environment, the Stormwater Management Coordinator provided bird feeders made from plastic water bottles at the Public Works Day event. Pre-drilled water bottles with bird seed using a pencil for a perch were made for participants to take them home for use in their yards.

Each year, there will be revisions, additions or removal of completed goals. This will also be provided in updated copies of the Operation Plan for each MCM. See **Appendix J** for further information.

Status of Measurable Goals

Goal 1: Public Information via Hard Copy and Internet: Ongoing

This goal continues to be ongoing since we are constantly reviewing existing material for improvements and look to provide new information we receive or create to local residents, business owners and contractors. There are also several free informational brochures available at City Hall and on the City's Website for use. An Erosion and Sediment Control Informational Brochure has been completed approved for public use in June, 2016. Copies of educational information for the general public as well as recommendations on how to handle drainage issues are utilized on a regular basis. We also continue to update our Stormwater webpage with information. We have reviewed the website again this year and have made revisions in increase ease of navigation, deletion of material and information no longer used as well as the addition of new information and informational materials. In the past, several examples have

been submitted with this annual report, but in effort to reduce waste, please visit: http://www.ofallon.mo.us/stormwater-management to view. See **Appendix B** for a copy of the new Erosion and Sediment Control Information brochure.

Goal 2: Public Education: Ongoing
The City continues to hold environmental education sessions to inform the public about the importance of pollution prevention and its effects. We continue to present information to the public, staff and city representatives at City Council, Planning and Zoning and the Public Works Advisory Committee meetings throughout the year. These meetings are recorded and televised on our local access cable channel. We also utilize our Enviroscape and Project Wet Activities as well with students in school to give them more hands on learning and understanding.

The City has added several weather stations to help us better track storms and rainfall data. These weather stations are also available to the public and can be accessed on line at the Weather Underground website and will soon appear on the City's Stormwater Webpage.

PSA's: You tube videos:
O'FallonTV: Keep Storm Drains Working | O'Fallon, Missouri, Sept. 2015: https://www.youtube.com/watch?v=MjBLeu0Opm8
About Public Works Day 2013: https://www.youtube.com/watch?v=I4DFpeCqpQE
About Public Works Day 2016: https://www.youtube.com/watch?v=ygIhtmwxAqI

Goal 3: Rain Garden/Rain Barrel/Native Landscape Education: Ongoing
In 2016, this goal was revised to remove a formal workshop and changed to Education and Outreach efforts on an individual or small group effort conducted on site. We have found that it is more effective to educate on an individual basis when residents are attempting to resolve private drainage issues and in smaller groups. It is designed to increase awareness of stormwater benefit from installation of rain garden, rain barrel or native landscape. This goal will be ongoing and occurring a minimum of once a year at the City's Public Works Day event. Rain Garden and Rain Barrel handouts have been distributed on a regular basis and are available on the City Stormwater Webpage at http://www.ofallon.mo.us/stormwater-management . A sump pump discharge to rain garden model has been constructed by the Water/Sewer Department and utilized at the Public Works Day event to encourage residents to utilize rain gardens to handle sump pump discharge and keep it out of floor drains and other potential nuisance areas.

A rainwater harvest system was installed and still utilized at the Public Works and Street Department buildings in spring and summer of 2014 to collect part of the roof runoff. These systems are being used to provide water to a rain garden, landscaping, boot washing; filling of concrete saw tanks, etc. A solar powered pump system has also been added to assist with watering landscaping at the Public Works building.

Goal 4: Educational Signage for Native Landscape and Rain Gardens: In progress 10% complete
Installation of educational signage at various native landscapes and rain gardens throughout the City limits. Currently have an educational sign located at the Renaud Spirit Center Rain Garden. The rest of the signs are in design concept phase, but placed on hold due to lack of available funding and installation of the other City-wide identification signs. Once the other sign installations are completed, we can make sure our signs are in line with the other city-wide identification sign requirements and move forward with a request to finish design and begin to install them throughout the City as long as budget funds are approved.

2. Overall Compliance with Permit Conditions

The City of O'Fallon continues to be compliant with its Public Education and Outreach MCM. Through our public education program we will continue to distribute educational materials and conduct outreach activities. Educational resources are constantly being reviewed and updated as new information arises and expansion of those resources has continued with development and publishing of the Stormwater Management Webpage, additional brochures, City newsletters, door hangers and increased efforts to educate the public. Staff continues to attend several workshops to increase their knowledge of NPDES regulations, BMP's, Post Construction Methods, Webcasts, and stormwater pollution awareness as well. It is getting harder and harder to visit schools and perform stormwater education due to state educational requirements. Schools are only allowing us limited access to students usually before or after school to meet with individual clubs which have much smaller groups. A few high schools have us come in for environmental science class and we continue to encourage them to have us frequently. We have also proposed assistance with an educational environmental project on the school site to promote green infrastructure and water quality. We will continue to utilize Project Wet, Wild and Learning Tree education programs. The Stormwater Management Coordinator is certified to instruct in all three programs and continues to educate the school district that these programs are certified by the Missouri Department of Education for use in the classroom; therefore substitution of these program activities can be justified for use in the classroom.

3. Results of Information Collected and Analyzed

Public Education has continued in schools and at public meetings. Tracking information has been established so we can evaluate our successes and re-examine failures. We have seen continued increases in requests for education and outreach materials and training sessions since the inception of the program. The Ft. Zumwalt school district utilizes us, but again with more educational constraints, we have been requested less often during class time, but continue to participate in before/after school club activities. See **Appendices A and B** for tracking information and samples of informational outreach materials. Outreach information can also be viewed on our City Stormwater webpage at http://www.ofallon.mo.us/stormwater-management . We continued to be asked by adjacent municipalities to utilize materials that we have created for use to educate the public. We have also been asked by many other municipalities throughout Missouri as well. We loan our Enviroscape model to St. Charles City for use as well when available.

4. Brief Summary of Activities Next Reporting Period

During the next reporting period, continued expansion and updating of education and outreach materials will occur.

5. Proposed Changes to Public Education and Outreach Area

Updates regarding meeting goals as written in our current SWMP for years 2013-2018 can be found in **Appendix J**. For the next reporting cycle we will continue our public education in the schools, public meetings, homeowners associations and provide information on the City Stormwater Webpage, City Newsletter articles, and cable channel promotion of events.

6. Statement, Relying on Other Governmental Entity

Not applicable

7. Summary of Inspections and Formal Enforcement Actions

Not applicable

MCM 2-Public Participation/Involvement

1. Implementation Status

General Summary

For this reporting period, the Public Participation Program has continued under the title of the "Stormwater Awareness Campaign" which utilizes volunteers to address storm drain marking and pollution prevention awareness. We coordinate and hold creek clean-ups on Earth Day, Make A Difference Day, Youth Service Day and Join Hands Day which are all national volunteer service days. We partner with the surrounding municipalities, Greenway Network, Wal-Mart and a few other organizations for the annual Mission Clean Stream creek clean-up event held every spring. We also work with subdivisions, business and private organizations to organize private creek clean up events. **400** Volunteers removed **1.15 tons** of trash from local streams for this reporting period. We did not have any volunteers sign up to mark storm drains with metal "Dump No Waste Drains to Stream" markers. See **Appendix C** for more information.

Utilization of the City cable channel, electronic email notifications, Stormwater Webpage, Volunteer Services Webpage, Greenway Network Website, local newspapers and citizen "word of mouth" for promotion of this program also assisted us in getting this program started and promoted stormwater pollution prevention.

Program Elements Changed or Refined Since Previous Report

Public Participation and Involvement and Public Education and Outreach have continued to grow since the inception of the program.

The Stormwater Management Department continues to have a very good relationship with the Public Relations Department as well as local newspapers. They have been very good about promoting events and distributing stormwater information to the public via their webpage, informational articles and when announcing upcoming events.

We continue to have residents/groups volunteer their time to perform storm drain marking throughout the year due their concern over the environment. Permanent storm drain markers made of stainless steel have continued to be utilized in the place of painting with stencils. Individual families and groups take on specific tasks or assignments as well. It is also a City development requirement to install storm drain markers, use stamped lids or stamped pre-cast storm structures as part of the development and construction approval process.

We have had several subdivisions host their own private creek clean up events and we continue to provide assistance with supplies, organization, and debris hauling.

Status of Measurable Goals

Goal 1: Stormwater Advisory Panel: Ongoing
Continue to build and maintain public participation and involvement as well as raise citizen awareness for water quality with utilization of the Public Works Advisory Committee as our Stormwater Advisory Panel. We will continue to maintain and get input for water quality, regulations and permit activities or changes, as well as program updates and stormwater improvement.

Goal 2: Public Participation Volunteer Events: Ongoing
Continue to increase public awareness to improve water quality as well as prevent illicit discharges by involving the general public as volunteers in our creek clean ups, storm drain marking events and Public Works Day.

We have a rain garden installed at our Street Department as well as some regular and native landscaped beds. We utilize volunteers to assist with planting and maintenance of these landscapes. A "master gardener" helps to head up this wonderful volunteer group.

Goal 3: Rain Barrel Program: Revised
We will encourage the installation of rain barrels by citizens as a means of stormwater quality and quantity benefits. This will be accomplished by educating the public on the benefits of installing rain barrels and getting them involved with volunteer installation to prevent increased runoff. We have installed rain barrels on our own municipal properties. Our goal for the 2013-2018 SWMP was to create a public rain barrel program similar to ones utilized by other MS4s as funds are allowed. Since budget constraints have continued, we have decided that this goal will be revised and continue to be encouraged through the Public Outreach Program goals. In our research, we have found that many of the other groups that offered such a program in the past has ceased as there are many design choices and affordable prices for residents to purchase on their own. We will continue to encourage residents through public education

and handout information. Two rain water harvesting systems have been installed and remain to be utilized at City owned facilities. One is located at the Public Works Building and one at the Street Department. Rainwater is harvested to rinse work boots and water landscaping using a modified pump and soaker hose at the Public Works facility. Rainwater is harvested and utilized to water a rain garden, landscape and fill concrete saws at the Street Department.

Goal 4: Riparian Corridor Restoration: Completed

We continue to recommend/installation of trees, shrubs and native plants to restore a riparian corridor along a local stream to prevent flooding, improve water quality and assist in prevention of creek bank erosion. We continue to educate, increase public awareness and encourage use of these techniques to the public on stormwater quality and flood prevention benefits by re-establishing a riparian corridor.

A few subdivisions have worked with us and utilized the Forest ReLeaf program to plant trees and shrubs along creek banks to protect them from further erosion and repair the lost riparian corridor.

On all creek bank stabilization Capital Improvement Projects, we continue to repair the riparian corridor as part of the project.

We also encourage the use of native shrubs, trees and plants for our Community Cost Share Program creek bank stabilization projects to assist with prevention of further creek bank erosion and to re-introduce the riparian corridor. This has been successful on all reimbursement projects to date.

2. Overall Compliance with Permit Conditions

The City of O'Fallon continues to be compliant with permit conditions relating to Public Participation and Involvement. The Public Works Advisory Committee acts as the stormwater advisory committee to help educate City Administration and other city residents on the Stormwater Management Program. Positions on the committee are volunteer positions appointed by City council. In the absence of the Public Works Advisory Committee involvement or availability residents can still utilize the "Citizen's Comment" and "Public Hearing" portion of the City Council and Planning and Zoning meetings.

Whenever a development is proposed in the City, public hearings are held at the Planning and Zoning meetings. The Planning and Zoning commission is a volunteer board whose members are appointed by City Council. The Planning and Zoning Commission will review and approve all developments coming into the City. They include in their discussion stormwater and other issues prior to approving the developments. Once approved, their recommendation goes to City Council for final passage where residents have another opportunity to provide questions or comments during a "Public Hearing" regarding the development.

The City also continues to partner with Greenway Network and several other St. Charles County municipalities for the "Mission Clean Stream" annual event and conduct other City Volunteer events that address stormwater pollution prevention. These events involve creek and road-side cleanups. See **Appendix C** for further details.

3. Results of Information Collected and Analyzed, if any

Investigations of stormwater concerns received from City's "Citizen First Center" webpage and hotline, resident or other City department totaled:

June 13, 2015-June 12, 2016

Received:

Stormwater Maintenance:	348
Stormwater Management:	203
Total:	**551**

Completed:

Stormwater Maintenance:	325
Stormwater Management:	191
Total:	**516**

Please see **Appendix D.** for further information

4. Brief Summary of Activities for next Reporting Period

Currently, the storm drains throughout the City have been stenciled for the City with paint or permanent storm drain markers have been installed. Since the paint only lasted a few years and required re-touching, we have converted to using permanent stainless steel

markers. During the next reporting period the City of O'Fallon is planning to continue the volunteer storm drain marking project utilizing the stainless steel storm drain markers in place of paint as well as continue creek clean-ups. We have approximately 1,000 storm drain markers ready to be placed. We will include print ads/articles in the City of O'Fallon Newsletter and stormwater webpage to continue to draw attention to stormwater.

We will also continue our City requirements for developers to install the storm drain marking with new development. They can utilize the stainless steel storm drain markers, use pre-cast messages or manhole lids imprinted with no dumping identification.

There are no significant changes or additions to existing goals for the next reporting period and we will continue to increase awareness to pollution prevention and increase our participation in volunteers.

5. Proposed Changes to this Public participation/Involvement Program Area

There are no changes proposed to this area of the program for this reporting period.

6. Statement, Relying on Other Governmental Entity

Not applicable

7. Inspection Summary and Formal Enforcement Actions

Not applicable

MCM 3-Illicit Discharge Detection and Elimination

1. Implementation Status

General Summary

The City of O'Fallon continues to evaluate and refine its Illicit Discharge Detection and Elimination Program as necessary.

The GIS mapping division continues to map all recently constructed stormwater piping and continue to add the older portions as well. Currently, we have approximately **247.44** miles of storm sewer lines and **38** box culvert infrastructure mapped throughout City limits. See **Appendix E** for map copies. In 2016, we hired three summer Engineering Interns with one designated to stormwater to assist us in completing the task of adding the older infrastructure or infrastructure that is in place, but not currently mapped. Designation of public, other jurisdiction and private infrastructure is being identified and added to the maps as well.

The City has in place a Stormwater Quality Management and Illicit Discharge Ordinance which prohibits non-storm water discharges into the O'Fallon MS4. This ordinance was passed by City Council and enacted on October 24, 2006 and continues to be utilized. There are also several other ordinances relating to property management (nuisance) that cover illicit discharges as well as an ordinance section for the Police Department with relation to dumping materials into storm sewers, right of way, etc.

The City of O'Fallon Water/Sewer Department monitors all commercial industrial waste permits in its district area within the City. The department continues to jointly educate public employees, businesses and the general public on the hazards and environmental concerns associated with any illegal discharges or the improper disposal of wastes.

Concerns are mostly addressed on a reported basis at this time. All of the detention basins currently mapped and major outfalls have been inventoried and inspected since the revision of the reporting requirements were last reported. See **Appendix E** for general map With only one designated employee, it is difficult to monitor all outfalls throughout the entire city limits each year. After a re-organization in the fall of 2015, Stormwater Management Coordinator was moved back under the Public Works –Engineering Department which has no extra staff available for assistance. We have utilized volunteers to help update our outfall maps by providing data entry for a now computerized inspection form that is associated with our GIS mapping system.

In 2012, an IDDE Policy/Manual was approved and implementation has begun. See **Appendix G** for a copy.

Construction sites are monitored more closely by Construction Inspection and Building Inspectors as well as the Stormwater Management Coordinator. Steps were taken to free up more time for the Stormwater Management Coordinator to evaluate and map all outfalls as required by the program. With the completion of the IDDE manual, the Stormwater Management Coordinator has continued a formal inspection program for inventory and inspection of detention/retention basins and outfall/discharge pipes.

The City has a "sump pump discharge" section as part of the Nuisance Code currently in place to decrease the amount of sump discharge to City streets. This ordinance requires homeowners to remove their sump discharge from the front of the property by at least ten feet so that it can spread out and soak in prior to discharging onto City streets. The other option is to discharge it to the rear of the property in the drainage swale by using overland flow away from the foundation of the home to again spread it out and soak it in. Discharging of down spouts and sump pumps to rain gardens and other bioretention or native landscape practices are encouraged. If there is too much discharge that causes a nuisance or long term standing water, connection to the storm drain is then encouraged to decrease the over saturation, property damage and removal of the nuisance complaint.

Program Elements Changed or Refined Since Previous Report

There were a total of five **(5)** Illicit Discharges reported for from June 13, 2015 through June 12, 2016. A sample report is being included for reference. See **Appendix F.**

The City has implemented a plan to continue to inspect detention/retention basins as well as outfalls for the next reporting period.

The Illicit Discharge Detection and Elimination Program manual has been approved and implemented. This manual is available to all supervisors to distribute and inform their employees. If training regarding this manual is requested and they need assistance they will contact the Stormwater Management Coordinator. This will include inspection of outfalls. See **Appendix G.**

Status of Measurable Goals

Goal 1: Storm Sewer System Mapping-Ongoing

Develop and maintain storm system inventory that locates outfalls including detention/retention basins, pipes, ditches, flood control facilities and post construction best management practices. The activities included in this goal are to scan all subdivision records so that they are readily accessible and can be entered into the current storm sewer map. We continue to update new developments as they are constructed. We also continue to add existing developments manually with the help of site visits and aerial images to expand the map. Private storm systems are also being added to the map and being identified by utilizing a different color than public storm systems on map as well to better identify the storm sewer system throughout the City. We have also incorporated our inventory/inspections with the map. Although not available to the public, we can see in-house the most recent information relating to inventory/inspection of detention/retention basins, outfalls. In 2016, we hired summer Engineering Interns to assist us to complete the task of adding the older infrastructure or infrastructure that is in place, but not currently mapped. A screenshot of the map is included with **Appendix E.**

Goal 2: Private Sewer Treatment Systems (Septic)-Ongoing

Develop and maintain a list of addresses and parcel ID's as available for all private sewer treatment systems and develop a map of on-site sewage disposal systems in the City. This will be coordinated through Water/Sewer, St. Charles County and GIS mapping division.

Goal 3: IDDE Manual and Screen Outfalls: Ongoing

Implementation of policy/manual will continue to decrease illicit discharges by visual screening of outfalls and discharge pipes throughout City limits. Initial screening has for all City accepted outfall pipes was completed for existing developments and continues as staff is available. Commercial properties with separate NPDES stormwater permits are required to submit information to MDNR directly.

Goal 4: Pet Waste Stations: Ongoing

Continue to install/replace and maintain pet waste stations to prevent pet waste dumping and improve water quality. We continue to install stations throughout city-owned properties where pet waste deposit is a concern. There are multiple stations located at all City parks and others will be added on an as-needed basis. Parks continues to request replacement bags and new stations as they need them.

Goal 5: Municipal Recycling Program: Ongoing

Continue our single stream recycling program to decrease the amount of waste placed in landfills to improve the water quality of the environment. Our recycling numbers for this reporting period are as follows:

O'Fallon Recycle (in tons)			
		2015	2016
Jan		631	610
Feb		465	481
Mar		571	650
Apr		623	591
May		563	630
June		606	
Jul		618	
Aug		532	
Sept		560	
Oct		561	
Nov		546	
Dec		757	

Yard Waste (in yards)			
		2015	2016
Jan		67	34
Feb		19	37
Mar		636	615
Apr		1298	1118
May		1159	1098
June		865	
Jul		777	
Aug		653	
Sept		745	
Oct		915	
Nov		1067	
Dec		567	

Goal 6: Stream Water Quality Monitoring: New Goal SWMP 2013-2018

As part of the IDDE Manual/Program implementation, inventory of all discharge pipes and outfalls to streams are to be visually inspected each year if possible and water quality monitored by testing should a concern for an IDDE be present. All inventory along with concerns will be tracked. This is new goal established as part of the 2013-2018 NPDES SWMP submission. With the increasing number of outfalls and lack of staff numbers to keep up, this will be done as often as possible. It is our goal to have the complete City inventoried and on a GIS map in the upcoming SWMP reporting period 2013-2018 with the exception for new developments. We plan to utilize volunteers or college interns to complete some of the tasks related to this goal as approved and available. All current outfalls inspected have been added to the storm sewer GIS map system if not already in existence. It is available to staff internally but will not available to the public on the City webpage. Information requested will be made available to residents by request.

Goal 7: Watershed Management Plan: New Goal SWMP 2013-2018

Hire a consultant to evaluate the entire City watershed or smaller portions of watersheds or areas throughout the City to provide hydraulic information, centralized areas of concerns; miles of stream, 303(d) impaired streams, etc. to better manage water quality and quantity in City limits. This is a new goal and its success will depend upon funding approval by City Council. Funds were not approved for this goal for 2016. We will continue to request funds at the 2017 budget submission.

2. Overall Compliance with Permit Conditions

The City of O'Fallon, Missouri is complying with permit conditions relating to Illicit Discharge Detection and Elimination. Our GIS stormwater map is being updated continuously to show stormwater discharge points in the City of O'Fallon. This map currently shows all new or recent developments and a portion of existing older developments. Currently, we have approximately **247.44** miles of storm sewer infrastructure mapped throughout City limits.

Along with the ordinance, the City has created informational materials that are given to residents, commercial owners and subdivision homeowner's associations. We include this information when subdivision associations and homeowner's when apply for permits. These are also issued when a concern is reported. Subdivisions, homeowners associations or management companies are also issued these materials when contacted regarding discharges of pool water, or other illicit discharge concerns. This informational material is also available on the Stormwater Webpage at: http://www.ofallon.mo.us/stormwater-management

An Illicit Discharge Detection and Elimination Program manual has been completed and has been implemented. Training to employees regarding IDDE is continuous throughout the year. We have a more formalized training program that is mentioned in MCM 6-Pollution Prevention and Municipal Good Housekeeping.

We continue to monitor our current Stormwater Quality Management and Illicit Discharge Control ordinance for potential revisions to improve its effectiveness in deterring or removing illicit discharge concerns throughout the City.

3. Results of Information Collected and Analyzed, if any

During this reporting period a total of five hundred fifty one **(551)** stormwater concerns or inquiries were reported and responded to. Of those five hundred fifty one **(551)**, five hundred sixteen **(516)** were completed. Of these inquiries reported, five **(5)** resulted in an illicit discharge which is an increase from the last reporting period due to re-classifying what is deemed an "illicit discharge" as well as increasing enforcement. The vast majority of the concerns received were maintenance issues pertaining mostly to sink holes near the inlet or missing lids. A total of in **85,537** feet of lines were checked and cleaned from June 1, 2015 through June 1, 2016. Inspections are performed with crews dedicated to stormwater maintenance with emphasis on removing accumulated debris and making repairs to infrastructure in an on-going fashion.

Several other municipalities have requested copies of our current ordinance(s) relating to illicit discharges to alter to fit their municipality.

Along with our Illicit Discharge Ordinance (405.245), our Nuisance code (220.020) has also been revised to assist with controlling illicit discharges. Copies of both ordinances have been submitted with previous reports and can be found electronically on the City website at http://www.ofallon.mo.us .

4. Brief Summary of Activities for next Reporting Period

Activities for the next reporting cycle will include, continued investigation of stormwater concerns reported to the Stormwater Management Program via, Citizen's First Center, City Website and the Stormwater Management Coordinator, as well as other departments. We will continue to inspect, repair and remove any accumulated debris that is found during inspection of the stormwater pipelines as routine preventative maintenance. We will continue to look at our ordinance and ways in which to improve on it. Work will continue to update the GIS stormwater mapping. Ongoing training of our employees within departments such as: Building, Construction Inspection, Streets, Neighborhood Preservation, Parks and Recreation, etc. will continue to keep them abreast of maintaining our stormwater system efficiently and help prevent illicit discharge acts. With enactment of the ordinance, we have had more enforcement of these discharges and are able to keep the system as clean as possible and noticing a positive change in behavior of our residents.

Our Citizen First Center now includes a mobile app that resident can download to their android phones to report concerns to the City from anywhere. Citizen First Center can be viewed at http://www.ofallon.mo.us/citizens-first-center .

The Illicit Discharge Detection and Elimination Program manual has been completed and implemented.

5. Proposed Changes to this Illicit Discharge Detection and Elimination Program Area

The goal for next reporting period is to continue to our existing program and modify as necessary. We will continue to educate the public on the importance of prohibiting Illicit Discharges and re-enforce to them that this is not an acceptable practice and that they are enforceable by the City. Inspections of outfalls began late 2011 with an inventory completion at the end of 2014. These inspections will now continue to be ongoing for each of the existing infrastructure and addition of new infrastructure as the City continues to grow as staff is available.

6. Statement, Relying on Other Governmental Entity

Not applicable

7. Inspection Summary and Formal Enforcement Actions

551 concerns were reported with **516** completed for this reporting period.
85,537 feet of stormwater lines were inspected during this reporting period.
5 illicit discharges were discovered for this reporting period in comparison to **0** last reporting period.

MCM 4-Construction Site Runoff Control

1. Implementation Status

General Summary

O'Fallon continues to be compliant with the implementation of construction site runoff controls by means of regulatory requirements and on-site inspections. Ordinances have been put in place with regards to Erosion and Storm Water Run-Off Control, Illicit Discharges and Grading, stormwater infrastructure and detention construction requirements. There are also measures in place that require developers to submit plans for approval prior to construction which encompasses the completion of a grading plan checklist and application approval form which can be found electronically on the City's website at http://www.ofallon.mo.us/engineering . Copies of the ordinance documents have also been submitted with previous reports and can be found electronically on the City website at http://www.ecode360.com/OF3382. See **Appendix K**. Contractors are required to follow St. Charles County Soil and Water Conservation District Erosion (NRCS) and Sediment Control Guidelines. We also reference the MDNR "Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri Manual" and "Missouri Guide to Green Infrastructure" as a guide for site runoff control as well to engineers, developers and contractors.

Our Grading Plan and Construction Plan Process further enforce proper erosion and sediment control and grading operations. Under the grading operations, it requires that erosion and sediment control plans be implemented prior to grading operations beginning, erosion and sediment control measures be implemented per SWPPP and corrected within 48 hours after a ½ inch rain event. It also states that graded areas shall be seeded and mulched within fourteen (14) days of stopping land disturbance activities and vegetative growth established within six weeks of stopping grading work on the project. The growth established shall be sufficient to prevent erosion and the standard shall be as required by EPA and MDNR (70% coverage per sq. ft).

If a contractor is non-compliant in a request to correct improper construction site runoff control, then a summons to appear in court may be issued or a stop work order may placed by until the situation is corrected. Initially, Construction Inspectors or Building Inspectors will work with the contractor/developer to get items corrected. If they do not cooperate or the situation is not corrected, then it is referred to the Stormwater Management Coordinator for further action and a monetary fine may be sought if compliance is not achieved beyond permitted deadlines for compliance. This is referenced in the O'Fallon Municipal Code. Copies of these ordinances have been submitted with previous reports and can be found electronically on the City website at http://www.ecode360.com/OF3382 .

There is also an ordinance requiring developers to maintain detention/retention basins prior to escrow being released and it being turned over to the Homeowner's Association. Ordinance Section 405.240 Stormwater Detention (f) states that an inspector will perform an inspection and each property owner has the responsibility and duty to properly operate and maintain any stormwater management system which has not been accepted by the City. Upon release, responsibility shall be vested in the trustees of the subdivision. Penalties can be assessed for not maintaining the basin. Copies of this ordinance have been submitted with previous reports and can be found electronically on the City website at http://ecode360.com/27644490#27644490 .

Other processes that need mentioned prior to construction commencing are that there are several plan review and planning and zoning processes that developers and builders must go through. All developments must be approved by the Planning and Zoning Commission via the site plan approval and preliminary plat approval. Copies of checklists have been submitted with previous reports and explain in detail what must be submitted and fees that are incurred and can be found electronically on the City's website at http://www.ofallon.mo.us/engineering . The developer/builder then submits their plans to the Engineering Department for review and approval of their project. The project cannot move forward until Engineering Plan Review gives final approval that all City Ordinances are met. Once plans are approved, a pre-construction meeting is scheduled with all necessary parties prior to construction beginning. In this meeting erosion and sediment control requirements are reviewed and need for compliance is emphasized.

Program Elements Changed or Refined Since Previous Report

The City has increased its awareness of construction site runoff controls. Water quality monitoring testing equipment has been purchased and used by Stormwater Management Coordinator for field testing for turbidity and TSS at construction sites as needed for suspected ordinance violations. The Stormwater Quality Management and Illicit Discharge Ordinance and Grading Plan and Construction Plan Process Ordinance are established and in place for enforcement. Copies of such ordinances have all been submitted with previous reports and can be found electronically on the City website, Illicit Discharge at http://ecode360.com/27644550#27644550 and Grading Plan process at http://ecode360.com/27644216#27644216 .

We have continued requesting a weekly Land Disturbance Checklist from sites as well as performing our visual inspections and their SWPPP requirements. See **Appendix K.** Pre-Construction site meetings are also conducted with the Builder/Developer with Construction Inspection and Stormwater Management to go over plans and Erosion and Sediment Control. We have converted most all of our forms, applications, checklists, etc. to electronic versions that can easily be accessed through the City website or via email request.

The Stormwater Management Coordinator is also a Certified Erosion, Sediment and Stormwater Inspector (CESSWI) and Certified Professional Municipal Stormwater Manager (CPMSM).

Status of Measurable Goals

Goal 1: Construction Site Inspections-Ongoing

Ensure construction sites are inspected to ensure compliance with approved plans and SWPPP. Currently the Construction Inspectors, Building Inspectors and Stormwater Management Coordinator, perform site inspections both scheduled and randomly to determine overall how the developer and builder compliance rates in following and maintaining construction site runoff controls. They are making sure that the "Construction Plan Requirements" pertaining to subdivision and land developments ordinance 5384, Title IV, Land Use, Section 405.100 are being followed and enforced. This ordinance sets requirements for submitting and following grading plans including cross-sections and contour sheets. Plans must be approved prior to the start of any grading and all other applicable permits from other governing agencies such as MDNR, St. Charles County, or EPA must be received prior to any work performed. Copies of such ordinance have been submitted with previous reports and can be found electronically on the City website at http://ecode360.com/27644264#27644264

The Grading Plan Application and Checklist has been developed and implemented and requires sediment and erosion controls as established by MDNR, Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri Manual and City Ordinances. Additionally, grading plan review and development checklists are in use so that developers and contractors are aware and know which requirements to follow. Copies of such documents have been submitted with previous reports and can be found electronically on the City website at http://www.ofallon.mo.us/engineering.

On subdivision developments, developers are to place monies in an escrow account to help assure all work is completed satisfactory and according to approved plans. The Grading Plan and Construction Plan Process ordinance also requires an "Improvement Installation or Performance Guarantee". These ordinances contain a breakdown of the escrow procedures. Also, escrows for grading permits are required prior to release for grading activities.

Total Construction Inspection Inspections for this reporting period:
Avg. 21-Active sites (decreased from last reporting period)
Avg. 12-Semi Active sites (decreased from last reporting period)
Avg. 4-Inactive sites (decreased from last reporting period)
A total of 207 Excavation Permits were issued for this reporting period (Increase from last reporting period)

Inspections are performed 3-5 times per week for active and semi-active sites and 1 time per week for inactive sites.

Building Inspections/Permits for this reporting period:
Inspections totaled **8,497** and Permits totaled **3,425** for this reporting period. (Inspections increased and permits issued decreased from last reporting period)

Goal 2: Site Plan Review Procedures-Ongoing

Review the process for pre-construction SWPPP plan review for all residential and commercial projects that disturb one or more acres. We will continue to review existing procedures and track the number of site plans reviewed. We are working on the migration of all applications to all electronic submittals through new software that the City has purchased.

Goal 3: Construction Site Water Quality Monitoring: Ongoing

Implement process and procedures for water quality monitoring on sites that are adjacent to streams. This is a new goal being implemented with the NPDES 2013-2018 SWMP. The goal is to have the contractors monitor and provide results to the City, but have been unsuccessful at getting this implemented yet. This goal may need to be revised in the future. Currently, visual monitoring and protection as part of and emphasized at Pre-Construction meetings.

Goal 4: Enforcement Procedures: Ongoing

Enforce City Regulations. We continue to enforce City ordinances and state/federal regulations for all construction activity that disturbs one or more acres. As part of the approval process, the City will not issue approval on construction plans until all state permit requirements such as land disturbance and SWPPP are approved and provided to the City. Modify existing policy/ordinance to better define proper disposal of construction waste and include increased enforcement. This will continue to be an ongoing process.

2. Overall Compliance with Permit Conditions

O'Fallon continues compliance with permit conditions relating to construction site runoff controls. We continue to enforce the ordinance and regulatory mechanisms, including fines and/or civil penalties that provide the ability to regulate stormwater runoff from construction sites. O'Fallon maintains inspection procedures and maintains these records in an orderly manner. Construction Inspectors, Building Inspector's and the Stormwater Management Coordinator will continue to make random and scheduled inspections of construction sites to determine overall compliance of our construction site runoff BMP's, regulations, and ordinances.

3. Results of Information Collected and Analyzed

Nothing to report at this time.

4. Brief Summary of Activities Next Reporting Period

We will continue to monitor and address Construction Site Runoff Control. Ongoing training for new and current employees on current and new BMP measures will continue.

The Stormwater Management Coordinator has retained certification requirements for CESSWI Certification received in 2009 and CPMSM Certification received in 2011 and has continued to retain these certifications.

5. Proposed Changes to Construction Site Runoff

We will continue to encourage "First Flush" detention/filtration, better sedimentation and erosion control BMP's. We will continue to be stringent on post grading, seeding, and mulching in our efforts to improve the stormwater quality.

We will continue to address construction site runoff in more of the post construction site approach so that Stormwater quality can be addressed as well as quantity in addressing sedimentation and erosion control efforts.

6. Statement Relying on Other Governmental Entity

Not applicable.

7. Summary of Inspections and Formal Enforcement Actions

Each new development approved by the City of O'Fallon undergoes various plan review states and inspections during the entire development process beginning with grading and ending with a final inspection prior to release of escrow funds. Improvements or changes required by the City are enforced when necessary through the building permit process also.

Building Department Inspections totaled **8,497** and Permits totaled **3,425** for this reporting period.
Construction Inspection performed site inspections **3-5 times per week** for capital improvement projects, active and semi-active sites and **once a week** for in-active sites for this reporting period.

MCM -Post-Construction Runoff Control

1. Implementation Status

General Summary

Various BMP's are used to control siltation and erosion of development areas until such time as finished graded is completed and vegetation can be re-established. The City of O'Fallon requires all developments to meet stormwater detention or retention requirements to help minimize the impacts of flooding, post-construction runoff, including runoff from increased impervious areas created by development.

On January 14, 2008 City Council approved an Ordinance requiring Stormwater Quality Post Construction BMP measures code section 405.247. Copies of this ordinance have been submitted with previous reports and can be found electronically on the City website at http://ecode360.com/27644596#27644596 . See **Appendix K**.

On March 3, 2009, Procedures for Post Construction BMP Maintenance Agreement and an Agreement were put in place and are continued to be utilized. These procedures do require that the agreement be recorded with the St. Charles County Assessor's Office, transfers ownership to new property owner if property is sold, BMP's are properly maintained, annual maintenance reports submitted to the City and provide a contact to the City. This agreement can be accessed from the City website at http://www.ofallon.mo.us/images/pubs/engineering/BMPMaintenanceAgreement.pdf . See **Appendix K.**

Program Elements Changed or Refined Since Previous Report

We have continued requesting more stringent erosion and sediment controls for construction site runoff control and are requiring engineering firms and developers to think outside of the box within the guidelines of our current city ordinances to allow for more of these types of developments and BMP usages.

Section 400.170 of the City Municipal Code entails a section for "*Environmental protection planned developments"* which is an alternative to standard planned unit development or other types of development**.** The purpose of these developments are for a residential, commercial, office, high-tech or industrial site that must, to the satisfaction of the City Council, provide for the permanent protection and preservation of the natural features and environmentally sensitive areas of the site. Copies of this ordinance have been submitted with previous reports and can be found electronically on the City website at http://ecode360.com/27635472#27635472 .

In 2008, the Stormwater Quality-Best Management Practices Ordinance was approved by City Council and remains in place today. This ordinance section requires Best Management Practices for Post Construction development and redevelopment to address both water quantity and water quality. In this ordinance, requirements for improved creek bank setback was added Post Construction water quality requirements addressing impervious cover, structural and non-structural BMP's, offsite drainage, and extended detention are all included. A maintenance agreement has been in place since March, 2009 and is being utilized as part of the plan approval process. And can be accessed on the City website at http://www.ofallon.mo.us/images/pubs/engineering/BMPMaintenanceAgreement.pdf. See **Appendix K.** We also reference the MDNR "Missouri Guide to Green Infrastructure" and "Protecting Water Quality: A field guide to erosion, sediment and stormwater best management practices for development sites in Missouri" as a guide for post construction runoff control as well to engineers, developers and contractors.

Promotion of stormwater ponds, wetlands, infiltration practices and open channel practices are all part of this ordinance. The City worked together with the Home Builders Association for several months to put this ordinance together. It was presented to the City's Planning and Zoning Commission for approval in December, 2007 and then passed by City Council January 14, 2008.

Several rain gardens, drop inlets, sand filters and other methods of post construction have begun to be utilized throughout the City. We have developed a tracking mechanism (database) so we know where they are. See **Appendix I.**

The City has two rain gardens currently. The first rain garden is a cost share project that was installed at the Renaud Spirit Center, recreation center as an educational tool to promote them in 2007. This rain garden is managed by our City landscape crew. A resident donated a bench adjacent to the rain garden in honor of their daughter that residents use to sit and enjoy the rain garden.

The second rain garden was completed in April, 2009 at the Street Department. The Street Department rain garden recently underwent 5-year maintenance to re-establish plants, replace soil medium and add fresh mulch. The Street Department rain garden was installed in lieu of stormwater infrastructure to capture and treat runoff from the parking lot and building. The rain garden has been a good site to test salt tolerance of plants as this lot has the potential for the highest instance of salt use due to snow removal operations being headquartered here. This rain garden is maintained by a local volunteer group that consists of "Master Naturalists, Master Gardner's".

The Street Department installed a Snout drop inlet filter several years ago as a demonstration project in their parking lot to help decrease pollutant loads to the stormwater system. It continues to be maintained by their department and is working well.

In 2014, a rain water harvesting system was installed at the Street Department which consists of a 500 gallon tank and an additional 200 gallon tank. The Street Department has begun recycling rainwater to use in equipment such as their concrete saw to conserve water sources and water the rain garden and landscape as necessary.

The Street Department has also converted a majority of their landscape with native plantings. The landscape beds are maintained by local volunteer group that consists of "Master Naturalists, Master Gardner's".

A grassy paver parking lot extension has been added to our Veteran's Memorial Site in 2009 and continues to be utilized for overflow parking.

A pervious paver crosswalk was added in the City's parking lot in front of the entrance as a demonstration project to encourage use of alternative stormwater BMP's in 2007 and remains in place.

A bioretention swale in a parking lot addition at Westhoff Park was constructed in 2012. There are also several areas and landscape beds consist of native landscaping in other parks throughout the City.

A Rainwater harvesting collection was installed at the Public Works Facility in 2014. A portion of the roof runoff is captured in 2-150 gallon tanks. This rainwater is being utilized to water landscaping and other uses such as tool and boot washing. A solar battery operated pump has also been installed to assist with the use of watering the landscape which consists of mostly of native plants.

The City has begun using inlet filters on some public storm sewers to decrease pollutant entry to the storm water system.

Commercial Developers, Builders and Residents are encouraged to install native landscape, rain gardens and rain barrels as well as infiltration trenches to address grading and drainage concern in their yards rather than install hard armor solutions.

The City funds the Stormwater Program by a Parks/Stormwater Sales Tax Fund that was established in 2008. Sales tax revenue is divided between Parks and Stormwater. The portion of funds approved for Stormwater are utilized to operate the program, pay staff, purchase equipment and correct stormwater concerns that qualify for full funding by the City per the approved "Stormwater Policy" that was implemented in 2011 and is available on the City Website at http://www.ofallon.mo.us/stormwater-management .See **Appendix L**. If a concern is accepted as a fully funded Capital Improvement Project, it is placed on our "Stormwater Priority List" and listed via a ranking and rating system. The concern with the highest ranking points and priority level are listed first. This list is updated continuously with the addition of new stormwater projects and removal of projects that have been completed. Post Construction BMP's are always recommended and considered as part of the projects completed.

A Community Cost Share or 50/50 cost sharing program has also been developed and implemented in 2012 to assist residents with funding stormwater issues that do not qualify for full City funding assistance as per parameters set in the "Stormwater Assistance Policy". In 2016, this policy was revised and approved by City Council to include a recycled rock program. Information on this program can be found on the City website at http://www.ofallon.mo.us/stormwater-management . See **Appendix L**. The 50/50 reimbursement program offers a 50 percent cost share reimbursement from the City to residential property owners once the project is completed for projects that do not

use the "Rock" portion of the program in which the City provides recycled concrete that is broken in to rip rap sized rock that can be utilized for minor creek erosion projects. The City delivers the recycled concrete to the front yard and the homeowner is responsible for placement of such rock. The homeowner accepts that the delivery of the recycled concrete accounts for 50 percent of the cost of the "Rock" program and no other funds are reimbursed to the homeowner with the "Rock" portion of the program. With all projects completed as part of the 50/50 program, the City accepts no responsibility for the work done; agreements made with contractors, contractor warranty and no easement agreements with the City are completed. With recent Stormwater web page updates, the application process is now available online. More information can be found at http://www.ofallon.mo.us/stormwater-management

Status of Measurable Goals

Goal 1: Ordinance or Other Regulatory Mechanism: Ongoing
Adopt/revise ordinance(s) addressing stormwater runoff from new development/redevelopment projects disturbing one more acres. We have a current ordinance in place; however, we will continue to look at ways to improve it as necessary. We will look toward including more detailed information regarding redevelopment projects and continue to educate the development community.

Goal 2: Post Construction Requirements: Ongoing
We will adopt/revise our current post construction stormwater management requirements as per MDNR/EPA general construction and NPDES permits. We will continue to evaluate and review BMP's and alternatives. A database has been developed to track BMP installation throughout the City and will continue to be updated and revised as necessary.

Goal 3: Site Plan Review Procedures: Ongoing
We will continue to adopt/revise our current policies that requires construction stormwater management per MDNR/EPA general construction permit. We will continue to evaluate and review our procedures, educate the development community on changes as they occur to make the process flow more smoothly. Emphasis will continue to promote post construction practices.

Goal 4: Site Inspection Procedures: Ongoing
All post construction (structural and non-structural) BMPs will be inspected prior to acceptance of the project by the City to ensure BMP's are installed and functioning properly. Privately owned BMP's are required to be inspected regularly and inspection/maintenance reports submitted annually to the City. The City inspects and maintains municipal owned BMP's regularly. We will develop and implement an inspection schedule over the next five year reporting period 2013-2018 for all BMP's installed on commercial properties, easements or common ground located within City limits. We have a BMP database for tracking of BMPs that has been implemented to track installation, maintenance and inspection.

Goal 5: Long-Term O&M Plans/Agreement: Ongoing
All sites approved through the City are required to have an O&M plan for their post construction BMP's. We will enforce long term O&M plans/agreements for BMP's installed on properties that have been recorded with St. Charles County. This goal is ongoing as we continue to review and update/revise our post construction ordinance as necessary for improvements/changes. A database has been developed to track BMP installation throughout the City and will continue to be updated and revised as necessary.

2. Overall Compliance with Permit Conditions

The City of O'Fallon has regulatory requirements in place to help ensure a reduction of pollutants associated with the post-construction stormwater runoffs and has identified BMP's to help reduce stormwater quantity, erosion and siltation. A full site review is conducted as part of the pre-construction approval. There is an escrow release procedure to ensure that BMP's are installed correctly and vegetation is established prior to the escrow monies being released. We also require monitoring of detention/retention basins to ensure proper function and maintenance is kept up through our Neighborhood Preservation Department and Stormwater Management Coordinator. We ensure that the responsible parties are doing their part in this maintenance requirement.

As a condition of approval through the Planning and Zoning Commission, the City requires Phase II Post Construction BMP's for all sites as a "Condition of Approval". An example of such has been submitted with previous reports.

Plan review continues to recommend post construction methods for projects coming into the City as well as for capital improvement projects funded by the City.

Changes to our detention ordinance requirements has been revised as part of the revisions to municipal code section 405.240 for 2016 and continues to address "first flush" rainfall. See **Appendix K**. Previously, concrete swales were required in all detention basins this has been removed and changed vegetated swales to better address this. The ordinance can be found on the City website at

http://ecode360.com/27644490#27644490 . We also work with homeowners associations and property owners with retrofit recommendations to existing detention and retention ponds to make them more post construction/environmentally friendly with regard to stormwater quality when requested. We communicate frequently with the NRCS, MDC with regard to potential grant monies to assist these property owners with more native solutions for retrofits.

Stormwater Management Coordinator and other City Staff attended several seminars and webinars this reporting period to refresh, increase knowledge and obtain PDH's for our current certifications.

3. Results of Information Collected and Analyzed

Nothing to report at this time.

4. Brief Summary of Activities Next Reporting Period

For the next reporting period, the City plans to continue to conduct site review, and look into more efficient and effective ways to prevent post construction runoff. We will compare impervious and non-impervious developments and the information gathered will hopefully assist us in updating the listing of BMP's that would be allowed. We will continue enforcing our BMP ordinance.

5. Proposed Changes to Post Construction Runoff

Continue to look at zoning regulations and more environmental friendly development strategies for better water quality and quantity controls. Increased involvement with Planning and Zoning, Engineering and Stormwater as well as continue to educate Public Works Advisory Committee, City Council, Engineers, Builders and Developers.

6. Statement Relying on Other Governmental Entity

Not applicable.

7. Summary of Inspections and Formal Enforcement Actions

Upon the developer's request for occupancy, a final inspection is performed to see that all requirements set forth by the City of O'Fallon have been met. Also, at the time the developer requests escrow monies released, an inspection is performed to ensure that proper post construction run off BMP's have been met, installed properly and proper vegetation established. No escrow monies are released for unsatisfactory inspections. If the developer does not perform necessary corrections, O'Fallon has the legal authority to perform those repairs or cause those repairs to be completed to its satisfaction.

MCM 6-Pollution Prevention and Good Housekeeping

1. Implementation Status

General Summary

During this reporting period, O'Fallon Water/Sewer at the Water Treatment Plant and Waste Water Treatment Plant has continued to addressed pollution prevention and good housekeeping as part of their individual permit requirements and since MDNR placed Oil and Grease permit limits onto our effluent discharge NPDES permit. They also continue to enforce removal sump discharge to floor drains to prevent increased potential for Infiltration and Inflow (INI) into the sanitary system. A public outreach and education campaign regarding use of "flushable wipes" has also continued.

The City of O'Fallon Street Department swept **3,842.25** miles of City streets for this reporting period. This routine street sweeping program is part of our municipal good housekeeping efforts to protect the environment. The street sweeper is manned and operated by the Street Department employees experienced in its operations and helps prevent floatables from reaching the storm sewers, creeks, streams and rivers.

Any fluids from motor vehicles fixed at the city repair sheds are captured and hauled off for recycling. The majority of city owned vehicles are washed at a commercial car wash and not onsite. Vehicles washed on site use best management practices to help prevent pollutants from entering the storm sewer system. Spill response kits have been placed at fueling stations at 5 locations as part of a generic Spill Prevention, Control and Countermeasure Plan (SPCC).

The City Street Department has improved their erosion and sediment control practices for street repairs.

The Parks and Landscape Department has continued to use less pesticides and fertilizers.

A "Municipal Pollution Prevention and Good Housekeeping Guidance Document of Best Management Practices" has been approved and implemented. A copy of this document has been distributed to all supervisors and is available to all employees.

A "Stormwater Pollution Prevention Plan" (SWPPP) template for all required facilities has been created and distributed to supervisors for completion and a copy held on file by the Stormwater Management Coordinator. This document was created and implemented as a result of a Target Audit by MDNR of MCM 6 that occurred in 2012.

Program Elements Changed or Refined Since Previous Report

There are no significant changes to this MCM. We continue to utilize our Pollution Prevention/Good Housekeeping for Municipal Operations Guidance and require SWPPPs for City owned facilities with annual inspection reporting. We continuously evaluate better ways to implement BMPs and good housekeeping practices to increase stormwater quality and set a good example for the public. We also continue annual employee training with regard to improved pollution prevention and municipal good housekeeping practices.

Status of Measurable Goals

Goal 1: Employee Training: Ongoing

Continue to train key staff on issues related to MS4 permit in general and specific portions of the MCM's that directly impact their department activities. Implementation of our Municipal Pollution Prevention and Good Housekeeping Guidance Document of Best Management Practices has occurred. In-house training via video, power point, articles and staff training sessions will continue.

Goal 2: MS4 Maintenance: Ongoing

Maintain ongoing scheduled maintenance. Continue current schedule for inspecting and cleaning storm structure. Summarize maintenance activities in annual report.

551 concerns were reported with **516** completed for this reporting period.
85,537 feet of stormwater lines were inspected during this reporting period.
3,842.25 miles of streets were swept.

Fleet maintenance recycles used oil and antifreeze as well as properly stores chemicals utilized at these facilities.

SWPPP documents have been completed for all facilities necessary. A general template for all facilities has been created so that we remain consistent across the board. They continue their formal annual inspection process.

Goal 3: Road Salt: Ongoing

Properly apply salt in a way that minimizes over-usage. The Street Department Director is responsible for implementation of this goal. The department constantly reviews ways that snow and ice operations are handled. They continue to research and implement ways to improve on snow removal with use of less chemical where possible. The Street staff attends the APWA North America Snow Conference, which is a national event held annually, for new information, tips and technology. Beet juice has been incorporated and utilized over the last several years as part of our snow removal operations. They present the snow and ice operations to the Public Works Advisory Committee every year and to City Council when requested. This will remain an ongoing goal.

Goal 4: Disposal of Wastes

The goal is to properly manage and dispose of waste. We will continue to expand, develop and implement proper waste disposal practices. This will be an ongoing goal as more waste has become recyclable. We have implemented a recycled concrete program as part of our Community Cost Share/Stormwater Assistance Policy in which we offer it as rip rap for creek bank stabilization for residents that qualify per program guide lines of our Community Cost Share Program free of charge. This keeps this material out of landfills. See **Appendix N.**

Goal 5: MS4 funding Mechanism: Ongoing

We will continue to research, evaluate and recommend/revise funding mechanism to support program requirements as required by EPA. We are currently funded by a ½ cent park/stormwater sales tax in which council determines every budget year the amount of funds that will be appropriated to stormwater. No general funds are allocated to the stormwater budget. This goal will continue to research different types of funding mechanisms outside of the parks/stormwater sales tax. Once we have prepared alternatives we will present to City council and request implementation.

2. Overall Compliance with Permit Conditions

The City of O'Fallon is complying with permit conditions by developing and implementing programs to reduce and prevent pollutant runoff from municipal operations. Although we do have a formal document in place, we also continue to have both formal and informal measures in place to perform Pollution and Good Housekeeping. For example, each facility performs a visual inspection and performs trash pickup and debris removal on a regular to daily basis. Employee training has continued on regular basis.

Our Street Department has also installed a rain garden, rainwater harvesting system, native plants and Snout storm sewer inlet filter to assist with maintenance on their lot. They also continue to operate a street sweeping program.

The Public Works Facility has installed and utilizes a Rainwater Harvesting System to capture partial roof runoff. Native plants have also been incorporated into some landscaping.

We continue to evaluate and improve our salt storage for snow removal operations. We have a salt dome building, a covered area, and tarps and bins in place when we must utilize outside storage which is monitored and maintained on a regular basis. Our binned salt storage area at the Street Department is converted to store other materials during non-winter months. The rest of the salt materials are stored in a salt dome or covered area to keep it contained and prevents excess runoff.

3. Results of Information Collected and Analyzed

For this reporting period, a total of **3,842.25** miles of streets and highways were swept and cleaned by the Street Department. A total of **85,537** feet of stormwater lines were inspected during this reporting period.

4. Brief Summary of Activities Next Reporting Period

We will continue to strengthen and fine tune our "Stormwater Pollution Prevention Plan" by utilizing the "Municipal Pollution Prevention and Good Housekeeping Guidance Document of Best Management Practices". Ongoing and annual training for new and current employees on pollution prevention measures will continue. Pollution Prevention and Good Housekeeping Plan will continue to be addressed with emphasis on salt storage, equipment maintenance, street sweeping, pipe and culvert cleaning, construction, recycling and disposal guidelines.

5. Proposed Changes to Pollution Prevention/Good Housekeeping

As stated previously, a guidance document for municipality pollution prevention/good housekeeping best management techniques has been developed, approved and implemented. The document has been provided to all departments for training and facility implementation. We have finalized training and implementation of a SWPPP for each City facility requiring one has been completed. See **Appendix H.**

6. Statement Relying on Other Governmental Entity

Not applicable.

7. Summary of Inspections and Formal Enforcement Actions

Pollution prevention and good housekeeping measures are one function of each of our employees' job. This is a daily, ongoing routine and employees are reminded to be aware of our own operation and maintenance practices to help and ensure a reduction in the amounts and types of wastes that collect on our streets, parking lots, and maintenance areas. City staff also maintains compliance with contractors and developers sites by the enforcement of existing codes and ordinances that assist with prevention.

Listing of Appendices

A. Training Tracking and Public Outreach and Education Information
B. Handout Example-Erosion and Sediment Control Brochure
C. Creek Clean-Up Information
D. Reports Stormwater Concerns June 12, 2015 to June 13, 2016
E. GIS Maps
F. Illicit Discharge Report- June12, 2015 to June 13, 2016 (Sample)
G. Illicit Discharge Detection and Elimination Program Manual
H. Pollution Prevention/Good Housekeeping for Municipal Operations SWPPP Site Example and Inspection
I. BMP Tracking Database (Sample Entry)
J. Stormwater Management Operation Plan for MCM's 1-6 for 2013-2018 Permit Cycle and SWMP Org Chart
K. Ordinance 405.240, 405.070, Weekly Land Disturbance Checklist, 405.245, 405.247, BMP Agreement Example
L. Stormwater Policy and Community Cost Share Program Documents

Stormwater Annual Report--Exhibit A

Stormwater Education Tracking-June 13-2015-June 12, 2016

	# of Participants	Date Completed	Location of Training	Type of Activity/Training
	100	1/21/16	Westhoff Science Night	Stormwater Pollution Education-Enviroscape
ation	25	2/17/16	Forest Park Elementary Earth Club	Project Wet SW Activity-Incredible Journey and SW Pollution Educa
	40	4/7/16	Envirothon	Student Enviroment Competition
ation	20	5/12/16	Ostman Elementary Earth Club	Project Wet SW Activity-Incredible Journey and SW Pollution Educa
	1000	5/18/16	Public Works Day	Stormwater Pollution Education-Enviroscape
	1185	**event**	**Totals**	
	Participants			

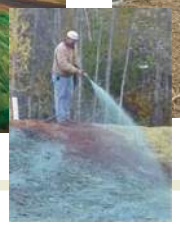
Appendix B

Vegetation, Grass Buffers and Stock-piles

- Stockpiles should not be located near a street or next to adjacent property lines
- All stockpiles must be stabilized with vegetation or covered as well as have properly installed erosion/sediment controls around the base of the pile
- FOR ALL SITES vegetation must be established in areas where grading activity has ceased for 14 days or longer. Even if the area is only temporarily not active
- All inactive sites are still required to be stabilized with permanent vegetation and maintenance of erosion/sediment controls completed until such time they can be removed or activity begins again
- Buffer strips of existing vegetation or sod are used to create a buffer and will help reduce erosion and filter sediment. Covering denuded soil with mulch material can also protect from erosion

Rolled Erosion Control Products (RECP)

- Wattles, Logs, blankets, mats, etc. are designed for surface flows. They are more porous allowing water to pass through and filter runoff with the benefit of decreased erosion or undercutting
- They are to be installed per manufacturers instructions and are used to stabilize soil and filter runoff until permanent vegetation can be established



Reference Links

- http://kcmetro.apwa.net/content/chapters/kcmetro.apwa.net/file/Specifications/Division%20III%20Standard%20ESC%20Drawings.pdf
- http://kcmetro.apwa.net/content/chapters/kcmetro.apwa.net/file/Specifications/2015_ESC_Std_Dwgs_Consensus_Document_w-Appendix.pdf
- https://www3.epa.gov/npdes/pubs/examples wppp_smallcommercial.pdf
- https://www.epa.gov/sites/production/files/2015-12/documents/cgp_small_lot_swppp_brochure-508_0.pdf

City of O'Fallon, MO

Stormwater Management Coordinator
100 N. Main St.
O'Fallon MO 63366
Phone: 636-240-2000
E-mail: micheleg@ofallon.mo.us

City of O'Fallon, MO

Erosion and Sediment Control

Stormwater Pollution Prevention

TEL: 636.240.2000

Procedures for Proper Erosion/ Sediment Control

The City of O'Fallon has established ordinances for construction activities that includes erosion and sediment control BMP (best management practice) requirements for all sites. Please refer to the City's website for more information regarding ordinances and requirements at http://www.ofallon.mo.us or contact the Stormwater Management Coordinator or Engineering Department.

Stormwater is not treated water, therefore, when it rains, anything that is carried in this runoff travels directly to storm sewer system, which leads to our local streams, rivers and eventually the ocean. Any stormwater pollutant leaving your construction site due to lack of proper installation or maintenance can result in notice of violation action, fines, stop work orders and/or state and possibly federal involvement.

There are many types of erosion and sediment control BMP's that can be used to help prevent stormwater pollution. Examples provided in this brochure are not all inclusive as there are many other types of products and methods that can be used.

Please be sure to check the lay out of your individual site to ensure the methods you will use will be well suited for your site.

Silt Fence (AKA Sediment Fence)

- Turn ends to face uphill to capture runoff
- Remove accumulated sediment to maintain proper capacity and prevent failures
- When overlapping or joining sections be sure to overlap to the next stake

Construction/Lot Entrance

- Use aggregate sufficient to prevent tracking onto a public roadway
- Ensure that the width is wide enough for all sized vehicles that enter or leave the site
- Keep well maintained
- Provide perimeter protection as necessary or required for increased pollution prevention

Perimeter Control

- Perimeter control is often required to prevent sediment from leaving your property. Controls should be installed to prevent sediment from reaching streets, sidewalks and existing vegetation

Inlet Protection

- Inlet filters are to be treated as a **second line of defense** with proper BMP's installed upstream and throughout the site or lot to limit the amount of sediment reaching the street
- Area Inlets: Ensure that lots that drain to an area inlet install and maintain proper inlet protection for the entire inlet. A proper inlet filtering device should be installed to prevent localized ponding or flooding
- Curb Inlets: Filters should be installed and maintained in front of the curb inlet openings. Products and/or materials used for curb inlet protection should be installed so as not to create a safety hazard or cause property damage.

Adjacent Lots & Other Pollutants

- Ensure you are protecting adjacent lots sediment loss
- Trash, debris and other construction waste should be properly contained and disposed of properly
- Hazardous waste and other items not allowed in landfills should be properly disposed of and not discharged into the storm system
- De-watering activities should be completed so as not to deposit sediment off site or cause erosion. A filtering mechanism should be used in conjunction with these activities before discharging from the site

Annual Stormwater Report--Exhibit C
Creek Cleanup Projects-June 13, 2015-June 12, 2016

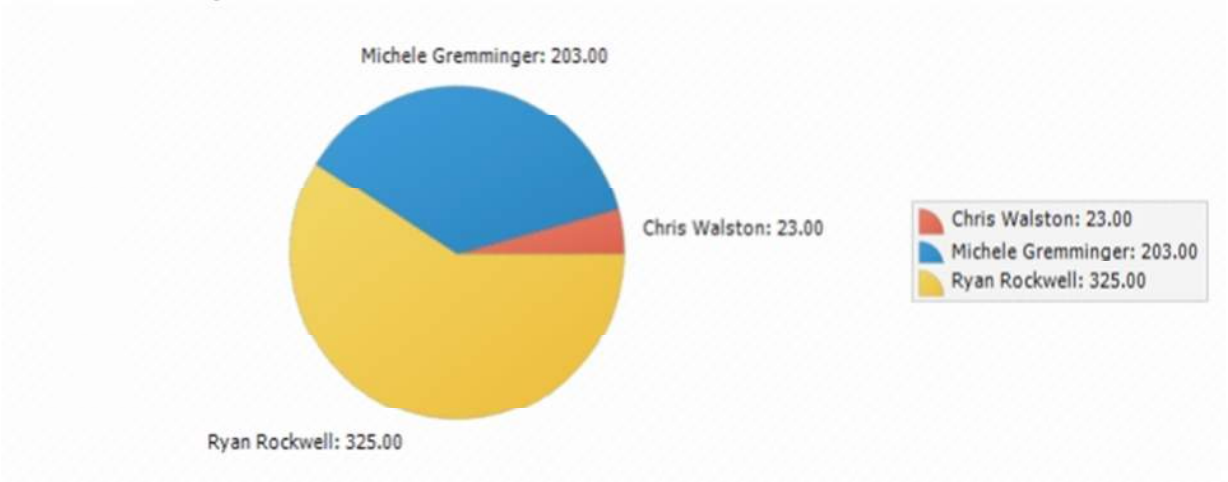
Date	# Volunteers	Tons	Location		
8/8/15	3		Avondale Hts-Logan Valley Private Clean Up	Subdivision Creek Clean Up	
10/10/15	29	0.15	Share St. Louis-community service project-Wetland near Texas Roadhouse	Wetland/Creek Clean up	
4/1/16	75		N. Cool Springs Ind and Ashford Pl	Youth Service Day-Christian High School	
4/2/16	293	1	Osage meadows, Bramblett, Wabash, Texas Road House, Westhoff	Mission Clean Stream	
Total	**400**	**1.15**			

(Feet calculated via GIS map ruler)

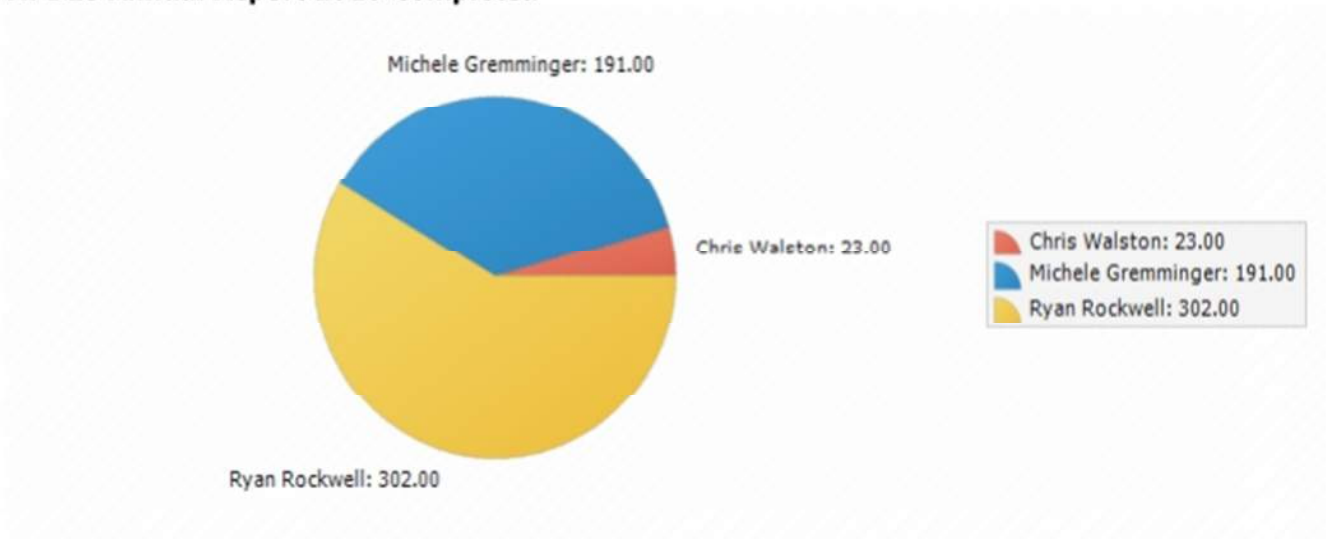
NPDES Annual Rpts-Work Orders June 12, 2015 to June 13, 2016

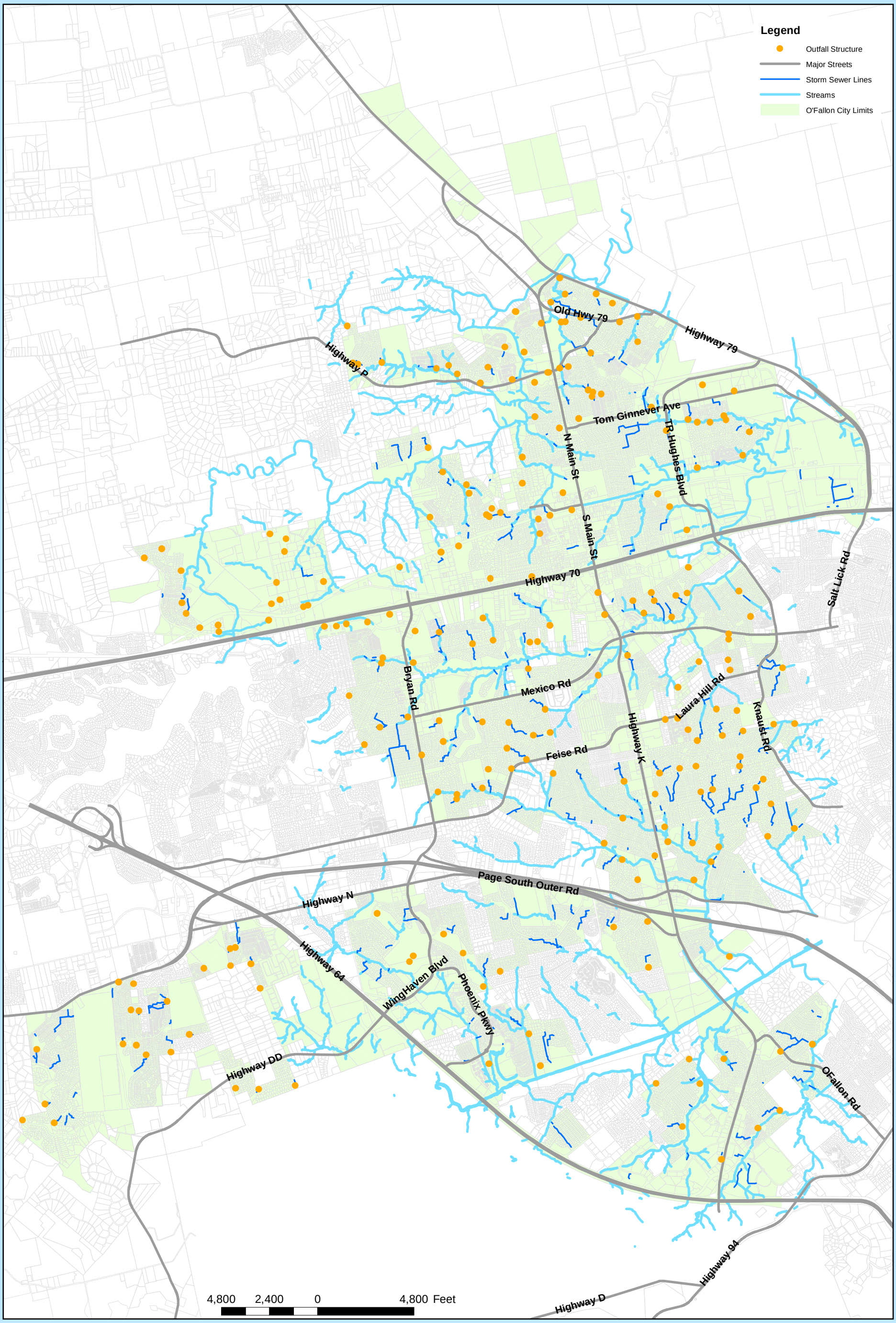
Appendix D

NPDES Annual Rpt Received June 2016



NPDES Annual Report 2016-completed



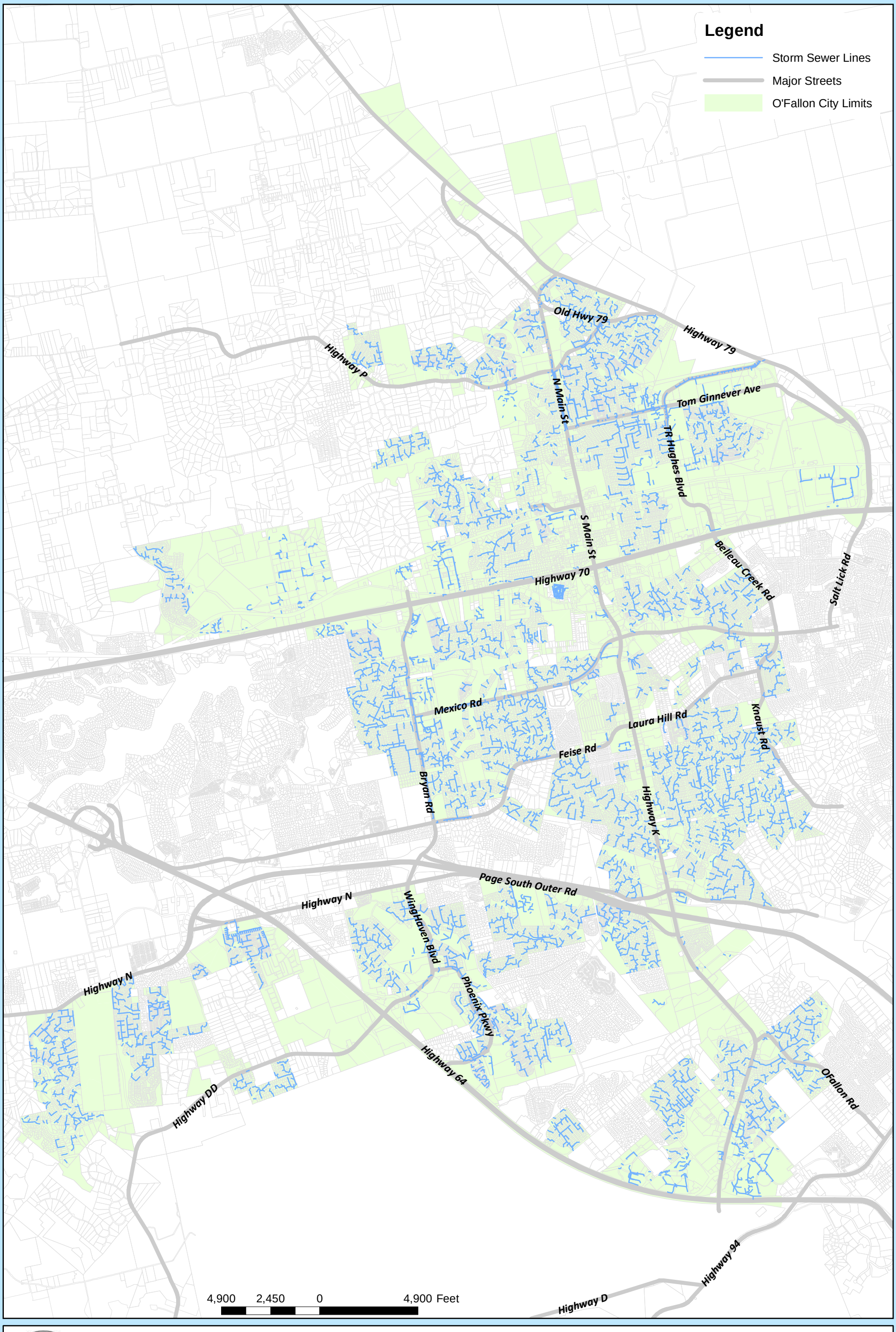


Community Development
Geographic Information Systems
O'Fallon, Missouri

Creek Outfall

Printed: 06/02/2016

Path: M:\Maps\Storm_Sewers\Michelle_Creek_Outfall.mxd



Community Development
Geographic Information Systems
O'Fallon, Missouri

Storm Sewer System

Printed: 06/02/2016

Path: M:\Maps\Storm_Sewers\Michelles_Storm_Lines.mxd

2015-2016 IDDE Report

Dumping Chemicals

02/04/2016	R&R Sanitation	818 Lonestar
Complete	02/13/2015	

Total Received: *1* ***Total Completed:*** *1*

Dumping Trash, Debris or other Pollutant

10/22/2015	Kim Farley	119 Country Life
Complete	10/25/2015	
05/23/2016	Jason Humphries	529 Country Chase
Complete	05/24/2016	

Total Received: *2* ***Total Completed:*** *2*

Dumping Yard Waste

05/11/2016	Nick Jewell	305 Surrey Trail
Complete	05/26/2016	

Total Received: *1* ***Total Completed:*** *1*

Sediment Leaving Site

05/13/2016	Roy Yust (Builder)	10 Old Knaust
Complete	05/20/2016	

Total Received: *1* ***Total Completed:*** *1*

Total Received 2015-2016: *5* ***Total Completed 2015-2016:*** *5*

Appendix G

100 N. Main St, O'Fallon MO 63366

City of O'Fallon, Missouri

Illicit Discharge Detection and Elimination Program

ADOPTED:
December 30, 2012

2010

Revised:

Acknowledgements

One of the reasons the Stormwater Department was developed and designed to protect public health and our water quality resources from the impact of point source and non-point source pollution.

This policy was developed by Michele Gremminger with assistance from Jay Herigodt, and other City of O'Fallon staff

A number of reference documents were used in the development of this policy. These include:

- The Ohio IDDE Policy, A Guidance Manual for Municipalities in the State of Ohio by Harry Stark and other staff of CCBH.
- Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments by the Center of Watershed Protection and Robert Pitt, University of Alabama, 2004
- US EPA Phase II Storm Water Rules and Regulations
- US EPA Phase II Fact Sheets on Illicit Discharge Detection and Elimination Program

City of O'Fallon, Missouri
IDDE Program Policy

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City of O'Fallon
IDDE Program Policy

Purpose

The purpose of this policy is to establish procedures for the development of a program to address the broad range of administrative and technical considerations involved with setting up an effective Illicit Discharge Detection and Elimination (IDDE) program as required by the EPA's Phase II Stormwater Program. This policy profiles the IDDE minimum control measure, which is one of six minimum control measures operators of Phase II regulated small municipal separate storm sewer system (MS4) is required to include in its stormwater management program.

A regulated MS4 as defined as a means of conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels or storm drains.

An understanding of the nature of illicit discharges in urban watersheds is essential to find, fix and prevent them. This policy reviews water quality as well as the regulatory context for controlling illicit discharges.

Background of Phase II

Although the quality of the nation's waters has improved greatly since the passage of the Clean Water Act in 1972, many water bodies are still impaired by pollution. According to the U.S. Environmental Protection Agency, the top causes of impairment include siltation, nutrients, bacteria, metals, and oxygen-depleting substances. Polluted storm water runoff, including runoff from urban/suburban areas and construction sites are leading sources of impairment. To address this problem, the EPA has put into place the "National Pollutant Discharge Elimination System (NPDES)" program that regulates certain storm water discharges.

In 1990, the EPA promulgated Phase I of its storm water program under the National Pollutant Discharge Elimination System (NPDES) permit provisions of the Clean Water Act. Phase I addressed storm water runoff from "medium" and "large" municipal separate storm sewer systems (MS4s) generally serving populations of 100,000 or greater, construction activity that would disturb five or more acres of land, and 10 categories of industrial activity. To further reduce the adverse effects of storm water runoff, the EPA instituted its Storm Water Phase II Final Rule on December 8, 1999.

The NPDES Phase II Stormwater Program was established in 2000 and is intended to further reduce adverse impacts to water quality and aquatic habitat by instituting the use of controls on the unregulated sources of stormwater discharges that have the likelihood of causing continued environmental degradation.

The Phase II Storm Water program is part of EPA's NPDES Program. The Missouri Department of Natural Resources (MDNR) is the regulating authority responsible for the Phase II Storm Water regulations in Missouri. The Phase II program regulates discharges from small MS4s located in "urbanized areas" (as delineated by the Census Bureau in the most recent census) and from operators of small construction activities that disturb equal to or greater than 1 (one) and less than 5 (five) acres of land.
The EPA's Storm Water Phase II Final Rule states that operators of regulated small MS4s are required to design their program to:

- Reduce the discharge of pollutants to the "maximum extent practicable"
- Protect water quality
- Satisfy the appropriate water quality requirements of the Clean Water Act

Further requirements within the program also state this storm water management program must include the following six minimum control measures (MCM):

- Public education and outreach on storm water impacts (MCM 1)
- Public involvement and participation (MCM 2)
- Illicit discharge detection and elimination (IDDE) (MCM 3)
- Construction site storm water runoff control (MCM 4)
- Post-construction storm water management in new development and redevelopment (MCM 5)
- Pollution prevention and good housekeeping for municipal operations (MCM 6)

Why are Efforts Necessary?

Many different sources and generating sites can produce illicit discharges. An understanding of the nature of illicit discharges in urban watersheds is essential to find, fix and prevent them.

The term "illicit discharge" has many meanings in regulation and practice. 40 CFR 122.26(b)(2) defines an illicit discharge as "any discharge to an MS4 not composed entirely of stormwater, except allowable discharges pursuant to an NPDES permit, including those resulting from fire activities".

Per City Ordinance Section 405.245 the term "illicit discharge" is defined as any direct or indirect non-stormwater discharge to the storm drain system except as exempted in subsection 405.245(G)(1).

What Are Some Guidelines for Developing and Implementing This Measure?

The objective of the illicit discharge detection and elimination minimum control measure is to have regulated, NPDES phase II operators gain a thorough awareness of their systems and position themselves to take necessary action on eliminating illicit discharges. This awareness will allow them to determine the types and sources of illicit discharges entering their system and establish the legal, technical, and educational means needed to eliminate these discharges.

Finding, Fixing, and Preventing Illicit Discharges

The purpose of an IDDE program is to find, fix and prevent illicit discharges, and develop a series of techniques to meet these objectives. This policy describes the major tools used to build a local IDDE program.

Highest priority in most programs is to find any continuous and intermittent discharges into the storm drain system. A range of monitoring techniques can be used to find such discharges. In general monitoring techniques are used to find problem areas and then trace the problem back up the stream or pipe to identify the ultimate generating site or connection. These techniques can sometimes pick up other types of illicit discharge that occurs. In the Phase II regulations, it is recommended that the plan to detect and address illicit discharges include procedures to:

- Map and Inventory System
- Inspect and Develop Priority areas by locating areas likely to have illicit discharges (which may include visually screening outfalls during dry weather and conducting field tests of selected pollutants)
- Tracing the source of an illicit discharge
- Removing the source of the discharge
- Program evaluation and assessment
- Educating Employees, Businesses and Residents

History

October 12, 2006 – Ordinance #5082 – Section 405.245 Stormwater Quality Management and Illicit Discharge control ordinance enacted to:

- Regulate contributions of pollution to the MS4 by stormwater discharges of any user
- Prohibit illicit connections and illicit discharges to the MS4
- Establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance

July 23, 1973 - Missouri State Statutes - Chapter 644 - Water Pollution, cited as the “Missouri Clean Water Law)

December 30, 2000 – Department of Natural Resources – Code of Regulations 10 CSR 20-7.031 Water Quality Standards

Chapter 1 What is an Illicit Discharge

Figure 1: Presence of Commercial Illicit Discharge

An **illicit discharge** is defined by the US EPA's Phase II Storm Water Regulations as "any discharge to an MS4 (Municipal Separate Storm Sewer System) that is not composed entirely of storm water..." with some exceptions. These exceptions include discharges from NPDES permitted industrial sources and discharges from fire-fighting activities. Illicit discharges are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-stormwater wastes.

In most communities, the MS4 is directly connected to a water body and does not receive any type of treatment or "cleansing" prior to its discharge to receiving water bodies of the United States (per US Army Corps of Engineers delineation). Because of this non-treatment, it is vital that only storm water be discharged from these MS4s with as little pollutants as possible to the "maximum extent practicable".

The general permit received by Phase II regulated communities requires that those communities develop an illicit discharge detection and elimination (IDDE) program. This program will assist communities in meeting their requirement set forth in their general NPDES permit. This policy is designed to assist designated communities in establishing their IDDE program.

Types of Illicit Discharges

For the program to be effective it is important to be able to clearly distinguish between the various types of illicit discharges so that appropriate action towards compliance and necessary steps for elimination. These include:

- ***Continuous*** discharges occur most or all of the time, are usually easier to detect, and typically produce the greatest pollutant load. These are usually direct connections to

the MS4 and can be from sanitary sewers, cross connections, infrastructure problems with a sanitary sewer system or malfunctioning septic sewage system. These types of discharges are the easiest to find, investigate, trace and eliminate from the MS4. These types of discharges also have the greatest impact because of the constant pollutant loading into a water body or MS4

- ***Intermittent*** discharges occur over a shorter period of time or occasionally (e.g., a few hours per day or a few days per year). Because they are infrequent, they are harder to detect, but can still represent a serious water quality problem depending on their flow type. Methods of reducing this type of discharge is the use of a "hotline" telephone number for the public to call if discharge is observed
- ***Transitory*** discharges occur rarely or are a one-time event such as a spill, ruptured tank, sewer break, or illegal dumping episode. These discharges are hard to detect with routine monitoring, but under the right conditions, can exert severe water quality problems on downstream receiving waters. Methods of reducing this type of discharges are to educate the public on stormwater and illicit discharges, establishment of a "hotline" telephone number for public to call if a discharge is observed

Table 1-1 demonstrates examples of land uses, likely source locations and activities that can produce transitory or intermittent illicit discharges and Table 1-2 demonstrates examples that can produce continuous illicit discharges.

Table 1-1: LAND USES, LIKELY SOURCE LOCATIONS AND ACTIVITIES THAT CAN PRODUCE *TRANSITORY OR INTERMITTENT* ILLICIT DISCHARGES

Land Use	Likely Source Locations	Condition/Activity that Produces Discharge
Residential	· Apartments · Multi-family · Single Family Detached	· Car Washing · Driveway Cleaning · Dumping/Spills · Equipment Wash-downs · Lawn/Landscape Watering · Septic System Maintenance · Swimming Pool Discharges · Laundry Wastewater · Improper Plumbing (garage floor drains)
Commercial	· Campgrounds/RV Parks · Car Dealers/Rental Car Co. · Car Washes · Commercial Laundry · Gas Stations/Auto Repair Shops · Marinas · Nurseries and Garden Centers · Oil Change Shops · Restaurants · Swimming Pools · Service Garages	· Building Maintenance (power washing) · Dumping/Spills · Landscaping/Grounds Care (irrigation) · Outdoor Fluid Storage · Parking Lot Maintenance (power washing) · Vehicle Fueling · Vehicle Maintenance/Repair · Vehicle Washing · Wash-down of Greasy Equipment & Grease Traps
Industrial	· Auto Recyclers · Beverages and Brewing · Construction Vehicle Washouts · Distribution Centers · Food Processing · Garbage Truck Washouts · Marinas, Boat Building and repair · Metal Plating Operations · Paper and Wood Products · Petroleum Storage and Refining · Printing	· All Commercial Activities · Industrial Process Water or Rinse Water · Loading and Un-loading Area Wash-downs · Outdoor Material Storage (fluids)
Municipal	· Airports · Landfills · Maintenance Depots · Municipal Fleet Storage Areas · Ports · Public Works Yards · Streets and Highways	· Building Maintenance (power washing) · Dumping/Spills · Landscaping/Grounds Care (irrigation) · Outdoor Fluid Storage · Parking Lot Maintenance (power washing) · Road Maintenance · Emergency Response · Vehicle Fueling · Vehicle Maintenance/Repair · Vehicle Washing

SOURCE: Modified from *Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*, Center for Watershed Protection, 2004, p. 12, Table 2.

Table 1-2: LAND USES, LIKELY SOURCE LOCATIONS AND ACTIVITIES THAT CAN PRODUCE *CONTINUOUS* ILLICIT DISCHARGES	
Land Use	**Condition or Activity that Produces Discharge**
Residential	· Failed sanitary sewer infiltrating into storm drain · Sanitary sewer connection into storm drain · Failed septic systems discharging to storm drain system
Commercial/Industrial	· Failed sanitary sewer infiltrating into storm drain · Process water connections into storm drain · Sanitary sewer connection into storm drain
Municipal	· Failed sanitary sewer infiltrating into storm drain · Sanitary sewer connection into storm drain

Source: Table from *Guidelines and Standard Operating Procedures for Stormwater Phase II Communities in Maine*, Casco Bay Estuary Partnership.

These tables examine the likely source locations that contribute illicit discharges to an MS4 by understanding the possible discharges emanating from land use activities. It also allows for the IDDE program manager to thoroughly utilize this knowledge in identifying illicit discharges and their potential sources.

Industrial facilities are regulated by additional permits through the Missouri Department of Natural Resources (MDNR). For industrial problems, please contact your local MDNR St. Louis Regional Office at 314.416.2960 or Jefferson City at 573.634.2436 or http://www.dnr.mo.gov/env/wpp/stormwater/sw-industrial-permits.htm.

Discharge Flow Types

Dry weather discharges are composed of one or more possible flow types:

- Septic and sewage flows are produced from sewer pipes and septic systems
- Washwater flows are generated from activities such as gray water (laundry) from homes, commercial carwash wastewater, fleet washing, commercial laundry wastewater and floor washing to shop drains
- Liquid wastes refers to a wide variety such as oil, paint, and process water from radiator flushing that enter the storm drain
- Landscape irrigation flows occur when excess potable water used from residential or commercial irrigation ends up in the storm drain system
- Groundwater or spring water flows occur when the local water table rises above the bottom elevation of the storm drain and enters the storm drain either through cracks and joints, or where open channels or pipes associated with MS4 may intercept seeps

and springs. Each flow type has a distinct chemical fingerprint. The chemical fingerprint for each flow type can differ regionally, so it is a good idea to develop your own "fingerprint" library by sampling each local flow type

In practice, many storm drain discharges represent a blend of several flow types, particularly at larger outfalls that drain larger catchments. For example, groundwater flows often dilute sewage thereby making its presence.

Mode of Entry

Illicit discharges can be further classified based on how they enter a storm drain system or MS4. The mode of entry can either be direct or indirect.

Direct entry is generally by a direct connection to the system through a sewer pipe or drain of some kind. Direct entry usually occurs when two different types of plumbing or pipe are connected.

Indirect entry means that flows generated outside the system enter through storm drain inlets or by infiltrating through joints of the pipe. Generally, indirect modes of entry produce intermittent or transitory discharges with the exception of groundwater seepage. Other examples of these types of discharges are spills that enter the storm drain system at an inlet, dumping a liquid into a storm drain inlet, outdoor washing activities the create flow to a storm drain inlet, non-target irrigation from landscaping or lawns that reaches the storm drain system from over-watering or misdirected sprinklers that send runoff over impervious areas. In some instances, indirect entry can produce unacceptable loads of nutrients, organic matter or pesticides.

What are the Required EPA Elements of an Efficient IDDE Program?

The Phase II rule requires an operator of a regulated MS4 to develop, implement and enforce a program that includes the following:

- A storm sewer map system, showing the location of all outfalls and the names and location of waters of the US that receive discharges from outfalls
- Through an ordinance, or other regulatory mechanism, a prohibition (to the extent allowable under State, Tribal, or local law) on non-stormwater discharges into the MS4, and appropriate enforcement procedures and actions
- A plan to detect and address non-stormwater discharges, including illegal dumping, into the MS4
- The education of public employees, businesses, and the general public about the hazards associated with illegal discharges and improper disposal of waste
- The determination of appropriate best management practices (BMPs) and measurable goals for this minimum control measure. Some program implementation approaches, BMPs (i.e. the program actions/activities)

Does This Need to Address All Illicit Discharges?

The IDDE program does not need to address the categories of non-stormwater discharges or flows unless the operator of the MS4 identifies them as significant contributors of pollutants to it MS4. Per Ordinance Section 405.245(G) (1) the commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

a. The following discharges are exempt from discharge prohibitions established by this Section: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains, sump pumps (not including active groundwater dewatering systems), crawl space pumps, air conditioning, condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wetland flows, swimming pools (if de-chlorinated – typically less than one PPM chlorine), fire fighting activities, and any other water source not containing pollutants
b. Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety
c. Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test
d. The prohibition shall not apply to any non-stormwater discharge permitted under an NPDES permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or Missouri Department of Natural Resources (MDNR) and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system

Chapter 2 Mapping/Inventory

Royal Oaks-Fawn Ridge/Green Oak Ct

Figure 2: Stormwater GIS Mapping

What is a Municipal Separate Storm Sewer System (MS4)?

What constitutes an MS4 is often misinterpreted and misunderstood. The term does not solely refer to municipally-owned storm sewer systems, but rather is a term of art with a much broader application that can include, in addition to local jurisdictions, State departments of transportation, universities, local sewer districts, hospitals, military bases and prisons.

An MS4 is not always a system of underground pipes – it can include roads with drainage systems, gutters and ditches. According to 40 CFR 122.26(b)(8), a "***municipal separate storm sewer"*** means a convey and or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i). Owned or operated by a state, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law)…including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the Clean Water Act that discharges into waters of the United States

(ii) Designed or used for collecting or conveying stormwater

(iii) Which is not a combined sewer

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2

When the field crew is performing the inventory of MS4 outfalls, a good understanding is needed as to the community and the outfalls possibly located within a water body. Most people know that a storm sewer outfall is an MS4 outfall. However, you must remember that ditches and catch basins are considered MS4s as well.

Figure 3: Storm sewer outfall

Figure 4: stormwater ditch

Mapping

One of the requirements of the NPDES IDDE component is that the MS4 develop, if not already completed, a storm sewer system map showing the location of all outfalls and names and locations of all surface waters of the state that receive discharges from those outfalls.

At the time that this policy was created, a city wide storm sewer system map in is in place and a plan to label all outfalls by performing a system survey and inventory has been put into action.

Review Information Available

The City has developed a mapping system of the storm, water and sanitary sewer system. While not all of the details are enclosed on the current map, steps are being taken to get this map up-to-date to include all of the pertinent information. A list of the following resources has been and will be utilized to develop a comprehensive database for the storm sewer system. Identifying outfall locations may help prioritize areas that may have high priority outfalls.

- Review city records – city records can include a variety of maps as detailed below as well as information obtained regarding complaints filed with the community on possible illicit discharges emanating from a possible MS4 outfall.
- Zoning maps
- Drainage maps
- Subdivision maps

- Storm drain maps
- Age of infrastructure and development – this information is important when determining and prioritizing areas with possible illicit discharges
- Location of septic systems, both household and commercial – this information is important when prioritizing illicit discharge locations and should be given high priority
- Identify water bodies and watersheds within the community – this information will provide the community a sense of where they exist in a larger watershed as well as the water bodies that they contain
- Water quality information – this will assist the City in evaluating areas within their community that have impaired water bodies, as well as areas with high bacteria counts

Field Activities Performed in Conjunction with Mapping

Performance of field surveys will be necessary to update the existing map system. These activities will serve a number of purposes such as:

- Provide data to the community as to the location of their MS4 outfall location
- Provide data on possible areas of illicit discharge
- Provide data as to the condition of the outfall and water bodies within the community. This can include areas that can cause flooding problems due to excessive amounts of trees and debris obstructing flow during periods of high water flow
- It can help prioritize areas in regard to possible illicit discharges by the observance of pollution in a specific area

It is vital that when performing the field inventory that the public is made aware of the process. Several access areas and streams are located on private property. Notification can be done in a variety of ways: letters/postcards to homeowners, newsletters, local cable channel, and City webpage.

Personnel safety is also extremely important during this process. Walking or boating water bodies can be potentially very hazardous and safety precautions must be utilized during this phase of your IDDE program. Wearing safety vests, carry a first aid kit, being careful while walking a water body due to algae growth (makes the rocks extremely slippery) and dark water (can contain unexpected deep holes and other items which could cause injury). Safety in the field is vital and typical surveys should always be done with two field staff (if available).

All field staff (City Staff of hired contractor) should carry appropriate ID's for safety and notification to residents. Also, be aware of possible confined space locations when entering culvert pipes and follow confined space protocols for your location. Remember, like the mapping component, during the field investigations, there will be remote areas that the field staff will be inspecting. If injury occurs, the extra field staff is a necessity. Be aware of the locations where field inspections will occur because specific locations may present specific sources of safety concerns. Inform Stormwater Management Coordinator or appropriate personnel where field surveys will be conducted on any particular day for follow up if required.

Field Survey

The field survey includes a number of processes to accurately provide the desired information that the City needs in order to effectively develop an IDDE program. Attached to this document in Appendix A and Appendix B are field forms that can be used during the field surveys for inspection and inventory. The field survey begins by compiling all information that the City has obtained on their storm sewer systems as well as information as to the locations of their MS4 outfall locations. This information can be in the form of a map or in written comment. Once this information is obtained, it is vital to bring the information along during the field survey to verify the information or to locate the outfall locations. Equipment for field surveys includes:

- Existing maps-mark them in the field with locations of outfalls. It allows field crew the ability to know where they are in relation to specific areas as they walk the water bodies
- Field Inventory and Inspection sheets (located in Appendix A and B)
- Digital Camera
- GPS unit (if applicable)
- Clip boards and pens
- Tape measure
- Waders (either chest or hip)
- Water proof flash light
- First Aid kit (small pocket size recommended)
- Cell phone, Nextel or handheld radio
- Safety vests
- Walking Stick

Field surveys are best conducted during low flows of the surface water ways (aka dry weather screening) to ensure that all outfalls, etc. are observable. During the survey, the field crew must be aware of how to properly perform the survey. The first step is to utilize the field maps and plan a course of action as to effectively walk or boat the water bodies within City limits. Field surveys of these water bodies can be performed in a variety of ways that include, but are not limited to:

- Perform in particular section of the City such as northwest, southeast, etc
- Survey one water body as it traverses through city limits. This can include just walking the main branch and then following up tributaries, or walking up tributaries as you come upon them in the field

Once the methodology is developed or decided upon, make sure all staff is familiar with the process that will be performed when conducting activity in the field. All must realize that this can change once the field survey has begun. All must be flexible to change once the field survey has begun.

The field survey begins by deciding where a creek will be entered by the survey crew and the utilization of an outfall site numbering system. The numbering of outfall locations is very important to the overall IDDE program. Having a rationale in place in the numbering of your outfall locations will enable future follow ups and easy determination as to the location of these outfall locations.

Once in the water body, the survey crew will walk or boat until they come upon a MS4 outfall location. When the outfall is located, the survey crew will photograph each outfall and characterize its dimensions, shape, and component material, and record observations on basic sensory and physical indicators. If dry weather flow occurs at the outfall, additional flow and water quality data are collected (refer to Appendix C). Field crews may also use field probes or test strips to measure indicators such as temperature, pH, chlorine and ammonia at flowing outfalls.

It is preferred to perform dry weather inspections and sampling at the same time as the field survey. However, due to the weather conditions, it may be necessary to perform the field surveys whenever possible and then to follow-up with dry weather inspections and sampling at a later date. Once the outfalls have been identified and mapped, it is easier to perform dry weather inspections and sampling because the locations will be easier to locate.

Chapter 3: Inspection and Developing Priority Areas

This chapter provides basic information about strategies needed to detect illicit discharges, beginning with a field screening technique designed to gather basic information and identify highly suspect outfalls or obvious discharges. EPA recommends that the plan to detect and address illicit discharges include the following four components:

1. Locate problem or priority areas
2. Trace the source
3. Remove/Correct source
4. Assess and evaluate the program

Developing Priority Areas/Hot Spots is vital to any IDDE program. The process can be broken down into three steps:

1. Use all available information to identify potential hot spots
2. Conduct dry weather screenings to locate non-stormwater discharges
3. Conduct water quality monitoring and analysis to determine if/what discharges are present

Hot Spots

These are areas where there is a potential for illicit discharges to occur. Such areas are where problems have occurred in the past. This includes locations with known water quality data and/or numerous concerns have been reported. Older areas of the community have a higher percentage of discharges due to illegal connections or deteriorating sewer lines leading to infiltration problems. Lastly commercial and/or industrial areas will tend to have a higher percentage of discharges because historically they have the most number of illegal connections and discharges with a higher potential to degrade water quality.

Figure 5: Hot spot Commercial Carwash – overflow directly to storm drain which leads directly to creek

Detection and Inspection

Once the hot spots have been identified and a list created, then inspections must be conducted on all of the known outfall locations within City limits. Dry weather inspections on all outfall locations within City limits are the preferred method of inspection. Dry weather inspections are visual inspections of the outfall location and include photos, measurements, water quality sampling, etc. Dry weather screening is defined as a minimum of 72 hours of no rainfall (0.1") within an area.

As necessary, notify the public during field inspections by letters/postcards, City website, City newsletters and/or cable channel as it is important that the public is very aware of what is occurring and keeping them informed that what is occurring will benefit the IDDE program.

The inspectors need to be reminded that safety is vital. It is preferred that surveys be conducted with two field staff (if available). Remember, there will be remote areas that field staff will be inspecting that have the potential for injury. If an injury occurs, the extra field staff is vital.

Inspectors will utilize the information obtained from the City Stormwater Map, print out any completed inventory forms and inspection forms. This will help ease locating the outfall locations. The field form should have a photo of the outfall if it has been inspected previously. This knowledge is imperative when in the field. The field form may also include a section for water quality sampling that is to be conducted in the field at the outfall (see to Appendix A, B, C).

During the visual inspection, fill out the field inspection form which will contain a list of observations needed such as: date, time, staff member conducting site visit, last rain date and pipe flow. Visual comments may also include such things as: odor, color, floatable materials, turbidity.

Any floatables observed should also be noted at this time. Floatables are a good physical indicator with regard to the presence of an illicit discharge. The most common floatables observed consist of sewage, sludge, suds, or oil sheens. Observation of sewage indicates a serious or severe problem. Suds can be indicative of several things. They can also form by the natural movement of water. If they are located at a water drop off and break up quickly, this may only be natural movement of water. If the suds have a fragrant odor, then this can be indicative of the presence of car wash, laundry or wash water. Oil sheens need to be looked at to try to determine whether they are naturally occurring by in-stream natural processes or synthetic (man-made). Naturally occurring sheens form when iron bacteria forms a sheet-like film. This can be determined by looking at the sheen and seeing if it cracks when disturbed. Synthetic oil sheens will swirl when disturbed. If this is observed, then it is from a petroleum or oil source.

Dry weather flows are observed at a point where an outfall pipe meets a stream can be considered non-storm related. It may also be flow being generated from another action which is not an illicit discharge. This is why it is important to observe the area at each outfall location for any type of observable pollution problem.

It is also very important for the IDDE program manager to recognize that during field inspections, the outfall is observed as a snapshot in time. An effective program utilizes long term dry weather inspections as well. This involves regular inspections of outfalls throughout the City. They can be done once a year, but should be conducted on a continuous basis over time. This helps to identify if any changes that occur at that location and if action is necessary.

Water Quality and Sampling and Testing

Utilizing water quality and testing can be utilized as a tool. When a dry weather flow is observed, it may be difficult to determine if there is a problem with that flow. Obvious problems such as odor or visual presence of raw sewage or toilet paper will indicate that there is a bacterial problem and that the problem is from sanitary sewer or a cross connection. Most water observed during dry weather conditions may not have such visual clues. That is why water quality testing and sampling is a very important part of an IDDE program.

Certain water quality parameters can serve as indicators of the likely presence or absence of a specific type of discharge. Bacteria are not a good indicator parameter to use in the field because lab results cannot be received for at least one day. It is important to note that other factors such as animal operations can elevate stream nutrient concentrations, so data should always be interpreted in the context of surrounding land use. Water quality monitoring benchmarks should be continuously be refined as the City develops a better understanding of what dry weather baseline concentrations to expect.

There are a large number of water quality parameters that can be measured. When deciding on what water quality parameters to use, the IDDE program manager must be aware of the community makeup and the possible sources of illicit discharges as well as how much money is available to complete water quality sampling. It is not necessary to do lab analysis on every sample. It is very possible to operate a successful IDDE program on a shoestring budget. That is why developing a priority list and hot spot locations are very important in determining the specific parameters to test for.

If stream water quality monitoring indicates that a potential problem level benchmark has been exceeded, field crews continue stream sampling to locate the discharge through a process of eliminations. Crews walk upstream taking regular samples above and below stream confluences until the benchmark concentration declines. The crew then takes samples at strategic points to narrow down the location of the discharge.

Water Quality Standards

Missouri Department of Natural Resources lists criteria for designated uses and parameters for sampling in 10 CSR 20-7.031 Table A, B, F, H and J. Please refer to Appendix E to view criteria.

There are several major elements that are included in the Water Quality Standards process. Classified waters (those that maintain water during low flow periods in dry weather) are given designated uses to protect the public's health, preserve the public's use and recreation, and to protect fish and wildlife. These uses may already exist or they may be goals that can be attained in the future with improved water quality.

Some designated uses include:

- Wildlife watering
- Public drinking water
- Whole body contact recreation
- Fish consumption by people
- Irrigation
- Protection of aquatic life and/or livestock

Waters classified for drinking water supplies have maximum allowable concentrations for additional chemicals in the standards with particular concern for human health. Waters protected for whole-body-contact recreation, such as swimming or water skiing, also have a maximum allowable bacteria standard. States define their Water Quality Standards in terms of these designated uses or goals and in terms of scientifically determined criteria that limit pollutants to the level needed to protect the designated use. Water Quality Standards form the basis of water quality pollution control permitting. Designated use of the waters, criteria to support that use, and general criteria including anti-degradation policies are the infrastructure for the standards. Water Quality Standards for designated uses of all classified water bodies in Missouri set maximum allowable concentrations for 110 chemicals, as well as other criteria such as dissolved oxygen. Section 303(c) of the Clean Water Act requires states to review these standards at least once each three-year period for the purpose of reviewing applicable Water Quality Standards and/or adopting new standards. At least one public hearing must be held on proposed changes.

Whenever water quality is not protective of the designated use for a water body, that water body is designated as water quality limited, or impaired. Missouri's impaired waters are listed in compliance with 303(d) requirements under the Clean Water Act. The 303(d) List helps state and federal agencies keep track of waters that are impaired but not addressed by normal water pollution control programs. It is crucial to note that often only a segment of a stream is listed on the 303(d) List. When a segment is listed, that does not mean that water quality is impaired for the entire stream, but only within the designated segment. Special emphasis is then given to restoring the water quality in the 303(d) listed portion of the stream. The most current

303(d) listing may be found on MDNR's website at: http://www.dnr.mo.gov/env/wpp/waterquality/303d.htm.

"The Data in Table 3-2 are based on research by Robert Pitt, University of Alabama, 2004, and therefore, the percentages shown to distinguish "hits" for specific flow types should be viewed as representative and may shift. Also, in some instances, indicator parameters were "downgraded" to account for regional variation or dilution effects. For example, both color and turbidity are excellent indicators of sewage based on discharge fingerprint data, but both can vary regionally depending on the composition of clean groundwater." (Center for Watershed Protection and Pitt, 2004)

Table 3-2: Indicator Parameters Used to Detect Illicit Discharges

	Discharge Types It Can Detect				
Parameter	Sewage	Wash water	Tap Water	Industrial or Commercial Liquid Wastes	Laboratory/Analytical Challenges
Ammonia	#	*	x	*	Can change into other nitrogen forms as the flow travels to the outfall
Boron	*	*	x	N/A	
Chlorine	x	x	x	*	High Chlorine demand in natural waters limits utility to flows with very high chlorine concentrations
Color	*	*	x	*	
Conductivity	*	*	x	*	Ineffective in saline waters
Detergents-Surfactants	#	#	x	*	Reagent is a hazardous waste
E. coli Enterococci Total Coliform	*	x	x	x	24-hour wait for results. Need to modify standard monitoring protocols to measure high bacteria concentrations
Fluoride1	x	x	#	*	Reagent is a hazardous waste exception for communities that do not fluoridate their tap water
Hardness	*	*	*	*	
pH	x	*	x	*	
Potassium	*	x	x	#	May need to use two separate analytical techniques, depending on the concentration
Turbidity	*	*	x	*	

Can almost always (>80% of samples) distinguish this discharge from clean flow types (e.g., tap water or natural water). For tap water can distinguish from natural water.
* Can sometime (>50% of samples) distinguish this discharge from clean flow types depending on regional characteristics, or can be helpful in combination with another parameter
x Poor indicator. Cannot reliably detect illicit discharges, or cannot detect tap water.
N/A Data are not available to assess the utility of this parameter for this purpose.
Data Source: Pitt (this study)
1 Fluoride is a poor indicator when used as a single parameter, but when combined with additional parameter (such as detergent, ammonia and potassium), it can almost always distinguish between sewage and wash water.

SOURCE: ***Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments*****, Center for Watershed Protection**

Odd hours of monitoring

Since many types of intermittent discharges probably occur when households are home, then the inspections may need to be performed during these times as well. They may need to be performed either later in the evening or early morning hours or on the weekends. Make sure that if samples will be collected during odd times, the lab needs to be notified to ensure they can accept and analyze the sample since there are specific holding times for each type of parameter.

Sampling at the outfall plunge pool:

A sample would be collected directly from the plunge pool below the outfall, if one is present. An upstream sample will also be taken to compare the results. This can be affected by dilution and time so it is not always that accurate and effective.

Chapter 4: Tracing for the Source of an Illicit Discharge

Figure 6: Presence of Commercial Illicit Discharge-grease from restaurant

Once an illicit discharge is found, a combination of methods is used to isolate its specific source and this chapter describes four investigation options. Once the pipe or stream segment has been identified, on-site investigations are used to find the specific discharge or improper connection. This method relies on an analysis of land use or other characteristics of the drainage area that is producing the illicit discharge. The investigation can be as simple as a "drive by" or "windshield" survey of the drainage or a more complex mapping analysis of the storm system network and potential generating sites. Drainage area investigations work best when prior indicator monitoring reveals strong clues as to the likely generating site producing the discharge.

On-site methods are used to trace the source of an illicit discharge in a pipe segment, and may involve dye, video or smoke testing within isolated segments of the storm system.

Where to sample?

The field crew should decide how to attack the pipe network that contributes to a problem outfall. Three options can be used:

1. Crews can work progressively up the trunk from the outfall and test manholes along the way
2. Crews can split the trunk into equal segments and test manholes at strategic junctions in the storm drain system
3. Crews can work progressively down from the upper parts of the storm drain network toward the problem outfall

The decision made to move up or down the trunk depends on the nature and land use of the contributing drainage area. Some guidance for making this decision is provided in Table 53. Each option requires different levels of advance preparation.

Table 53: Methods to Attack the Storm Drain Network

Method	Nature of Investigation	Drainage System	Advance Prep Required
Follow the discharge up	Narrow source of an individual discharge	Small diameter outfall (<36”) Simple drainage network	No
Spilt into segments	Narrow source of a discharge identified at outfall	Large diameter outfall (>30”), Complex drainage Logistical or traffic issues may make sampling difficult	Yes
Move down the storm drain	Multiple types of pollution, many suspected problems – possibly due to old plumbing practices or number of NPDES permits	Very large drainage area (> one square mile)	Yes

Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments, Center for Watershed Protection

Option 1: Move up the trunk:
Moving up the trunk of the storm system network is effective for illicit discharge problems in relatively small drainage areas. Field crews can begin immediately when an illicit discharge is detected at the outfall, and only requires a map of the storm drain system. Field crews start with the manhole closest to the outfall, and progressively move up the network, inspecting manholes until indicators reveal that the discharge is no longer present. The goal is to isolate the discharge between two storm drain manholes.

Option 2: Split the storm drain network:
When splitting the storm system network, field crews select strategic manholes at junctions in the storm drain system to isolate discharges. This option is particularly suited in larger and more complex drainage areas since it can limit the total number of manholes to inspect, and it can avoid locations where access and traffic are problematic.

The method recommended for splitting the trunk is as follows:

1. Review a map of the storm drain network leading to the suspect outfall
2. Identify major contributing branches to the trunk. The trunk is defined as the largest diameter pipe in the storm drain network that leads directly to the outfall. The “branches” are networks of smaller pipes that contribute to the trunk
3. Identify manholes to inspect at the farthest downstream node of each contributing branch and one immediately upstream
4. Working up the network, investigate manholes on each contributing branch and trunk, until the source is narrowed to a specific section of the trunk or contributing branch

5. Once the discharge is narrowed to a specific section of trunk, select the appropriate on-site investigation method to trace the exact source
6. If narrowed to a contributing branch, move up or split the branch until a specific pipe segment is isolated, and commence the appropriate on-site investigation to determine the source

Option 3: Move down the storm drain network:
In this option, crews start by inspecting manholes at the "headwaters: of the storm system network, and progressively move down the pipe. This approach works best in very large drainage areas that have many potential continuous and/or intermittent discharges. Field crews certify that each upstream branch of the storm drain network has no contributing discharges before moving down pipe to a "junction manhole". If discharges are found, the crew performs dye testing to pinpoint the discharge. The crew then confirms that the discharge is removed before moving farther down the pipe network.

Key visual observations that are made during inspection include:

- Presence of flow
- Color
- Odor
- Floatable materials
- Deposits or stains (intermittent flows)

The results of storm drain network investigations should be systematically documented to guide future discharge investigations, and describe any infrastructure maintenance problems encountered.

Televising/Video Inspection
Another method in determining where the illicit discharge source is located once an area has been determined to contain the discharge, is televising the storm line. Video cameras can be used by either pushing or using a mobile video unit. Both cameras will provide detailed information as to where the infiltration or connection is located within the MS4 system.

Smoke Testing
This method should be used during special circumstances when a good storm sewer map is not available for a location and there are known problems of connection issues. Smoke is introduced into the storm drainage system and will emerge at locations that are connected to that system. It is recommended that qualified personnel be used for this method to ensure accurate test results. "Notifying the public about the date and purpose of smoke testing before starting is critical. The smoke used is non-toxic, but can cause respiratory irritation, which can be a problem for some residents. Residents should be notified one week prior to testing, if possible, and should be provided the following information" (Hurco Technologies, Inc., 2003):

- Date testing will occur and reason for smoke testing

- Precautions they can take to prevent smoke from entering their homes or businesses
- What they need to do if smoke enters their home or business, and any health concerns associated with the smoke
- A number residents can call to relay any particular health concerns (e.g., chronic respiratory problems)

Optical Brightener Monitoring (OBM) Traps

OBM traps can be used to assist in tracing intermittent flows that result from wash water with detergent. Detergents contain optical brighteners that can be detected at high concentrations. However, this method usually only picks up highly concentrated discharges. The OBM method may be used as a simple indicator for the presence or absence of intermittent flows or to detect the most concentrated flows.

These traps usually contain unbleached cotton pads or a fabric swatch placed inside of a wire mesh trap. These traps are anchored inside of an outfall using wire that is secured to the pipe itself. Rocks can also be used to hold the trap in place.

These traps will be retrieved after 24-48 hours of dry weather. They need to be removed prior to having contact with storm water. When placed under a fluorescent light, an OBM trap will indicate if it has been exposed to detergents.

Chapter 5 Elimination of Illicit Discharges

Developing and implementing an effective IDDE program requires the successful removal of an illicit discharge once it is located. Under the MDNR EPA Phase II rules, you must "to the extent allowable under law, effectively prohibit, through ordinance or other regulatory mechanism, non-stormwater discharges into your storm sewer system and implement appropriate enforcement procedures and actions."

There is currently an ordinance in place (#5082, Section 405.245) that addresses the regulatory mechanisms to address these discharges and comply with MNDR EPA Phase II requirements.

Once an illicit discharge has been identified, then the City must determine who is responsible for the removal of the discharge. Ultimately, it is the responsibility of the property owner. If the property owner cannot be identified, then the responsibility falls back to the City to remove the discharge. A few examples of such discharges are as follows:

- Internal plumbing connection-building/property owner
- Water/Sewer lateral-building/property owner
- Infrastructure Failure, e.g. sanitary sewer main within dedicated easement or right of way-City
- Illegal Dumping-e.g., oil, grease, paint, grass clippings/yard waste-building/property owner

Per the ordinance, the timeframe to repair the illicit discharge is determined by the type of discharge that occurs. A notice of violation is normally given to the building/property owner along with a timeline to correct in writing unless the discharge needs immediate attention, then the building/owner is notified in person and formal notification in writing is sent at a later date.

Once removal of the illicit discharge has occurred, it must be confirmed to ensure that all corrections have been made. For example, a dye test or camera of failed infrastructure, visible inspection after removal of grass clippings.

If the illicit discharge is emanating from outside City jurisdiction, it is important to notify the community where the discharge is coming from. This should be done in a letter format where you can document that it was sent out. The letter should include where the illicit discharge was detected and where it was traced to. Keeping records of what you did, and ask the neighboring community/jurisdiction to inform you that the correction has been made is also very important. Include all documentation with the annual Phase II Stormwater Report.

Preventing Illegal Dumping

One source of illicit discharge is illegal dumping. This is often difficult to identify and locate. It is also difficult to determine who is responsible for the illegal dumping. Because of the potential problem that this type of discharge presents, it is important to develop an IDDE program.

The US EPA has developed an Illegal Dumping Prevention Guidebook that provides key information and procedures in addressing this type of illicit discharge. The guidebook can be located at http://www.epa.gov/region5/illegaldumping/. Strategies for preventing illegal dumping include:

- Site maintenance controls: clean up areas where illegal dumping has occurred and use other controls to prevent further dumping, signs, fencing, etc.
- Targeted Enforcement: Utilization of an ordinance that prohibits illegal dumping
- Education and Involvement: Community outreach is vital to any successful IDDE program. There are a variety of programs that can assist the community in meeting their requirements under this component of Phase II

Chapter 6: Evaluation of your IDDE Program

A successful IDDE program involves program evaluation and assessment. EPA recommends that the IDDE programs be evaluated periodically to assess if it has been effective and most of all efficient.

Prior to evaluating the program, it is important to note that goals and implementation strategies need to be included with the IDDE program. This is done once the City understands the extent of the illicit discharge problem and how it influences local water quality. Initial program goals should be realistic and provide specific completion milestones to measure program compliance. Measurable goals enable the City to track and evaluate permit compliance over time, and to reassess and modify the program over time.

The NPDEs Phase II MS4 permit regulations grant considerable flexibility to develop program goals, as long as they are defined in a measurable way to gauge permit compliance and program effectiveness. EPA states (2000e) state that goals "should reflect the needs and characteristics of the operator and the area served by its small MS4. Furthermore, they should be chosen using an integrated approach that fully addresses the requirements and intent of the minimum control measure".

Tracking and Reporting System

An accurate and user-friendly system to track, report and respond to illicit discharge problems is critical for program managers. The tracking system enables managers to measure program indicators, and gives field crews a home to store the data they collect. The fundamental units to track are individual outfalls, along with any supporting information about their contributing drainage area. Some of the key information to include when tracking outfalls includes:

- Geospatial coordinates of each outfall location
- Any supporting information about the contributing land use
- Diameter and physical characteristics of the outfall
- Outfall Reconnaissance Inventory (ORI) data
- Any accompanying digital photos
- Any follow-up monitoring at the outfall or further up the pipe
- Any hotline complaints logged for the outfall, along with local response
- Status and dispositions of any enforcement actions
- Any maintenance and inspection data

Evaluating the Program

Program managers need to be extremely adaptable in how they allocate their resources. Effective IDDE programs are dynamic and flexible to respond to an ever-changing set of discharge problems, program obstacles, and emerging technologies. At a minimum, program managers should maintain and evaluate their IDDE tracking system annually, and modify program components as needed. Tracking systems should be designed so that progress toward

measurable goals can be easily reported. The tracking system should be evaluated and contain the following features:

- Updated mapping to reflect outfalls located during the ORI
- Surveyed stream reaches with locations obvious, suspect, and potential discharges, and locations of dumping sites
- Indicator sampling results for specific streams, outfalls, and storm drains
- Frequency of hotline use or confirmed illicit discharges
- Costs for each component of the program
- Number of discharges corrected
- Status and disposition of enforcement actions

Regular analysis of the tracking system sheds light on program strengths and deficiencies, and improved targeting limited program resources.

To effectively evaluate your program, a number of questions need to be asked and analyzed:

1. Evaluate priority areas within City limits
    a. Were areas identified initially?
    b. Are there areas still appropriate to continue to be a priority area?
    c. Have illicit discharges been located in these areas?
2. Detection Program
    a. Is the program effective? Need to assess and reassess the program by determining what has been achieved. Look at the number of outfall inventories, the number visibly inspected, the number that had dry weather flows and look at the overall percentages of these flows as part of your overall storm sewer system for the City
    b. Cost effectiveness: What aspects of the program had the highest quality of effectiveness in relationship to cost?
    c. Number of illicit discharges detected utilizing the detection method (which method is more effective?)
3. Tracing Program
    a. What techniques were used?
    b. Were these methods successful?
    c. What techniques that were not used would be beneficial for next year?
    d. How many illicit discharge sources were identified and/or eliminated?
4. Other
    a. If using water quality sampling, resample areas within community to determine effectiveness of removal of illicit discharges
    b. Determine how much time was spent by employees and expenses to determine overall cost for achieving a given result

City Action Items

At this time, the City addresses illicit discharges on a reactive basis. The goal of this program is to begin the process of being becoming more proactive so that discharges can be stopped before they start. We currently have most of the system located and mapped using our GIS system. An ordinance is in place for when a discharge occurs and we have a tracking system by means of database that houses all of the stormwater concerns reported to the City. The following is a list of items that the City will be addressing with regards to the IDDE program:

1. Continue to update mapping system as new development occurs
    a. One goal is to have all illicit discharges and monitoring information included in the mapping system
2. Perform Inventory and Survey of MS4 within City limits
    a. Once complete identify hot spots and violators
3. Establish a schedule for dry weather screening and testing/monitoring

Chapter 7: Education to Employees, General Public and Businesses

This chapter provides some suggestions as to how to provide this information to target audiences.

Employees

The Phase II Storm Water rule requires that municipal employees be trained on pollution prevention techniques. This is located within minimum control measure #6: "Pollution Prevention/Good Housekeeping for Municipal Operations.

Part of this training can include prevention of non-stormwater discharges from entering the storm sewer system from municipal operations. Employees can play an important role as partners in the detection and/or prevention of illicit discharges

Employees can also look for signs of illegal dumping into storm drains/detention/retention areas. Staff whose jobs keep them outside and mobile can help spot illegal dumpers. Fire and police department personnel, who respond to hazardous material spills, can help keep these spills out of the storm sewer system and adjacent water bodies.

General Public

The general public is made aware and educated on environmental and water quality issues. During the outreach stage, it is important to get the public engaged and involved in the process. Some examples of what can be done to educate the general public:

- Print and distribute outreach materials. This should include brochures/leaflets, articles in the City news letter, information on City website
- Use of a dedicated "hotline" for the public to call when they observe illicit discharges or illegal dumping
- Develop citizen volunteer programs or events to conduct storm drain stenciling, creek and roadside clean up events. All volunteer should sign a liability form
- Develop a recycling program for hazardous wastes as well as regular recyclables. St. Charles County has two such locations that citizens are referred to for bulk and hazardous waste recycling. They take such items as paint or appliances

Businesses

It is also important to educate local businesses to show how they can have an impact on water pollution. Here are some steps you can take to reach out to businesses:

- Develop a brochure and/or presentations to inform businesses about water pollution, storm water and illicit discharges. It is important to have partners assist on this project including the local Chamber of Commerce
- Provide contractors and developers information on illegal connections, non-stormwater discharges and illegal dumping

References

Center for Watershed Protection and Robert Pitt. 2004. Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments.

The Cuyhoga County Board of Health Water Protection, 1996 Illicit Discharge Detection and Elimination Manual: A Guidance Manual for Municipalities in the State of Ohio

New England Interstate Water Pollution Control Commission, 2003. Illicit Discharge Detection and Elimination Manual: A Handbook for Municipalities

US Environmental Protection Agency Federal Register, 1999. 40 CFR Parts 9, 122, and 124. National Pollutant Discharge Elimination System – Regulations for Revision of the Water Pollution Control Program Addressing Storm Water Discharges; Final Rule Report to Congress on the Phase II Storm Water Regulations; Notice

Missouri Department of Natural Resources Water Protection Program: http://www.mdnr.gov/env/wpp

US Environmental Protection agency: http://cfpub.epa.gov/npdes/stormwater/munic.cfm

Appendix A
Inventory Form

Outfall Inventory Form

General Location Information	
Receiving Stream:	
Stream Segment:	
Watershed:	
City:	
Latitude:	
Longitude:	
Location Description:	**Outfall Photograph**
Storm Sewer Map Information	
Outfall on Map: ☐Yes ☐No	
Map ID/Number:	
Map Source:	
Outfall Located on (facing downstream):	**Location Map**
Pipe Characteristics	
☐Circular ☐Elliptical ☐Egg ☐Rectangular ☐Other, Describe:	
Pipe Height (in):	
Pipe Width (in):	
Pipe Material: ☐RCP ☐PVC ☐VCP ☐Cast Iron ☐CMP ☐Other, Describe:	
Pipe Condition: ☐Good ☐Poor ☐Fair ☐N/A	
Height from Invert to Stream Flow Level (ft):	**Additional Details**
Outfall Type/Ownership	**Comments**
Outfall Type:	
Owner:	
Authority:City of O'Fallon	
Other ID:	
NPDES Permit: ☐Yes ☐No If Yes, #:	

Appendix B
Inspection Form

Outfall Inspection Form

	Receiving Stream:	Location Description:
	City:	

Inspection Information
Outfall #/Project:
Inspection Date: Time: Type: Scheduled
Department:
Crew Leader:
Crew Member:
Crew Member:
Time of Last Rain: ☐<24 Hrs. ☐<48 Hrs. ☐<72 Hrs. ☐>72 Hrs Last rainfall (last 7 days) in inches:
Pipe Submergence: ☐None ☐<1/4 Pipe ☐<1/2 Pipe ☐<3/4 Pipe ☐Full ☐Trickle
Comments:

Inspection Image

Sampling Information	Analytical Results
Sample Collected: ☐Yes ☐No	Lab Analysis ID:
Sample ID:	Analyzed By:
Description:	Fecal Coliform: (Colonies/100 ml)
Est. Flow: ☐Heavy ☐Medium ☐Trickle ☐No Flow/Pooling	E. Coli: (Colonies/100 ml)
Est. Method:	Ammonia (mg/l):
Comments:	Temperature (C):
	PH:
	Conductivity (us):
Sampling Strategy:	Phosphorus (mg/l):
	Dissolved Oxygen (mg/l):
	Other Parameters/Results

Recommendations

Action Required: ☐ Yes ☐No ☐Perform Problem Source Investigation

Comments:

Appendix C

Missouri Stream Team Data Sheets

The following data sheets are provided by the Missouri Stream Team can be found on their website at: http://www.mostreamteam.org/

- Water Chemistry Data Sheet
- Visual Survey Data Sheet
- Macroinvertebrate Data Sheet
- Stream Discharge Data Sheet

Appendix D
Illicit Discharge Ordinance

Please refer to the following website or contact the Stormwater Management Department for a copy of the City of O'Fallon Stormwater Quality Management and Illicit Discharge Control Ordinance, #5082, Section 405.245:

- City Website: http://www.ofallon.mo.us/dept_water-sewer_swm_regs.htm
- Stormwater Management Department: 636.240.2000

Appendix E
10 CSR 20-7.031
Table A, B, F, H and J

For the most updated regulations please refer to the MDNR website at:
http://www.dnr.mo.gov/env/wpp/wqstandards/wq_antideg_pol.htm

Or
Missouri Secretary of State's website at:

http://www.sos.mo.gov/adrules/csr/current/10csr/10c20-7.pdf

Appendix F
IDDE Field Guide

Illicit Discharge Detection and Elimination Field Guide

An **illicit discharge** is defined by the US EPA's Phase II Storm Water Regulations as "any discharge to an MS4 (Municipal Separate Storm Sewer System) that is not composed entirely of storm water..." with some exceptions. These exceptions include discharges from NPDES-permitted industrial sources and discharges from fire-fighting activities. Illicit discharges are considered "illicit" because MS4s are not designed to accept, process, or discharge such non-storm water wastes.

MS4 means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains)

(i) Owned or operated by a State, city, township, county, district, association, or other public body (created by or pursuant to State law) including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, that discharges into waters of the state;

(ii) Designed or used for collecting or conveying storm water;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works

Illicit Discharge Testing Procedure

1. Go to site.
2. Put on flashers, put out cones, and put on orange vest (if needed)
3. Locate the outfall.
4. Gather equipment.
5. Take a picture of the outfall.
6. Make visual observations about the pipe, its condition, and the water flowing out of the pipe including color, odor, turbidity, and floatables.
7. If water sample will be collected, put on gloves.
8. Collect a water sample in a lab supplied bottle for lab analysis or sanitized container for on sight testing.
9. Put sample for lab in cooler with ice, or for on sight testing, rinse test tubes/meters with the water to be tested.
10. Run water quality tests on sample (see back of Field Guide for possible parameters and the testing supplies section for specific test kits).
11. Measure the flow rate using the appropriate sized bucket/container
12. Rinse probes with distilled water.
13. Complete necessary paperwork.
14. Check to make sure all equipment is collected before leaving the site.

Stormwater testing supplies

- ❑ **Conductivity Meter**
- ❑ **pH Meter**
- ❑ **Nitrate Test Kit**
- ❑ **Phosphate Test Kit**
- ❑ **Camera**
- ❑ **Latex Gloves**
- ❑ **Hand Cleaner**
- ❑ **Wet Wipes**
- ❑ **First Aid Supplies**
- ❑ **Bug Repellant**
- ❑ **Poison Ivy Cleanser**
- ❑ **Poison Ivy Repellant**
- ❑ **Writing Utensils**
- ❑ **Maps**
- ❑ **Storm Water Forms**
- ❑ **Unopened 100 mL sample bottles**
- ❑ **Extendable Water Sampling Pole w/bottle**
- ❑ **Distilled Water**
- ❑ **Flashlight**
- ❑ **GPS Unit**
- ❑ **Tape Measure**
- ❑ **Cones**
- ❑ **Safety Vest**
- ❑ **Boots**
- ❑ **One Gallon Bucket**
- ❑ **One Pint Container**
- ❑ **Lab Bottles**
- ❑ **Clipboard**

Key Observations:

- Presence of Flow
- Odors
- Colors/Clarity
- Stains/Deposits on the bottom of the stormwater structure
- Oil Sheen, scum or foam on standing water

Know the Difference??

Iron Bacteria

Diesel Fuel

Water Quality Test Parameters and Uses

Water Quality Test	Use of Water Quality Test
1. Conductivity	Indicator of dissolved solids
2. Bacteria (Fecal coliform, *E. Coli*)	Indicates presence of sanitary wastewater
3. Ammonia	May indicate presence of sanitary wastewater
4. Surfactants	Indicates presence of detergents (laundry and car washing)
5. pH	May indicate commercial or industrial discharge
6. Temperature	May indicate industrial cooling/sanitary wastewater
7. Phosphate	High levels indicate presence of sewage and fertilizers
8. Nitrate	May indicate presence of fertilizers
9. Dissolved Oxygen	Low levels may indicate presence of sewage
10. Hardness	Distinguishes between treated and untreated water
11. Total Chlorine	Indicator of inflow from potable water source
12. Fluoride	Indicator of inflow from potable water source
13. Potassium	High levels may indicate presence of sanitary wastewater
14. Optical Brighteners	Indicates presence of laundry detergents
15. Salinity	May indicate commercial or industrial discharge

Outfall Material:

High Density Polyethylene (HDPE)

Vitrified Clay Pipe (VCP)

Corrugated Metal Pipe (CMP)

Reinforced Concrete Pipe (RCP)

Polyvinyl Chloride (PVC)

Ductile Iron Pipe (DIP)

City of O'Fallon

Stormwater Pollution Prevention Plan (SWPPP)
NPDES General Permit #MO-RO40039

STREET DEPARTMENT FACILITY

Adopted: DATE

NOTE - document has been modified from the IWRC SWPPP Sample

http://www.iwrc.org/summaries/onlineSWPPP.doc

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GENERAL FACILITY INFORMATION

Name of Facility: Street Department

Facility Street Address: 1089 Public Works Dr

Owner: City of O'Fallon

Facility Contact:

Name: Ken Hammell

Title: Street Superintendent

Telephone: 636.379.3801

Mailing Address: 100 N. Main St

O'Fallon MO 63366

Emergency Contact:

Name: Ken Hammell

Telephone: 636.379.3801

INTRODUCTION

This storm water pollution prevention plan (SWPPP) covers the operations at the Street Department Facility located at 1089 Public Works Dr.

It has been developed as required under the City of O'Fallon's National Pollutant Discharge Elimination System (NPDES) General Permit for storm water discharges. This SWPPP describes facility operations, identifies potential sources of storm water pollution at the facility, lists best management practices (BMPs) or pollution control measures to reduce the discharge of pollutants in storm water runoff, and provides for periodic review of this SWPPP.

OBJECTIVES

The goal of the storm water permit program is to improve the quality of surface waters by reducing the amount of pollutants potentially contained in the storm water runoff being discharged. Municipally owned facilities are subject to parameters of the NPDES MS4permit under MCM 6, Pollution Prevention and Good Housekeeping for Municipal Operations and must prepare and implement a SWPPP for their facility.

The objective of this SWPPP is three-fold:

- Identify potential sources of pollution
- Describe best management practices (BMPs) consistent with BMPs for the facility
- Provide other elements such as, but not limited to, a facility inspection program, site compliance evaluation program, record keeping and reporting program that will help the facility to comply with the terms and conditions of their NPDES MS4 permit

PHASE 1: PLANNING AND ORGANIZATION

STORM WATER POLLUTION PREVENTION TEAM

The storm water pollution prevention team is responsible for developing, implementing, maintaining, and revising this SWPPP. The members of the team are familiar with management and operations of the Street Department (facility).

The members of the team and their primary responsibilities (i.e. implementing, maintaining, record keeping, submitting reports, conducting inspections, employee training, conducting the annual compliance evaluation, testing for non-storm water discharges, signing the required certifications) are listed in Table 1.

Table 1: Storm Water Pollution Prevention Team

Name & Title	Responsibility
Ken Hammell	Street Superintendent
Tony Steele	Assistant Street Superintendent
Craig Salonies	Street Maintenance Supervisor
Ryan Rockwell	Storm Water Maintenance Supervisor

EXISTING FACILITY MANAGEMENT PLANS

Street Department (facility name) is **(choose one)**

☐ **required** or

☒ **not required**

to comply with other state required environmental plans. These include:

(list as appropriate- SPCC, RMP, etc.)

- Spill Prevention Control and Countermeasure Plan (SPCC)
-
-
-

PHASE 2: ASSESSMENT

ASSESSMENT OF POTENTIAL SOURCES OF POLLUTANTS AND SITE MAP

Figure 1 presents a site map of the facility showing the following features:

- An outline of the drainage area of each storm water outfall including:
  - Drainage patterns
  - Direction of flow
  - Discharge points (outfalls)
- Existing structural storm water pollution control measures (physically constructed features used to control storm water flows), such as:
  - Flow diversion structures
  - Retention / detention ponds
  - Vegetative swales
  - Sediment traps
- Name of receiving waters (or if through a Municipal Separate Storm Sewer System)
- Location and name of surface water bodies, including any neighboring stream, river, lake or water body receiving storm water discharges from the site.
- Locations of ***"significant materials[1] "*** exposed to storm water.
- Locations of past spills and leaks (during the past three years)
- Locations for each of the following activities (where exposed to storm water):
  - Fueling stations
  - Vehicle/equipment washing and maintenance areas
  - Areas for unloading and loading materials
  - Aboveground tanks for liquid storage
  - Industrial waste management areas (landfills, waste piles, treatment plants, disposal area)
  - Outside storage areas for raw materials, by products, and finished products

- Outside manufacturing or processing areas
- Other areas of concern (specify: _____)

1 "significant materials" are defined in the guidance document as: Raw materials, fuels, materials such as solvents, detergents, and plastic pellets, finished materials such as metallic products, raw materials used in food processing or production, hazardous substances designed under Section 101(14) of CERCLA, any chemical the facility is required to report pursuant to EPCRA Section 313, fertilizers, pesticides and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

FIGURE 1. SITE MAP

(GIS aerial and markings)

INVENTORY OF SIGNIFICANT MATERIALS AND EXPOSURE INFORMATION

Table 2 is an inventory of ***"significant materials[1]"*** on site. For each significant material on site an evaluation will be conducted to determine the potential for these materials to be contributed to storm water runoff being discharged from the facility.

Table 2: Inventory of Significant Materials and Exposure Information

Location or Process	Material	Quantity (units)	Management Practice	Likelihood of Exposure & Under What Conditions	Exposed Past 3 years (yes/no)
North side of lot	Above ground fuel tank		Secondary containment	Low	No
Southwest side of lot	Underground fuel tank		Underground containment	Low	No

LIST OF PAST SPILLS/LEAKS AND "HAZARDOUS CONDITION"

A list of ***"significant materials[1] "*** that have been spilled or leaked over the three years prior to the completion of the plan is found in Table 3. The date, volume of materials, the exact location of each release, and the actions taken to clean up the materials and/or prevent exposure of the materials to storm water runoff is included in addition to indicating if a ***"hazardous condition[2]"*** occurred. (*If there have been no spills of polluting materials, state that in this section).*

No spills of polluting materials have occurred.

TABLE 3: LIST OF PAST SPILLS/LEAKS AND "HAZARDOUS CONDITION"							
Date	Material	Volume	Location	Storage Method	Disposal Method	Action Taken (prevention, clean up, etc.)	Hazardous Condition (yes/no)
N/A	N?A	N/A	N/A	N/A	N/A	N/A	N/A

[2] "hazardous condition" is defined in the guidance: '… any substance or mixture of substances that presents a danger to the public health or safety and includes but is not limited to a substance that is toxic, corrosive or flammable, that is an irritant or that, in confinement, generates pressure through decomposition, heat or other means. Examples: acids, alkalis, explosives, fertilizers, heavy metals such as chromium, arsenic, mercury, lead and cadmium, industrial chemicals, paint thinners, pesticides, petroleum products, poisons, radioactive materials, sludge and organic solvents, any substance identified by EPA under RCRA or any toxic pollutant listed under Section 307 of WPCA or any DOT designated hazardous material.

NON – STORM WATER DISCHARGE ASSESSMENT

The permit requires that all discharge locations be evaluated for the presence of non-storm water discharges. Examples of non-stormwater discharges that may require coverage under a NPDES permit include any water used directly in the manufacturing process (process water) and vehicle or equipment washing where detergent is used. Allowable non-stormwater discharges include: uncontaminated ground water discharge, foundation or footing drains where flows are not contaminated with process materials, discharges from springs, routine exterior building wash down which does not use detergents or other compounds, air conditioning condensate, non-contact cooling water, pavement wash waters where spills or leaks or hazardous materials have not occurred and where detergents are not used. Also, discharges from fire fighting activities, fire hydrant flushing, potable water sources including waterline flushing, irrigation drainage and lawn watering are allowed.

Any unauthorized storm water discharges will be eliminated, or covered under another National Pollutant Discharge Elimination System (NPDES) permit. Table 4 summarizes the evaluation results.

TABLE 4: NON-STORM WATER DISCHARGE ASSESSMENT

Date	Outfall	Method Used	Location or Source	Person Evaluating	Result of assessment and potential significant sources
6-25-2012	Area Inlet	Visual	Southeast corner of lot	Michele G	No discharge observed this date
9-9-2013	Area Inlet	Visual	Southeast corner of lot	Ryan R	No discharge observed this date
8-8-14	Area Inlet	Visual	Southeast corner of lot	Ryan R	No discharge observed this date
5-28-15	Area Inlet	Visual	Southeast corner of lot	Ryan R	No discharge observed this date

EXISTING MONITORING DATA
(If no existing data – indicate on this table)

Table 5 includes existing monitoring data for the facility.

TABLE 5: EXISTING MONITORING DATA						
Date	Location or Outfall	Parameter Analyzed	Employee Collecting Sample	Method of Collection	Frequency	Lab Analyst
6-25-2012	Discharge inlet	N/A	N/A	N/A	N/A	N/A
9-9-2013	Discharge inlet	N/A	N/A	N/A	N/A	N/A
8-8-14	Discharge Inlet	N/A	N/A	N/A	N/A	N/A
5-28-15	Discharge Inlet	N/A	N/A	N/A	N/A	N/A

SITE EVALUATION SUMMARY

This is a narrative description of activities with a ***high potential to contaminate storm water*** at The Street Department (facility name). It includes areas, activities and materials associated with loading, unloading, outdoor storage, outdoor manufacturing or processing, onsite waste disposal and significant dust or particulate generating activities. The information found in Table 6 is used to select the most appropriate Best Management Practices (BMPs) to prevent or control pollutants from these areas.

TABLE 6: SITE EVALUATION SUMMARY				
Activity/Area	Storm Water Pollutant Source	Pollutant of Concern	Existing BMP	New BMP Options (Recommendations)
Loading and Unloading Operations	Tractor	Various	Snout inlet filter	Bin materials to contain
Maintenances & Equipment Cleaning	Vehicle Washing	Sediment and metals	Snout inlet filter, grass swale, Grated inlet filter	Route to oil/grease separator.
Outdoor Storage Operations	Materials stored	Various	Bins and covers	Some will be moved under roof
On-Site Practices	Various	Various	Snout inlet filter and grass swales, rain garden, Grated inlet filter	N/A
Dust or Particulate Generating Processes	Vehicles	Sediment/gravel	Street sweep, dust control	N/A
Above Ground Liquid Storage Tank	Fuel/Brine	Liquid fuel, salt solution	Secondary containment for fuel. Spill clean up for brine	Spill capture materials

Outdoor Processes or Manufacturing	N/A	N/A	N/A	N/A
Other	Park lot runoff	Sediment/metals	Rain garden/grass swales	N/A

PHASE 3 & 4: BEST MANAGEMENT PRACTICE SLECTION, IMPLEMENTATION AND EMPLOYEE TRAINING

BEST MANAGEMENT PRACTICES: SUMMARY AND SCHEDULE OF IMPLEMENTATION

Based on information recorded in Table 6, Site Evaluation Summary, storm water management controls or best management practices (BMPs), have been or will be implemented to reduce the amount of pollutants in storm water discharge.

Non-structural controls are practices that are specifically intended to reduce the amount of pollution getting into surface waters. They are generally implemented to address the problem at the source. They do not require any structural changes to the facility.

Structural control measures may be necessary to control any pollutants that are still present in the storm water after the non-structural controls have been implemented. These types of controls are physical features that control and prevent storm water pollution. They can range from preventive measures to collection structures to treatment systems. Structural controls will require construction of a physical feature or barrier.

The following BMP's are a mixture of non-structural and structural control chosen for implementation at the Street Department (facility name).

GOOD HOUSEKEEPING

Good housekeeping practices are designed to maintain a clean and orderly work environment. This will reduce the potential for significant materials to come in contact with storm water.

Table 7 lists good housekeeping practices that are or will be implemented, a schedule for implementation and the person responsible.

TABLE 7: GOOD HOUSEKEEPING PRACTICES

Area / Equipment	Task	Implementation Schedule	Responsible Person
Southwest corner of shop / Parking lot drain	Snout inlet filter	In place	Tony S.
Southwest corner of shop / Parking lot drain	Grated inlet filter	In place	Ryan R.

PREVENTIVE MAINTENANCE

Preventive Maintenance involves the regular inspection, testing, and cleaning of facility equipment and operational systems. Preventative maintenance will help to uncover conditions that might lead to a release of materials.

Table 8 contains the equipment and activities to be included in a preventive maintenance program.

TABLE 8: PREVENTIVE MAINTENANCE			
Equipment / Activity	Tasks	Implementation Schedule	Responsible Person
Snout inlet filter	Clean out the filter	Monthly	Tony S.
Grated Inlet Filter	Clean out the filter	Monthly	Ryan R.

VISUAL INSPECTION

Visual inspection of the facility (equipment, plant areas, and structural controls) is required by the permit. These inspections will occur at least once each year and after major storm events as prudent. Records of the inspections will be kept on file with the SWPPP for a minimum of three years. Pollution Prevention Plans will be revised after the inspection as needed. Table 9 is a description of the visual inspection and annual schedule.

TABLE 9: VISUAL INSPECTION					
Location, Area or Equipment	Annual Inspection Date	Responsible Person	Management Practice/Method	Effectiveness (Yes/No)	Revision Notes
Snout inlet filter	9-9-2013	Tony S.	Visual Inspection	Yes	
Snout inlet filter	8-8-14	Ryan R.	Visual Inspection	Yes	
Snout inlet filter	5-28-15	Ryan R.	Visual Inspection	Yes	
Grated inlet filter	5-28-15	Ryan R.	Visual Inspection	Yes	

SPILL PREVENTION AND RESPONSE PLAN

Spills and leaks together are the largest industrial source of storm water pollution. Thus, this SWPPP specifies material handling procedures and storage requirements for significant materials. Equipment and procedures necessary for cleaning up spills and preventing the spilled material from being discharged have also been identified. Appropriate employees have been trained to follow SWPPP procedures.

Table 10 lists procedures that have been developed for spill response at the facility, the area(s) covered, response plan location and responsible person are also included.

TABLE 10: SPILL PREVENTION AND RESPONSE				
Area Activity Equipment	Pollutant(s) of Concern	Description of Response Plan	Location of Plan and Clean up Materials/Kits	Responsible Person or Team
Salt Brine Storage Tank	Salt Brine	Contain and clean up spill	Catwalk and between 2nd and 3rd bay	Tony S.
Maintenance Building	Petroleum Based Products	Contain and clean up spill with absorbent materials and spill kit supplies as necessary.	In bays throughout building	Tony S.
Maintenance Building	Various chemicals	Contain and clean up spill per MDS requirement and spill kit as necessary		

SEDIMENT AND EROSION PREVENTION

There may be certain areas at the facility that are prone to soil erosion. These areas need to be protected, and soil kept out of the storm water discharge. If there are no areas prone to soil erosion it will be stated in this.

TABLE 11. SEDIMENT AND EROSION PREVENTION			
Area of Concern	Control Measures	Implementation Schedule	Responsible Person
Southeast corner along Public Works Dr	Rip rap in place	In Place	Tony S.
Erosion of grassy area and natural drainage ditch on east side along Cool Springs	Minimize number of vehicles/equipment washed in this area outdoors at one time	In Place	Tony S.

RUNOFF CONTROL - DIVERSION PRACTICES

Diversion practices are structures (including grading and paving) that are used to divert storm water away from high-risk areas and prevent contaminants from mixing with the runoff and/or to channel contaminated storm water to a treatment facility or containment area.

Table 12 includes information on diversion practices at the Street Department (facility).

TABLE 12: RUNOFF CONTROL – DIVERSION PRACTICES				
Area	Pollutant(s) of Concern	Diversion Measure	Implementation Schedule	Responsible Person
Employee Parking lot	Sediment/metals	Rain Garden	In place	Tony S.
Parking lot drains	Multiple	Process through Snout inlet filter	Already in place-regular maintenance	Tony S.
Grated inlet Southwest corner of building	Multiple	Process through grated inlet filter	In place – regular maintenance	Ryan R.

RUNOFF CONTROL - CONTAINMENT

Containment areas are structures designed to hold pollutants or contaminated storm water to prevent it from being discharged to surface waters. These structures can range from drip pans to large containment areas required for Spill Control and Countermeasures (SPCC) plans such as secondary containment structures or detention, retention and collection basins.

Table 13 includes a list of containment measures that are currently in place or that will be implemented.

TABLE 13: RUNOFF CONTROL – CONTAINMENT				
Area	Pollutant(s) of Concern	Containment Measure	Implementation Schedule	Responsible Person
AG fuel tanks	Fuel	Secondary spill containment	In place	Tony S.
Brine Tanks	Liquid salt chemical	Spill containment	SPCC	Tony S.

OTHER CONTROLS

There are other control measures that are used that may not fit into one of the previously mentioned categories such as, sumps, oil/water separators, sand filters, etc. Those controls are found in Table 14.

TABLE 14: OTHER C0NTROLS				
Area	Material	Control Measure	Implementation Schedule	Responsible Person
Maintenance Bldg	Various	Oil/grease separator	Regular maintenance	Tony S.
Parking lot	Various	Snout inlet filter	Regular maintenance	Tony S.
Parking lot	Various	Grated inlet filter	Regular maintenance	Ryan R.

BMP'S FROM SITE EVALUATION

Table 15 includes BMP's that will be implemented based on information obtained during the comprehensive site evaluation conducted during an earlier activity of this plan.

TABLE 15: BMP's FROM SITE EVALUATION				
Area / Activity	Pollutant of Concern	BMP Control Measure	Implementation Schedule	Responsible Person

EMPLOYEE TRAINING

An employee training program will be implemented to inform appropriate personnel at all levels of responsibility of the components and goals of this SWPPP. The more knowledgeable employees are about the facility's SWPPP and what is expected of them, the greater the chance that the plan will be successful. Table 16 details the training program.

TABLE 16: EMPLOYEE TRAINING PROGRAM			
Training/Information Topic	Employees Trained	Implementation Schedule	Responsible Person
Spill Response	Street Division Employees	2015	Adrian Fakes/Ryan Rockwell

PHASE 5 & 6: EVALUATION

Record Keeping, Internal Report AND ANNUAL REPORT

The permit requires that records of all preventive maintenance, comprehensive visual site inspections, records of employee training sessions, records of monitoring information, and the annual report be retained at the Street Department (facility name) for at least three years after the permit coverage expires. Monitoring results should be retained for five years.

These records are available, upon request, to a representative of MDNR and/or a municipal separate storm sewer system operator as appropriate.

SITE EVALUATION

Qualified personnel will conduct site compliance evaluations once each calendar year.

ANNUAL SITE COMPLIANCE EVALUATION

The following areas, management practices, activities and BMPs listed in Table 17 will be included in the annual compliance evaluation.

TABLE 17: ANNUAL SITE COMPLIANCE PROGRAM				
Area, Location, and or BMP	Effectiveness of Measures	Revision to SWPP Needed (yes/no)	Implementation Schedule	Responsible Person
Snout inlet filter	Effective	No	In place – regular maintenance	Tony S.
Rip Rap southeast corner	Effective	No	In place – regular maintenance	Tony S.
Grated inlet filter southwest corner of building	Effective	No	In place – regular maintenance	Ryan R.

RECORD KEEPING AND REPORTING FORMS

Forms used to conduct inspections/evaluations and report results are found in Appendix A.

ANNUAL REPORT

An annual report discussing the effectiveness of the SWPPP will be written. This report will include any changes that have been made, the reason for the changes, any spills that occurred, what actions were taken as result of the spill, inspection results, and any other information relevant to the SWPPP. The annual report will be retained on site with the SWPPP.

PHASE 7: GENERAL AND SPECIAL REQUIREMENTS

GENERAL REQUIREMENTS

All Notices of Intent, SWPPP's, reports, certifications, or information submitted to the MDNR, or the operator of a large or medium municipal separate storm sewer system will be signed by the "authorized representative" who is the person at or near the top of the Street Department (facility name) management chain and who has been delegated the authority to sign and certify this type of document.

The SWPPP will be located at the facility and made public as appropriate.

CERTIFICATION OF THE SWPPP

I certify that this SWPPP has been developed in accordance with good general practices. To the best of my knowledge and belief, the information submitted is true, accurate, and complete. And at the time this plan was completed no unauthorized discharges were present. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment for knowing violations.

_____

Print Name

_____

Official Title

_____ _____

Area Code & Phone Number Date

_____

Signature

SPECIAL REQUIREMENTS

1. The Street Department (facility name) (**choose one):**
   ☐ **does** or
   ☒ **does not**
   discharge stormwater through a Municipal Separate Storm Sewer System in a city with a population of 100,000 or more. Relevant information outlining compliance with the MS4 special requirements is included as Attachment 1 of this SWPPP.

2. The Street Department (facility name) (**choose one):**
   ☐ **does** or
   ☒ **does not**

store, handle process or transfer SARA Title III, Section 313 Water Priority Chemicals. Relevant information outlining compliance with SARA Title III special requirements is included as Attachment 2 of this SWPPP.

3. The Street Department (facility name) (**choose one):**
   ☒ **does** or
   ☐ **does not**
   have salt storage piles used for deicing or other commercials purposes. Relevant information outlining compliance with salt storage piles special requirements is included as Attachment 3 of this SWPPP.

APPENDIX A

INSPECTION AND REPORTING FORMS

SIGNIFICANT SPILL REPORT FORM

Date of Occurrence:

Discovered by Whom:

Location:

Material Type & Volume:

Cause of Spill:

Corrective Action Taken:

Agencies/Persons Contacted:

_____

Signature

ANNUAL SITE COMPLIANCE EVALUATION FORM

Date: Time:

Conducted by:

Signature: _____

Area/Equipment/BMP Inspected	Observations	Actions Taken

APPENDIX B

LIST OF TABLES

Table 1: Storm Water Pollution Prevention Team

Table 2: Inventory of Significant Materials and Exposure Information

Table 3: List of Past Spills/Leaks and Hazardous Condition

Table 4: Non-Storm Water Discharge Evaluation

Table 5: Existing Monitoring Data

Table 6: Site Evaluation Summary

Table 7: Good Housekeeping Practices

Table 8: Preventative Maintenance

Table 9: Visual Inspection

Table 10: Spill Prevention and Response

Table 11: Sediment and Soil Erosion Prevention

Table 12: Runoff Control – Diversion Practices

Table 13: Runoff Control – Containment Practices

Table 14: Other Controls

Table 15: BMPs From Site Evaluation

Table 16: Employee Training Program

Table 17: Annual Site Compliance Program

Stormwater Industrial Routine Facility Inspection Report

General Information			
Facility Name	The Renaud Spirit Center		
Date of Inspection	**6/9/2014**	**Start/End Time**	**15:15; 15:45**
Inspector's Name(s)	Craig Feldt		
Inspector's Title(s)	Recreation Superintendent		
Inspector's Contact Information	636-474-8101		
Inspector's Qualifications			

Weather Information

Weather at time of this inspection?

☐ Clear ☒Cloudy ☐ Rain ☐ Sleet ☐ Fog ☐ Snow ☐ High Winds

☐ Other: Temperature: 74

Have any previously unidentified discharges of pollutants occurred since the last inspection? ☐Yes ☒No

If yes, describe:

Are there any discharges occurring at the time of inspection? ☐Yes ☒No

If yes, describe:

Routine Facility Inspection Reports

Instructions:

- Include in your records copies of all routine facility inspection reports completed for the facility.
- Facilities subject to State industrial stormwater permits may also find this form useful.

Using the Sample Routine Facility Inspection Report

- This inspection report is designed to be customized according to the specific control measures and activities at your facility. For ease of use, you should take a copy of your site plan and number all of the stormwater control measures and areas of industrial activity that will be inspected. A brief description of the control measures and areas that were inspected should then be listed in the site-specific section of the inspection report.
- You can complete the items in the "General Information" section that will remain constant, such as the facility name, NPDES tracking number, and inspector (if you only use one inspector). Print out multiple copies of this customized inspection report to use during your inspections.
- When conducting the inspection, walk the site by following your site map and numbered control measures/areas of industrial activity to be inspected. Also note whether the "Areas of Industrial Materials or Activities exposed to stormwater" have been addressed (customize this list according to the conditions at your facility). Note any required corrective actions and the date and responsible person for the correction.

Control Measures

- *Number the structural starmwater cantrol measures identified in yaur SWPPP an yaur site map and list them below (add as many contral measures as are implemented an-site). Carry a capy af the numbered site map with yau during yaur inspectians. This list will ensure that yau are inspecting all required cantrol measures at yaur facility.*
- *Describe corrective actians initiated, date campleted, and nate the persan that campleted the wark in the Carrective Actian Log.*

	Structural Control Measure	**Control Measure is Operating Effectively?**	**If No, In Need of Maintenance, Repair, or Replacement?**	**Corrective Action Needed and Notes** (identify needed maintenance and repairs, or any failed control measures that need replacement)
1	Narth West Parking Lat	☒Yes ☐Na	☐ Maintenance ☐ Repair ☐ Replacement	Drain is clear af debris
2	Narth East Parking Lot	☒Yes ☐Na	☐ Maintenance ☐ Repair ☐ Replacement	Drain is clear of debris
3	South West Parking Lat	☒Yes ☐Na	☐ Maintenance ☐ Repair ☐ Replacement	Drain is clear of debris
4	South East Parking Lat	☒Yes ☐No	☐ Maintenance ☐ Repair ☐ Replacement	Drain is clear af debris
5	Drain in grass Sauth af parking lat	☒Yes ☐No	☐ Maintenance ☐ Repair ☐ Replacement	Drain is clear af debris
6	Storm sewer by playgraund	☒Yes ☐Na	☐ Maintenance ☐ Repair ☐ Replacement	Starm sewer is clear af debris
7	Rain Garden	☒Yes ☐Na	☐ Maintenance ☐ Repair ☐ Replacement	Vegetatian is thriving, drainage is sufficient

	Structural Control Measure	Control Measure is Operating Effectively?	If No, In Need of Maintenance, Repair, or Replacement?	Corrective Action Needed and Notes (identify needed maintenance and repairs, or any failed control measures that need replacement)
8	North West of Circle drive	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris
9	North entrance to parking lot	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris
10	South entrance to parking lot	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris
11	North entrance to Circle	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris
12	South entrance to Circle	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris
13	South East of Circle drive	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris
14	North side of entry drive	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris
15	South side of entry drive	☒Yes ❑No	❑ Maintenance ❑ Repair ❑ Replacement	Storm sewer is clear of debris

Areas of Industrial Materials or Activities exposed to stormwater

Below are some general areas that should be assessed during routine inspections. Customize this list as needed for the specific types of industrial materials or activities at your facility.

	Area/Activity	Inspected?	Controls Adequate (appropriate, effective, and operating)?	Corrective Action Needed and Notes
1	**Material loading/unloading and storage areas**	☒Yes ☐No ☐ N/A	☒Yes ☐No	
2	**Equipment operations and maintenance areas**	☒Yes ☐No ☐ N/A	☒Yes ☐No	
3	**Fueling areas**	☐Yes ☐No ☒ N/A	☐Yes ☐No	
4	**Outdoor vehicle and equipment washing areas**	☐Yes ☐No ☒ N/A	☐Yes ☐No	
5	**Waste handling and disposal areas**	☐Yes ☐No ☒ N/A	☐Yes ☐No	
6	**Erodible areas/construction**	☐Yes ☐No ☒ N/A	☐Yes ☐No	
7	**Non-stormwater/ illicit connections**	☐Yes ☐No ☒ N/A	☐Yes ☐No	
8	**Salt storage piles or pile containing salt**	☐Yes ☐No ☒ N/A	☐Yes ☐No	
9	**Dust generation and vehicle tracking**	☐Yes ☐No ☐ N/A	☐Yes ☐No	
10	**(Other)**	☐Yes ☐No ☐ N/A	☐Yes ☐No	
11	**(Other)**	☐Yes ☐No ☐ N/A	☐Yes ☐No	
12	**(Other)**	☐Yes ☐No ☐ N/A	☐Yes ☐No	

Non-Compliance

Describe any incidents of non-compliance observed and not described above:

N/A

Additional Control Measures

Describe any additional control measures needed to comply with the permit requirements:

N/A

Notes

Use this space for any additional notes or observations from the inspection:

CERTIFICATION STATEMENT

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Print name and title: Craig Feldt, Recreation Superintendent

Signature: _____ **Date:** 6/9/14

7
Berm Garden
14
11
15
8
12
Metro Landscaping
9
13
2
10
1
3
6
5

BMP Tracking Database Form

Go to First Record | Go to Last Record | Next Record

AutoID-BMP Tracking: 5

Plan approval date:

P & Z Project Number:

Site name: Fireman's Fund

Location or address: Progress Pointe-Technology Dr

BMP installation date: 01/01/2009

Type of BMP: Rain Garden, Inlet Filters, LEED Certified

Maintenance Agreement Approved by Staff:

Date Recorded:

Recorded Book number:

Recorded Page number:

Agreement Approved by Council:

Inspection Report Submittals Form:

Auto ID BMP Tracking	Site Name	Date report submitted	P & Z Project Number	Status of report	
5	Fireman's Fund	1/1/2009		Approved	LEED

2013-2017 SWMP Goals

Table 1 - MCM 1(Public Education and Outreach) Permit Plan

BMP	Responsible Party	Measurable Goal	Theme or Message	Target Audience	Summary of Planned Activities	Implementation Schedule	%Completed
Public Information Via Hard Copy and Internet Media	Stormwater Management-Stormwater Mgmt Coordinator Public Relations-Public Relations Director Communications-Communications Director	Provide printed materials such as brochures, fact sheets, etc. to build awareness of Stormwater and Water Quality locally via hard copy and internet media	1) Stormwater Management Plan 2) Water Quality 3) Stormwater Mgmt Regulations and Permitting 4) Illicit Discharge Detection and Elimination	1) General Public and Employees 2) General Public 3) General Public, Staff, Developers/Builders 4) General Public and Staff 5) General Public	1) Continue creation and distribution of printed materials for distribution 2) Provide articles for newspapers, publications, local cable channel 3) Provide information and links on our City website page	1) Ongoing 2) Ongoing 3) Ongoing	100%
Public Education	Stormwater Management- Stormwater Mgmt Coordinator	Environmental Education sessions to inform public about the importance of pollution prevention and its effects	1) Water Quality /Groundwater Recharge 2) Illicit Discharges 3) Litter 4) Yard Waste	Providing stormwater education at schools, community meetings, subdivision meetings, public events	1) K-12 education sessions and activities 2) Subdivision Meetings 3) Community Meetings	Ongoing-minimum twice annually	100%
Rain Garden/Rain Barrel/Native Landscaping Workshop	Stormwater Management-Stormwater Mgmt Coordinator Public Relations-Public Relations Director	Increase awareness of stormwater benefit from installation of rain garden, rain barrel or native landscape	1) Stormwater Benefits 2) Ease of installation and attractive aesthetics	General public as well as contractors, builders and developers	Revised 2016-No formal workshops to be held, have found individual education or use at Pubic Events much more effective.	Ongoing-minimum one time per year con't at Public Works Day-"workshop" changed to Education, no formal workshops to be scheduled	100%
Educational Signage for Native landscape and Rain Gardens	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Parks Department - Parks and Recreation Director	Installation of educational signage at various native landscape and rain gardens throughout the City limits	Educate public on benefits of installing rain gardens or utilizing native landscape	General Public	1) Concept design for signage 2) investigate grant opportunities for use 3) Request funds for purchase and installation	year end, 2016 pending fund approval	10%

Table 2 - MCM 2(Public Participation and Involvement) Permit

BMP	Responsible Party	Measurable Goal	Theme or Message	Target Audience	Estimate of People to Participate	Summary of Planned Activities	Implementation Schedule	%Completed	
Stormwater Advisory Committee	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Public Works-Public Works Director Public Works-City Engineer	Build and maintain public participation and involvement as well as raise citizen awareness for water quality	Maintain awareness and get input for water quality, regulations and permit activities or changes, as well as program updates and stormwater improvement	General Public, Businesses, Contractors and Developers	Team Members: *Public Works Director *City Engineer *Asst City Engineer *Stormwater Mgmt Coordinator *Recording Secretary *Street Dept Director *Councilman *10 Commission Members *Water/Sewer Director	1) Regular Public Works Commission Meetings to discuss stormwater program, regulation changes, policy and capital improvement projects	1) Ongoing	100%	
Public Participation Volunteer Events	Stormwater Management-Stormwater Mgmt Coordinator Volunteer Services-Volunteer Services Manager	Increase public awareness to improve water quality and prevent illicit Discharges	Increase public awareness to improve water quality and prevent illicit Discharges	General Public and Businesses	Team Members: *Stormwater Mgmt Coordinator *Volunteer Services Department	1)Continue SWAC (Storm Water Awareness Campaign) by coordinating Storm Drain Marking events with other volunteer events throughout calendar year as done in the past 2) Engineering Dept will make sure markers/pre cast requirements in place prior to escrow release 3) Meet with other municipalities for partnership opportunities 4)Plan workshop details 5) Publicize events via coordination with Public Relations 6) Hold event and evaluate feedback	1)Ongoing-minimum once annually 2) Ongoing-Engineering to continue as in past 3) Complete-Annual partnered creek clean up in spring. 4)Removed-lack of funding and inability to offer PDH/CEU prevents success. 5) Complete-website and newsletter post events 6) Ongoing-minimum once annually	1-100% 2-100% 3-100% 4-Removed 5-100% 6-100%	
Rain Garden Demonstration Project	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Public Relations-Public Relations Director	Installation of a demonstration rain garden either at residence or city owned property	Educate public on stormwater quality benefits of installing rain gardens or utilizing native landscape	General Public	Team Members: *Stormwater Mgmt Coordinator *Assistant City Engineer *Volunteer Services Manager *Public Relations Director *Partnership-outside organization *Property owner *Citizen Volunteers	1) Citizen donate area for project or choose city owned parcel 2) investigate grant opportunities for use 3) Request funds for purchase and installation 4) Procure materials 5) Publicize event and encourage volunteer participation whether subdivision or general public 6) visit site annually to evaluate success of plantings and record results by photographic record	1)Begin funding request late 2013 for fiscal year 2014 2) implement installation of at least one rain garden within 5 year permit cycle pending funding approval	100% complete	

Rain Barrel Program	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer	Installation of rain barrels by citizens as a means of stormwater quality and quantity benefits	Educate public on stormwater quality benefits of installing rain barrel	General Public	Team Members: *Stormwater Mgmt Coordinator *Assistant City Engineer *Potential partnership-outside organization *Public Relations Director *Citizen Volunteers	1) Investigate other municipalities rain barrel programs to implement program efficiently 2) Request funds for purchase and installation 3) Investigate partnerships and or grant funding to assist with the program 4) Purchase rain barrels and or procure materials to assemble kits 5) Publicize event and encourage volunteer participation for installation 6) Evaluate success of project by photographic	1)Funds requested in 2012 2)Implementation to begin 2013-14 and continue as ongoing annually	100% complete	
Riparian Corridor Restoration	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Floodplain Administrator Volunteer Services-Volunteer Services Manager	Installation of trees, shrubs and native plants to restore riparian corridor along a local stream to prevent flooding, improve water quality and assist in prevention of creek bank erosion	Educate public on stormwater quality and flood prevention benefits by re-establishing a riparian corridor	General Public	Team Members: *Stormwater Mgmt Coordinator *Assistant City Engineer *Volunteer Services Manager *Public Relations Director *Partnership-outside organization *Property owner *Citizen Volunteers	1) Investigate other municipalities rain barrel programs to implement program efficiently 2) Request funds for purchase and installation 3) Investigate partnerships and or grant funding to assist with the program 5) Purchase rain barrels and or procure materials to assemble kits 4) Publicize event and encourage volunteer participation whether subdivision or general public 5) visit site annually to evaluate success of plantings and record results by photographic record	1) Mid to late 2014 develop plan of action to implement project 2) 2015 implement project 3) Continue as ongoing annually to semi annually after initial project	100% complete (part of all creek projects now)	

Table 3 - MCM 3(Illicit Discharge Detection and Elimination-IDDE) Permit Plan

BMP	Responsible Party	Measurable Goal	Summary of Planned Activities	Implementation Schedule	%Completed		
Storm Sewer System Mapping	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Planning-GIS Director	Develop and maintain storm system inventory that locates outfalls including detention/retention basins, pipes, ditches, flood control facilities and post construction best management practices	1) Scan all subdivision records on file so that it can be entered onto the existing map system 2) Continue to update the existing map as new development and redevelopment occurs 3) Implement a stream, outfall, discharge pipe, detention/retention inventory and incorporate it in the GIS Mapping system	1) Ongoing 2) Ongoing 3) Implemented in late 2011 and will continue as ongoing through 2013-2017 permit cycle	1-90% 2-90% 3-60%		
Private Sewer Treatment Systems (Septic)	Stormwater Management- Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Sanitary Sewer Dept-Water/Sewer Director St. Charles County Health Department Planning-GIS Director	Develop and maintain a list of address and parcel ID's as available of all private sewer treatment systems and develop a map of on-site sewage disposal systems within the City	1)Perform records search and obtain a list of on-site sewage disposal systems from Board of Health (St Charles Co) 2) Map the location of all known home sewage treatment systems connected to the City's MS4 3) Continue to update the map and list of systems as information becomes available 4) Identify and clean up deteriorating systems (St Charles Co assistance)	1) 2013 2) Late2013 2) 2014 and ongoing from there			
IDDE Manual and Screen Outfalls	Stormwater Management- Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Streets-Director	Implement manual procedures that were completed in 2012 to decrease illicit discharges by visual screening of outfalls and discharge pipes throughout City limits	1) Screening has begun in late 2011 and will continue through 2014 for existing development 2) Add new development and make any changes for re-development 3)Implement inspection protocol/schedule	1) Began late 2011 and will continue through 2014 2) Late 2014 and ongoing from there 3) Late 2014 and ongoing from there	1-80%		
Pet Waste Stations	Stormwater Management-Stormwater Mgmt Coordinator Parks and Recreation-Parks and Recreation Director/Superintendent Public Relations-Public Relations Director	Continue installation of Pet Waste stations to prevent Pet Waste dumping and improve water quality	1) Obtain continued funding to purchase 4 stations per budget year 2) Obtain continued funding to maintain existing pet waste stations 3)Continue to install and maintain at local parks 4) Begin procurement and installation to pedestrian trails	Ongoing	1-100% 2-100% 3-100% 4-90%		

Municipal Recycling Program	Public Works-Public Works Director Environmental Services-Environmental Services Director Green Council-Volunteer Members	Continue our single stream recycling program to decrease the amount of waste placed in landfills to improve the quality of the environment	1) Green Council Board-continues to discuss ways to promote and improve recycling efforts and green solutions to increase the health of the environment 2) Environmental Services tracks the amount of recycling that occurs-continue to report information to the public and provide for NPDES reporting	Ongoing	all 100% and ongoing		
Stream Water Quality Monitoring	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Floodplain Administrator Volunteer Services-Volunteer Services Manager	As part of the IDDE Manual/Program implementation, inventory of all discharge pipes and outfalls to the streams are to be visually inspected each year and water quality monitored by testing should a concern for IDDE be present. All inventory along with concerns will be tracked	1) Complete inventory and implement inspection schedule 2) Construction Sites monitored that are adjacent to streams 3) Update Stormwater Website with stream inventory information	1) Inventory has begun as of late 2011 with Stream Order Map in place 2) 2015 initial inspections complete and map added to City Website 3)2015-2016 map available internally, but not public	1-100%		
Watershed Management Plan	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Floodplain Administrator Public Works-City Engineer	Hire a consultant to evaluate the entire watershed(s) and provide hydraulic information, areas of concern, miles of stream, 303(d) impaired streams, etc. to better manage water quality and quantity in City limits	1) Investigate potential for partnership for project 2) Investigate possible grant availability 3) Acquire/Request budget funds to hire consultant	1)Mid 2015 2) Mid 2015 3) Late 2015 for fiscal year 2017	1)remove-unatainable at this time due to lack of funding for all 2) No grant funds available 3) Continue to ask for funding		

Table 4 - MCM 4 (Construction Site Runoff) Permit Plan

BMP	Responsible Party	Measurable Goal	Summary of Planned Activities	Implementation Schedule	% Completed
Construction Site Inspections	Engineering-Assistant City Engineer Engineering-Sr Construction Inspector Stormwater Management-Stormwater Mgmt Coordinator	Ensure construction sites are inspected to ensure compliance with approved plans and SWPPP	Track the number of construction sites within the City, the number of inspections performed, and the average frequency of inspections.	Ongoing	100%
Site Plan Review Procedures	Engineering-Assistant City Engineer Stormwater Management-Stormwater Mgmt Coordinator	Review the process for pre-construction SWPPP plan review for all residential and commercial projects that disturb one or more acres.	1) Review the existing procedures for site plan review. 2)Track the number of site plans reviewed	Ongoing	100%
Construction Site Water Quality Monitoring	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer	Implement process and procedures for water quality monitoring on sites that are adjacent to streams	1) Develop process 2) Implement procedures	1)Mid-late 2015 2) 2016 and ongoing after	100%-visual monitoring and protection as part of and emphasized at Pre-Construction Meetings
Enforcement Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer	Enforce City Regulations	Enforce City ordinances and state/federal regulations for all construction activity that disturbs one or more acres	Ongoing	100%

Table 5 - MCM 5 (Post Construction Site Runoff) Permit Plan

BMP	Responsible Party	Measurable Goal	Summary of Planned Activities	Implementation Schedule	% Completed
Ordinance or Other Regulatory Mechanism	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Planning-Planning Director	Adopt/revise ordinance addressing stormwater runoff from new development/redevelopment projects disturbing one or more acres	1) Review/Revise current ordinance(s) to include more detailed information for redevelopment projects 2) Educate development community 3) Evaluate periodically for necessary revisions	Ongoing	1-95% 2-100% 3-95%
Post-Construction Requirements	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Planning-Planning Director	Adopt/revise ordinance that requires post construction stormwater management per MDNR/EPA general construction permit	1) Adopt/Revise ordinance as needed with emphasis on re-development as the City matures 2) Continue to educate development community regarding approved BMP's 3) Continue to evaluate to review and evaluate BMP alternatives	Ongoing	100%
Site Plan Review Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer	Adopt/revise policy that requires post construction stormwatermanagement per MDNR/EPA general construction permit	1) Review every site plan for post construction requirements 2) Meet with developers and engineers during design process to encourage the use of non structural BMP's/green infrastructure 3) Report the number of sites/plans reviewed	Ongoing	100%
Site Inspection Procedures	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Sr Construction Inspector	All post construction (structural and non structural) BMPs will be inspected prior to acceptance of the project by the City to ensure BMPs are installed and functioning properly	1) Develop an inspection schedule for structural and non structural BMPs 2) Report the number of sites inspected, number of inspections performed, and average frequency of inspections	Ongoing	90%
Long-Term O&M Plans/Agreements	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer	All sites will have an O&M plan	1) Adopt requirement for all projects to have an operations and maintenance plan identifying responsibility for private BMP O&M 2) report the number of sites with agreements	1) Completed 2008, under legal review again 2011 2) Ongoing	1-100%

Table 6 - MCM 6 (Pollution Prevention/Good Housekeeping for Municipal Operations) Permit Plan

BMP	Responsible Party	Measurable Goal	Summary of Planned Activities	Implementation Schedule	% Completed
Employee Training	Stormwater Management-Stormwater Mgmt Coordinator Public Works-Public Works Director Public Works-City Engineer Engineering-Assistant City Engineer Street Dept-Street Dept Director Parks and Recreation-Parks Director/Parks Superintendent Water/Sewer-Water/Sewer Director Administrative Services-Facilities Manager Administrative Services-Fleet Maintenance Manager Environmental Services-Environmental Services Director	Train key staff on issues related to MS4 permit in general, possible emphasis on MCM 3 and 6	1) Implement Guidance Manual 2)Conduct in-house training of appropriate staff	Ongoing	100%
MS4 Maintenance	Street Department-Street Dept Director Stormwater Management-Stormwater Management Coordinator	Maintain ongoing schedule for MS4 maintenance	1) Develop schedule for inspecting and cleaning storm infrastructure 2) Summarize maintenance activities in annual report	Ongoing	85%
Road Salt	Street Department-Street Dept Director Stormwater Management-Stormwater Mgmt Coordinator	Properly apply salt in a way that minimizes over-usage	1) Document existing street deicing procedures 2) Document tons of salt used each year 3) Develop procedures for reducing salt use	Ongoing	
Disposal of Wastes	Stormwater Management-Stormwater Mgmt Coordinator Public Works-Public Works Director Public Works-City Engineer Engineering-Assistant City Engineer Street Dept-Street Dept Director Parks and Recreation-Parks Director/Parks Superintendent Water/Sewer-Water/Sewer Director Administrative Services-Facilities Manager Administrative Services-Fleet Maintenance Manager Environmental Services-Environmental Services Director	Properly manage and dispose of wastes	1) Develop procedures for proper waste disposal	Ongoing	
MS4 Funding Mechanism	Stormwater Management-Stormwater Mgmt Coordinator Engineering-Assistant City Engineer Engineering-Plan Review Engineer Public Works-Public Works Director Public Works-City Engineer	Evaluate and recommend/revise funding mechanism to support program requirements as required by EPA	1) Investigate different types of funding mechanisms 2) Develop mechanism 3)Present alternative funding mechanism ideas to public and City Council	** Current Parks/SW Sales Tax 1/2 cent 1) 2014 2) 2015 3) 2018	

City of O'Fallon, Missouri

Stormwater Management Program Organizational Chart

Coordination and Administration of Stormwater Management Program
Steve Bender, P.E. Public Works Director
Jeff Schuepfer, P.E., Asst. City Engineer
Michele Gremminger, CESSWI, CMS4SStormwater Management Coordinator

Public Outreach and Education
MCM #1
- Michele Gremminger, Stormwater Mgmt Coordinator

Public Participation and Involvement
MCM #2
- Michele Gremminger, Stormwater Mgmt Coordinator

Illicit Discharge Detection and Elimination
MCM #3
- Michele Gremminger, Stormwater Mgmt Coordinator
- Jeff Schuepfer, Ass. City Engineer
- Jay Herigodt, Director of Street Division
- Jared Agee, Building & Code Enforecment Manager
- Mike Pratt, Director of Water/Sewer

Construction Site Runoff Control
MCM #4
- Michele Gremminger, Stormwater Mgmt Coordinator
- Jared Agee, Building & Code Enf. Manager
- Wade Montgomery, City Engineer
- Jeff Schuepfer, Asst. City Engineer
- Jeff Paskiewicz, Asst. City Engineer

Post-Construction Site Runoff Control
MCM #5
- Steve Bender, Public Works Director
- Jeff Schuepfer, Assistant City Engineer
- Michele Gremminger Stormwater Mgmt Coordinator
- David Woods, Director of Planning
- Wade Montgomery, City Engineer
- David Woods, Director of Planning

Pollution Prevention and Municipal Good Housekeeping
MCM #6
- Steve Bender, Public Works Director
- Wade Montgomery, City Engineer
- Jeff Schuepfer, Asst. City Engineer
- Michele Gremminger, Stormwater Mgmt Coordinator
- Jay Herigodt, Director of Street Division
- Mike Pratt, Director of Water/Sewer,
- John Griesenauer, Director of Administrative Services
- Jim Wenzara, Director of Environmental Services
- Cindy Springer, Director of Parks and Recreation
- Jason Del Pozo, Fleet Manager

Steve Bender, P.E.	*Public Works Director*	*sbender@ofallon.mo.us*	*636.379.5560*
Wade Montgomery, P.E.	*City Engineer*	*wmontgomery@ofallon.mo.us*	*636.379.5567*
Jeff Schuepfer, P.E.	*Asst. City Engineer*	*jscheupfer@ofallon.mo.us*	*636.379.5491*
Jay Herigodt	*Director of Streets*	*jherigodt@ofallon.mo.us*	*636.379.3801*
Michele Gremminger	*SW Mgmt Coordinator*	*micheleg@ofallon.mo.us*	*636.240.2000*
Jeff Paskiewicz	*Asst. City Engineer*	*jpaskiewicz@ofallon.mo.us*	*636.379.5663*
Jared Agee	*Bldg & Code Enf. Manager*	*jagee@ofallon.mo.us*	*636.379.5597*
Mike Pratt	*Director of Water/Sewer*	*mpratt@ofallon.mo.us*	*636.379.7605*
David Woods	*Director of Planning*	*dwoods@ofallon.mo.us*	*636.379.5541*
Jim Wenzara	*Director of Environ. Services*	*jwenzara@ofallon.mo.us*	*636.240.2921*
Cindy Springer	*Director Parks/Recreation*	*cspringer@ofallon.mo.us*	*636.379.5570*
Jason Del Pozo	*Fleet Manager*	*jdelpozo@ofallon.mo.us*	*636.379.7639*

Appendix K

City of O'Fallon, MO
Wednesday, July 9, 2014

Chapter 405. Subdivision and Land Development

Article III. Plat Procedures and Specifications

Section 405.070. Grading Plan Process.

Note—Ord. no. 5454 §1, adopted May 14, 2009, sets out the grading permit applications and checklists and matters related thereto. Said checklist and related information is on file in the city offices.

[R.O. 2007 §405.070; Ord. No. 1573 §§303.0—303.5, 4-7-1988; Ord. No. 1803 §1, 4-5-1990; Ord. No. 4854 §§1—2, 6-14-2005; Ord. No. 5242 §1, 10-30-2007; Ord. No. 5270 §1, 1-14-2008]

A. *Scope And Application.* The requirements of this Section shall apply to all site plan and construction plan approvals.

B. *Filing Procedures.* With regard to any real property within the City, the owner(s) of real property must have first obtained approval of the applicable site plan, preliminary plat or area plan for a proposed land development project prior to submitting a grading plan for said proposed land development project. The owner/developer shall submit five (5) copies of the proposed grading plan and a completed application form to the City Engineer.

C. *Information Required.* The following information is required for all grading plan submittals for approval. The required information may be combined for presentation on one (1) or more drawings or maps. The City Engineer may request that the information be presented on drawings or maps in addition to those submitted in the interests of clarity, speed and efficiency in the review process. In all cases the grading plan submission should include a grading plan application and all information as required per that application.

1. The grading plan shall be of a scale not to be greater than one (1) inch equals twenty (20) feet nor less than one (1) inch equals two hundred (200) feet and of such accuracy that the City Engineer can readily interpret the plan and shall include more than one (1) drawing where required for clarity.
2. The property is identified by lot lines and location, including dimensions, angles and size, correlated with the legal description of said property. The grading plan shall be designed and prepared by a qualified land planner, registered professional architect, engineer or land surveyor. It shall also include the name and address of the property owner(s), developer(s) and designer(s).
3. It shall show the scale, north point, boundary dimensions, natural features such as wood lots, streams, rivers, lakes, drains, topography (at least five (5) foot contours intervals; when terrain is irregular or drainage critical, contour interval shall be two (2) foot) and similar features. All topographic data shall directly relate to U.S.G.S. data.
4. It shall show existing manmade features such as buildings, structures, easements, high tension towers, pipelines, existing utilities such as water and sewer lines, etc., excavations, bridges, culverts and drains and shall identify adjacent properties within one hundred (100) yards and their existing uses.
5. Any proposed alterations to the topography or other natural features shall be indicated.
6. All filled places under proposed storm and sanitary sewer lines and/or paved areas shall be compacted to ninety percent (90%) of maximum density as determined by the Modified AASHTO T-180 Compaction Test or ninety-five percent (95%) of maximum density as determined by the Standard Proctor Test AASHTO T-99.
7. All filled places in proposed roads shall be compacted from the bottom of the fill up to ninety percent (90%) maximum density as determined by the Modified AASHTO T-180 Compaction Test or ninety-five percent (95%) of maximum density as determined by the Standard Proctor Test AASHTO T-99. All tests shall be verified by a soils engineer concurrent with grading and backfilling operations and supplied to the City in a timely manner.
8. All low places whether on or off site should be graded to allow drainage. This can be accomplished with temporary ditches.
9. The plan shall include the requirements of the City's Trees and Landscaping Ordinance (Chapter **402** *The reference herein to "Chapter **230**" was changed to "Chapter **402**", since ord. no. 5752 §1, adopted 12-8-11 repealed Chapter **230** and enacted Chapter **402** as it's replacement.* , the requirements of the City's Floodplain Ordinance (Chapter **415**), and a sediment and erosion control plan per St. Charles County Soil and Water Conservation District's "Protecting Water Quality" manual or other manual or method approved by the City Engineer.
10. The plan shall include recommendations from a registered professional engineer specializing in slope stabilizations for any slopes within the project area that exceed 3:1 and any vegetated drainage system that may be prone to erosion.
11. Grading plans that are being prepared in conjunction with an approved preliminary plat shall include an estimate of the quantity of soil to be removed (spoils) associated with the contemplated improvements. It is noted that these estimated quantities will change based on the actual size of foundations constructed and the type of material excavated.

D. *Erosion And Sediment Control Plan.* The grading plan shall be accompanied by an erosion and sediment control plan developed in accordance with Chapter **515** of the Municipal Code.

E. *Review Procedures.* The City Engineer shall review the grading plan for conformance to standards and specifications set forth in this Chapter and other applicable ordinances. The City Engineer may request modifications in the grading plan. The City Engineer shall then confer approval, conditional approval or disapproval of the grading plan within forty-five (45) days of filing and shall notify the Director of Planning and Development and Director of Building Safety with written reasons for its action.

F. *Effect Of Grading Plan Approval.* Grading plan approval shall confer upon the developer, for a period of one (1) year from date of approval, the conditional right that the general terms and conditions under which the approval was granted will not be changed by the City Engineer. This one (1) year period may be extended by the City Engineer if the developer has applied in writing for such an extension and the City Engineer determines a longer period should be granted due to unusual circumstances. If an extension is not granted, the grading plan approval is null and void. After approval of the grading plan, the developer may proceed with the grading operations upon the final direction of the City Engineer and under the inspection of the Community Development Department. Construction site plan approvals granted under Section **405.100** of this Chapter (which

include grading operations and do not already have a separate grading approval) shall be considered as including a grading plan component and be subject to the terms of this Section.

G. *Improvement Installation Or Performance Guarantee.* After approval of the grading plans by the City, the owner/developer must post a financial guarantee of performance as required by this Chapter. The following items, if they apply, shall be included in the financial guarantee:

1. Grading including permanent drainage swales.
2. Siltation/erosion control.
3. Temporary storm drainage.
4. Revegetation.
5. Sediment basin/trap construction.
6. Sediment basin/trap maintenance (dewatering and restoration) including sediment removal from retention basins.

The items above can be lumped into one (1) estimate as long as it is noted that they are included in the total estimate.

H. *Grading Operations.* The following procedures are to be followed on all sites.

1. The erosion and sediment control plans shall be implemented before grading operations begin. It is noted that certain clearing, removals and grading operations may be required in order to establish the erosion and sediment control plan.
2. All erosion and sediment control measures shall be implemented so as to prevent the flow or runoff of mud, silt, dirt, debris and other materials onto streets, sidewalks and other public rights-of-way. Additionally, positive steps shall be exercised to prevent mud, silt, dirt, debris and other materials from damaging adjacent property and silting up all storm drainage systems whether on or off site. Erosion and sediment control measures shall be designed at a minimum to accommodate flows from a 15-year, twenty (20) minute storm. It is understood that the Missouri Department of Natural Resources (DNR) approves a Storm Water Pollution Prevention Plan (SWPPP). In this plan, certain areas are designed to collect silt and other debris on site. It shall not be construed that the collection of silt and other debris in compliance with the DNR approved SWPPP be a violation of City ordinances. Upon request, copies of the SWPPP shall be provided to the City.
3. Graded areas shall be seeded and mulched (strawed) within fourteen (14) days of stopping land disturbance activities. Unless it can be shown to the City Engineer that weather conditions are not favorable, vegetative growth is to be established within six (6) weeks of stopping grading work on the project. The vegetative growth established shall be sufficient to prevent erosion and the standard shall be as required by EPA and DNR (seventy percent (70%) coverage per square foot).
4. The property owner, his/her agent or applicant shall inspect all erosion control and correct any deficiencies within forty-eight (48) hours of the end of any storm producing more than one-half (½) inch of rain at the project site.

I. *Enforcement.*

1. *Violations—nuisance.* It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Section. Any failure to adequately correct a deficiency in erosion and sediment control measures within forty-eight (48) hours after notification by the City shall be a violation of City ordinances. Any failure to comply with a SWPPP (Missouri Department of Natural Resources approved Storm Water Pollution Prevention Plan) for a site that results in sediment entering streets or the storm water system shall be considered a violation of City ordinances. For storms exceeding the design storm (15-year, twenty (20) minutes), any silt or debris leaving the site and affecting public rights-of-ways or stormwater drainage facilities shall be cleaned up within twenty-four (24) hours after the end of the storm. Any condition caused or permitted to exist in violation of any of the provisions of this Section is a threat to public health, safety and welfare and is declared and deemed a nuisance. The administration of violations and nuisances shall follow the City's ordinances related thereto and specifically Chapters **100** (General Provisions) and 220 (Nuisances).
2. Each incident of failure shall be deemed separate violations of City ordinances and each day where violations are not corrected shall be considered separate additional violations.
3. The City shall have the right to issue stop work orders to projects/sites not complying with the requirements of this Section.
4. *Prosecution for violations.* Any person that has violated or continues to violate this Section shall be liable to prosecution to the fullest extent of the law and, upon conviction, shall be subject to a fine in an amount of a minimum of two hundred dollars ($200.00) and not to exceed five hundred dollars ($500.00) per charge and/or imprisonment for a period of time not to exceed ninety (90) days per charge.

BILL NO. **6716** ORDINANCE NO. **6207**

Sponsored by: Mayor Hennessy

AN ORDINANCE AMENDING CERTAIN PROVISIONS OF TITLE IV: LAND USE, CHAPTER 405; ZONING CODE, RELATED TO REGULATIONS PERTAINING TO DEVELOPMENT ACTIVITIES WITHIN THE CITY OF O'FALLON, MISSOURI.

WHEREAS, in order to preserve the public health, safety and welfare, it is the desire of the City Council to amend various provisions of the zoning code, and

WHEREAS, a periodic review and update to the regulations are necessary and appropriate to respond to current circumstances, and

WHEREAS, the City's current regulations may not be appropriate to respond to those current circumstances,

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, AS FOLLOWS:

Section One. Section 405.010: General Provisions of Article I: General Provisions of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

E. Administration. The provisions of this Chapter shall be administered in accordance with Chapter 89, RSMo., as amended, and shall be administered by the Planning and Zoning Commission, the City Administrator, the Director of Planning and Development or Building Official or their delegate, the Mayor and the City Council.

G. Schedule of Fees, Costs and Expenses. The City Council shall establish a Schedule of Fees, Costs and Expenses for all matters pertaining to the Subdivision and Land Development Code. The Schedule of Fees, Costs and Expenses shall be established as Appendix B of Title IV: Land Use. The Schedule of Fees, Costs and Expenses shall be filed with the City Clerk. The Schedule of Fees, Costs and Expenses shall only be amended by the City Council and shall not require a recommendation from the Planning and Zoning Commission.

Section Two. Section 405.015: Hazardous Pipelines of Article I: General Provisions of Title IV of the Municipal Code is hereby amended to read as

follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

C. A person may not place a structure or excavate within a restricted pipeline area.
   1. This prohibition does not apply to:
      a. The hazardous pipeline or an appurtenance to the pipeline;
      b. A facility that produces, consumes, processes or stores the product transported by the hazardous pipeline, including a power generation facility;
      c. A utility line that crosses the restricted pipeline area, including an appurtenance to the line;
      d. A utility service connection;
      e. A road;
      f. A surface parking lot;
      g. A structure or excavation that the Building Official and City Engineer determine does not disturb the pipeline or impede its operation;
      h. Grading that the Building Official and City Engineer determine does not disturb the pipeline or impede its operation.

Section Three. Section 405.030: Definitions of Article II: Rules and Definitions of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

BUILDER
That person, firm, or corporation by whom a building or buildings will be constructed on a development pursuant to the requirements of these regulations. A developer may also be a builder.

BUILDING OFFICIAL
The Building Official for the City of O'Fallon, Missouri.

CITY ENGINEER
The officially appointed Engineer of the City of O'Fallon.

DIRECTOR OF PLANNING AND DEVELOPMENT
The Director of Planning and Development for the City of O'Fallon, Missouri.

DEVELOPER
That person, firm or corporation by whom a tract will be subdivided and improved pursuant to the requirements of these regulations.

PRINCIPAL SPILLWAY
A device such as an inlet, pipe, weir, (structural or non-structural) opening in a berm, etc., discharging water during operation of the facility.

DETENTION FACILITY
Any detention facility controlling storm water discharge from a site wholly owned/maintained and controlled by a property owner. Also, all facilities incorporating detention/retention storage of storm water in or on any of the following:

1. Roofs of buildings or structures also used for other purposes.
2. Paved or surfaced areas also used for other purposes.
3. Enclosed underground pipes or structures on private property when the surface is used for other purposes.
4. Depressed or open grassy areas also used for water quality or storm water storage purposes.

TEMPORARY CERTIFICATE OF OCCUPANCY
A permit to occupy a development prior to site improvements being completed.

Section Four. Section 405.040: Preliminary Plat Procedures of Article III: Plat Procedures and Specifications of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

C. Procedure For The Review Of A Preliminary Plat.
   3. Preparation of a staff report. The Planning and Development Department will prepare a staff report containing an analysis of the proposed preliminary plat application. A copy of the preliminary plat and the staff report will be distributed to each of the members of the Planning and Zoning Commission. A copy of the staff report will be provided to the applicant.

Section Five. Section 405.060: Record Plat Procedures of Article III: Plat Procedures and Specifications of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

B. Information Required. Prior to approval of the record plat, the City Council shall require the information as required per the application and checklist approved by the Planning and Zoning Commission and

the City Council. Unless the entire (master) subdivision is less than or equal to twenty five (25) lots, then the following conditions are preferred but not required:

1. No record plat is to be submitted with less than or equal to twenty five (25) lots.
2. The lots must be directly adjacent to each other.

3. If the entire subdivision has a total of 26-49 lots, then special consideration may be given on the number of lots to be platted.

Section Six. Section 405.070: Grading Plan Process of Article III: Plat Procedures and Specifications of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

E. Review Procedures. The City Engineer shall review the grading plan for conformance to standards and specifications set forth in this Chapter and other applicable ordinances. The City Engineer may request modifications in the grading plan. The City Engineer shall then confer approval, conditional approval or disapproval of the grading plan within forty-five (45) days of filing and shall notify the Director of Planning and Development and Building Official with written reasons for its action.

F. Effect of Grading Plan Approval. Grading plan approval shall confer upon the developer, for a period of one (1) year from date of approval, the conditional right that the general terms and conditions under which the approval was granted will not be changed by the City Engineer. This one (1) year period may be extended by the City Engineer if the developer has applied in writing for such an extension and the City Engineer determines a longer period should be granted due to unusual circumstances. If an extension is not granted, the grading plan approval is null and void. After approval of the grading plan, the developer may proceed with the grading operations upon the final direction of the City Engineer and under the inspection of the Department of Public Works. Construction site plan approvals granted under Section 405.100 of this Chapter (which include grading operations and do not already have a separate grading approval) shall be considered as including a grading plan component and be subject to the terms of this Section.

Section Seven. Section 405.080: Initial Considerations of Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth

herein are not altered or amended in any way and, therefore, remain in full force and effect).

C. Approval of Construction Plan. Prior to both recording of the record plat and sale of any lot in the plat, the City Engineer must review and approve the construction plans; after such approval, the City Engineer shall issue an appropriate letter certifying approval for construction to commence.

E. Staging. Where a subdivision is to be developed in stages, the provisions of this Article shall apply to each stage. However, improvements and financial guarantees may be required to extend beyond the boundaries of a subdivision stage if such extension is necessary to ensure the relative self-sufficiency of the stage pending completion of the entire subdivision. Such extensions, schedules and similar arrangements shall be set forth in an agreement between the developer and the Council prior to approval of the record plat.

Section Eight. Section 405.090: Engineering Drawings of Improvements of Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

B. Modification during Construction. All installations and construction shall conform to the approved engineering drawings. However, if the developer chooses to make minor modifications in design and/or specifications during construction, he/she shall make such changes at his/her own risk, without any assurance that the City Engineer will approve the completed installation or construction. It shall be the responsibility of the developer to notify and obtain approval from the City Engineer of any changes from the approved drawings prior to making that change. The developer may be required to correct the installed improvement so as to conform to the approved engineering drawings. The developer may request a letter from the Construction Inspection Division regarding any field changes approved by the City inspectors.

C. As-Built Drawings. The developer shall submit to the City Engineer an electronic copy of "as-built" engineering drawings of the required improvements that have been completed. Electronic copy shall be in PDF format, or format that is deemed acceptable by the Department of Public Works. Items that are to be included on the "as-built" drawings are storm systems, sanitary systems, water systems, street light locations (City owned), and permanent swales with flows in excess of

one (1) cfs during the design storm event. The "as-builts" for pavement and grading for sites is not required if the developer's engineer certifies that these items were installed or graded per plan. Each set of drawings shall be signed, sealed and dated by a Registered Professional Surveyor or Engineer. In all cases the as-built plan submission should include an as-built plan application and checklist as approved by the Planning and Zoning Commission and the City Council and all information as required per that application. This provision does not apply to improvements made under jurisdiction of other public agencies.

Section Nine. Section 405.100: Construction Plan Requirements of Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

A. General. The construction plan for all aspects of the site development shall be prepared by an engineer in an electronic format and shall be submitted for review to the City Engineer. Any resubmittal plans shall also be on an electronic format.
   1. Electronic copy shall be in PDF format, or format that is deemed acceptable by the Department of Public Works.
   2. All plans, details and reports shall be signed, sealed and dated by a Registered Professional Engineer. (Per MO Econ. Dev. Requirement).

I. Plans and Fees.

   See Title IV - Appendix B Schedule of Fees, Costs and Expenses for fee schedule.

Section Ten. Section 405.101: Completion of Construction of Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

A. The construction of all subdivision improvements shall be completed within two (2) years of the City Engineer's approval of the construction plans. Time extensions may be granted by the Department of Public Works for those developments showing good cause as to why the improvements have not been completed. If construction under the approved construction plan is to continue beyond the two (2) year period, the developer must request an extension of the approved plan

and provide for extending the escrow or other surety on the project prior to the expiration of the plan, otherwise work on the project must cease. Any request for an extension under this Section that is denied by City staff can be appealed to the Planning and Zoning Commission. The developer may request a period of construction longer than two (2) years with the initial approval at the Planning and Zoning Commission meeting by providing a suitable explanation for the request. On projects with an extended construction period, suitable escrows must be provided for the extended period. If construction is not actively pursued during the course of the extended period of construction approval (beyond the initial two (2) year period), the City may cancel the extension with thirty (30) days' written notice to the developer. Any cancelled extension under this Section may be appealed to the Planning and Zoning Commission.

B. The final release of escrow on all public improvements will be made in accordance with Section 405.110 of this Chapter. A five percent (5%) escrow relating to certain categories of improvements may be held if additional improvements within that particular category are planned for additional phases of the overall project or subdivision. If the developer chooses, a replacement escrow or maintenance bond (for improvements outside the current phase) will be allowed to cover this for the earlier phase of the project.

   In special cases, the construction of the development may impact existing facilities outside the development. In these cases, the Department of Public Works will notify the developer of the need to provide an additional escrow or maintenance bond prior to Planning and Zoning approval of the development. This escrow or maintenance bond is designated only for facilities directly affected by work in the development. As an example this would include, but not limited to, the main access road into the site and water/sewer lines to or from the site. This escrow or maintenance bond shall not exceed five percent (5%) of the value of the existing improvements and will be held until the project is completed.

C. The Building Official shall not issue building permits for any residential structures located on lots within a recorded plat until all street improvements and storm sewers required to be installed within such recorded plat have been installed and are usable. Usable is defined as the aforementioned categories have been installed and are functioning as intended and the street is connected to another public street. For water service and sanitary sewers, all the improvements must be installed and connected to the system, but acceptance by the water or sewer authority is not necessary for the building permit to be issued.

In a case where the water system has not been accepted, the builder must certify that a useable fire hydrant exists within six hundred (600) feet of the building or must obtain approval from the fire district prior to the building permit being issued. The Department of Public Works' lot inspection, prior to a certificate of occupancy being issued, shall not be approved without approval of the water service and sanitary sewers by the appropriate water or sewer authority.

D. The Building Official shall not issue any certificate of occupancy for any residential structure located on a lot within a recorded plat until all permanent utilities servicing such structure have been installed and are functioning and operating as designed. For the purpose of enforcing this Subsection (D) only, utilities shall include water, sanitary sewer, storm sewer, electric and natural gas (if applicable for heating of the structure).

Section Eleven. Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows:

Section 405.110: Performance Guarantee and Development Escrow

A. Escrow Agent. The developer shall deposit with the City Clerk, or an escrow agent agreed upon by the City Administrator and the developer, a cash amount, certified check or an irrevocable bank letter of credit endorsed to the escrow agent. The developer has the option of which form to utilize.

B. Escrow Agreement. For all developers proposing to establish escrows, the escrow agreement shall be in form approved by the City Attorney.

C. Surety Bond. The City may accept a surety bond and such bond shall be in an amount and with surety and other reasonable conditions providing for and securing the actual construction and installation of the improvements and utilities.

D. Amount. The bond or escrow account shall be an amount, estimated by the design engineer and approved by the City Engineer, equal to the estimated cost for completing construction of the improvements over the anticipated construction period and contingencies based on an estimating guide reasonably acceptable to the City Engineer. The City Engineer, in order to protect the City's taxpayers from the cost of correcting or completing development projects in a timely manner, shall estimate the costs to cure or complete so as to ensure that all estimated future costs and contingencies are included in the amount.

E. Term, Length, Extension. The initial term length in which the Development bond or Development Escrow is in force shall be for a period not to exceed two (2) years, unless extended by the City. If the developer fails to file a certificate of completion with the City and obtain a completion certification from the City before the end of the initial term length, the bond or escrow shall continue in force until released by the City Engineer.

F. Failure to Complete the Construction of an Improvement. In the event the developer shall, in any case, fail to complete all such improvement work within the period of time required by the escrow agreement or bond for the completion of improvements, the City may have such work completed and seek reimbursement to the City for the cost and expense thereof by appropriating funds in the escrow or by making a claim on the bond or by bringing legal action to enforce the terms of the bond and/or escrow.

G. Successor Developer. In the event a developer who has posted a Development Escrow, letter of credit or bond with the City in accordance with Section 405.110 transfers title of the subdivision property prior to full release of the escrow, letter of credit or bond, the City may accept a replacement escrow or bond from the successor developer in the form allowed in Section 405.110 and in the amount of the escrow, bond or letter of credit held by the City at the time of the property transfer and, upon receipt of the replacement escrow bond and the required security, the City shall release the original Development Escrow or letter of credit in full and release the prior developer from all further obligations with respect to the subdivision improvements if the successor developer assumes all of the outstanding obligations of the previous developer. The City may accept a surety bond from the successor developer in the form allowed in Section 405.110 and in the amount of the bond held by the City at the time of the property transfer and, upon receipt of the replacement bond, the City shall release the original bond in full and release the proper developer from all further obligations with respect to the subdivision improvements.

H. Development Escrow Release. The bond or escrow amount held by the City to secure actual construction and installation on each component of the improvements or utilities shall be released within thirty (30) days of completion of each category of improvement or utility work to be installed, minus a maximum retention of ten percent (10%) which shall be released upon completion as set forth herein. The City shall inspect each category of improvement or utility work within twenty (20) business days after a request for such inspection. Any such

category of improvement or utility work shall be deemed to be completed upon certification by the City that the project is complete in accordance with the ordinances of the City, including the filing of all documentation and certifications required by the City in complete and acceptable form. The release shall be deemed effective when the escrow funds are duly posted with the United States Postal Service or other agreed upon delivery service or when the escrow funds are hand delivered to an authorized person or place as specified by the owner or developer or when notice of release is sent to the escrow bond surety. Once the developer or builder has completed part of the site improvements in a timely and satisfactory manner, the City should promptly release the appropriate pro rata amount of escrow or bond funds. If the City has not released such escrow funds or bond amount within thirty (30) days as provided in this Section, the City shall be subject to pay the owner or developer, in addition to the escrow funds due the owner or developer, interest at the rate of one and one-half percent (1½%) per month of any escrow funds unlawfully retained calculated from the expiration of the thirty (30) day period until the escrow funds have been released. Any owner or developer aggrieved by the City's failure to observe the requirements of the ordinance may bring a civil action to enforce the provisions of the ordinance. In any civil action or part of a civil action to enforce the provisions of this Section, a court may award the prevailing party or the City the amount of all costs attributable to the action, including reasonable attorney's fees.

Section Twelve. Section 405.120: Inspection of Improvements of Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

[R.O. 2007 §405.120; Ord. No. 1499 §§404.0—404.6, 8-17-1987; Ord. No. 4487 §2, 3-3-2003; Ord. No. 4672 §1, 6-14-2004; Ord. No. 4849 §1, 6-6-2005] [Note: Existing escrow agreements will follow the protocol in-place when the agreement was signed.]

A. The City shall certify that the project is complete in accordance with the following process:

    1. Once the improvements or utilities have been constructed or installed, the developer is responsible for obtaining necessary inspections by requesting such inspection in writing to the Department of Public Works. Following a satisfactory inspection and receipt by the Department of Public Works of verification from the appropriate inspecting authority that all improvements are

constructed or installed in accordance with the approved plans, the Department of Public Works will then review all documents to verify that each category of improvement or utility work is constructed or installed and, if so, will recommend release of the Development Escrow for that category and notify the necessary entities of said approval for release.

2. The Department of Public Works will issue a construction inspection report listing all deficiencies within thirty (30) days of receipt of a written request to approve or inspect improvements subject to the following requirements:
   a. All inspections will be made within thirty (30) working days after the receipt of a written request for inspection. This time frame represents the normal maximum time span required from receipt of written request to signing the construction inspection approval memorandum or the construction inspection report. Inspections may be delayed by workload, weather and ground conditions, especially during the winter when a complete inspection cannot be accomplished. A construction inspection approval memorandum will not be issued where deficiencies exist. Without a construction approval memorandum, the Department of Public Works will not recommend release of escrow. When deficiencies exist, the Department of Public Works will provide a construction inspection report to the developer.
   b. If deficiencies listed in a construction inspection report are corrected within sixty (60) days of the date of the construction inspection report, the Department of Public Works will not conduct any additional inspections other than to verify the correction of the deficiencies. If the deficiencies listed in a construction inspection report are corrected between sixty (60) and ninety (90) days, the Department of Public Works will not conduct any additional inspections other than to verify the correction of the deficiencies or discover additional major deficiencies. If deficiencies listed in a construction inspection report are not corrected until more than ninety (90) days' time after the date of the construction inspection report, the site is subject to re-inspection and any deficiencies may be added requiring correction.

3. As-built plans shall serve as certification by the developer's engineer that improvements have been installed.

4. The Department of Public Works shall assure that all documentation and certifications required by the City of O'Fallon have been

received in complete and acceptable form prior to release of any escrow monies.

5. The original Plat's Development escrow will be released in two phases, a ninety percent (90%) release and a final ten percent (10%) release with the following requirements. For the ninety percent (90%) release, the following requirements will be inspected with minimal inspection time on site and each category can be released individually. For the final ten percent (10%) release, the following requirements will require a full inspection and all categories will be released at the same time. These conditions are minimal as deficiencies are reported as inspected and the standard inspection form will be supplied to the Developer at a pre-construction meeting.

Criteria Inspected for Conformance to Approved Plans and City Codes (The following items must be done prior to requesting inspection.)

Streets - 90% Release

- Constructed under City of O'Fallon inspection.
- Roadway backfilled and compacted to City standards.
- Layout generally conforms to approved site plans
- Concrete cylinder breaks equal to or greater than four thousand (4,000) psi within twenty-eight (28) days.
- All joints properly located and sealed.
- Installation of traffic control signage, pavement markings, street lighting, and street ID signs.

Storm Sewers - 90% Release

- Constructed under City of O'Fallon inspection
- Installation of all storm infrastructures has been installed and in general conformance to approved site plans
- Proper backfill and compaction of backfill material.
- All grading adjacent to inlets to provide for proper drainage in accordance with the drainage area map, and proper grading around all other structures.
- Proper construction of all detention/retention basins
- Erosion control in working condition

Sanitary Sewers (City of O'Fallon System) - 90% Release

- Constructed under City of O'Fallon inspection
- Installation of all sanitary infrastructures has been installed and in general conformance to approved site plans
- Proper placement and compaction of backfill material

- Successfully pull a mandrel through all main lines (public and private) and pressure/vacuum test approved.

Water (City of O'Fallon System) – 90% Release

- Constructed under City of O'Fallon inspection
- Installation of all water infrastructures has been installed and in general conformance to approved site plans
- Proper placement and compaction of backfill material
- Successful bacteria testing and pressure test approved.

Grading – 90% Release

- Constructed under City of O'Fallon inspection.
- Generally conforms to approved site plans
- Erosion control, diversion swales, and sediment basins installed.
- Site Stabilization per County codes has been started or completed.

Common Ground/Other – 90% Release

- Amenities, if required, are installed in general conformance to the approved site plans
- Landscaping, if required, is installed in general conformance to the approved site plans
- Items escrowed that do not fit into other categories have been installed under City of O'Fallon inspection and are in general conformance to the approved site plan

ALL CATEGORIES – Final 10% Release

- Any deficiencies that have occurred since initial escrow release have been repaired.
- Subdivision record plat approved and recorded and acceptance of the dedication of public improvements to be maintained by the City of O'Fallon.
- As-builts approved.

Streets – Final 10% Release

- Core drills for proper thickness (performed by City).
- Straightedge testing meets requirements.
- Sidewalks, not associated with a home Lot, constructed under City of O'Fallon Inspection

Storm Sewer – Final 10% Release

- Grading around structures with proper drainage.
- All temporary siltation control devices removed.

Sanitary Sewers (City of O'Fallon System) – Final 10% Release

- Grading around structures completed.

Water (City of O'Fallon System) – Final 10% Release

- Grading around structures completed.

Grading – Final 10% Release

- Conforms to approved site plans
- Vegetation seventy five percent (75%) established throughout the Plat

Common Ground/Other – Final 10% Release

- Amenities installed per the approved construction plans or replacement escrow provided.

6. When the final ten percent (10%) escrow is ready to be released, Staff will make a recommendation to the City Council for the acceptance and dedication of related City Infrastructure. A Maintenance Escrow is not required for the Development Escrow release.

Section Thirteen. Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows:

SECTION 405.125: (Reserved)

Section Fourteen. Section 405.126: Maintenance Escrow during Construction of Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

A. Purpose. The purpose of the Maintenance Escrow is to protect existing infrastructure on the site from damage from building construction. This generally applies to streets and site grading.

B. At any time after the ninety percent (90%) release for all categories on the Development Escrow, a Maintenance Escrow shall be established to ensure that the infrastructure remains in an acceptable condition during the building construction. If the Maintenance Escrow is established prior to the full Development Escrow release, the City must be provided with an agreement between the Developer and Maintenance Agent with terms of responsibility between the two entities with respect to potential damage to escrow items. Accompanying the maintenance agreement will be an inspection report of the existing infrastructure. The City's maintenance responsibility will start when the Development Escrow has been released in full. After the

Development Escrow is released, and with the Maintenance Escrow in place or still being developed, the City's maintenance responsibilities will be limited to: snow plowing, pavement striping, payment of street lighting bills, normal traffic sign maintenance, joint sealing and A-joint maintenance. The administration of this new maintenance escrow shall be in a similar manner to the Development Escrow.

C The Maintenance Escrow must be replaced by a single successor (Builder, Agent or Bank) as long as all City requirements are met. The City will review and approve any such replacement escrows. This new Maintenance Escrow will assure the City that it has a fund dedicated for the specific purpose of correcting damage to the public infrastructure that occurs during the building construction and that all stakeholders (developer, builders, banks and City) are aware that this fund will be used to correct such damage. The escrow agreement and financial surety shall be in the same form as prescribed in Section 405.110(A—E) and as approved by the City Attorney. The Maintenance Escrow agreement and financial surety shall not expire until ninety-five percent (95%) of the buildings have been completed with occupancy approved. The escrow agreement shall clearly indicate that the Developer/Builder will be required to post additional financial surety should deficiencies arise that would cost more to repair than what is held in the Maintenance Escrow fund. With the construction of the final five percent (5%) of the buildings not covered by the Maintenance Escrow, the builders and contractors are not released from damage that is caused by their construction activities. Maintenance Escrows shall be set up on a per plat basis and the amount of the Maintenance Escrow funds shall be as follows:

1. Streets. Ten percent (10%) of the previously approved cost estimate from the development escrow.
2. Erosion control. A new estimate shall be provided for the cost of any grading, vegetation or erosion control that may be necessary during the period that lots are vacant (prior to a building permit being issued). Vegetative growth is defined in Section 405.070(H)(3).
3. Sidewalks. Ten percent (10%) of the previously approved cost estimate from the development escrow for sidewalks not tied to a lot (example includes common ground areas or entrances adjacent to other property).
4. Street lights and street signs. Ten percent (10%) of the previously approved cost estimate for lights and signs not tied

to a lot (example includes common ground areas or entrances adjacent to other property).

5. Detention/Retention Basin. This pertains to if a builder is constructing homes within a subdivision, and if the builder is not the developer. The escrow holder needs to acknowledge that the basin is in compliance prior to establishment of this escrow. This shall be done by means of an inspection from the City Engineer. A new estimate shall be provided for bringing the basin into compliance, which may include potential cleanout of said basin. As-builts will be required prior to release of the Maintenance Escrow.
6. Water Quality Items (BMPs) will be escrowed with the Storm water Management and Best Management Practices Facilities Maintenance Agreements and not be part of this maintenance escrow. This pertains to if a builder is constructing homes within a subdivision, and if the builder is not the developer. A new estimate will be provided to maintain existing water quality features or the construction of such features if it will be done once the homes are built-out.

D. Once all ordinance requirements have been satisfied and deficiencies corrected, the Builder or Developer may request release of the maintenance escrow. The Engineering Department shall certify to the City Council that all ordinance requirements have been complied with and cause an item to be placed on the Council's consent calendar to formally release the escrow.

E. The City reserves the right to not approve the use of this maintenance escrow in subdivisions where severe deficiencies in the public infrastructure exist with no clear method of resolving those deficiencies.

Section Fifteen. Article IV: Subdivision Improvements of Title IV of the Municipal Code is hereby amended to read as follows:

SECTION 405.127: Lot Deposit During Building Construction.

A. Purpose. The purpose of the Lot Deposit is to protect existing infrastructure on the site from damage from building construction, on that specific lot. This generally applies to infrastructure (except Streets unless as explained below).

B. With the various escrow options contained in Chapter 405 of the City Code, only one (1) valid escrow is required for each phase or plat of a project. The City cannot require duplicate escrows, but at

the same time, each lot being constructed on must have a suitable and valid escrow accepted by the City with the escrow being in compliance with Chapter 405 of the City Code.

C. For each new building permit, a per-lot deposit must be established to cover potential damage to storm, sanitary and water infrastructure. This per-lot deposit will be done with the building permit for such Lot and will also cover items outside of the building structure such as grading and sidewalks. *Note: With the approval of this Section, Section 500.430 B of this code requiring grading letters and escrows will be removed.

D. When the per-lot deposit is to be initiated by a Builder, an inspection of the current conditions within the subdivision will be performed by the City to document the existing conditions of the infrastructure. All parties involved with the per-lot deposit will have to agree on the list of existing deficiencies prior to executing the escrow documents. The Builder and escrow holder on this new per-lot deposit will not be required to correct any of the pre-existing deficiencies defined by the inspection. The pre-existing deficiencies will remain the responsibility of the appropriate party—to be repaired.

E. With the per-lot deposit in place as noted above, the home builder will be required to post a one thousand dollar ($1,000.00) cash per-lot deposit with each home building permit being issued. This one thousand dollar ($1,000.00) cash per-lot deposit will be released with the correction of any deficiencies caused by the home construction and issuance of the certificate of occupancy or temporary certificate of occupancy for the home.

1. The builder will have the option to post a single ten thousand dollar ($10,000) cash per-lot deposit once a year, in lieu of individual escrows for each Lot. This option will cover the per lot deposit for all the homes being constructed across the City regardless of which subdivision it is in.

    a. If the City is required at any time to utilize the per lot deposit to correct any deficiencies, the full value of the escrow must be restored prior to any additional building permits being issued to the builder.

2. Prior to issuance of an occupancy permit, the builder shall provide a letter signed and sealed by a Registered Professional Engineer verifying and stating the lot for which the building

permit is issued complies with the approved grading and drainage plans. If this cannot be accomplished, the Building Official may issue temporary occupancy with the builder's already established per-lot deposit. The temporary occupancy can be replaced with a certificate of occupancy once a letter has been approved by the City.

a. In lieu of having a licensed engineer provide the signed/sealed grading letter, the escrow holder may request the City to perform this same service at a cost of two hundred fifty dollars ($250) cash.
b. If the Lot is graded correctly, but vegetation has not been performed (established vegetation or sod), erosion control must be in-place and the area seed/straw per the County vegetation type based on the time of year.

F. The City reserves the right to not approve the use of this per lot escrow in subdivisions where severe deficiencies in the public infrastructure exist with no clear method of resolving those deficiencies.

G. Grading Plans and Construction Escrows for Site Plans Excluding "R-1" and "R-2."

1. Acknowledgment. At the time of application for a building permit, the applicant shall acknowledge, in writing, and with his/her signature, which the applicant is responsible for assuring that the lot for which the building permit is issued complies with the approved construction plans.
2. Grading only. If the permit is for site grading only, go to Section 405.070 for procedures and escrow requirements.
3. Construction type. Prior to a building permit being issued in all zoning districts (except "R-1" and "R-2") for new construction additions (building or site) or demolitions, a construction escrow must be in-place. A construction escrow is not required for alterations, maintenance, interior finishes or change of use.
4. Escrow amount. The amount of escrow established will be based on the following criteria, unless public infrastructure is being added or altered:

Escrow Amount		Lot Size (acres)		
		□□□	1-5	□□□
Construction Costs ($,000k)	□□□□□	$2,000	$5,000	$10,000
	100-500	$5,000	$10,000	$15,000
	500-1,000	$10,000	$15,000	$20,000
	1,000-1,500	$15,000	$20,000	$25,000
	□ 1,500	$20,000	$25,000	$30,000

If public infrastructure is being added or altered with the site plan, then the actual costs of such improvements will be added to the aforementioned amounts in accordance with Section 405.110(D). Acceptance for maintenance of public infrastructure will follow Section 405.125, with the exception of the escrow release percentages.

5. Escrow type and agreement. The escrow must be in the form of cash, check or wire transfer to the City of O'Fallon and accompanied by a signed escrow agreement. Escrow pertaining to public infrastructure may be in the form of a performance bond in addition to the aforementioned formats.
6. Escrow holder. The escrow holder shall be the contractor that is responsible for the work. If the escrow holder is anyone other than the contractor, the aforementioned escrow shall be increased by fifty percent (50%).
7. Term, length, extension. The initial term length in which the escrow is in force shall be for a period not to exceed one (1) year, unless extended by the City. If the contractor fails to complete the work within this timeframe and obtain an occupancy permit from the City before the end of the initial term length, the escrow shall continue in force until released by the City Engineer.
8. Escrow inspection and release. At the time the contractor or owner has requested a certificate of occupancy, the site and building shall be inspected for compliance. If no deficiencies are encountered on the building and the site, then a certificate of occupancy will be issued and the escrow will be released in full.

   Once the site and building are within compliance, all escrow funds will be returned. An exception to this compliance is weather-related and horticulture. If in the sound opinion of the Building and Code Enforcement Division the weather is not conducive to correct horticultural activities, then a

certificate of occupancy can be issued without the site being in compliance. The horticulture must be finalized within six (6) months of the issuance of the certificate of occupancy or the escrow will be utilized to correct the non-compliance and/or fines established per this Chapter. Any site related issues, including horticulture activities, shall be completed within six (6) months of the issuance of the certificate of occupancy, otherwise the site will be deemed out of compliance.

a. Any violation of the provisions of Subsection (F)(8) above shall be punished as provided in Section 100.010 of this Code of Ordinances. In addition to any penalties under Section 100.010, equitable relief shall also be available to enforce compliance pursuant to Section 100.011 of this Code or Ordinances.

9. Multiple additions. If the original site plan and/or building plan has had additions approved through the Planning and Zoning Commission and are on the current or adjacent site, the original escrow agreement can be altered so that only one (1) escrow agreement is in-place; however, this is only at the request of the owner. The owner must understand that individual certificates of occupancy will not be approved under this process unless the escrow agreement is modified at the time of an individual site completion.

Section Sixteen. Section 405.240: Storm water Detention of Article V: Development Standards of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

B. General Guidelines

4. Detention of differential runoff. All new developments shall provide a storm water detention facility that insures that the rate of flow of storm water runoff discharge from the site after development for a 2-year, 15-year and 25-year 20-minute storm, unless given a waiver by the City in accordance with Article V of this Chapter. Data shall be submitted for the 2-, 15-, 25- and 100-year frequency 20-minute storms.

a. If the proposed or modified development is in the Peruque or Belleau Creek watershed, then detention of the differential runoff shall also be provided for the 100-year 20-minute storm.

Data shall be submitted for the 2-, 15-, 25- and 100-year frequency 20-minute storms. The maximum ponding elevation shall be calculated based on a routing of the design storm assuming the low flow outlet is blocked with the water ponded to its maximum elevation. A minimum of one (1) foot of freeboard shall be provided from the top of the basin to the maximum ponding elevation.

B. Design Criteria

4. Hydraulic considerations for detention storage.
   c. Outlet works. Detention facilities shall have an outlet works consisting of valves, gates, pipes and other devices as necessary to completely drain the facility in seventy-two (72) hours or less when required for maintenance or inspection on normally wet basins.
   f. Public detention facilities. As a general rule, detention facilities shall be private facilities. When determined that a facility shall be a public facility, the owner shall dedicate the detention facility and easements with the recording of the record plat, except:
      (1) When multi-purpose wet facilities are planned or are suitable for use for private aquatic recreation or for aesthetic enhancement of the owner's property.
      (2) When multi-purpose dry facilities incorporate surface recreational improvements.
      (3) Any other means of dedication shall require acknowledgement and acceptance by ordinance from the City Council.

   g. Private detention facilities. Shall be designed requiring the same criteria as the public detention facilities. The amount of easement shall be equal to the land occupied by the facility, plus a twenty (20) foot wide strip around the perimeter of the highest elevation attained by the design storage volume, plus an access easement twenty (20) feet in width between the facility and the public street. This easement shall be shown as common ground and be dedicated to the trustees of the subdivision or owner of the multi-family, commercial or industrial property for the purpose of maintenance of the storm water detention facility, and shall not be part of a residential lot. The easements as described above shall also be dedicated to the City for emergency access or periodic inspection. The following items shall be addressed:

(1) A plan for perpetual maintenance and designating responsibility for the maintenance shall be provided for its continuing performance to the standards established by these criteria. (2) Underground detention facilities shall also have the above mentioned easements provided. Easements shall be labeled properly on the record plat or by separate document.

h. Plan requirements. The plan requirements shall be the same as set out in Section 405.230 of this Chapter with the following additions:

(1) Elevation-area-capacity curves for the detention facility including notation of the storage volumes allocated to runoff and permanent residual water storage for other uses. (Wet basins only)
(2) Inflow hydrograph (detention volumes for rational method) for the 2-, 15-, 25- and 100-year recurrence interval design storms.
(3) Stage-discharge rating curves for each spillway and for combined spillway discharges.
(4) Routing curves for the 2-year and all greater criteria recurrence interval design storms with time plotted as the abscissa and the following plotted as ordinates (this item is not required for the Rational Method):
(a) Cumulative inflow volume.
(b) Cumulative discharge.
(c) Stage elevation.
(5) A ten (10) foot minimum depth for all retention (wet detention) basins shall be required. (Per DNR recommendation for healthy aquatic environment.) This will be required until the five percent (5%) escrow release has been established.
(6) All storm sewer pipes shall be labeled as either 'Public' or 'Private' on the storm sewer profile sheets. The transition structure from public to private shall also be labeled accordingly. Pipes are not allowed to have said transition outside of a structure.
(7) For all underground detention facilities, a manhole (or similar accessible structure) shall be provided both upstream and downstream (within ten feet or as approved by the City), for access. Access lids shall be labeled with the word 'underground basin' or similar on each structure. Labels shall be cast into the lid and be of the same material that is required under storm sewer design.

(8) No planting of trees or extensive landscaping shall be permitted over the top of the underground detention facility, within the limits of the encompassing easement.

D. Construction Alternates.

1. Developer shall build as part of his/her development a detention facility as required by this Section unless the following Subsections apply.
2. If requested by the developer or by the City of O'Fallon, the City at its option, may waive the construction of a detention facility as for the development. If the waiver is granted, the developer shall pay an amount equal to the cost of detention for the site as determined by the unit cost as published and updated by St. Louis County. This money is to be used in a storm water fund for future City storm water projects. A contractor's bid may be submitted in lieu of using the published data although the bid must be reviewed and approved by the City Engineer prior to acceptance. This option may only be considered if the requirements set out in Subsection (B) above are applicable.

E. Inspection, Maintenance and Acceptance by the City Of O'Fallon.

1. The City Engineer shall inspect or cause to be inspected all storm water detention facilities constructed within the City of O'Fallon, Missouri. Through such inspections the City Engineer shall ensure that the facilities under construction are being constructed in accordance with the approved plans for such development.
2. Each owner of the property being developed or has been developed, whose property has caused the increase in runoff that has necessitated the need for detention, has the responsibility and duty to properly operate and maintain any storm water management system and/or detention facility, which has not been accepted for maintenance by the City. The responsibility of maintenance of the system and subdivision projects shall remain with the developer until such time as the storm water management system escrow for such development has been released and turned over to the Homeowner's Association or property owner(s) of record. If there is no active Homeowner's Association, all properties listed as part of the subdivision and/or development will become responsible for maintenance. This will include all underground detention facilities.
3. Maintenance responsibility shall remain with the property owner(s) whose said property or development necessitated the need for detention. Regardless of ownership of said basin, should the developer, owner(s), association, or other entity responsible for maintenance choose to sell, abandon, or otherwise vacate their

interest or ownership of the basin, this will in no way eliminate their maintenance responsibility of said basin unless they have provided for perpetual future maintenance separately. Said maintenance plan as referenced in Subsection (C)(4)(g)(1) above shall be submitted to the City for approval.

4. All such privately owned maintained storm water systems and/or detention facilities shall be subject to periodic inspections by the City Engineer and/or his/her designee. After an inspection by the City Engineer and/or his/her designee, he/she determines whether or not the conditions of the privately owned storm water system and/or detention facilities are safe and operating and functioning per the approved plans.
   a. For underground detention facilities, the owner(s) shall be required to submit an annual maintenance report to the City Engineer verifying its condition and that it is operating and functioning per the approved plans. Said inspection shall be performed by a competent professional who is experienced in this type of work.

5. If the privately-owned storm water systems and/or detention facility is found to be deficient and in need of compliance measures or maintenance, the property owner(s) will be notified and correction of such requested. Any corrections will be the responsibility as identified in Subsection (E)(3) above. Any cost incurred by the City, as a result of the City Engineer's actions, shall be assessed against the owner(s) of the system. Initially, the storm water funds as set up in Subsection (D)(2) above may be used to pay for any such emergency authorized by the City.

6. After notification is provided to the owner(s) of any deficiencies discovered from an inspection of a privately-owned storm water system and/or detention facility, the owner(s) shall have thirty (30) days or other time frame mutually agreed to between the City and the owner(s) to correct the deficiencies. The City shall then conduct a subsequent inspection to ensure completion of the repairs. If repairs are not undertaken or not found to be done properly, then enforcement procedures following this section shall be followed.

7. If, after inspection by the City, the condition of a privately-owned storm water system and/or detention facility presents an immediate danger to the public health or safety, because of an unsafe condition or improper maintenance, the City shall take such action as may be necessary to protect the public and make the

facility safe. Any cost incurred by the City, as a result of the City Engineer's actions, shall be assessed against the owner(s) of the system.

a. No modifications shall be made to any privately-owned storm water system and/or detention facility, without a permit or other approval from the City.

8. Native Vegetation/Natural Basins: Should the owner(s) of a privately-owned storm water system and/or detention facility want to alter original construction to convert the system to provide increased water quality benefits and have a more natural appearance, such alternatives must be submitted by permit process to the City Engineer or his/her designee for review of detention facility functionality and approval.
   a. Conversion examples include, but are not limited to; native grasses, wildflowers, removal of concrete swales, or alteration of outfall structures.
   b. If approved, owner(s) shall prepare and submit a maintenance schedule for the conversion. Modifications will be subject to inspection during conversion and continue after acceptance.
   c. If approved, converted areas shall be excluded from mowing requirements as stated in Section 220.100 Weeds, but an alternative mowing/maintenance schedule shall be submitted and followed.
      (1) Annual mowing will be required in efforts to prevent the vegetation from becoming excessive and basins from getting overgrown. All conversion-permitted basins shall be mowed by November 1 of each year. Failure to meet this requirement will result in enforcement in accordance with Section 220.100.
   e. Maintenance of such systems will continue to be the responsibility of the property owner(s) as stated in Subsections (E)(2-7).
   e. Under no circumstances does the altercation from a detention facility to a native vegetation area waive the requirements for detention.
9. Upon acceptance of public detention facilities by the City Council, the storm water detention facility may be dedicated to the City for perpetual maintenance. Any such system shall include adequate perpetual access and sufficient area for maintenance by the City personnel and vehicles.

Section Seventeen. Section 405.275: Terraced and Vertical Retaining Walls of Article V: Development Standards of Title IV of the Municipal Code is

hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

K. Any person who wishes to construct a retaining wall that requires engineering shall submit signed and sealed engineering plans and calculations for the retaining wall and a site plan showing the location of the retaining wall to the City of O'Fallon Building and Code Enforcement Division for review. Upon approval, a building permit will be issued.

Section Eighteen. Section 405.300.A.1: Large Lot (One-Half Acre and Larger) Residential Subdivisions of Article V: Development Standards of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

c. Street lights shall be required at all entrances and intersections and shall be provided at a maximum five hundred (500) foot separation.

Section Nineteen. Section 405.320.B: Street Lights of Article V: Development Standards of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

1. In Ameren Missouri's territory, street lights shall be installed by developer in a manner that meets the specifications and rates for "Service Classification No. 6 (M) Street and Outdoor Area Lighting—Customer Owned" for unmetered service, nine thousand five hundred (9,500) lumens (HPS—high pressure sodium) or seventy one (71) watt minimum (LED-Light Emitting Diode)—standard at the energy and maintenance rate. The upgrade to LED light shall be an upgrade paid for by the City, for the fixture cost only, at a maximum cost of three hundred dollars ($300) per fixture. The City Engineer shall prepare more specific details for this specification. After inspection and acceptance by the City, the lighting facilities will be maintained and operated by the City. With the developer incurring the full cost of the light installations and connections, street light billing in new subdivisions shall be turned over to the City for payment once lights are turned on. Connection fees will be paid to the City by the developer with the City being responsible for payment of the connection fee to the utility company when the lights are ready to be turned on. The City will provide written direction to the electric company to add new lights to the City's bill. During the period when an

escrow for street lighting is in place, escrowed funds may be used for any maintenance expenses incurred or to be incurred by the City. The standard post top luminaries for the City shall be either the Early American style or the Colonial style. Alternate lighting styles may be selected if approved by the Planning and Zoning Commission.

a. As an alternative to City provided streetlights, the subdivision may opt to have private streetlights installed. Should this option be utilized, the private street lighting plan must be approved by the Planning and Zoning Commission. Also, the City Attorney and Department of Public Works must approve the language in the covenants and restrictions that provides for the perpetual payment of street lighting expenses by the Home Owner's association, in a manner that ensures the lights will always be privately owned, and not revert to City-owned lights in the future. The specifications for the private lights as provided for in this paragraph shall be equal to or better than the City lighting standards.

Section Twenty. Section 405.370: General Street Design Standards of Article V: Development Standards of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

B. Minimum design requirements shall be as detailed in the table below.

	ROW Width	**Pavement Width**	**Lane Width**	**No. of Drive Lanes**	**Utility Easement**	**Design Speed**
Minor Arterial	84	60	12	5	10	40
Collector	60	39	12	3	10	35
Residential Collector	56	32**	n/a	2	10	25
Minor Residential/ Local Access	50	26	n/a	2	10	25*

Notes: * = Can be varied with City Engineer's approval. Minimum posted speed shall be twenty-five (25) miles per hour.

** = Detail to match minor residential street with wider pavement

- These requirements may be varied by other City ordinances
- Narrower pavement widths can be approved following Paragraph (D) of this Section.
- Parkway options can be provided as indicated in examples below

Section Twenty One. Section 405.390.F: Required Subdivision Design and Improvement Standards – Street Standards of Article V: Development Standards of Title IV of the Municipal Code is hereby amended to read as follows: (those subsections not specifically set forth herein are not altered or amended in any way and, therefore, remain in full force and effect).

4. Multi-purpose trails. Multi-purpose trails shall be required in lieu of sidewalks where deemed appropriate according to the bike and trail plans approved by the Planning and Zoning Commission and/or the City Council. Multi-purpose trails shall have a minimum pavement width of ten (10) feet and shall be constructed of a minimum of three (3) inches of asphaltic concrete on a compacted rock base with a minimum thickness of four (4) inches. Concrete may be used in lieu of asphalt for construction of trails, and shall adhere to the design requirements of Subsection (F)(3) above. Multi-purpose trails shall be placed within a minimum twelve (12) foot wide trail easement. Accessible curb ramps shall be installed at all street intersections according to Federal regulations. In residential areas, wider than normal sidewalks or paths may be utilized as a Developer or Builder selected optional enhancement for the community, but these sidewalks or paths will not be considered multi-purpose trails unless they are ten (10) feet wide.

Section Twenty Two. It is hereby declared to be the intention of the City Council that each and every part, section and subsection of this Ordinance shall be separate and severable from each and every other part, section and subsection hereof and that the City Council intends to adopt each said part, section and subsection separately and independently of any other part, section and subsection. In the event that any part of this Ordinance shall be determined to be or to have been unlawful or unconstitutional, the remaining parts, sections and subsections shall be and remain in full force and effect.

Section Twenty Three. The Chapter, Article, Division and/or Section assignments designated in this Ordinance may be revised and altered in the process of re-codifying or servicing the City's Code of Ordinances upon supplementation of such code if, in the discretion of the editor, an alternative designation would be more reasonable. In adjusting such designations the editor may also change other designations and numerical assignment of code sections to accommodate such changes.

Section Twenty Four. This Ordinance shall be in full force and effect from and after its passage and approval by the Mayor.

PASSED BY THE CITY COUNCIL FOR THE CITY OF O'FALLON, MISSOURI, THIS 28 DAY OF APRIL, 2016.

Bill Hennessy
Presiding Officer

Attest:

Pamela L. Clement
Pamela L. Clement, City Clerk

APPROVED BY THE MAYOR ON THIS 28 DAY OF APRIL, 2016.

Bill Hennessy
Bill Hennessy, Mayor

Attest:

Pamela L. Clement
Pamela L. Clement, City Clerk

Approved as to Form:

Kevin M. O'Keefe
Kevin M. O'Keefe, City Attorney

BILL NO. 5408 ORDINANCE NO. 5082

AN ORDINANCE AMENDING *TITLE IV: LAND USE, CHAPTER 405: SUBDIVISION AND LAND DEVELOPMENT CODE* OF THE CITY OF O'FALLON, MISSOURI, BY AMENDING *ARTICLE V: DESIGN AND DEVELOPMENT STANDARDS*, BY ADDING *SECTION 405.245: STORM WATER QUALITY MANAGEMENT AND ILLICIT DISCHARGE CONTROL*: PURPOSE - TO ENSURE THE HEALTH, SAFETY, AND GENERAL WELFARE OF THE CITIZENS, AND PROTECT AND ENHANCE THE WATER QUALITY OF WATERCOURSES AND WATER BODIES IN A MANNER PURSUANT TO AND CONSISTENT WITH THE FEDERAL CLEAN WATER ACT (33 U.S.C. § 1251 ET SEQ.), BY REDUCING POLLUTANTS IN STORM WATER DISCHARGES TO THE MAXIMUM EXTENT PRACTICABLE, AND BY PROHIBITING NON-STORM WATER DISCHARGES TO THE STORM DRAIN SYSTEM.

NOW THEREFORE, BE IT ORDAINED BY THE COUNCIL OF THE CITY OF O'FALLON, MISSOURI AS FOLLOWS:

Section 1: That *Title IV: Land Use, Chapter 405: Subdivision and Land Development Code, Article V: Design and Development Standards* shall be amended by adding Section 405.245: Storm Water Quality Management and Illicit Discharge Control, to read as follows:

SECTION 405.245 – STORM WATER QUALITY MANAGEMENT AND ILLICIT DISCHARGE CONTROL

A. Purpose and Intent: The purpose of this Section is to provide for the health, safety, and general welfare of the citizens of the City of O'Fallon through the regulation of non-storm water discharges to the storm drainage system to the maximum extent practicable as required by federal and state law. This Section establishes methods for controlling the introduction of pollutants into the *Municipal Separate Storm Sewer System (MS4)* in order to comply with requirements of the *National Pollutant Discharge Elimination System (NPDES)* permit process. The objectives of this Section are:

1. **To regulate the contribution of pollutants to the *Municipal Separate Storm Sewer System (MS4)* by storm water discharges by any user.**
2. **To prohibit Illicit Connections and Illicit Discharges to the *Municipal Separate Storm Sewer System (MS4)*.**
3. **To establish legal authority to carry out all inspection, surveillance and monitoring procedures necessary to ensure compliance with this Section.**

B. Definitions: For the purposes of this Section, the following words shall have the meanings set out herein:

- ***Authorized Enforcement Agency*: Employees or designees of the director of the municipal agency designated to enforce this Section.**
- ***Best Management Practices (BMP's):* Schedules of activities, prohibitions of practices, general good house keeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to storm water, receiving waters, or storm water conveyance systems. *BMP's* also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.**

- *Clean Water Act:* The federal *Water Pollution Control Act* (33 U.S.C. § 1251 et seq.), and any subsequent amendments thereto.

- *Construction Activity:* Activities subject to *National Pollutant Discharge Elimination System (NPDES)* Construction Permits issued by MDNR. These include construction projects resulting in land disturbance of one (1) acre or more. Such activities include but are not limited to clearing and grubbing, grading, excavating, and demolition.

- *Hazardous Materials:* Any material, including any substance, waste, or combination thereof, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may cause, or significantly contribute to, a substantial present or potential hazard to human health, safety, property, or the environment when improperly treated, stored, transported, disposed of, or otherwise managed.

- *Illegal Discharge:* Any direct or indirect non-storm water discharge to the storm drain system, except as exempted in subsection 405.245(G)(1) of this Section.

- *Illicit Connections:* An illicit connection is defined as either of the following:

    1. Any drain or conveyance, whether on the surface or subsurface, which allows an illegal discharge to enter the storm drain system including but not limited to any conveyances which allow any non-storm water discharge including sewage, process wastewater, and chlorinated water discharged from swimming pools to enter the storm drain system and any connections to the storm drain system from indoor drains and sinks, regardless of whether said drain or connection had been previously allowed, permitted, or approved by an authorized enforcement agency or;

    2. Any drain or conveyance connected from a commercial or industrial land use to the storm drain system which has not been documented in plans, maps, or equivalent records and approved by an authorized enforcement agency.

- *Industrial Activity:* Activities subject to *National Pollutant Discharge Elimination System (NPDES)* Industrial Permits as defined in 40 CFR, Section 122.26 (b)(14).

- *Municipal Separate Storm Sewer System (MS4):* The system of facilities designed or used for collecting and/or conveying storm water, including, but not limited to, roads with drainage systems, municipal streets, catch basins, curbs, gutters, inlets, ditches, storm drains, swales, sidewalks, and natural or man-made drainage channels, owned and operated by the City and which is not used for the collecting or conveying of sewage.

- *National Pollutant Discharge Elimination System (NPDES) Storm Water Discharge Permit:* A permit issued by Federal Environmental Protection Agency (or by a State under authority delegated pursuant to 33 USC § 1342(b)) that authorizes the discharge of pollutants to waters of the United States, whether the permit is applicable on an individual, group, or general area-wide basis.

- *Non-Storm Water Discharge:* Any discharge to the storm drain system that is not composed entirely of storm water.

- *Person:* Any individual, association, organization, partnership, firm, corporation or other entity recognized by law and acting as either the owner or as the owner's agent.

- *Pollutant:* Anything which causes or contributes to pollution. Pollutants may include, but are not limited to: paints, varnishes, and solvents; oil and other automotive fluids; non-hazardous

liquid and solid wastes and yard wastes; silt, refuse, rubbish, garbage, litter, or other discarded or abandoned objects, Ordinances, and accumulations, so that same may cause or contribute to pollution; floatables; pesticides, herbicides, and fertilizers; hazardous substances and wastes; sewage, fecal coliform and pathogens; dissolved and particulate metals; animal wastes; wastes and residues that result from constructing a building or structure; and noxious or offensive matter of any kind.

- *Premises:* Any building, lot, parcel of land, or portion of land whether improved or unimproved including adjacent sidewalks and parking strips.

- *Storm Drainage System:* Publicly-owned facilities by which storm water is collected and/or conveyed, including but not limited to any roads with drainage systems, municipal streets, gutters, curbs, inlets, piped storm drains, pumping facilities, retention and detention basins, natural and human-made or altered drainage channels, reservoirs, and other drainage structures.

- *Stormwater:* Any surface flow, runoff, and drainage consisting entirely of water from any form of natural precipitation, and resulting from such precipitation.

- *Storm Water Pollution Prevention Plan:* A document which describes the *Best Management Practices (BMP's)* and activities to be implemented by a person or business to identify sources of pollution or contamination at a site and the actions to eliminate or reduce pollutant discharges to storm water, storm water conveyance systems, and/or receiving waters to the maximum extent practicable.

- *Wastewater:* Any water or other liquid, other than uncontaminated storm water, discharged from a facility.

C. Applicability: This Section shall apply to all water entering the storm drain system generated on any developed and undeveloped lands unless explicitly exempted by an authorized enforcement agency.

D. Responsibility for Administration: The City of O'Fallon shall administer, implement, and enforce the provisions of this Section. Any powers granted or duties imposed upon the City Administrator may be delegated by the City Administrator to persons or entities acting in the beneficial interest of or in the employ of the City.

E. Severability: The provisions of this Section are hereby declared to be severable. If any provision, clause, sentence, or paragraph of this Section or the application thereof to any person, establishment, or circumstances shall be held invalid, such invalidity shall not affect the other provisions or application of this Section.

F. Ultimate Responsibility: The standards set forth herein and promulgated pursuant to this Section are minimum standards; therefore this Section does not intend nor imply that compliance by any person will ensure that there will be no contamination, pollution, nor unauthorized discharge of pollutants.

G. Discharge Prohibitions:

1. Prohibition of Illegal Discharges: No person shall discharge or cause to be discharged into the municipal storm drain system or watercourses any materials, including but not limited to pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water.

The commencement, conduct or continuance of any illegal discharge to the storm drain system is prohibited except as described as follows:

a. The following discharges are exempt from discharge prohibitions established by this Section: water line flushing or other potable water sources, landscape irrigation or lawn watering, diverted stream flows, rising ground water, ground water infiltration to storm drains, uncontaminated pumped ground water, foundation or footing drains, sump pumps (not including active groundwater dewatering systems), crawl space pumps, air conditioning condensation, springs, non-commercial washing of vehicles, natural riparian habitat or wet-land flows, swimming pools (if de-chlorinated - typically less than one PPM chlorine), fire fighting activities, and any other water source not containing pollutants.

b. Discharges specified in writing by the authorized enforcement agency as being necessary to protect public health and safety.

c. Dye testing is an allowable discharge, but requires a verbal notification to the authorized enforcement agency prior to the time of the test.

d. The prohibition shall not apply to any non-storm water discharge permitted under an *NPDES* permit, waiver, or waste discharge order issued to the discharger and administered under the authority of the Federal Environmental Protection Agency, provided that the discharger is in full compliance with all requirements of the permit, waiver, or Missouri Department of Natural Resources (MDNR) and other applicable laws and regulations, and provided that written approval has been granted for any discharge to the storm drain system.

2. Prohibition of Illicit Connections:

a. The construction, use, maintenance or continued existence of illicit connections to the storm drain system is prohibited.

b. This prohibition expressly includes, without limitation, illicit connections made in the past, regardless of whether the connection was permissible under law or practices applicable or prevailing at the time of connection.

c. A person is considered to be in violation of this Section if the person connects a line conveying sewage to the *MS4*, or allows such a connection to continue.

H. Suspension of MS4 Access:

1. Suspension Due to Illicit Discharges in Emergency Situations: The City of O'Fallon may, with appropriate notice, suspend *MS4* discharge access to a person in order to prevent an actual or threatened discharge which presents or may present imminent and substantial danger to the environment, or to the health or welfare of persons, or to the *MS4* or waters of the United States. If the violator fails to comply with a suspension order issued in an emergency, the authorized enforcement agency may take such steps as deemed necessary to prevent or minimize damage to the *MS4* or waters of the United States, or to minimize danger to persons.

2. Suspension Due to the Detection of Illicit Discharge: Any discharge to the *MS4* in violation of this Section may result in termination of MS4 access. If such termination would abate or reduce an illicit discharge, the City shall notify the violator of the proposed termination of its *MS4* access. The violator may petition or request a hearing before the City Council , but must suspend the illicit discharge until after the reconsideration and hearing are held.

3. A person commits an offense if the person reinstates *MS4* access to premises suspended or terminated pursuant to this Section, without the prior approval of the authorized enforcement agency.

I. Industrial or Construction Activity Discharges: Any person subject to an industrial or construction activity *NPDES Storm Water Discharge Permit* shall comply with all provisions of such permit. Proof of compliance with said permit may be required in a form acceptable to the City of O'Fallon prior to the allowing of discharges to the *MS4*.

J. Monitoring of Discharges:

1. Applicability: This section applies to all facilities that have storm water discharges associated with industrial activity, including construction activity.

2. Access to Facilities and Records:

a. Facility operators shall provide to the City of O'Fallon copies of records that must be kept under the conditions of an *NPDES* permit to discharge storm water.

b. Upon consent of the property owner, the City of O'Fallon may install monitoring equipment as necessary. The facility's sampling and monitoring equipment shall be maintained at all times in a safe and proper operating condition by the discharger at its own expense; however, such equipment shall remain the property of the City of O'Fallon. All devices used to measure storm water flow and quality shall be calibrated to ensure their accuracy. No person shall damage such equipment or alter such equipment so that proper results cannot be obtained.

c. If the City of O'Fallon has been refused access to any part of the premises from which storm water is discharged or if the property owner is not available to give consent to access the premises, the City may, upon demonstrating probable cause to believe that there may be a violation of this Section or a need to inspect and/or sample to verify compliance with this Section or any order issued hereunder, seek issuance of an administrative search warrant from any court of competent jurisdiction.

K. Requirement to Prevent, Control, and Reduce Storm Water Pollutants by the Use of Best Management Practices (BMP's): The City of O'Fallon will adopt requirements identifying *Best Management Practices (BMP's)* for any activity, operation, or facility which may cause or contribute to pollution or contamination of storm water, the storm drain system, or waters of the U.S. The owner or operator of a commercial or industrial establishment shall provide, at their own expense, reasonable protection from accidental discharge of prohibited materials or other wastes into the municipal storm drain system or watercourses through the use of these structural and non-structural *BMP's*. Further, any person responsible for a property or premise, which is, or may be, the source of an illicit discharge, will be required to implement, at said person's expense, additional structural and non-structural *BMP's* to prevent the further discharge of pollutants to the *Municipal Separate Storm Sewer System (MS4)*. Compliance with all terms and conditions of a valid *NPDES* permit authorizing the discharge of storm water associated with industrial activity, to the extent practicable, shall be deemed compliance with the provisions of this Section. These *BMP's* shall be part of a *Storm Water Pollution Prevention Plan (SWPP)* as necessary for compliance with requirements of the *NPDES* permit.

L. Watercourse Protection: Every person owning property through which a watercourse passes, or such person's lessee, shall keep and maintain that part of the watercourse within the property free of trash, debris, excessive vegetation, and other obstacles that would pollute, contaminate, or significantly retard the flow of water through the watercourse. In addition, the owner or lessee shall

maintain existing privately owned structures within or adjacent to a watercourse, so that such structures will not become a hazard to the use, function, or physical integrity of the watercourse.

M. Notification of Spills: Notwithstanding other requirements of law, as soon as any person responsible for a facility or operation, or responsible for emergency response for a facility or operation has information of any known or suspected release of materials which are resulting or may result in illegal discharges or pollutants discharging into storm water, the storm drain system, or waters of the U.S., said person shall take all necessary steps to ensure the discovery, containment, and cleanup of such release. In the event of such a release of hazardous materials said person shall immediately notify emergency response agencies of the occurrence via emergency dispatch services. In the event of a release of non-hazardous materials, said person shall notify the City in person or by phone or facsimile no later than the next business day. Notifications in person or by phone shall be confirmed by written notice addressed and mailed to the City of O'Fallon within three (3) business days of the phone notice. If the discharge of prohibited materials emanates from a commercial or industrial establishment, the owner or operator of such establishment shall also retain an on-site written record of the discharge and the actions taken to prevent its recurrence. Such records shall be retained for at least three (3) years.

N. Enforcement:

1. Notice of Violation: Whenever the City Administrator finds that a person has violated a prohibition or failed to meet a requirement of this Section, the City Administrator may order compliance by written notice of violation to the responsible person. Such notice and order may require without limitation:

   a. The performance of monitoring, analyses, and reporting;

   b. The elimination of illicit connections or discharges;

   c. That violating discharges, practices, or operations shall cease and desist;

   d. The abatement or remediation of storm water pollution or contamination hazards and the restoration of any affected property; and

   e. The implementation of source control or treatment *BMP's*.

The City Administrator may order that such work by completed within a reasonable time from the date of the notice of violation.

2. If the property owner fails to abate the violation and/or restore the affected property within the time prescribed following notice or appeal, the work may be done by the City or a contractor designated by the City Administrator and the expense in accordance with the City's procedures for abatement of a nuisance. The property owner shall be responsible for all costs of such work.

Appeal of Notice of Violation: Any person receiving a *Notice of Violation* may appeal the determination and order of the City Administrator. The notice of appeal must be received within thirty (30) days from the date of the *Notice of Violation*. Hearing on the appeal before the City Council or its designee shall take place within thirty (30) days from the date of receipt of the notice of appeal. Any aggrieved party shall then be entitled to judicial review in accordance with the provisions of the Missouri Administrative Procedures Act.

Injunctive and Other Relief: It shall be unlawful for any person to violate any provision or fail to comply with any of the requirements of this Section. If a person has violated or continues to violate

the provisions of this Section, the authorized enforcement agency may petition for a preliminary or permanent injunction restraining the person from activities which would create further violations or compelling the person to perform abatement or remediation of the violation. In addition, the authorized enforcement agency may utilize any remedy, at law or in equity, in order to enforce the provisions of this Ordinance. The City may recover all attorneys' fees, court costs, and other expenses associated with enforcement of this Chapter, including sampling and monitoring expenses.

O. Violations Deemed a Public Nuisance: In addition to the enforcement processes and penalties provided, any condition caused or permitted to exist in violation of any of the provisions of this Section is a threat to public health, safety, and welfare, and is declared and deemed a nuisance, and may be summarily abated or restored at the violator's expense, and/or a civil action to abate, enjoin, or otherwise compel the cessation of such nuisance may be taken.

P. Prosecution for Violations: Any person that has violated or continues to violate this Section shall be liable to prosecution to the fullest extent of the law, and, upon conviction, shall be subject to a fine in an amount not to exceed five hundred dollars ($500.00) per charge and/or imprisonment for a period of time not to exceed ninety (90) days per charge.

Q. Remedies Not Exclusive: The remedies listed in this Section are not exclusive of any other remedies available under any applicable federal, state or local law and it is within the discretion of the City to seek cumulative remedies.

Section 2: It is hereby declared to be the intention of the City Council that each and every part, section and subsection of this Ordinance shall be separate and severable from each and every other part, section and subsection hereof and that the City Council intends to adopt each said part, section and subsection separately and independently of any other part, section and subsection. In the event that any part of this Ordinance shall be determined to be or to have been unlawful or unconstitutional, the remaining parts, sections and subsections shall be and remain in full force and effect.

Section 3: The Chapter, Article, Section, and/or Subsection assignments designated in this Ordinance may be revised and altered in the process of re-codifying or servicing the City's *Municipal Code* upon supplementation of said *Municipal Code* if, in the discretion of the editor, an alternative designation would be more reasonable. In adjusting such designations, the editor may also change other designations and numerical assignment of other Chapters, Articles, Sections, and/or Subsections of the *Municipal Code* to accommodate such changes.

Section 4: This Ordinance shall be in full force and effect from and after its passage and approval by the Mayor.

First Reading: September 28, 2006

Second Reading: October 12, 2006

READ TWO (2) TIMES AND PASSED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, THIS 12 DAY OF October, 20 06.

Donna Morrow
Presiding Officer

ATTEST:

Pamela K. Smith

CITY CLERK, Pamela L. Smith

APPROVED BY THE MAYOR OF THE CITY OF O'FALLON, MISSOURI, THIS 24th DAY OF October 20 06.

MAYOR, Donna Morrow

ATTEST:

CITY CLERK, Pamela L. Smith

APPROVED AS TO FORM:
Curtis, Heinz, Garrett & O'Keefe, PC
Special Legal Counsel

BY: _____
ATTORNEY

BILL NO. 5614 **ORDINANCE NO. 5271**

AN ORDINANCE OF THE CITY OF O'FALLON, MISSOURI, AMENDING CHAPTER 405, ARTICLE V OF TITLE IV OF THE MUNICIPAL CODE RELATING TO THE STORMWATER QUALITY MANAGEMENT AND ILLICIT DISCHARGE CONTROL REQUIREMENTS AND ADDING A NEW SECTION 405.247 STORMWATER QUALITY – BEST MANAGEMENT PRACTICES

Whereas, staff has recommended certain amendments with regard to the stormwater quality best management practices; and

Whereas, the provisions contained herein were reviewed and considered by the Planning and Zoning Commission and the Commission held a public hearing and made a recommendation regarding these provisions.

NOW, THEREFORE, BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, AS FOLLOWS:

Section 1. Section 405.245 of Article V of Chapter 405 of Title IV of the Municipal Code of the City of O'Fallon is hereby amended to add the following:

TITLE IV	**LAND USE**
CHAPTER 405	**SUBDIVISION AND LAND DEVELOPMENT**
ARTICLE V	**DESIGN AND DEVELOPMENT STANDARDS**
SECTION 405.247	**STORMWATER QUALITY – BEST MANAGEMENT PRACTICES**

A. Purpose and Intent: Two consequences of construction and development are increased runoff created by the changed properties of ground surface and the rate of discharge of this increased runoff. These are both of great relevance to storm water. The natural condition of the land before development is in relative balance with the natural capacity of the receiving creeks. Normally the undeveloped conditions provide greater permeability and longer times of concentration. By modification of the ground surface from the irregular, pervious, and vegetation-covered, the areas are changed to more impervious, more quickly drained and, in some cases, denuded of vegetation. It is the policy of the City to protect and promote the public, health, safety and general welfare. The management of storm water will reduce the erosion on land and creek channels, will reduce the possibility of damage to public and private property, and will assist in the

attainment and maintenance of water quality standards, and will preserve the environmental quality of the watercourses in the City.

B. *Requirements – Creekbank Setback:* Development along natural watercourses shall have residential lot lines, commercial or industrial improvements, parking areas and driveways setback a minimum of twenty-five (25) feet from the top of the existing stream bank. This is not meant to prevent access across creeks. Except as otherwise provided herein or as allowed by the City, the section of land between a natural watercourse and lot lines shall be designated as common ground and drainage easement to be maintained by the trustees or homeowners association of the subdivision within all types of residential developments. In lieu of the common ground requirement, the section of land between the natural watercourse and twenty-five (25) feet from the top of bank can be (i) private property with an easement dedicated to the trustees or homeowners association requiring maintenance of the areas as the responsibility of the trustees or homeowners association, (ii) private property subject to a conservation easement in favor of an organization or land trust dedicated to environmental protection or land preservation such as Trailnet, Inc., the Open Space Council for the St. Louis Region or similar organization, (iii) set aside in a stream bank mitigation program approved by the United States Army Corps of Engineers under the provisions of the Clean Water Act. All developments shall maintain a setback minimum of fifty (50) feet from the top of the existing bank to any building structure requiring a construction permit that necessitates excavation or also requires a foundation. Commercial and industrial areas shall have creek areas dedicated as drainage easements. Notwithstanding the foregoing setback requirements, an applicant may obtain a variance to develop within the stream buffer area from the City provided the applicant is able to demonstrate that the water quality and stream morphology will not be adversely affected or adequate mitigation is provided to offset such adverse affects. Mitigation may include, but not be limited to the following: (i) installing additional erosion and sediment control; (ii) if the stream has the potential for lateral movement, installing stream stabilization practices within the stream; (iii) for those sites where vegetation does not exist, establishing vegetation; and/or (iv) additional tree planting.

C. *Post Construction - Water Quality:* In order to preserve the quality of water in natural streams it is important to provide a mechanism to remove contaminants on the site prior to water entering the natural water course. Typically called Post Construction BMPs (Best Management Practices), these methods identify a critical Water Quality Volume that will need to receive a treatment to remove certain contaminants. These improvements whether structural or non-structural will remain in place after the construction is completed. The concepts introduced in the following paragraphs are taken from the Georgia Stormwater Management Manual, Volume 2, August, 2001. Nothing in the following paragraphs shall change or replace any of the City's detention ordinances.

1. *Water Quality Volume (WQv):* The Water Quality Volume (denoted as the **WQv**) is the storage needed to capture and treat the runoff from 90% of the recorded daily rainfall events. In numerical terms, it is equivalent to 1.14 inches of rainfall multiplied by the volumetric runoff coeffeicient (Rv) and site area. The WQv is directly related to the amount of impervious cover created at a site. A minimum WQv of 0.2 inches per acre shall be met at all sites.

   Redevelopment projects can appeal to the Planning and Zoning Commission to reduce or eliminate WQv if it can be shown that there are stormwater enhancements being provided.

2. As a basis for determining water quality treatment volume the following assumptions may be made:

   a. The water quality volume WQv for offsite areas is not required. The following equations are used to determine the storage volume, WQv (in acrefeet of storage):

      WQv = [(P)(Rv)(A)]/12
      P = 1.14 inches of rainfall

      Where: WQv =water quality volume (in acre-feet)
      Rv =0.05 + 0.009 (I) where I is percent impervious cover
      A =area in acres

   b. Measuring Impervious Cover: The measured area of a site plan that does not have vegetative or permeable cover shall be considered total impervious cover.

   c. Multiple Drainage Areas: When a project contains or is divided by multiple drainage areas, the WQv volume shall be addressed for each drainage area.

   d. Offsite Drainage Areas: The WQv shall be based on the impervious cover of the proposed site. Offsite existing impervious areas may be excluded from the calculation of the water quality volume requirements.

   e. BMP Treatment: The final WQv shall be treated by an acceptable BMP(s) from the list presented in this chapter.

   f.. Extended Detention for Water Quality Volume: The water quality requirements can be met by providing a 24-hour draw down of a portion of the water quality volume (WQv) in conjunction with a stormwater pond or wetland system.

D. *Acceptable Urban BMP Options:* This section sets forth five acceptable groups of BMPs that can be used to meet the Water Quality volume criteria (WQv). The design and selection of these BMPs should comply with the Georgia Stormwater Management Manual, as prepared by the State of Georgia.

Where the City's criteria or requirements are more stringent, then they shall govern. Adapting to local Missouri environment and natural conditions should be expected but shall be as approved by the City or a higher authority.

1. The acceptable BMP designs are assigned into six general categories for stormwater quality control (WQv):

   BMP Group 1 -stormwater ponds
   BMP Group 2 -stormwater wetlands
   BMP Group 3 -infiltration practices
   BMP Group 4 -filtering practices
   BMP Group 5 -open channel practices

   See Section 1.3 of the Georgia Stormwater Management Manual for additional BMP options. Section 3 of the Georgia manual has detailed descriptions of each control.

2. To be considered an effective BMP for stand-alone treatment of WQv, a design shall be capable of:

   a. capturing and treating the required water quality volume (WQv)
   b. removing 80% of the TSS

3. A combination of BMPs and/or credits is normally required at most development sites to meet all three stormwater sizing criteria.

   a. *BMP Group 1. Stormwater Ponds*: Practices that have a combination of permanent pool, extended detention or shallow wetland equivalent to the entire WQvs include:

      P-1 micropool extended detention pond
      P-2 wet pond
      P-3 wet extended detention pond
      P-4 multiple pond system
      P-5 pocket pond

   b. *BMP Group 2. Stormwater Wetlands*: Practices that include significant shallow wetland areas to treat urban stormwater but often may also incorporate small permanent pools and/or extended

detention storage to achieve the full WQv include (Modification of existing wetland areas will require a Corps 404 permit):

W-1 shallow wetland
W-2 ED shallow wetland
W-3 pond/wetland system
W-4 pocket wetland

Wetlands shall not be used for control of water quantity (i.e. the flood protection volume).

c. *BMP Group 3. Infiltration Practices:* Practices that capture and temporarily store the WQv before allowing it to infiltrate into the soil over a two day period include:

I-1 infiltration trench
I-2 infiltration basin

Infiltration practices will be allowed on sites where it is proven that infiltration will work. Percolation rates shall be determined for proper use.

d. *BMP Group 4. Filtering Practices:* Practices that capture and temporarily store the WQv and pass it through a filter bed of sand, organic matter, soil or other media are considered to be filtering practices. Filtered runoff may be collected and returned to the conveyance system. Design variants include:

F-1 surface sand filter
F-2 underground sand filter
F-3 perimeter sand filter
F-4 organic filter
F-5 pocket sand filter
F-6 bioretention*
F-7 proprietary filtering system

*may also be used for infiltration

A maintenance agreement and maintenance schedule shall be required.

e. *BMP Group 5. Open Channel Practices:* Vegetated open channels that are explicitly designed to capture and treat the full WQv within the dry or wet cells formed by checkdams or other means include:

1) dry swale
2) wet swale

3) filter strips

Open channel practices shall be designed with the proper plantings. Wet swales shall be designed to drain out over time.

READ TWO (2) TIMES AND PASSED BY THE CITY COUNCIL OF THE CITY OF O'FALLON, MISSOURI, THIS 10th DAY OF January, 2008.

Donna Morrow
Presiding Officer

Attest:

Pamela L. Smith
Pamela L. Smith, City Clerk

APPROVED BY THE MAYOR ON THIS 14th DAY OF January, 2008.

Donna Morrow
Donna Morrow, Mayor

Attest:

Pamela L. Smith
Pamela L. Smith, City Clerk

APPROVED AS TO FORM
Kevin M. O'Keefe
Attorney

Appendix K

100 NORTH MAIN STREET
O'FALLON, MISSOURI 63366
636.240.2000
FACSIMILE 636.978.4144
www.ofallon.mo.us

October 24, 2013

McBride & Son Homes Land Development, Inc.
Attn: Donna L. Knese
16091 Swingley Ridge Road, Suite300
Chesterfield, MO 63017

Phone: (314) 336-0230
Fax: (314) 336-0175

Project: Weatherby Landing
Subject: Stormwater Management and Best Management Practices Facilities Maintenance Agreement

Dear Ms. Knese:

The Stormwater Management and Best Management Practices Facilities Maintenance Agreement for the above mentioned project has been approved by the Planning & Zoning Commission and the City Council for the City of O'Fallon. One (1) original document with all original signatures and certificates has been provided for recording.

Upon receipt of the recorded copy of the document from the St. Charles County Recorder of Deeds office, provide a scanned copy of the entire document in a portable document format (pdf) and e-mail to the address below.

If you have any questions, I can be reached at bcopeland@ofallon.mo.us or (636) 379-5471.

Sincerely,

Robert Copeland
Plan Reviewer

cc via e-mail: Jay Herigodt – Assistant City Engineer
David Woods – Director of Planning & Development
File through AC

STORMWATER MANAGEMENT and BEST MANAGEMENT PRACTICES FACILITIES MAINTENANCE AGREEMENT

Ordinance # 5271, City Code 405.247
O'Fallon, Missouri

636-240-2000

STORMWATER MANAGEMENT and BEST MANAGEMENT PRACTICES FACILITIES MAINTENANCE AGREEMENT

THIS AGREEMENT, made and entered into this 17TH day of APRIL, 2013, by and between ROCKWOOD HOMES, LLC hereinafter called the "Landowner", and the City of O'Fallon, Missouri hereinafter called the "City".

WITNESSETH, that

WHEREAS, the Landowner is the owner of certain real property generally described as WEATHERBY LANDING with a St. Charles County tax Map/Parcel Identification Number of 2-0060-A073-0000-3A and as recorded by deed in the land records of St. Charles County, Missouri, Deed Book 5319 Page 2226, hereinafter called the "Property".

WHEREAS, the Landowner is proceeding to build on, develop or otherwise improve the property; and

WHEREAS, improvements are being made according to Site Plan/Subdivision Plan known as WEATHERBY LANDING, hereinafter called the "Plan", which is expressly made a part hereof, as approved or to be approved by the City.

WHEREAS, the City and the Landowner, its successor and assigns, including any homeowners association, agree that the health, safety, and welfare of the residents of O'Fallon, Missouri require that on-site stormwater management / Best Management Practices (BMP) facilities be constructed and maintained on the Property; and

WHEREAS, the City requires per ordinance #5271 (City Code 405.247) that on-site stormwater management / BMP facilities as shown on the Plan be constructed and adequately maintained by the Landowner, its successors and assigns, including any homeowners and or subdivision association.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. Initial Construction: The on-site stormwater management / BMP facilities shall be constructed by the Landowner, its successors and assigns, in accordance with the plans and specifications identified in the Plan and in accordance with City Ordinance.

2. Maintenance: The Landowner and its successors and assigns, including any homeowners and/or subdivision association, shall, at all times, adequately maintain the on site stormwater management / BMP facilities as approved for that development on the plan. The facilities to be maintained shall include all pipes and channels built to convey stormwater to the facility, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing functions as designed, so that these facilities do not adversely affect other elements of the overall storm water system and so that these facilities comply with City Ordinance or other applicable law. Stormwater pipes marked on the plans as "private" are to be maintained by landowner. Storm pipes which are designated as "public" are not the responsibility of the landowner; however, landowner shall take no action to cause damage or adversely affect the public systems and, furthermore, landowner shall continue to maintain the "private" facilities so as not to adversely affect the "public" facilities.

3. Annual Inspections: The Landowner, its successors and assigns, shall inspect the stormwater management / BMP facility and submit an inspection report to the City's Stormwater Coordinator annually. The purpose of the inspection is to assure safe and proper functioning of the facilities. The inspection shall cover the entire facilities, berms, outlet structure, retention/detention and pond areas, access roads, etc. Deficiencies shall be noted in the inspection report.

4. City Authorized to Enter Property: The Landowner hereby grants its consent to the City to enter upon the Property, from time to time, and to inspect the stormwater management / BMP facilities whenever the City deems necessary. The purpose of inspection is to follow-up on reported deficiencies, to verify the annual reports submitted by Landowner and/or to respond to citizen concerns or possible nuisance conditions. The City shall provide the Landowner, its successors and assigns, copies of the inspection findings and a directive to commence with the repairs if necessary.

5. Maintenance Schedule: The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the stormwater management / BMP facilities (including sediment and debris removal) is outlined on the approved plans or as part of this Agreement, the schedule will be followed. In addition to the actions outlined on the maintenance schedule, the Landowner and its successors and assigns shall take further action in order to keep the facilities in good working order; following the maintenance schedule, alone, will not relieve the Landowner of any responsibility to take further actions to ensure proper operation and maintenance of the facilities.

6. Failure to Maintain: In the event the Landowner, its successors and/or assigns, fails to maintain the stormwater management / BMP facilities in good working condition, the City will notify Landowner, its successors and/or assigns, of deficiencies by letter. The Landowner will have ten (10) days from the date of the letter to respond to the City with an adequate plan to make repairs. If adequate repairs are not made by Landowner in a timely manner, Landowner hereby consents and agrees that City may enter upon the Property and take whatever steps necessary to correct deficiencies identified in the inspection report; all costs of such repairs shall be billed to the Landowner, its successors and/or assigns. Landowner, its successors and/or assigns shall pay the bill as required by Section 7 of this Agreement. This provision shall not be construed to allow the City to erect any structure of permanent nature on the land of the Landowner outside of any easement for the stormwater management / BMP facilities. It is expressly understood and agreed that the City is under no obligation to routinely maintain or repair said facilities, and in no event shall this Agreement be construed to impose any such obligation on the City.

7. Landowner to Reimburse City: In the event the City pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like, the Landowner, its successors and assigns, shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City hereunder. In the event that the City must pursue any action to collect any delinquent payments, Landowner, its successors and assigns, the City shall be entitled to recover all of its collection costs and attorney fees.

8. Liability and Hold Harmless: This Agreement imposes no liability of any kind whatsoever on the City and the Landowner agrees to hold the City harmless from any liability in the event the stormwater management / BMP facilities fail to operate properly.

9. Recording: This Agreement shall be recorded among the land records of St. Charles County, Missouri by the Landowner and shall constitute a covenant running with the land, and shall be binding on the Landowner, its administrators, executors, assigns, heirs and any other successors in interests, including any homeowners and or subdivision association. This agreement shall be recorded with the record plat of any development that requires such a plat. If the development does not require that a plat be recorded it shall be recorded prior to approval of the construction plans for the development.

WITNESS the following signatures and seals:

LANDOWNER SIGNATURES:

ROCKWOOD HOMES, LLC
BY: McBRIDE & SON HOLDINGS, INC. MANAGING MEMBER
Company/Corporation/Partnership Name (seal)

ROCKWOOD HOMES LLC CORPORATE SEAL

BY: Michael D. Arri Treas

MICHAEL D. ARRI
(Type Name)

TREASURER
(Type Title)

~~McBRIDE RED HAWK LLC CORPORATE SEAL~~

STATE OF MISSOURI

COUNTY OF ST. LOUIS

The foregoing Agreement was acknowledged before me this 17TH day of APRIL, 2013, by

Donna L. Knese

DONNA L. KNESE
NOTARY PUBLIC

My Commission Expires: 12/6/15

NOTARY PUBLIC NOTARY SEAL STATE OF MISSOURI

DONNA L. KNESE
My Commission Expires
December 6, 2015
St. Charles County
Commission #11510086

CITY SIGNATURES:

Passed by Consent of the City Council for the City of O'Fallon, Missouri, This 25 Day of July, 2013

BY: Bill Hennessy
Mayor, City of O'Fallon

ATTEST:

Pamela L. Clement
City Clerk, City of O'Fallon

Approved as to Form:

City Attorney 7-25-13
Date

This foregoing Agreement was acknowledged before me this 30 day of July, 2013 by

Pamela L. Clement.

Pamela L. Clement
NOTARY PUBLIC

My Commission Expires: 5-18-2016

PAMELA L. CLEMENT My Commission Expires 5/18/2016 NOTARY PUBLIC NOTARY SEAL Commission # 12412954 St. Charles County STATE OF MISSOURI

MAINTENANCE AND OPERATION PLAN

MAINTENANCE MANUAL

INTRODUCTION

In accordance with City of O'Fallon regulations, The Weatherby Landing Homeowners Association is responsible for inspecting and maintaining the stormwater management facilities (SWMFs) as approved by the City of O'Fallon. Research and experience have demonstrated that regular and thorough maintenance is necessary for Stormwater management facilities to perform effectively and reliably. They have also demonstrated that failure to perform such maintenance can lead to diminished performance, deterioration and failure, in addition to a range of health and safety problems including mosquito breeding, vermin, and the potential for drowning.

This maintenance manual contains specific preventative and corrective maintenance tasks for the SWMFs within this subdivision.

SELECTION OF STORMWATER MANAGER

The Weatherby Landing Homeowners Association shall select a Trustee who will be responsible for SWMF maintenance. This person shall be referred to as the stormwater manager. The stormwater manager must be aware of the purpose of the SWMFs and consequences of facility failure, particularly those failures caused by inadequate maintenance.

STORMWATER MANAGEMENT FACILITIES

There are a total of 2 storm SWMFs within this subdivision.

Water Quality Area A is the main basin located behind lots 20-23. This basin has a sandfilter located in the bottom of it that treats the stormwater for the majority of the subdivision. There are forebays (pretreatment areas) located on both ends of the basin which helps trap coarse materials and other pollutants before entering the sanfilter. The stormwater first passes through the pretreatment areas before entering the sandfilter through a 2' high rock dyke (berm). The sandfilter consists of 3 layers which are 3" of topsoil, 18" of clean washed "concrete" sand and 6" perforated pipe/8" thick gravel underdrain system. The sand layer is wrapped with a filter fabric to help keep the sand from being clogged with sediment. The approximate time it normally takes to drain the runoff volume below the swale bottom is 40 hours.

Water Quality Area B is located behind lots 31 and 32. This facility has an infiltration trench located in the bottom of it that treats the stormwater draining to it from the rear of lots 32-35. The stormwater drains into this facility via sheet flow. The 36" wide infiltration trench consists of 2 layers which are a 6" thick layer of 3" diameter or larger aggregate and a 30" layer of ¾" clean aggregate containing a 4" perforated pipe. The ¾" aggregate is wrapped with a filter fabric to help keep the aggregate from being clogged with sediment. The remainder of the facility is planted with a native seeding blend. The approximate time it normally takes to drain the runoff volume below the filter bed is 24 hours.

PREVENTATIVE MAINTENANCE

The purpose of preventative maintenance is to assure that the SWMFs remain operational and safe at all times, while minimizing the need for emergency and corrective maintenance.

1. Grass Cutting

A regularly scheduled program of mowing and trimming of grass at SWMFs during the growing season will help to maintain a tightly knit turf, and will also help to prevent diseases, pests and the intrusion of weeds. The actual mowing requirements of an area should be tailored to the specific site conditions, grass type, and seasonal variations in the climate. In general, grass should not be allowed to grow more than 1 to 2 inches between cuttings. Allowing the grass to grow more than this amount prior to cutting it may result in damage to the grass' growing points and limit its continued healthy growth.

2. Grass Maintenance

Grassed areas require periodic fertilizing, de-thatching and soil conditioning in order to maintain healthy growth. Additionally, provisions should be made to re-seed and re-establish grass cover in areas damaged by sediment accumulation, storm water flow, or other causes.

3. Removal and Disposal of Trash and Debris

A regularly scheduled program of debris and trash removal form SWMFs will reduce the chance of outlet structures, trash racks and other components becoming clogged and inoperable during storm events. Additionally, removal of trash and debris will prevent possible damage to vegetated areas and eliminate potential mosquito breeding habitats. Disposal of debris and trash must comply with all local, county, state and federal waste flow control regulations. Only suitable disposal and recycling sites should be utilized.

4. Sediment Removal and Disposal

Accumulated sediment should be removed before it threatens the operation or storage volume of a SWMF. Disposal of sediment must comply with all local, county, state, and federal regulations, Only suitable disposal sites should be utilized. The sediment removal program in infiltrations facilities must also include provisions for monitoring the porosity of the sub-base, and replacement or cleansing of the pervious materials as necessary.

5 Elimination of Potential Mosquito Breeding Habitats

The most effective mosquito control program is one that eliminates potential breeding habitats. Almost any stagnant pool of water can be attractive to mosquitoes, and the source of a large mosquito population. Ponded water in areas such as open cans and bottles, debris and sediment accumulations, and areas of ground settlement provide ideal locations for mosquito breeding. A maintenance program dedicated to eliminating potential breeding areas is certainly preferable to controlling the health and nuisance effects of flying mosquitoes.

6. Inspections

Regularly scheduled inspections of the facility should be performed by qualified inspectors. The primary purpose of the inspections is to ascertain the operational condition and safety of the facility, particularly the condition of embankments, outlet structures, and other safety-related aspects. Inspections will also provide information on the effectiveness of regularly scheduled Preventative and Aesthetic Maintenance procedures, and will help to identify where changes in the extent and scheduling of the procedures are warranted. Finally, the facility inspections should also be used to determine the need for and timing of Corrective Maintenance procedures. It should be noted that, in addition to regularly scheduled inspections, an informal inspection should be performed during every visit to a SWMF by maintenance or supervisory personnel.

7 Reporting:

The recording of all maintenance work and inspections provide valuable data on the facility condition. Review of this information will also help to establish more efficient and beneficial maintenance procedures and practices. Along with the written reports, a chain of command for reporting and solving maintenance problems and addressing maintenance needs should be established. From field personnel to the stormwater manager, everyone should be encouraged to report any problems or suggest any changes to the maintenance program.

CORRECTIVE MAINTENANCE

Corrective maintenance is required on an emergency or non-routine basis to correct problems or malfunctions and to restore the intended operation and safe condition of a SWMF.

1. Removal of Debris and Sediment

Sediment, debris and trash which threatens the discharge capacity of a SWMF should be removed immediately and properly disposed of in a timely manner. Equipment and personnel must be available to perform the removal work on short notice. The lack of an available disposal site should not delay the removal of trash, debris, and sediment. Temporary disposal sites should be utilized if necessary.

2. Dam, Embankment, and Slope Repairs

Damage to dams, embankments, and side slopes must be repaired promptly. This damage can be the result of rain or flood events, vandalism, animals, vehicles, or neglect. Typical problems include settlement, scouring, cracking, sloughing, seepage, and rutting. Equipment, materials and personnel must be available to perform these repairs on short notice. The immediacy of the repairs will depend upon the nature of the damage and its effects on the safety and operation of the facility. The analysis of damage and the design and performance of geotechnical repairs should only be undertaken by qualified personnel.

3. Dewatering

It may be necessary to remove ponded water from within a malfunctioning SWMF. This ponding may be the result of a blocked principal outlet (detention facility), inoperable low level outlet (retention facility), loss of infiltration capacity (infiltration facility) or poor bottom drainage. Portable pumps may be necessary to remove the ponded water temporarily until a permanent solution can be implemented.

4. Extermination of Mosquitoes

If neglected, a SWMF can readily become an ideal mosquito breeding area. Extermination of mosquitoes will usually require the services of an expert, such as the local Mosquito Extermination Commission. Proper procedures carried out by trained personnel can control the mosquitoes with a minimum of damage or disturbance to the environment. If mosquito control in a facility becomes necessary, the preventative maintenance program should also be re-evaluated, and more emphasis placed on control of mosquito breeding habitats.

5. Erosion Repair

Vegetative cover or other protective measures are necessary to prevent the loss of soil from the erosive forces of wind and water. Where a re-seeding program has not been effective in maintaining a non–erosive vegetative cover, or other factors have exposed soils to erosion, corrective steps should be initiated to prevent further loss of soil and any subsequent danger to the stability of the facility. Soil loss can be controlled by a variety of materials and methods, including riprap, sod, seeding, and re-grading. The local Soil Conservation District can provide valuable assistance in recommending materials and methodologies to control erosion.

6. Elimination of Trees, Brush, Roots and Animal Burrows

The stability of dams, embankments, and side slopes can be impaired by large roots and animal burrows. Additionally, burrows can present a safety hazard for maintenance personnel. Trees and brush with extensive, woody root systems should be completely removed from dams and embankments to prevent their destabilization and the creation of seepage routes. Roots should also be completely removed to prevent their decomposition within the dam or embankment. Root voids and burrows should be plugged by filling with material similar to the existing material, and capped just below grade with stone, concrete or other material, If plugging of the burrows does not discourage the animals from returning, further measures should be taken to either remove the animal population or to make critical areas of the facility unattractive to them.

7. Snow and Ice Removal

Accumulations of snow and ice can threaten the functioning of a SWMF, particularly at inlets, outlets, and emergency spillways. Providing the equipment, materials and personnel to monitor and remove snow and ice from these critical areas is necessary to assure the continued functioning of the facility during the winter months.

SANDFILTER MAINTENANCE & INSPECTION SCHEDULE

Table 3.2.4-1. Typical Maintenance Activities for Sand Filters
(Source: WMI, 1997; Pitt, 1997)

Activity	Schedule
• Ensure that contributing area, facility, inlets and outlets are clear of debris. • Ensure that the contributing area is stabilized and mowed, with clippings removed. • Remove trash and debris. • Check to ensure that the filter surface is not clogging (also check after moderate and major storms). • Ensure that activities in the drainage area minimize oil/grease and sediment entry to the system. • If permanent water level is present (perimeter sand filter), ensure that the chamber does not leak, and normal pool level is retained.	Monthly
• Check to see that the filter bed is clean of sediment, and the sediment chamber is not more than 50% full or 6 inches, whichever is less, of sediment. Remove sediment as necessary. • Make sure that there is no evidence of deterioration, spalling or cracking of concrete. • Inspect grates (perimeter sand filter). • Inspect inlets, outlets and overflow spillway to ensure good condition and no evidence of erosion. • Repair or replace any damaged structural parts. • Stabilize any eroded areas. • Ensure that flow is not bypassing the facility. • Ensure that no noticeable odors are detected outside the facility.	Annually
• If filter bed is clogged or partially clogged, manual manipulation of the surface layer of sand may be required. Remove the top few inches of sand, roto-till or otherwise cultivate the surface, and replace media with sand meeting the design specifications. • Replace any filter fabric that has become clogged.	As needed

Additional Maintenance Considerations and Requirements

- A record should be kept of the dewatering time for a sand filter to determine if maintenance is necessary.
- When the filtering capacity of the sand filter facility diminishes substantially (i.e., when water ponds on the surface of the filter bed for more than 48 hours), then the top layers of the filter media (topsoil and 2 to 3 inches of sand) will need to be removed and replaced. This will typically need to be done every 3 to 5 years for low sediment applications, more often for areas of high sediment yield or high oil and grease.
- Removed sediment and media may usually be disposed of in a landfill.

⚠ Regular inspection and maintenance is critical to the effective operation of sand filter facilities as designed. Maintenance responsibility for a sand filter system should be vested with a responsible authority by means of a legally binding and enforceable maintenance agreement that is executed as a condition of plan approval.

INFILTRATION TRENCH MAINTENANCE & INSPECTION SCHEDULE

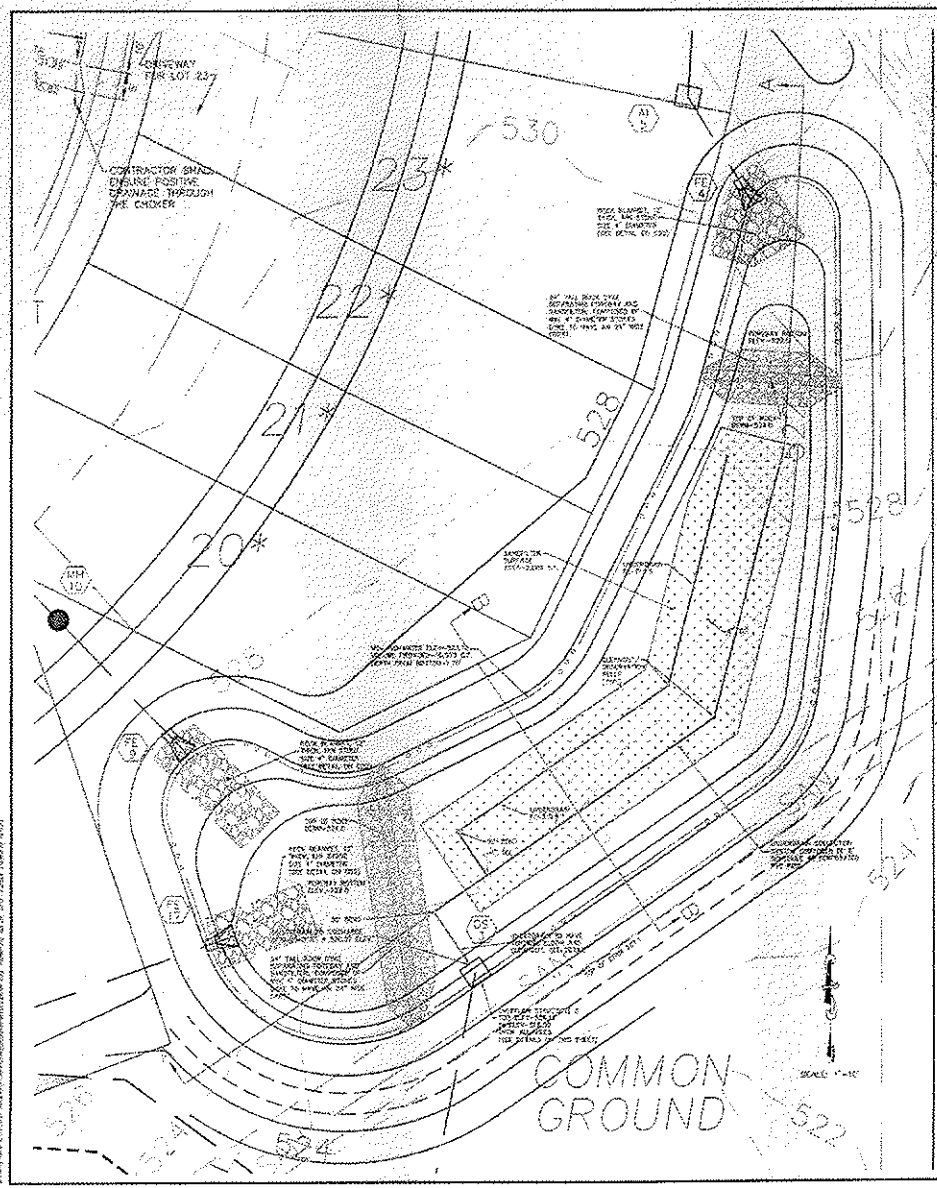
Table 3.2.4-2 Typical Maintenance Activities for Infiltration Trenches
(Source: EPA, 1999)

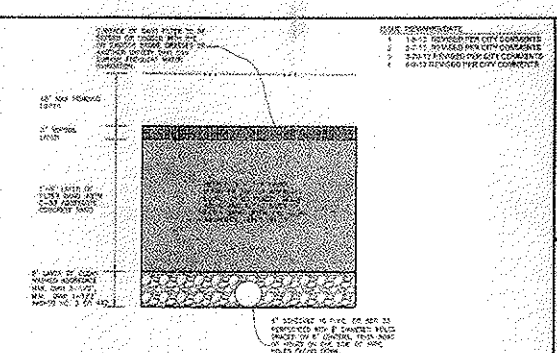
Activity	Schedule
• Ensure that contributing area, facility and inlets are clear of debris. • Ensure that the contributing area is stabilized. • Remove sediment and oil/grease from pretreatment devices, as well as overflow structures. • Mow grass filter strips should be mowed as necessary. Remove grass clippings.	Monthly
• Check observation wells following 3 days of dry weather. Failure to percolate within this time period indicates clogging. • Inspect pretreatment devices and diversion structures for sediment build-up and structural damage. • Remove trees that start to grow in the vicinity of the trench.	Semi-annual Inspection
• Replace pea gravel/topsoil and top surface filter fabric (when clogged).	As needed
• Perform total rehabilitation of the trench to maintain design storage capacity. • Excavate trench walls to expose clean soil.	Upon Failure

Additional Maintenance Considerations and Requirements

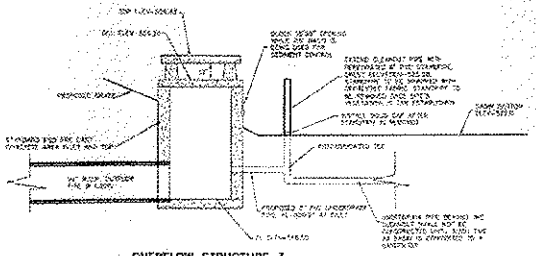
- A record should be kept of the dewatering time of an infiltration trench to determine if maintenance is necessary.
- Removed sediment and media may usually be disposed of in a landfill.

⚠ Regular inspection and maintenance is critical to the effective operation of infiltration trench facilities as designed. Maintenance responsibility for a infiltration trench should be vested with a responsible authority by means of a legally binding and enforceable maintenance agreement that is executed as a condition of plan approval.

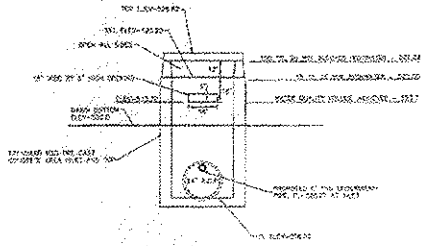




TYPICAL SECTION SAND FILTER



OVERFLOW STRUCTURE 3
SIDE SECTION MODIFIED FOR SEDIMENT CONTROL



OVERFLOW STRUCTURE 3
FRONT ELEVATION

VERTICAL ELBOW
UNDERDRAIN DETAIL

PROJECT TITLE

WEATHERBY LANDING

THE STERLING CO.
ENGINEERS & SURVEYORS

MCBRIDE & SONS HOMES LAND DEVELOPMENT, INC.

WATER QUALITY PLANS & DETAILS BASIN A

P-HZ No. 1505-03
City No.
Date: 11/12/2012
Job No. 12-05-127

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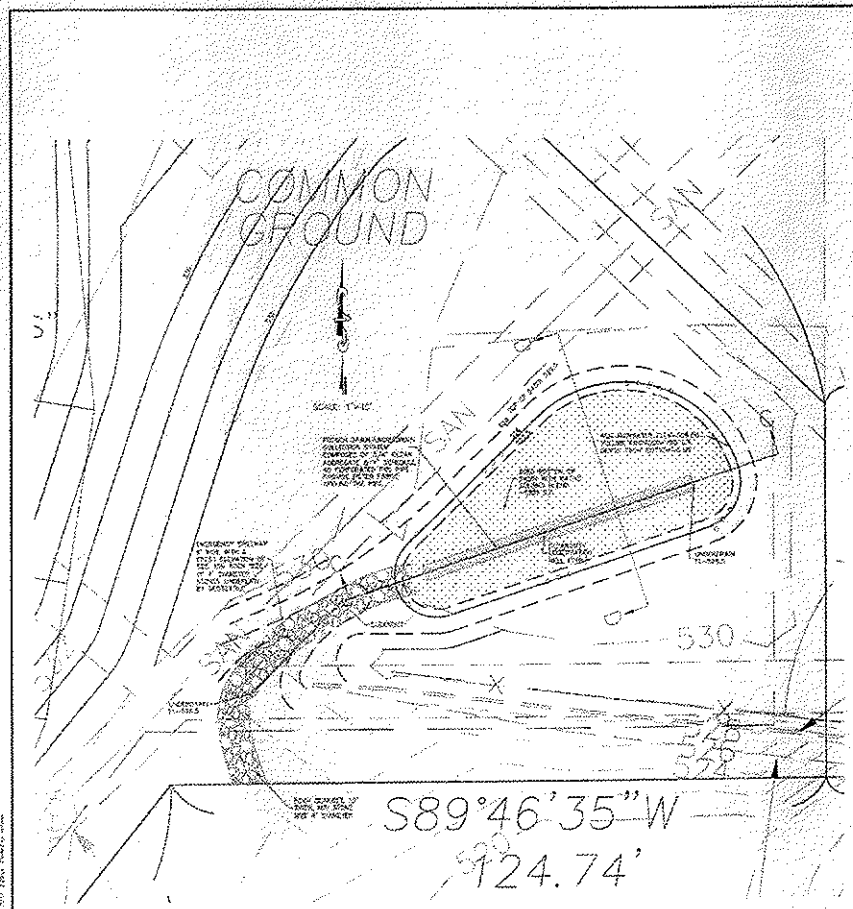
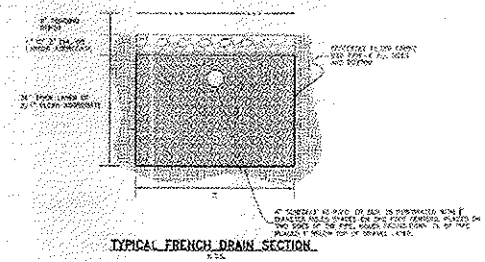
10.1





TYPICAL FRENCH DRAIN SECTION

PROJECT TITLE

WEATHERBY LANDING

THE STERLING CO.
ENGINEERS & SURVEYORS

MCBRIDE & SON HOMES LAND DEVELOPMENT, INC.

WATER QUALITY PLANS & DETAILS BASIN B

P-Z No. 1305-05
City No.
Date: 11/13/2012
Job No. 12-05-127

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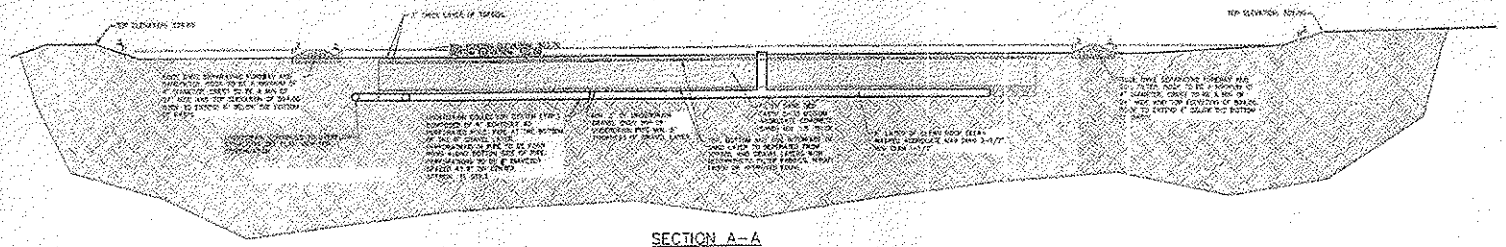

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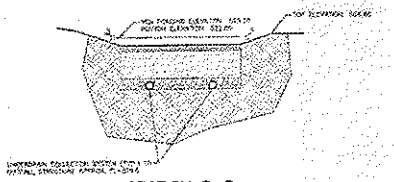

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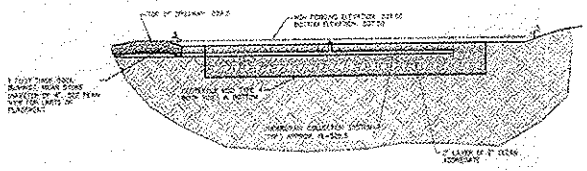

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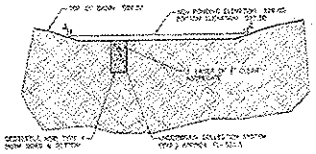

SECTION D–D

PROJECT TITLE

WEATHERBY LANDING

THE STERLING CO.
ENGINEERS & SURVEYORS

MCBRIDE & SON HOMES LAND DEVELOPMENT, INC.
16231 SWINGLEY RIDGE ROAD, STE. 350
CHESTERFIELD, MISSOURI 63017
PH. 636.537.2000
www.mcbride-homes.com

WATER QUALITY PLANS & DETAILS BASIN A & B

P+Z No. 1302.05
City No.
Date: 11/12/2012
Job No. 12-05-127

Page No.
10.3

LAND DISTURBANCE WEEKLY CHECKLIST
City of O'Fallon
Public Works Department
Stormwater Management
100 North Main Street, O'Fallon, MO 63366, 636.240.2000, fax: 636.379.7638

This form is to be filled out weekly, and after a 1/2" rain event within 24 hours. This form is to be emailed on a weekly basis to the Stormwater Management Coordinator, at micheleg@ofallon.mo.us on Monday morning of every week.
If you do not have access to email, please fax to 636.379.7638

Week Ending:_____(Saturday)

Project:_____
Contractor:_____
Inspected By:_____Phone:_____

Select one:

____Weekly Inspection ____Post Event

Site Observations:

	Satisfactory	Deficient	Replace	Not Applicable
Perimeter Protection	_____	_____	_____	_____
Stock Piles Stabilized	_____	_____	_____	_____
Sediment Control for Disturbed Areas	_____	_____	_____	_____
Ditch Checks	_____	_____	_____	_____
Diversion Channels	_____	_____	_____	_____
Inlet Protection	_____	_____	_____	_____
Sediment Basins/Traps	_____	_____	_____	_____
Erosion at Discharge Points	_____	_____	_____	_____
Creek Degradation	_____	_____	_____	_____
Vegetative Cover	_____	_____	_____	_____
Filter Strips, Level Spreaders	_____	_____	_____	_____
Wash-off Operation	_____	_____	_____	_____
Nuisance Control	_____	_____	_____	_____
Other:	_____	_____	_____	_____
Other:	_____	_____	_____	_____
Other:	_____	_____	_____	_____

(Attach Additional Sheets if Necessary)

Areas where land disturbance activities took place:

_____

_____

List problem areas and corrective steps taken:

_____

_____

_____

Inspector's signature:_____ **Date:**_____

100 N. Main St, O'Fallon MO 63366

City of O'Fallon, Missouri

Stormwater Management Policy

Adopted: June, 2011

2011

Revised:

City of O'Fallon, Missouri
Stormwater Management Policy

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City of O'Fallon
Stormwater Policy

Purpose

The purpose of this policy is to establish procedures for investigating storm water damage and other concerns reported to the City to determine responsibility, public or private, for corrective action.

The process that follows is to define and follow an orderly path of transition from an understanding that stormwater is essentially a private responsibility in which the City intervenes only in emergency situations to one where stormwater is considered a public infrastructure with both public and private responsibility.

History

June 2008 – Ordinance #5337 provides that no more than 3 cubic feet per second (cfs) shall flow in a man-made swale (excluding creeks) during a 15 year design storm event. Flows in excess of this amount need to be piped in a public or private storm sewer.

August 1987 – Prior to June 2008, the threshold of flow requiring a piped system was 4 cfs (Ordinance #1499)

Prior to 1987 – Drainage standards were less stringent and not consistently applied

Due to the different ordinances, each development within the City will have a different level of standards applied depending on when it was approved

Note – Events that exceed a design storm event will have flows that exceed the aforementioned amounts specified.

Missouri Law – Disposing of Surface Water

Modified Common Enemy Rule - The Missouri courts adopted this rule in 1884. Under this doctrine, an upper landowner was required to exercise reasonable care in diverting surface water onto a lower landowner's property. However, the lower landowner was free to take unrestricted action to divert surface water coming on to his property from upstream, provided the action did not obstruct a natural watercourse.

Rule of Reasonable Use - In 1993, the Missouri Supreme Court abandoned the Modified Common Enemy Rule and adopted the Rule of Reasonable Use to determine civil liability in cases involving the diversion or obstruction of surface water, whether by an upper or lower landowner (*Heins Implement Co. v. Mo. Hwy. & Trans. Commission*, 859 S.W.2d 681 [Mo. 1993]). The court ruling stated that

reasonableness of interference of flow of surface waters is a question of fact, to be determined in each case by weighing the gravity of harm to the plaintiff against the utility of the defendant's conduct.

In 1998, the Missouri legislature enacted a provision in Section 644.018 of the Missouri Revised Statutes specifying that in any case involving a flood prone area, if any defendant has obtained and fully complied with a permit from a local subdivision that has met the requirements of and is a participant in the NFIP, and the subdivision has jurisdiction over the area of dispute, then the proper permitting and compliance with all permit conditions shall be conclusive proof that the project meets any reasonable use test.

General Policies

If a property backs up to a storm sewer system, creek or stream, that creek/stream is located in an area owned and maintained by the Home Owners Association (HOA) for the subdivision (see or request Record Plat for clarification) or within private property. Therefore, creek bank stabilizations can be somewhat costly and while the adjacent homeowner or HOA should have had the understanding that creeks do meander and erode, the City has recently created a Stormwater Fund to help with certain projects.

To report a stormwater concern, someone must first contact the Stormwater Group by contacting stormwater@ofallon.mo.us or the street department at 636.379.3808. Based on the concern, a work order will be developed and will be supplied to either the Stormwater Foreman for minor concerns or the Stormwater Coordinator for more complex concerns. In both cases, they will contact the concerned party within one business day to touch base and describe our process and their schedule as to when we can review the concern.

For a minor concern, the foreman will evaluate the situation and if it is something the City is responsible for, the work order will be updated and the concern will be added to our maintenance schedule. If it is deemed a private matter, the foreman will contact the concerned party by phone and mail to discuss/describe the situation and provide assistance, as needed in accordance with the policy below, and the work order will then be closed out. If the concern turns out to be more complex than first anticipated, the foreman will turn the work order over to the coordinator. For more detail, please refer to the written procedures included in Appendix B.

For a more complex or major concern, the coordinator will perform an initial evaluation of the concern and determine if the concern is a matter the City can assist with as described later or if it is a private matter. Similar to the minor concerns, if it is deemed private, the coordinator will contact the concerned party and provide assistance as addressed in the policy and close the work order out with a letter to them. If the concern is deemed something the City will resolve or assist, the coordinator will evaluate the concern in more detail and provide a Category and Priority Rating to the concern.

After a concern has been evaluated and provided a category and rating number, the City will perform a conceptual design of the solution and evaluate the affected residents and the concern will added to the Stormwater priority list. The City will then need signed letters of understanding from the affected property owners prior to performing additional work on this project. A letter of understanding is not

an easement or an agreement, it is merely an agreement between the City and the affected parties that they are willing to work together throughout the process and take a common sense approach on temporary and permanent easements. It is also important to understand that since the project will enhance the affected properties owners, it is not in the City's best interest to pay for necessary easements since the storm improvements are not within City property and the funds can be better utilized for design and construction of this project.

Once the City has received the aforementioned letters of understanding, the stormwater coordinator and plan review group will evaluate the situation further and put together a concept study of the problem as well as several solutions with associated cost estimates. After this is done, the project will be placed within in its particular Category and relevant order based on Priority Rating and will then be budgeted appropriately within the constraints of the yearly budget when funding becomes available.

Public vs. Private Responsibility

Resolution of Drainage Concerns

Pursuant to City Ordinance and state law, the City cannot undertake drainage improvements on private property except where an easement exists or the protection of life or property requires emergency efforts. The City reserves the right to determine when an easement is necessary to install or maintain drainage facilities. The City may require a property owner to sign a release to permit access onto private property to facilitate these projects.

General: Residents, business owners, and developers have drainage concerns regarding their property or adjoining property. Once these concerns are brought to the City's attention, the process by which these are addressed shall follow a specific set of criteria. This section is intended to define those specific criteria for addressing these issues.

Stormwater drainage that relates to the conveyance of surface water, including but not limited to City Owned creeks/streams and storm sewer infrastructure are maintained by the City. The maintenance of these channels may be done by City departments or their contractors as needed for emergency services or as part of a maintenance program.

Localized stormwater drainage relates to the conveyance and storage of stormwater from a subdivision or large group of properties, creek/stream, and storm sewer infrastructure. These facilities are typically owned by the City or are under easement to the City such as storm sewer structures, pipes, inlets, etc.

Site specific drainage relates to the conveyance of stormwater from a single or small group of properties, and storm sewers. These facilities are typically not owned or maintained by the City and are not under easement to the City such as swales, smaller diameter pipes, etc

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City Assistance

Each stormwater concern will be reviewed and placed in a specific category and then have a specific rating attached to the concern. The four priority levels (PL) are as follows:

PL-1 – Flooding or erosion with potential structural failure of home structures or City infrastructure including perennial streams with stream order number of 2 or higher (this will be explained later)
PL-2 – Drainage areas that should have public sewers that do not
PL-3 – Private concern desiring to participate in a 50/50 program
PL-4 – Public Infrastructure concerns (routine maintenance)

If a project is deemed to be within PL 1 or 2, the project will not be approved for public funding until the applicants provide a signed statement from all adjoining property owners, including their street address, stating that they have approval of the project and agree that they will donate any easements necessary for the completion of the project. However, an exception can be made for properties not being improved by the project where payments can be made to acquire easements. If the project is deemed to be within PL 4, the repairs will take place when the work order can be addressed.

All proposed projects shall meet City of O'Fallon, Army Corp of Engineers and Missouri Department of Natural Resources guidelines.

<u>Creek banks:</u>

The City must be very careful when assisting individual reported lot concerns of creek bank erosion or stabilization. Therefore, the number of lots affected must typically include more than one; however, exceptions may be considered. All creek bank concerns will be evaluated on a case by case basis and must be adjacent to a City maintained creek.

There are three types of streams, Perennial, Intermittent and Ephemeral. They are defined as follows:

- Perennial – A watercourse that flows throughout a majority of the year in a well-defined channel
- Intermittent – Watercourse that flows in a well-defined channel only in direct response to precipitation; such a stream is dry for a large part of the year
- Ephemeral – A channel that carries water only during and immediately following rainstorms. Sometimes referred to as a dry wash. Ephemeral streams flow for less than 20% of the year during normal rainfall conditions

Appendix A is a stream order map of the streams throughout the City. While certain items on that map are being finalized, only Perennial stream order numbers 2 or higher will be addressed with PL 1 repairs. If a stream order number 1 or less is considered for PL 3, it will require a cost sharing between the City and the property owner(s).

PL-1 – City Assistance (Major Project)

(Two of the following must be met)

- A deficiency within a publically accepted storm sewer system or perennial stream
- Has clear potential for loss of life, damage to public infrastructure/property or damage to buildings
- Has had significant erosion on property (ies) within a stream order number of 2 or higher

PL-2 – City Assistance (Minor Project)

(Two of the following must be met)

- Have surface flows that exceed at least 3 cfs as calculated during a design storm event. Other factors will be considered after review of approved design requirements when area was developed
- Has clear potential for damage to public infrastructure/property or damage to certain private auxiliary structures (decks)
- Has had significant erosion on a single property due to a stream order number of 2 or higher

PL-3 – Partial City Assistance

If the creek with a stream order number of 1 or less affects multiple properties or a large stretch of common ground, the City will provide assistance splitting the costs 50/50 with use of the storm water tax fund and/or assistance by the use of a Neighborhood Improvement District (NID), Community Improvement District (CID) or other funding by developer, private group or citizen The affected parties will enter into a NID or CID (or other similar arrangement) that allows the project to be funded initially by the City and then be paid back by members of the district through their tax assessments.

While the City will rate the concern and put it on the list, it would be in the homeowner(s) best interest to take a proactive approach on the matter since this category will farther down the list and years away from funding.

PL-4 – City Assistance (In-house Maintenance Repairs)

Public Assistance Examples:

1. Sinkhole or erosion around the outside of a storm sewer in either back yard or front next to curb
2. Storm sewer is clogged or blocked and will not drain
3. Box culvert under public roadway is blocked with debris (City will only clean 3-feet outside of the box culvert within the creek)
4. Lid missing from structure that needs to be replaced
5. Storm sewer top in disrepair or shifted

Repairs of this level are mostly taken care of with the City's stormwater crew. Residents with concerns for this level should contact the street department at 636.379.3808 to report their concern.

Other

If the creek or creek bank concern does not fit into one of the categories for creek bank assistance stated previously, then it is considered normal property maintenance and the responsibility lies with the property owner. Examples of such reasons could be as follows:

- The creek bank erosion lies completely within the HOA property and has not directly affected multiple properties (single lot)
- The creek bank erosion has directly affected one property; however, it is not within 25-feet of a structure attached to the house
- The HOA or affected property owner has done something to the creek or creek bank to alter the natural flow of the creek
- The creek or creek bank is not being maintained correctly (i.e., dumping of debris into the area, not cleaning debris from creek, altering the creek bank, etc.)

No City Assistance

If your concern does not fit into one of the previous categories for City assistance, it is defined as a private concern that becomes the normal responsibility of owning property; the problem could be due to one of the following:

- Topography has changed due to a patio, swing set, deck, landscaping, pools, etc.
- Privacy fence or other item has blocked the drainage swale which is not in violation of a current City ordinance for Fencing Standards-400.273(c)(1), Nuisance Ordinance 200.020(21), Stormwater Quality Management and Illicit Discharge Control Section 405.245
- Discharge from a sump pump is not directed correctly to a drainage area or creates a semi to constant saturated zone of soil
- Private drainage system or underground gutter runoff not installed correctly or does not direct discharge to the appropriate drainage area
- You have a newly constructed home and the builder has not graded your yard correctly
- Over time, subtle changes in the ground can occur naturally which could create a low spot

The following is list of solutions to prevent or help private stormwater concerns:

- If you plan to change your swale for any reason or make significant yard changes, please contact the City for guidance or permits depending on the amount of changes to be done
- DO NOT block your swale
- Inspect and maintain all private stormwater systems and swales on your property and report any sinkholes above pipes or surrounding the structures to the City
- Install rain gardens or bio-swales to promote subsurface drainage and water cleansing
- Install rain barrel or underground storage systems to hold stormwater for your landscaping
- Reduce the amount of sprinkler use on your lawn

- Maintain private culverts located in front of a residential property that is incorporated with the driveway or in right of way adjacent to a road to prevent siltation and debris from allowing it to operate as intended

Residents can contact the City for review of a private system, but we will not fix matters that are deemed private. The City will provide guidance and potential recommendations; however, we will not direct how to resolve the problem/concern. There may be several causes of the reported site conditions and there may also be multiple remedies; therefore, the City will provide guidance and potential recommendations for addressing a residents concern. This may also include the recommendation for use of other professionals outside of City staff as well. Multiple remedies lead to multiple levels of designs/concepts and thus multiple costs and since the City will not oversee the actual work done, the City cannot take the liability of recommending one process over another.

Private-No City Assistance Examples:

1. Standing water or saturation in yard due to a Lot grading issue
2. Down spouts or sump drainage to swale or drainage area in back yard
3. French or other under drain installation (contact City if connecting to City infrastructure)
4. Culvert pipe and roadside ditch that is located on your property that is blocked or clogged
5. Erosion on a slope located on private property
6. Neighbors choice of landscaping that is causing drainage issue (not located in drainage swale per the plans)

Project Order and Rating for Major Projects

Each project that the City determines to be a public system or private system that the City will help fund will be analyzed and given a priority rating. However, each project will lumped into a category and the higher category will take precedence over the rating number and the categories again are as follows:

PL-1 – Flooding or erosion with potential structural failure of home structures or City infrastructure including perennial streams with stream order number of 2 or higher
PL-2 – Drainage areas that should have public sewers that do not
PL-3 – Private concern desiring to participate in a 50/50 program *1
PL-4 – Public infrastructure concerns *2

*1 – While this can be partially funded by the City, it is in the affected property owner(s) best interest to try and resolve this since it could be years before these projects are funded. Category 3 concerns for that particular year.
*2 – This category is budgeted on a yearly basis as a routine repair and maintenance items while levels 1, 2 and 3 will need to be budgeted on a yearly basis when the funding is available.

Maintenance

Publically Accepted Storm Infrastructure

Currently the City is in a reactive position with respect to stormwater concerns and we are working daily on making repairs. It is the City's goal to be able to obtain a more proactive approach and review storm systems on a continual and orderly basis which will help prevent smaller problems becoming larger. If you have a stormwater concern, please contact us at stormwater@ofallon.mo.us or 636.379.3808

Creeks (Order 2 and higher)

Since most of these stream lie completely within a property, it is typically the responsibility of the property owner(s) to clean their portion of the stream. However, due to the amount of water and debris possibly coming from upstream, the City has a volunteer program that assists the property owners that have a stream within their property. Two to three times a year, the City participates in a clean stream program, for more information or to have your area considered, please contact us at stormwater@ofallon.mo.us. If a log or debris jam has dammed up a portion of the creek within common ground or private property, it is the adjacent property owner's responsibility to resolve the blockage. However, since the debris may have come from upstream, the City can assist to an extent; if needed, please contact us to see how we can help with the concern.

Creeks (Order 1 and lower)

Since these types of creeks do not have water running through them continuously throughout the year, the maintenance of these systems will be up to the individual property owner(s)

Completed Projects

Whether it is completely financed by the City or partially, it is in the adjacent property owner(s) best interest to keep the new project maintained. If the City installs new infrastructure, it will be similar to above and it will maintained as needed by the City for the infrastructure only. The surrounding ground and landscaping are private property and to be maintained by the property owner.

Definitions

Best Management Practices (BMP'S): Schedule of activities, prohibitions of practices, general good housekeeping practices, pollution prevention and educational practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants directly or indirectly to storm water, receiving waters, or storm water conveyance systems. BMP's also include treatment practices, operating procedures, and practices to control site runoff, spillage or leaks, sludge or water disposal, or drainage from raw materials storage.

cfs (Cubic Feet per Second): Stormwater flow rate measured in cubic feet per second

Clean Water Act: The federal Water Pollution Control Act (33 U.S.C. §1251 et seq.), and any subsequent amendments thereto.

Designed Storm Event: All developments shall provide storm water detention calculations for the two (2) year (3.1 inches), fifteen (15) year (4.60 inches), twenty-five (25) year (5.40 inches) and one hundred (100) year (6.20 inches), 20 minute storm. These are considered the design storm events. Storm water systems and swales are design for 15-year 20-minute storm.

Excavating: Any man-made cavity or depression in the earth's surface, including its sides, walls or faces; formed by earth removal and producing unsupported earth conditions by reasons of the excavation.

Fill/Filling: The depositing or dumping of earthen material on or into the ground resulting in the raising of the grade at that location.

Flooding: A temporary rise of the water level, as in a creek/stream or lake, resulting in its spilling over and out of its natural or man-made system onto land that is normally dry. Floods are usually caused by excessive runoff from precipitation or snowmelt, or storm surges.

Flood Plain: That area of land adjoining the channel of a river, stream, watercourse, lake or similar body of water which has a 1% chance to be inundated by a flood in any given year as determined by FEMA.

Grading Plan: The development plan that must be reviewed and approved by the City Engineer prior to the grading of fifty (50) or more cubic yards of any site within the City.

Private Storm System: System put into place/installed by resident/builder or more than one resident on private property to convey or collect stormwater and convey to the public stormwater system. Examples of such are extensions of commercial or private property systems that conveys to a public system such as gutters, sump pumps, installation of under drain pipe system, certain roadside ditches, basins and commercial infrastructure.

Public Storm System: Owned by a state, city, town, village, or other public entity that discharges to waters of the U.S.; Designed or used to collect or convey stormwater (including storm drains, pipes, ditches, etc.); Not a combined sewer; and Not part of a Publicly Owned Treatment Works (sewage treatment plant).

Rain Garden: A landscaping feature that is planted with native perennial plants and is used to manage stormwater runoff from impervious surfaces such as roofs, sidewalks, and parking lots.

Swale: A low, flat depression to drain storm water runoff.

Watercourse: A natural or artificial channel through which water flows.

Links or Helpful Information

Low Impact Development:

Municipal Guide:

http://www.lowimpactdevelopment.org/lid%20articles/Municipal_LID.pdf

Builder Guide:

http://www.lowimpactdevelopment.org/lid%20articles/Builder_LID.pdf

Landscaping for water quality:

Water Efficient Landscape Guide:

http://www.epa.gov/npdes/pubs/waterefficiency.pdf

Non-Point Source Pollution Landscaping Video:

http://www.epa.gov/owow_keep/NPS/lid/video.html

Native Landscaping Guide:

http://www.shawnature.org/nativeland/NativeLandscapingManual/

Rain Garden Brochures and Information:

Brochure:

http://raingardens.org/docs/rain_garden_brochure_greatlakes.pdf

Informational website:

http://www.raingardennetwork.com/

http://showmeraingardens.com/

Rain Barrel Information

Rain barrel Guide:

http://www.rainbarrelguide.com/

Government Links:

Missouri Department of Natural Resources:

http://www.dnr.mo.gov/env/wpp/wp-index.html

EPA NPDES Program:

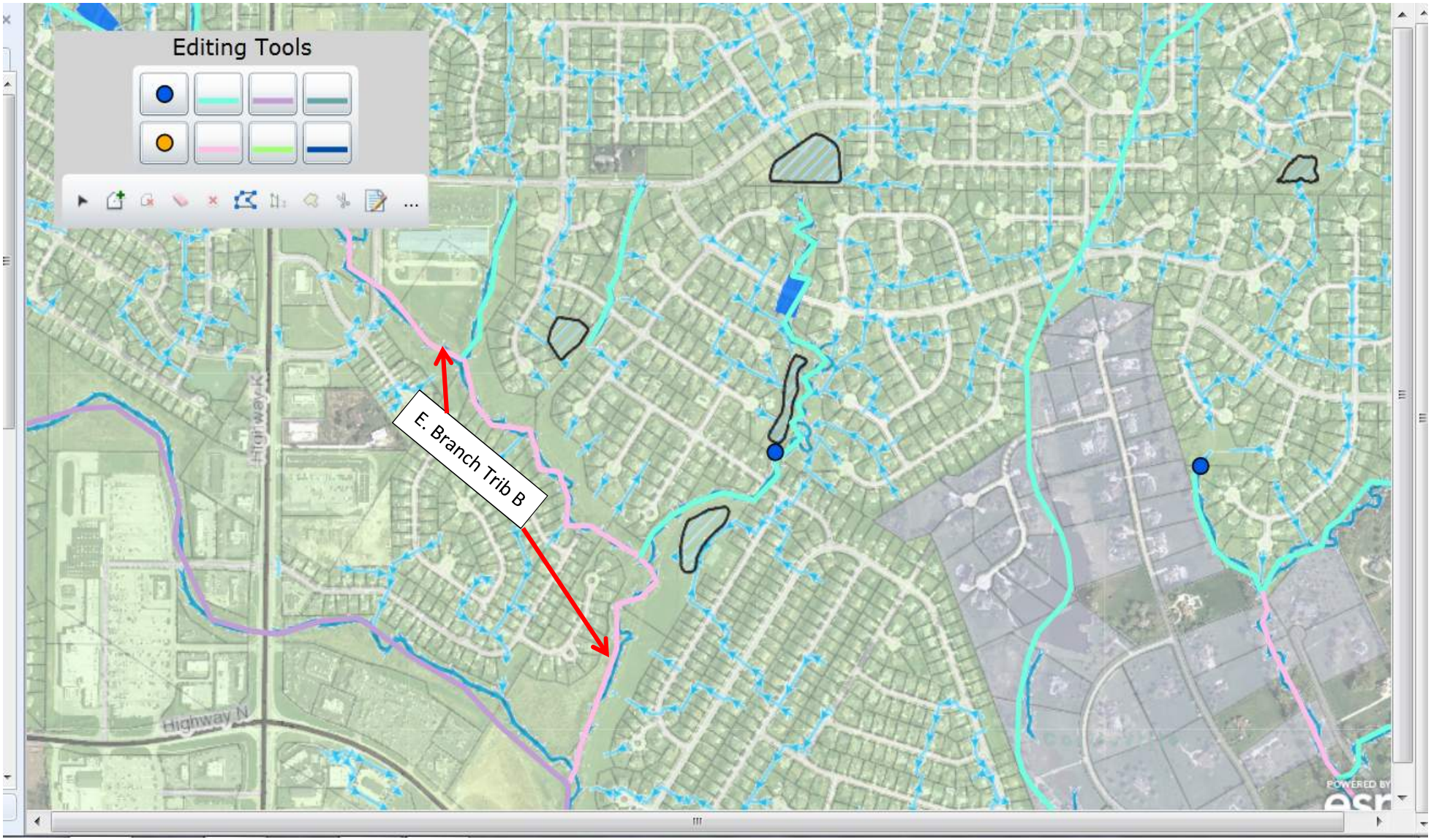
http://cfpub.epa.gov/npdes/home.cfm?program_id=6

Brochure for Non Point Source Pollutants:

http://www.epa.gov/npdes/pubs/solution_to_pollution.pdf

Appendix A

Stream Order Map Example


Editing Tools
E. Branch Trib B
Highway K
Highway N

Appendix L

100 N. Main St, O'Fallon MO 63366

City of O'Fallon, Missouri

Stormwater Management
Policy for the Community Cost Share
50/50 Reimbursement Program Option

Approved for Use by City Council: January 28, 2016
City Resolution: 01-28-2016A

Revised: 1/19/2016

City of O'Fallon, Missouri
Community Cost Share (CCS)
50/50 Reimbursement Program Option

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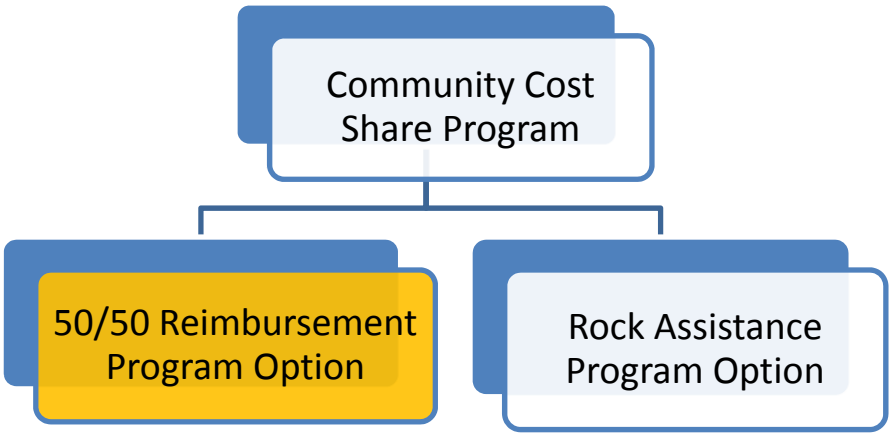
City of O'Fallon
Community Cost Share Program (CCS)
50/50 Reimbursement Program Option

Purpose

With any residential storm water issue, the difference between the responsibility of a private land owner and a problem large enough for the City to become involved is not always clear. As such, the City's Stormwater Policy, which was adopted in June 2011, contains multiple priority levels.

- Priority Levels 1 and 2 include items that warrant full funding from the City. These two levels are designed and constructed by the City.
- Priority Level 3 items will still be considered for partial public funding from the City, but are typically storm water issues that are within the realm of the property owner's private maintenance responsibility.

As a result, this CCS program has been developed to provide assistance to residential property owners through two sub-programs: the 50/50 Reimbursement Program option (50/50) and the Rock Assistance Program option (RAP). CCS also benefits the public by improving water quality and by preventing smaller problems from growing into larger concerns, which could affect adjacent properties or others throughout the watershed. These projects are more private in nature, but still have a public benefit. Please note that this program is approved for residential properties within City limits. Agricultural, Industrial, Commercial, Mobile Home Parks, and Apartment Complexes do not qualify for this program. Subdivisions also have to be accepted (no longer under escrow) by the City.



City staff will assist the property owner(s) through the entire process from initial application through construction and completion of the project upon acceptance into the program. If the applicant is not clear about anything on the application, please call us to discuss! Applicants should not hesitate to contact City staff if they have inquiries during the application process. City staff will happily work with the residents throughout the process from start to finish.

***Pursuant to City Ordinance and state law, the City cannot undertake drainage improvements on private property except where an easement exists, there is a benefit to the public that will decrease the need and/or cost of a potentially larger, more expensive fully-funded project in the future or in the event that protection of life or property requires emergency efforts.*

Program Contacts

The individual named here should be considered the first point of contact for any application, or any general questions:

Michele Gremminger
Stormwater Management Coordinator
636-379-7632
micheleg@ofallon.mo.us

Program Criteria

This program is designed to provide assistance to property owners experiencing creek bank erosion or similar storm water related concerns as a means of reducing soil erosion and its effects on water quality and the storm system throughout the City. The following paragraphs will explain in detail the guidelines that will be applied to the CCS 50/50 Reimbursement Program option. The Rock Assistance Program option is explained in a separate document.

Property owners shall request consideration for matching funds in writing in the form of an application (see Appendix) from the Public Works Director or his designee. Once an application is received, a site visit will be performed in order to verify whether the potential project will qualify as a Priority Level 3 as per the Stormwater Management Policy. Prime consideration will be given to areas with high ratings per the City's criteria. For full details on how drainage concerns are resolved and approved for funding, please see the Stormwater Management Policy. The Stormwater Policy is located on the City website at http://www.ofallon.mo.us/stormwater-funding.

Once a project is evaluated, approved, ranked and rated, it will be added to the Priority Level 3 Stormwater Priority List. During review of the application, the City will work with the resident to determine if a minimalist in-house design can be completed or if it needs bids from private engineering firms. A pre-qualified engineer and contractors list will be provided to the approved applicant to complete bid requirements as stated in the options section of this policy. The City reserves the right to deny reimbursement on items submitted that are not deemed associated with the project. Again, it will be required for the applicant to utilize a company that is on the City-provided list. Failure to adhere to this requirement will immediately result in the termination of the agreement and any reimbursement to the property owner.

The current program cap is set at an amount that is approved by City Council per budget year or remaining fund balance in the budget year at the time of application approval. This program is operated on a first come, first served basis. When program funds are depleted; no additional projects can be completed for the remaining budget year. If an application is received and approved with no funds available, the project will be placed as top priority for the following budget year, provided funds are approved by City Council. If a project total is above the available funds, then it

may have to be completed in phases or the reimbursement portion to the applicant will be made in portions.

50/50 Reimbursement Program Information and Guidelines

- The City will pay up to 50% of the costs of alleviating erosion or similar storm water concerns, funds permitting, for construction projects.
- The applicant is fully responsible for hiring the engineer and/or contractor from the approved list, and will also be responsible for making payment to those individuals.
- The City's total share of the 50/50 reimbursement option shall not exceed the amounts allocated in the budget for that purpose.
- If the project cannot be completed in that calendar year/budget, then it may have to be completed in phases based on the City budget and no other project would start until the project is complete.
- The applicants must provide a signed statement from ***all*** adjoining property owners, including their street address, stating they have no objections to the project whether they are affected by the project or not. The City will provide a template to administer these letters (refer to the Appendix).
- If this is a minimalist design, City staff will evaluate and design the solution and work with the resident to complete design and/or any permit applications necessary. If it is determined that a private engineer needs to be hired, the City will provide a list of recommended private engineers to the applicant.
- Project completion is subject to funds available at the time of application. If the total reimbursement request exceeds the City's available balance at the time of application, then the remaining balance will have to wait until City Council re-appropriates funds; which may be the following budget year. If a project must be completed in phases, the City may ask for documentation from the applicant in advance to secure funds to complete the project in a timely manner and as funds are available.
- The applicant must keep in mind that their project is not a fully funded City Capital Improvement Project but a private one, which provides some public benefit. Therefore, any warrantee, guarantee or other agreements made between applicant and contractor are private and not subject to City intervention with regard to such agreements.
- All proposed projects shall meet the guidelines of the City, US Army Corps of Engineers and Missouri Department of Natural Resources.
- **If engineering, construction, or other costs are completed before being approved for the program, then they will be excluded from the reimbursement request and considered funds expended before approval. Any design completion will not be eligible for reimbursement until the final construction inspection is completed. Below are two examples regarding engineering and construction reimbursement:**
    - Example 1: If the applicant hires an engineer (not pre-approved, or not part of the application) and pays them before the City reviews and approves or sees the application, then those expenses will not be reimbursed, nor count towards the applicant's match.

- Example 2: if the applicant hires a contractor (pre-approved or not) and only has one bid, hires that company, and they start the work, before the application is submitted, the application will not be accepted and funds will not be reimbursed.

- If multiple owners adjacent to one another want to apply for the program at one time, each property owner must fill out a separate application in his/her name for reimbursement purposes. All contact information must be included in the application process. We recommend that property owners working together agree on one engineer/construction contractor to submit bids and perform the work. Bids will have to be submitted for each applicant once approved.
- Property owners/contractors have the ability to use recycled concrete at no cost from the City as part of the construction project. However, the City will not deliver this material. Arrangements must be made with the Street Department for the applicant's contractor pick up the recycled concrete material. This material will not count towards any reimbursable material. Recycled concrete is subject to availability.

- **<u>Bidding</u>**
  - The applicant must obtain three (3) bids minimum from engineering and/or construction companies for services that are anticipated.
    - Prevailing wage is required for all submitted bids and all work performed by the Contractor.
  - All engineering and construction companies must be pre-approved from the City's lists that are included in this policy and updated throughout the year. Failure to seek bids from the qualified list could void reimbursement.
  - In most cases, the City will only provide a maximum of 50% percent reimbursement on the lowest of the three bids, assuming each are pre-qualified. However the applicant may still elect to hire a company other than the low bidder.
    - For example: Contractor 1 bid is $5,000, and Contractor 2 bid is $8,000. Assuming the bids seemed legitimate and comparable regarding the scope of services offered, the City will only offer a maximum reimbursement (based on half of Contractor 1's bid) of $2,500. The resident could still hire Contractor 2 at the higher dollar amount, but only $2,500 would be reimbursed and not $4,000.
  - All Engineering/Construction bids must show a cost break down with line items showing material and quantity used. Labor and overhead can be listed separately or combined with the material price. No lump sum bids will be accepted.
  - Again, the applicant or applicant's contractor has the option to use recycled concrete from the City at no cost, but must pick up the material. The Contractor's bid should specify either purchased rock or picking up the City rock. Contractor costs for picking up the City's rock are eligible for reimbursement pending they are part of the bid.

- **<u>Reimbursement</u>**
  - The full cost of the project must be FULLY paid by the property owner/applicant to the contractor and/or engineer prior to any reimbursement from the City.
  - The City will not issue design and construction reimbursement separately. Only one payment for reimbursement will be issued after construction is inspected as complete.
  - Eligible engineering-only expenses will not be reimbursed by themselves. It is required to have the improvements built and a final inspection performed by the City before reimbursement is made. It is also required to have any improvements (as-designed) built in substantial conformity to the designed plans and specifications.
    - Failure to construct the designed components for which the 50/50 program is scheduled to reimburse could result in termination of this agreement and any reimbursement.
  - It is understood that occasionally site conditions require variation or deviation from the approved plans for the project and on-site modifications or a "change order" may be requested to modify the design/construction that may increase the cost of the project. If this occurs, the applicant should discuss this with the City prior to continuing with such modification. If the City is not notified and does not approve the modification request or "change order" that is requested, the modification/change order request will be denied and the property owner will be responsible to reimburse the contractor for the full amount of such request.
    - Any Change Orders submitted for the project **do not** qualify for reimbursement unless they are extreme in nature and not anticipated prior to project approval with construction under way.
    - All Change Orders must be submitted to the City in writing and include a price quote and explanation as to why they are needed. Approval from the City is required for Change Orders to be an allowable reimbursement item.
  - Any funds expended **before** an application is approved are not eligible expenses for reimbursement.
  - Prior to reimbursement the following must be done:
    - A final inspection with all deficiencies corrected for the project, must be completed. A copy of the inspection and a letter will be sent to the applicant stating that the project is inspected and approved as completed.
    - A final "Lien Waiver" must be submitted to the City prior to any reimbursement.
    - A receipt or other proof of payment must be submitted to the City prior to any reimbursement for project completion.
    - The Reimbursement Request Worksheet needs to be completed and submitted (appendix E)
    - The City will then provide reimbursement to the applicant in the form of a check.
  - The resident will <u>not</u> be reimbursed for more than 50% of the total cost of engineering, design and construction.

Eligible and Non-Eligible Activities/Projects for Cost Share Fund 50/50 Reimbursement

Eligible Activities/Projects:

1. Design/Engineering Services:
    a. Creek bank stabilization involving such methods as grade controls, bio-stabilization, gabion baskets, reno-mattresses, rip rap placement
    b. Projects within flood plains, in which any floodplain and/or no-rise certificate is required, are eligible for necessary engineering services for that evaluation
    c. Surveying services as needed for the design of the improvements
    d. Geotechnical services if needed/required by the engineer
2. Permit Fees and expenses:
    a. US Army Corps permits for work in a creek bank
    b. Missouri Department of Natural Resources permits for Land Disturbance (typically not required for less than one (1) acre)
3. Construction activities:
    a. Rock placement in creek or creek bank; grade controls
    b. Creek bank stabilization related items; placement or replacement of failed gabion baskets or similar wall structures
    c. Resetting or placing pipe flared end sections or repairs to public infrastructure
    d. Placement of new soil as may be necessary for slope stabilization
    e. Removal of debris in the project areas as may be necessary for completion for the project
    f. Private drains, currently in the project area, in which the work has to expose/remove them, can use the funds to restore that utility
    g. Site restoration (grass, sod, plants) resulting from the construction project
    h. Relocation and restoration of obstructions near the project limits (i.e. fencing, sheds, wood piles, swing sets, and other structures)
    i. Erosion and sediment control activities
    j. Soil stabilization methods where faulty soil is found

Non-Eligible Activities/Projects:

1. Private drain installation (burying downspouts, piping sump pump drains, adding random French or underground drains) where they are not currently found. Appeals will be considered on a case by case basis
2. Purchase/installation of rain barrels
3. Standalone re-grading of a yard and associated restoration
4. Purchasing new material to replace items that were removed and could have been salvaged
5. Removal of trees on a property not directly in the access areas or project areas
6. Watering expenses of new grass and trees
7. Private construction inspection services as hired by the applicant
8. Surveying of the yard above and beyond project staking
9. Any costs associated with having the utilities staked
10. New landscaping that doesn't match pre-construction conditions

Note: The City reserves the right to withhold payment for items that may be observed and/or aren't on this list and will have final determination as to what activities/projects are eligible and non-eligible.

Application Process

Preapproval of all potential projects must be completed with an evaluation by City staff prior to accepting an application for the program. All potential projects must be approved for the program utilizing parameters explained in the Stormwater Management Policy, which can be reviewed on the City's website at http://www.ofallon.mo.us/stormwater-funding.

Refer to the flow chart on the next page which provides a snapshot of the processes within this program.

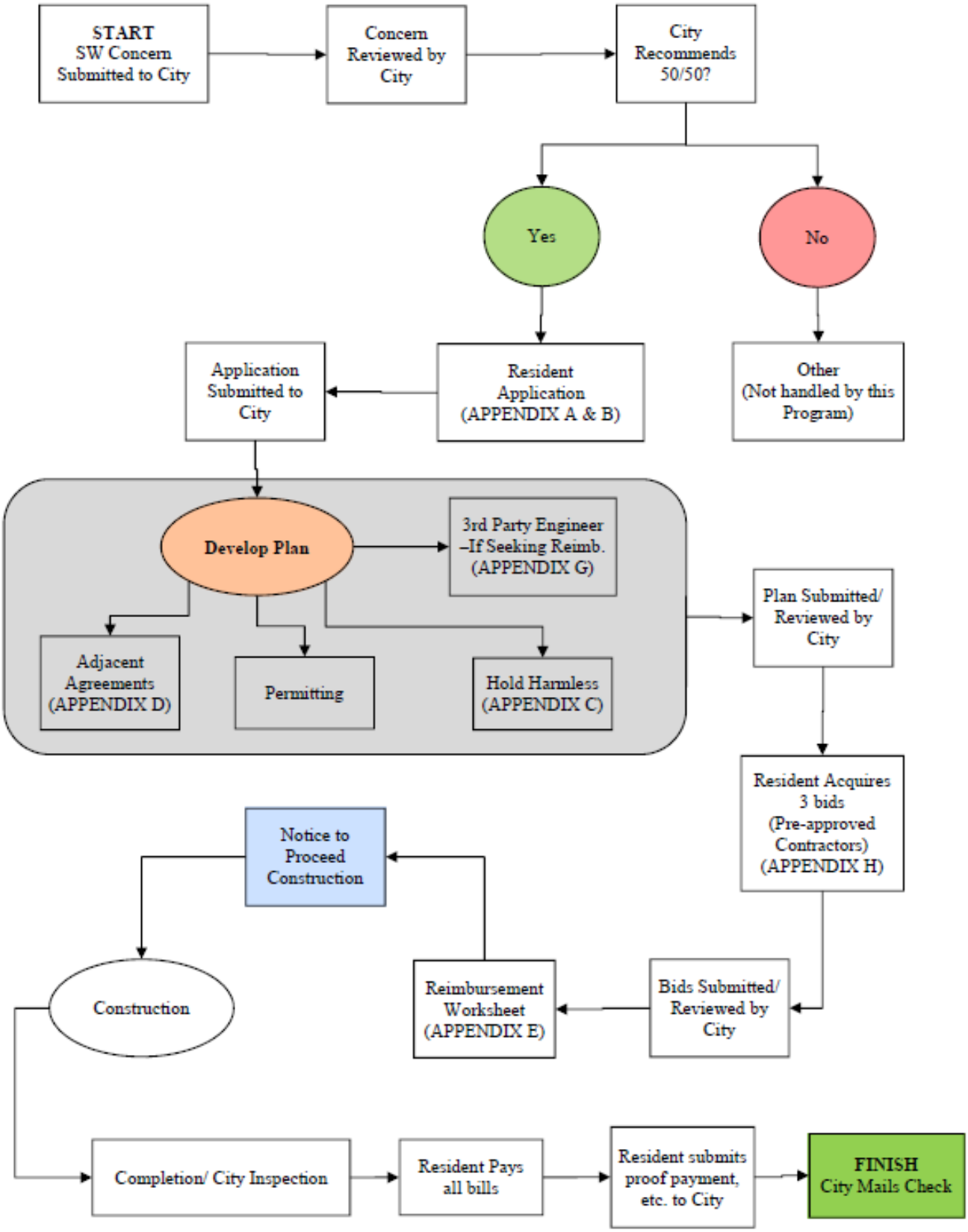
The City will review the application submitted and will use the information provided to establish the necessity for and priority of the request based on the availability of funds for the program. Once City staff has reviewed and approved the request for assistance, the applicant will be notified and the process of obtaining necessary US Army Corp of Engineers (USACE) and Missouri Department of Natural Resources (MNDR) permitting will commence. The City will provide assistance to property owners to obtain necessary permits, if required. Work in an area of less than one (1) acre will most likely not require a MDNR land disturbance permit (401/404). Should the project require a permit from either USACE or MDNR, the applicant should be aware that there is a 2-4 month processing period to get these approved and returned.

Upon completion of an application (see Appendix A, B), the applicant shall return the application to the City for review and consideration. The completed application will include the following:

- A sketch (and/or photographs) with information indicating the proposed project including materials to be used (Provide length and width measurements)
- Location of work
- Estimate of required quantities of material needed
- An estimated time frame for the work to be completed
- Completed and signed Hold Harmless Agreement (Appendix C)
- Completed Adjacent Property Agreement Form (Appendix D)
- Three (3) construction and/or engineering bids from the approved contractor/engineer list (Appendix G,H)
- Final Lien Waiver and Reimbursement Request Worksheet (Appendix E) once work is completed for reimbursement only. Conditional lien waivers will not be accepted
- Copy of invoice and proof of payment by applicant to contractor for reimbursement only
- Copy of USACE or MDNR permits, as well as any other certification or written permit required such as a no-rise or floodplain certification

If the applicant is not clear or confused about anything on the application, please call the City to discuss. Staff will be happy to work with property owners throughout the entire process from start to finish.

50/50 Program Flowchart



Rock Quantities

The recommended rip rap rock sizes for the stabilization project should be calculated per the MSD (Metropolitan Sewer District) Guideline as shown in the Appendix F.

US Army Corps of Engineers "Broken Concrete" Requirements

Per the US Army Corps of Engineers **(NWP 13 - Bank Stabilization, Permit Regulations)**:

Broken concrete used as bank stabilization must be reasonably well graded, consisting of pieces varying in size from 20 pounds up to and including at least 150 pound pieces. Gravel and dirt should not exceed 15% of the total fill volume. All protruding reinforcement rods, trash, asphalt, and other extraneous materials must be removed from the broken concrete prior to placement in waters of the United States.

Information regarding permit regulations may be viewed at:
http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/NationwidePermits.aspx

Links or Helpful Information

Government Links:

Missouri Department of Natural Resources and US Army Corps of Engineers:

401/404Permit Application Information:

http://www.dnr.mo.gov/env/wpp/401/

http://www.mvs.usace.army.mil/ConOps/permits/permits.html

Appendix A

APPLICATION CHECKLIST

Submit with application. Applicant must initial next to each item and sign the bottom of the page. Attach to the front of the application.

Pre-approval of a Community Cost Share Program project is required prior to application submittal.

Initials	Item
	One (1) paper copy of application delivered to City of O'Fallon.
	Three (3) engineering bids (if applicable). All engineering bids shall be from the approved Engineer's list
	Documentation of the need and cost of any permit necessary for this project.
	Three (3) construction bids. All construction bids shall be from the approved Contractor's list
	Sketches/photographs/plans of the proposed improvements
	Applicable permits
	General schedule for the total project
	Signed Hold Harmless Agreement
	Signed Adjacent Property Agreement Form

_____

Application Contact - Signature and Date

Appendix B

City of O'Fallon – Stormwater Management Department
Community Cost Share Program
100 North Main Street
O'Fallon, Missouri 63366
www.ofall
on.mo.us
636.240.2000

Application - 50/50 Reimbursement Program Option

Please Print Clearly

50/50 Reimbursement Request for:
Engineering and Construction: ☐ Engineering Only: ☐ Construction Only: ☐

Contact Information (Please Type or Print):

Applicant/Property Owner
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Subject Property Information:

Property Location:

Is project located entirely on your property?

If No, is it located on Common Ground or other private property?

Homeowners Association Contact Information:

Management Company (if applicable):_____

Trustee Name:

Address:

Telephone:

Estimated Grading Quantity:

☐ Does on-site erosion cause an immediate threat to any habitable structures? If yes, estimate distance
0-5 ft. 5-10 ft. 10-20 ft. +20 ft.

☐ Are there any utilities located within project boundaries?
If yes, please list them and their location:

☐ Description of work to be completed: (attach sketch/photographs)

☐ Estimated time of complete work, if approved:

☐ The Owner is willing to perform or contract work:

By signing this application, the applicant understands the following:

- Measures should be taken to protect driveway, sidewalk, curb or other City owned infrastructure or City Right-of-Way from damage by use of protective materials such as ¾" plywood or larger, protective mats, etc.
- Any leftover materials will be the responsibility of the property owner to dispose properly

I (We) the undersigned owner(s) of the property, have read, understand and agree to the terms and conditions of the Stream Bank Erosion Cost Share Program for the City of O'Fallon, Missouri.

_____
Applicant/Property Owner Signature

_____
Printed

_____
Applicant/Property Owner Signature

_____
Printed

Appendix C

Community Cost Share Program
Hold Harmless Agreement
(For 50/50 Reimbursement or RAP)
Please Read Before Signing

RELEASE
HOLD HARMLESS AGREEMENT

This release is made and entered into this _____ day of _____, 20____, by and

between _____(printed name of property owner),

hereinafter referred to as "Owner" of the property located

_____(physical address), and the City of O'Fallon

(hereinafter referred to as the "City").

In consideration of the Owner's voluntary participation in the City of O'Fallon Community Cost Share Program, the Owner hereby release, protect, indemnify, and hold harmless the City of O'Fallon, Missouri and employee's from any loss, damage, liability, and expense for all injuries, including death to persons or damage to property directly or indirectly arising or growing out of the performance of the and City of O'Fallon Missouri and employees and agrees to indemnify and hold harmless the City, its agents, employees, and officers from all claims, damages or causes of action (including reasonable attorney's fees) caused by or arising in any manner from the owners participation in the City of O'Fallon Community Cost Share Program and any agreements or contracts between the Owner and home improvement contractors. In consideration of the Owner's voluntary participation in the City of O'Fallon Community Cost Share Program, the Owner shall hold City of O'Fallon and employees harmless from and shall answer and defend any action instituted against the City of O'Fallon for any loss, damage, or injury sustained by any person resulting from the performance of the City of O'Fallon.

I, the Owner, have read this release and understand all its items. I execute it voluntarily and with full knowledge of its significance the day and year first written above.

_____ _____
SIGNATURE-OWNER DATE

_____ _____
SIGNATURE-CITY OF O'FALLON, MO WITNESS DATE

Appendix D

CITY OF O'FALLON
COMMUNITY COST SHARE PROGRAM
ADJACENT PROPERTY AGREEMENT

APPLICANT INFORMATION: (WHERE WORK IS BEING PERFORMED)
NAME:
_____
ADDRESS:
_____
PHONE: _____

ADJACENT PROPERTY OWNER(S) CONSENT:
THE INFORMATION AND SIGNATURE BELOW IS TO INFORM THE CITY OF O'FALLON THAT I AM AN ADJACENT PROPERTY OWNER, AWARE OF, REVIEWED AND HAVE NO OBJECTIONS TO THE STORMWATER PROJECT THAT WILL BE COMPLETED BY THE HOMEOWNER OR HOMEOWNER'S ASSOCIATION (HOA) LISTED AT THE ABOVE ADDRESS. ANY DISCREPENCIES OF THE FINAL PROJECT WILL BE RESOLVED BETWEEN MYSELF AND THE HOMEOWNER/HOA.

NAME (PRINTED): _____

SIGNATURE _____

ADDRESS:_____

PHONE: _____

NAME (PRINTED): _____

SIGNATURE _____

ADDRESS:_____

PHONE: _____

NAME (PRINTED): _____

SIGNATURE _____

ADDRESS:_____

PHONE: _____

NAME (PRINTED): _____

SIGNATURE _____

ADDRESS:_____

PHONE: _____

Appendix E

CITY OF O'FALLON
COMMUNITY COST SHARE 50/50 REIMBURSEMENT PROGRAM
Reimbursement Request Worksheet

Line Number	Category	Total Cost
A	Engineering (approved engineering service contract amount)	$
B	Construction (City approved bid total)	$
C	Permit Fee, etc.	$
D	Sub Totals-Engineering and Construction and Permit Fees (Lines A+B+C)	$
E	Approved Change Order total (if utilized)	$
F	Grand Total for Project (Lines D+E)	$
G	50% Grand total (0.5 x Line F)	$
H	Requested Reimbursement Amount to Applicant (Line G)	$

This form will be completed by City staff upon final receipt of all quotations.

Please clearly write below who the check should be made out to and an address for mailing:
NOTE: Checks will be mailed. Pickups are not allowed.

By signing this form, the applicant agrees to:

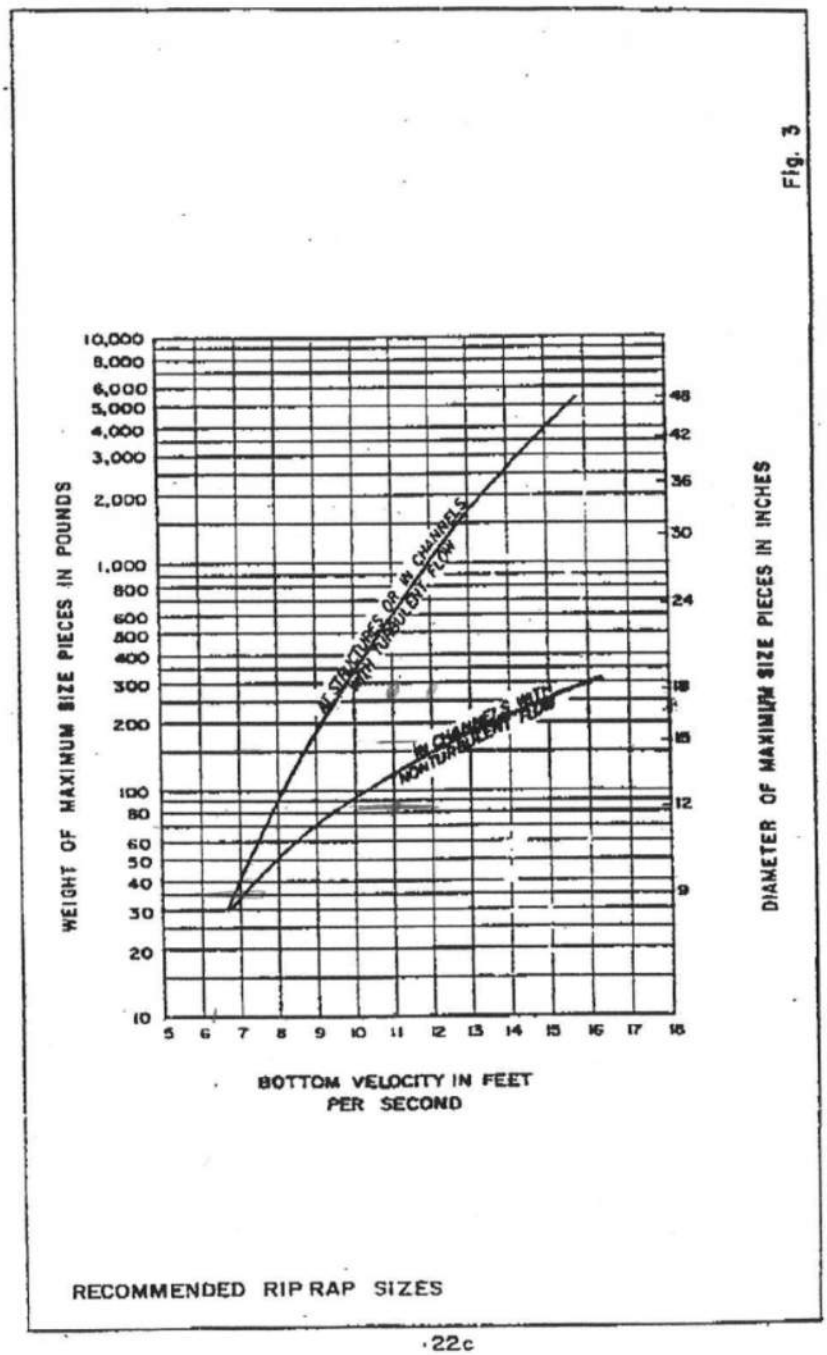
- Supply a final lien waiver/proof of payment
- Agrees final payment will not be made until final construction is complete and contractor is paid in full.

_____

Signature of Applicant/Property Owner (s) Date

Appendix F

CITY OF O'FALLON
COMMUNITY COST SHARE PROGRAM
Rock Chart



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Appendix G

CITY OF O'FALLON
COMMUNITY COST SHARE 50/50 PROGRAM
Pre-approved List of Engineers

(Refer to the attached list)

Appendix H

CITY OF O'FALLON
COMMUNITY COST SHARE 50/50 PROGRAM
Pre-approved List of Contractors

(Refer to the attached list)

100 N. Main St, O'Fallon MO 63366

City of O'Fallon, Missouri

Stormwater Management
Policy for the Community Cost Share
<u>Rock Assistance Program Option</u>

Approved for Use by City Council: January 28, 2016
City Resolution: 01-28-2016A

Revised: 1/19/2016

City of O'Fallon, Missouri
Community Cost Share (CCS)
Rock Assistance Program Option (RAP)

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ROCK QUANTITIES 8
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APPENDIX B 11
APPENDIX C 13
APPENDIX D ..... ERROR! BOOKMARK NOT DEFINED.
APPENDIX E 15

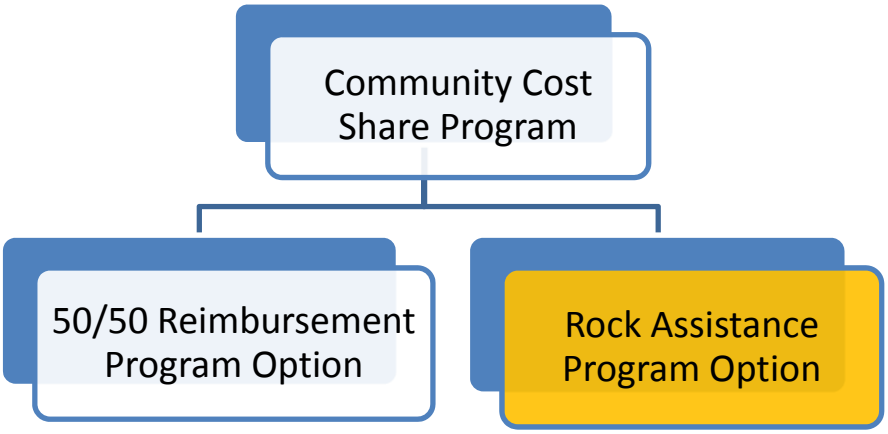
City of O'Fallon, Missouri
Community Cost Share (CCS)
Rock Assistance Program Option (RAP)

Purpose

With any residential storm water issue, the difference between the responsibility of a private land owner and a problem large enough for the City to become involved is not always clear. As such, the City's Storm Water Policy, which was adopted in June 2011, contains multiple priority levels.

- Priority Levels 1 and 2 include items that warrant full funding from the City. These two levels are designed and constructed by the City.
- Priority Level 3 items will still be considered for partial public funding from the City, but are typically storm water issues that are within the realm of the property owner's private maintenance responsibility.

As a result, this CCS program has been developed to provide assistance to residential property owners through two sub-programs: the 50/50 Reimbursement Program option (50/50) and the Rock Assistance Program option (RAP). CCS also benefits the public by improving water quality and by preventing smaller problems from growing into larger concerns, which could affect adjacent properties or others throughout the watershed. These projects are more private in nature, but still have a public benefit.



City staff will assist the property owner(s) through the entire process from initial application through construction and completion of the project upon acceptance into the program. If the applicant is not clear about anything on the application, please call staff to discuss. Applicants should not hesitate to contact City staff if they have inquiries during the application process. City staff will happily work with the residents throughout the process from start to finish.

Program Contacts

The individual named here should be considered the first point of contact for any application, or any general questions:

Michele Gremminger
Stormwater Management Coordinator
636-379-7632
micheleg@ofallon.mo.us

Program Criteria

This program is designed to provide assistance to property owners experiencing creek bank erosion or similar storm water related concerns as a means of reducing soil erosion and its effects on water quality and the storm system throughout the City. The following paragraphs will explain, in detail, the guidelines that will be applied to the Rock Assistance Program (RAP). The Community Cost Share 50/50 Reimbursement Program is explained in a separate document.

Property owners should **not** request consideration for matching funds as the RAP **is not** reimbursable. The services and materials provided by the City are considered a 50% reimbursement for staff time, materials, delivery, etc. and considered as a "soft-match". Once an application is received, a site visit will be performed in order to verify whether the potential project will qualify as a Priority Level 3 as per the Storm Water Management Policy. For full details on how drainage concerns are resolved and approved for funding, please see the Storm Water Management Policy. The Storm Water Policy is located on the City's website at http://www.ofallon.mo.us/stormwater-funding.

Once a project is approved, ranked and rated, it will be added to the Priority Level 3 Storm Water Priority List. The City will not provide reimbursement for such engineering/construction costs for this RAP option.

The RAP can be used for other projects, outside the realm of creek bank stabilization, free of charge to the residents. Should a resident have a private issue and wish to use the recycled concrete to line a swale or for other storm water drainage issues deemed private, the application process will still need to be followed, approved and the work will need to be inspected for completion.

The RAP program can be used for any zoned property within O'Fallon, however some restrictions apply. Refer to the guidelines below for details.

This program is operated on a first come, first served basis. When supplies are depleted no additional projects can be completed until enough material becomes available.

Rock Assistance Program (RAP) Information and Guidelines

The Rock Assistance Program (RAP) is designed to assist property owners by utilizing recycled concrete provided and delivered by the City. Should the owner's chosen contractor choose to pick up the materials rather than having them delivered, the contractor should contact the Street Department to make arrangements.

Other guidelines and requirements:

- Should staff determine in the design phase that the use of recycled concrete cannot be an option for construction of a project; the owner may be encouraged to apply for the 50/50 Reimbursement Program option with the Community Cost Share Program (CCS).
- The City does not guarantee the availability of recycled concrete. Therefore the applicant may not be able to utilize this service. If this is the case, the applicant may decide to purchase the appropriate rock or wait until ample material is available for the applicant's specific needs. If a decision is made to purchase rock due to lack of City supplied rock, the owner will not be eligible for reimbursement of the purchased rock.
- A limit of 10 loads per calendar year will be allowed to a property. A load is defined as 'one trip of rock', regardless of the truck size or its volume.
- If the applicant is a home owners association, and the repair is intended on different areas across common ground, then there will need to be a separate application for each area.
- If the property owner needs more than the 10 loads, then they can pick up more rock based on availability. The property owner shall reapply for the RAP program and state this specific request. The City reserves the right to further limit or deny additional requests.
- The material is to be placed only on a slope of 2:1 or flatter.
- Material will be delivered to the front curb or yard of the property. (The property owner will have the ability to pick up the recycled concrete from the City facility if so desired.)
- City staff will not haul, place, stack, etc. the rock once it has been delivered.
- The property owner must place all delivered material in the area of erosion within two (2) weeks of delivery unless prohibited by weather conditions and a time extension is approved by the City.
- The City must be notified once completed for final inspection.
- Material will be allocated only for work done on the applicant's property. If adjoining property owners are affected and want to be included, as part of the process, they must complete a separate application. It is recommended that the property owners work together to complete the project at one time to minimize disturbance.
- Material will not be provided for the repair of erosion, which results from storm water runoff from private property and can be addressed in another way as to prevent further stream bank erosion. For example, top bank erosion from down spouts or other private pipes diverted to the top of the bank may be corrected by altering placement of down spouts or other private pipes.
- The homeowner is responsible for obtaining and paying any and all fees associated with USACE or MDNR permitting should they be required for completion of project. The City will provide assistance with getting the necessary application information to the homeowner. Permits may take 2-4 months to get reviewed and approved by these agencies.

- It will be the applicant's responsibility to have the construction work completed independently, either by means of a hired contractor or themselves. The City will not be doing the construction (No bid review/approval is required.)
- Any surveying, no-rise certification, floodplain certification costs will not be reimbursed to the applicant for this option.
- There is no monetary reimbursement to the applicant for this option.

Application Process

Preapproval of all potential projects must be completed with an evaluation by City staff prior to accepting an application for the program. All potential projects must be approved for the program using parameters explained in the Storm Water Management Policy, which can be reviewed on the City website at http://www.ofallon.mo.us/stormwater-funding.

Refer to the flow chart on the next page which provides a snapshot of the processes within this program.

The City will review the application submitted and will use the information provided to establish the necessity for and priority of the request based on the availability of recycled concrete material for the program. Once City staff has reviewed and approved the request for assistance, the applicant will be notified of the process of obtaining necessary US Army Corp of Engineers (USACE) and Missouri Department of Natural Resources (MNDR) required permitting. The City will provide assistance to property owners with obtaining necessary permits, if they are required. Work in an area of less than one (1) acre will most likely not require a MDNR land disturbance permit (401/404). Should the project require a permit from either USACE or MDNR, the applicant should be aware that there is a 2-4 month processing period to get these approved and returned.

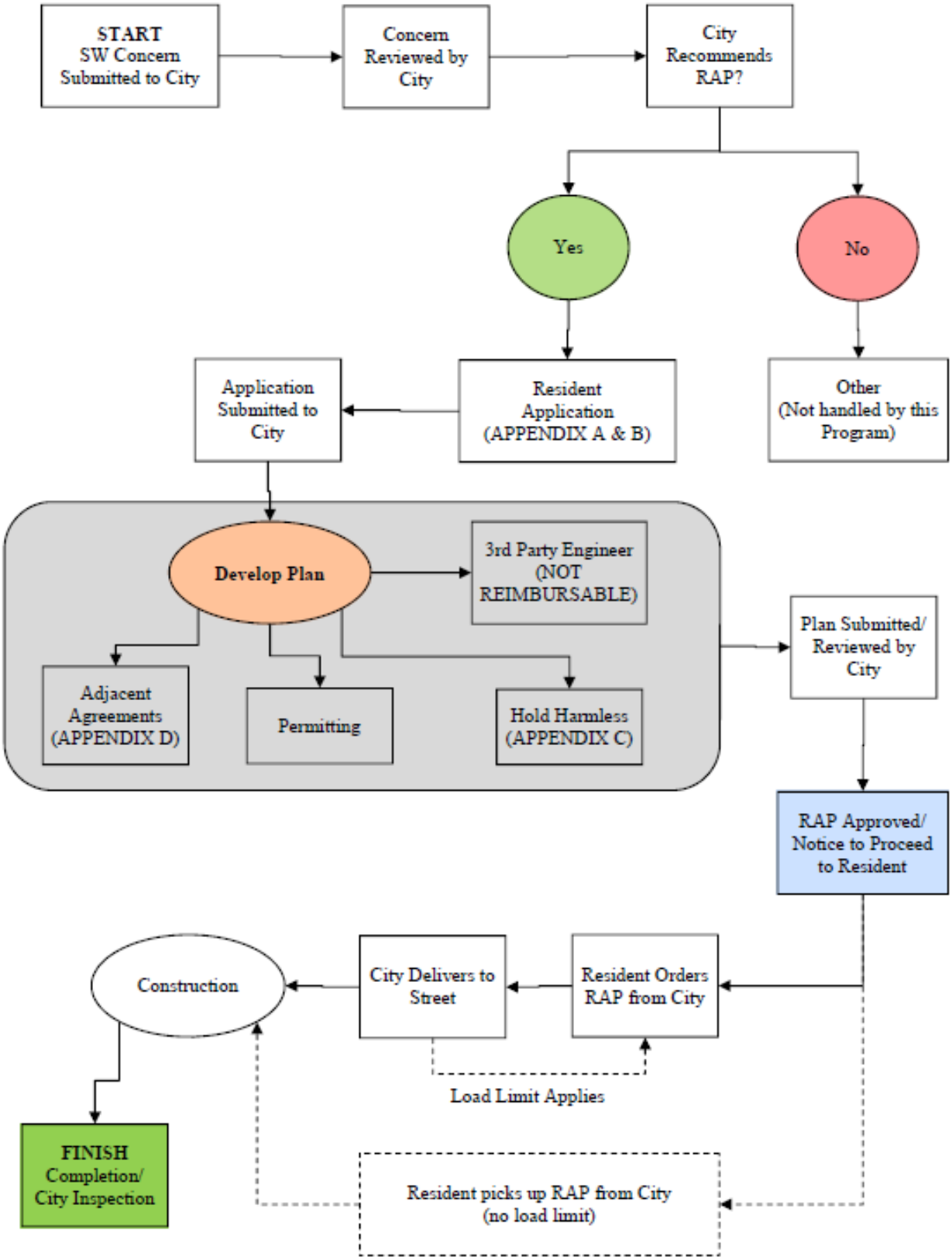
Upon completion of an application (see Appendix A, B), the applicant shall return the application to the City for review and consideration. The completed application shall include the following:

- A sketch (and/or photographs) with information indicating the proposed project including materials to be used (Provide length and width measurements)
- Location of work
- Estimate of required quantities of material needed
- Estimated time frame for the work to be completed
- Completed and signed Hold Harmless Agreement (Appendix C)
- Adjacent Property Agreement Form (Appendix D)
- Copy of USACE or MDNR permits, as well as any other certification or written permit required such as a no-rise or floodplain certification

If the applicant is not clear or confused about anything on the application, please call staff to discuss. City staff will be happy to work with property owners throughout the entire process from start to finish.

Within two (2) weeks after the work has been completed, the applicant shall notify the City for final inspection of installation. Applicants that intentionally misuse materials or fail to complete proposed work shall be responsible for repaying the City the cost of the material and delivery charge.

RAP Program Flowchart



Rock Quantities

The recommended rip rap rock sizes for the stabilization project should be calculated per the MSD (Metropolitan Sewer District) guideline as shown in Appendix E

US Army Corps of Engineers "Broken Concrete" Requirements

Per the US Army Corps of Engineers **(NWP 13 - Bank Stabilization, Permit Regulations)**:

Broken concrete used as bank stabilization must be reasonably well-graded, consisting of pieces varying in size from 20 pounds up to and including at least 150 pound pieces. Gravel and dirt should not exceed 15% of the total fill volume. All protruding reinforcement rods, trash, asphalt, and other extraneous materials must be removed from the broken concrete prior to placement in waters of the United States.

Information regarding permit regulations may be viewed at:
http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/NationwidePermits.aspx

Links or Helpful Information

Government Links:

Missouri Department of Natural Resources and US Army Corps of Engineers:

401/404Permit Application Information:

http://www.dnr.mo.gov/env/wpp/401/

http://www.mvs.usace.army.mil/ConOps/permits/permits.html

Appendix A

APPLICATION CHECKLIST

Submit with application. Applicant must initial next to each item and sign bottom of page. Attach to front of application.

Pre-approval of a Community Cost Share Program project is required prior to application submittal

Initials	Item
	One (1) paper copy of application delivered to City of O'Fallon.
	Sketch/photographs/plans of the proposed improvements
	Applicable permits
	General schedule for the total project.
	Signed Hold Harmless Agreement Form
	Signed Adjacent Property Agreement Form

_____

Application Contact - Signature and Date

Appendix B

City of O'Fallon – Stormwater Management Department
Community Cost Share Program
100 North Main Street
O'Fallon, Missouri 63366
www.ofall
on.mo.us
636.240.2000

Application - Rock Assistance (RAP) Option

Please Print Clearly

Contact Information (Please Type or Print):

Applicant/Property Owner
Company:
Contact Person:
Address:
City/State/Zip:
Phone:
Fax:
E-mail:

Subject Property Information:

Property Location:

Is project located entirely on your property?

If No, is it located on Common Ground or other private property?

Homeowners Association Contact Information:

Management Company (if applicable):_____

Trustee Name:

Address:

Telephone:

RAP Request for:
City Delivered RAP*: ☐ Applicant Pickup: ☐

Estimated Grading Quantity:

***Note: load limit applies for City deliveries.**

☐ Does on-site erosion cause an immediate threat to any habitable structures? If yes, estimate distance
0-5 ft. 5-10 ft. 10-20 ft. +20 ft.

☐ Are there any utilities located within project boundaries?
If Yes, please list them and their location:

☐ Description of work to be completed: (attach sketch/photographs)

☐ Estimated time of complete work, if approved:

☐ The Owner is willing to perform or contract work:

By signing this application, the applicant understands the following:

- Measures should be taken to protect driveway, sidewalk, curb or other City owned infrastructure or City Right-of-Way from damage by use of protective materials such as ¾" plywood or larger, protective mats, etc.
- Any leftover materials will be the responsibility of the property owner to dispose properly

I (We) the undersigned owners of the property, have read, understand and agree to the terms and conditions of the Stream Bank Erosion Cost Share Program for the City of O'Fallon, Missouri.

_____
Applicant/Property Owner Signature

_____
Printed

_____
Applicant/Property Owner Signature

_____
Printed

Appendix C

Community Cost Share Program
Hold Harmless Agreement
(For 50/50 Reimbursement or RAP)
Please Read Before Signing

RELEASE
HOLD HARMLESS AGREEMENT

This release is made and entered into this _____ day of _____, 20____, by and

between _____(printed name of property owner),

hereinafter referred to as "Owner" of the property located

_____(physical address), and the City of O'Fallon

(hereinafter referred to as the "City").

In consideration of the Owner's voluntary participation in the City of O'Fallon Community Cost Share Program, the Owner hereby releases, protects, indemnifies, and holds harmless the City of O'Fallon, Missouri and employees from any loss, damage, liability, and expense for all injuries, including death to persons or damage to property directly or indirectly arising or growing from the performance of the City of O'Fallon, Missouri and employees and agrees to indemnify and hold harmless the City, its agents, employees, and officers from all claims, damages or causes of action (including reasonable attorney's fees) caused by or arising in any manner from the Owner's participation in the City of O'Fallon Community Cost Share Program and any agreements or contracts between the Owner and home improvement contractors. In consideration of the Owner's voluntary participation in the City of O'Fallon Community Cost Share Program, the Owner shall hold City of O'Fallon and employees harmless from and shall answer and defend any action instituted against the City of O'Fallon for any loss, damage, or injury sustained by any person resulting from the performance of the City of O'Fallon.

I, the Owner, have read this release and understand all its items. I execute it voluntarily and with full knowledge of its significance on the day and year first written above.

_____ _____
SIGNATURE-OWNER DATE

_____ _____
SIGNATURE-CITY OF O'FALLON, MO WITNESS DATE

Appendix D

CITY OF O'FALLON
COMMUNITY COST SHARE PROGRAM
ADJACENT PROPERTY AGREEMENT

APPLICANT INFORMATION: (WHERE WORK IS BEING PERFORMED)
NAME:
_____
ADDRESS:
_____
PHONE: _____

ADJACENT PROPERTY OWNER(S) CONSENT:
THE INFORMATION AND SIGNATURE BELOW IS TO INFORM THE CITY OF O'FALLON THAT I AM AN ADJACENT PROPERTY OWNER, AWARE OF, REVIEWED AND HAVE NO OBJECTIONS TO THE STORMWATER PROJECT THAT WILL BE COMPLETED BY THE HOMEOWNER OR HOMEOWNER'S ASSOCIATION (HOA) LISTED AT THE ABOVE ADDRESS. ANY DISCREPENCIES OF THE FINAL PROJECT WILL BE RESOLVED BETWEEN MYSELF AND THE HOMEOWNER/HOA.

NAME (PRINTED): _____

SIGNATURE _____

ADDRESS:_____

PHONE: _____

NAME (PRINTED): _____

SIGNATURE _____

ADDRESS:_____

PHONE: _____

NAME (PRINTED): _____

SIGNATURE _____

ADDRESS:_____

PHONE: _____

NAME (PRINTED): _____

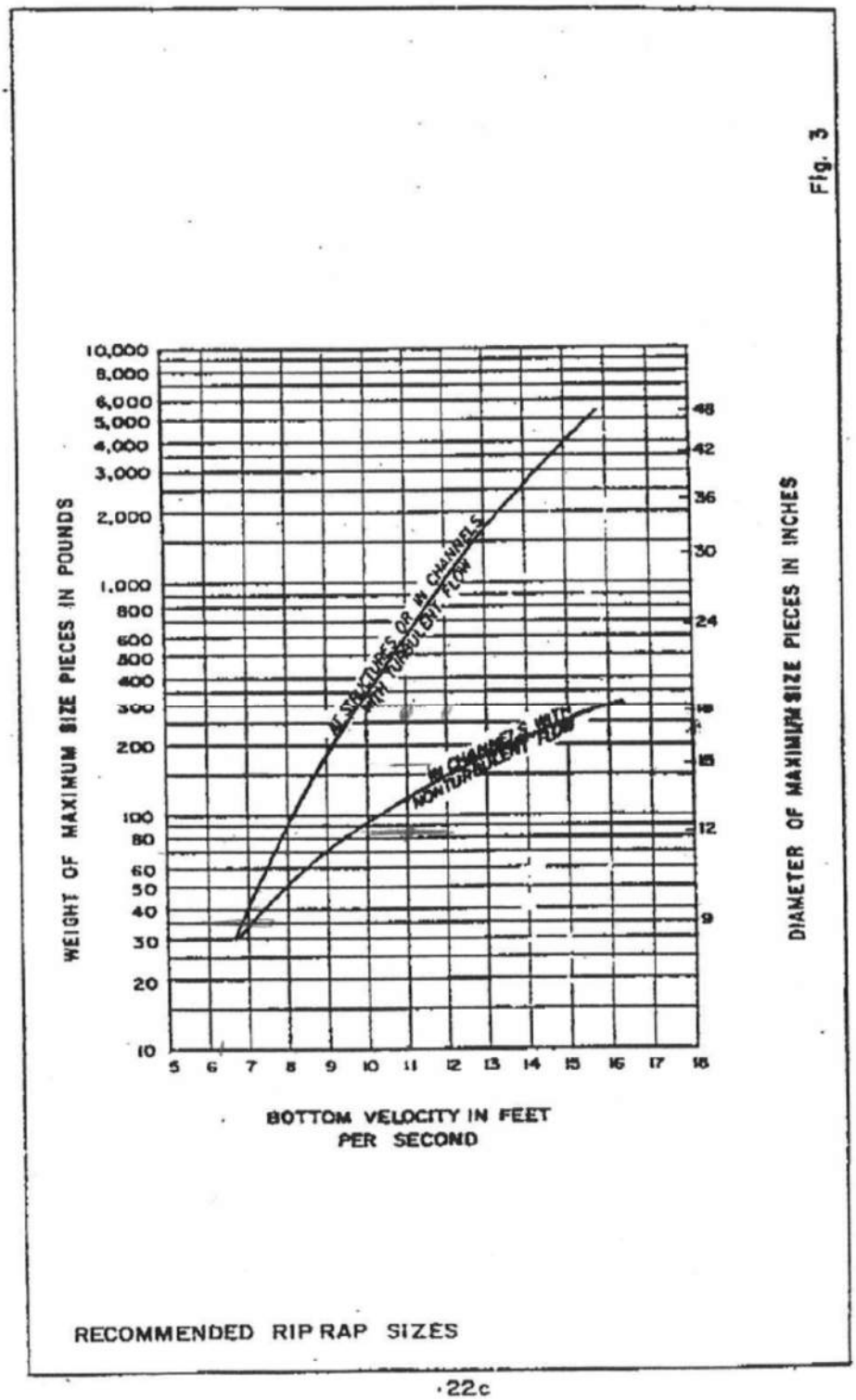
SIGNATURE _____

ADDRESS:_____

PHONE: _____

Appendix E

CITY OF O'FALLON
COMMUNITY COST SHARE PROGRAM
Rock Chart



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