

STORMWATER DETENTION

This document provides details for the Final Stormwater Site Plan and inspections for projects requiring the installation of Stormwater detention areas. Detention areas are required for certain improvements as stated under Chapter 422 Stormwater Management of the Olivette Municipal Code and as reviewed with the guiding Stormwater Management principles outlined within the Olivette Residential Redevelopment and Design Guidelines.

- Two copies of the Final Stormwater Site Plan shall be provided when applying for the building permit.
- All work is to conform to the approved construction documents for which the permit has been issued.
- Any modifications or amendments to the approved set of plans are to be properly addressed.
- Contact staff two-weeks in advanced about scheduling inspections.
- Inspections for Stormwater excavation and Stormwater facility should occur within 48 hours of one another.
- Remember, installation of irrigation system may affect top soil, grading, or placement.
- Avoid heavy machinery above installed pipes and detention areas.
- Fees are to be paid prior to the issuance of the building permit.

Final Stormwater Site Plan

In addition to the proposed improvements, the final Stormwater site plan should provide the following:

Site Plan Improvements

- Dimensions of detention area. Length, height, width of detention.
- Detention distance from home foundation and flatwork improvements.
- Distance from the two nearest property lines (Must remain minimum 5-ft from property lines).
- Finish spot elevations on all four corners of the stormwater storage bed.
- Distance from street curb.
- Grate, cleanout, and overflow on or nearby each downspout entering the detention.
- Pipes connecting to detention (Cleanout should be provided on every turn or connection).
- Pipe locations within the detention (Two pipes should feed detention).
- First 5-ft of pipe connection to downspout should have dirt and no gravel base.
- Pipe overflow or pop-up discharge from detention.
- Locations and type of catch basin, filter, or sediment trap.



Section Detail View

- Depth of soil above backfill taken from two opposite corners (12-inch minimum).
- Finish grade spot elevation on all four corners of the stormwater storage bed.
- Diameter and placement of pipes leading into, inside, and exiting the detention area.
- Indicate which pipes are to be perforated. Perforated pipes must be wrapped with porous fabric.
- Dimensions of backfill.
- Bottom elevation height (bottom should be level).
- Distance from bottom to ground surface.
- Materials of backfill (all rock should be clean).
- Pop-up discharge location (10-ft minimum from property lines).
- Location of catch basin, filter, or sediment trap.
- When using a flo-well, the 1st flo-well directly connecting to a downspout should have a bottom panel and top cleanout for sedimentation removal.



*Downspout grate over a catch basin.
 Reduces large item from clogging detention,
 provides an overflow and cleanout*

Stormwater Management Ordinance

Section 422.080. Single Family Residential Development.

- Applications for Community Design Review for detached Single Family residential shall provide for the following onsite detention.
 - Construction of new detached single family home. Volume designed to accommodate the entire roof area based on a 15-year, 20-minute rain event.
 - Lot Coverage. Residential addition, reconstruction, or improvement in which the combined lot coverage is increased as follows:
 - 1,200 square feet or more. Volume designed to accommodate the proposed impervious area based on a 15-year, 20-minute storm.
 - 400 square feet or more, but less than 1,200 square feet. Incorporate BMPs as noted under Section 422.060 to minimize the stormwater impact generated by the proposed improvement.
 - Residential addition, reconstruction, or improvement in which the residential combined floor area is increased as follows:
 - 400 square feet or more. Incorporate BMPs as noted under Section 422.060 to minimize the stormwater impact generated by the proposed improvement.

INSPECTIONS

Stormwater Preliminary Meeting

Meet with staff prior to any work being conducted to verify the location of the pop-up, detention areas, downspouts, sump pumps and discharge points.

- A. Mark the locations of the detention area (spray or markers).
- B. Stake corners of detention and provide cuts to bottom.
- C. Mark the location of any cleanouts and pop-ups. Any turn in the pipe should have a cleanout.
- D. Mark areas that will contain underground pipe connections including if the sump pump will be connected.
- E. Type of downspout filter, cleanout, and overflow mechanism.
- F. Any deviations must be noted on the plans in conformance with the final site plan.



Stormwater Excavation Inspection

The following items shall be verified during the Stormwater excavation inspection:

- A. Verify to inspector detention bottom elevation with construction level. Benchmark from porch or finished floor elevation.
- B. Ensure facility is clean and free of litter, roots, leaves and debris.
- C. Bottoms for underground detention must be level.
- D. Scarify sides and bottom of existing soil.
- E. Verify soil conditions can allow infiltration of Stormwater.
- F. Verify dimensions of detention depth.
- G. Verify placement of detention areas from property line and house.
- H. Verify location of discharge pipes leading into detention.
- I. Verify location of pop-up discharge from property line.
- J. Siltation control measures must be in place to prevent sediment from entering uncovered facilities.
- K. Any variations should be noted on the site plan.

Stormwater Facility Inspection

The inspection for the facility should take place within 48-hours of the excavation inspection.

- A. Siltation control measures in place to prevent sediment from entering uncovered/unfinished facilities.
- B. Verify pop-up installed to allow water to overflow from detention area at the lowest point.
- C. Verify pop-up is located 10-feet from property lines.
- D. Verify connections and cleanouts from pipe connections. This includes downspouts, trench drains, etc.
- E. Verify of materials, backfills, and filter fabric.
- F. Verify permanent maintenance tools (gutter guards, sediment trap, catch basin, filter screens).
- G. Cover openings into detention area until ground cover is established.



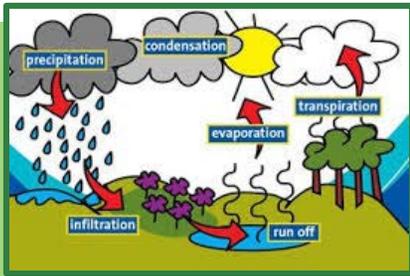
Maintenance For New Owners

Maintenance is vital to the proper and prolonged performance of Stormwater detention systems.

- A. Provide the home's new owner with details for the system.
- B. Description of typical maintenance tasks and basic information intended to improve the understanding and limitations.
- C. Please consider the placement and location of Stormwater detention units for future site improvements.

DESIGN PRINCIPLES

STORMWATER MANAGEMENT



Consider the following features in addressing stormwater management:

Minimize the amount of runoff leaving the site

Reduce runoff velocity

Avoid direct flow to storm sewer. Grounds should filter, disperse, permeate on site

Pervious materials

Trees and shrubs

Soil conditions

Avoid flow to adjacent structures

Setbacks from foundations and significant features

Minimize erosion

Sized to accommodate drainage area

Maintenance of system

Lessen downstream flooding

Downspouts & sump pump

CITY OF OLIVETTE

While the contribution from an individual lot may seem minor, the cumulative effects of Stormwater runoff from hundreds of lots a drainage area are significant. Reducing the amount of Stormwater runoff that exits your lot assists with water quality and the capacity of sewer infrastructure.

Principles to Design By... Concept Stormwater Management Plan should address runoff flowing onto the lot, generated on the lot, and leaving the site. Drainage patterns should flow away from structures and be redirected to disperse in pervious areas that allow for absorption and infiltration. Downspouts and pop-up emitters must disperse 10-feet away from property lines.

New single family homes are required to detain a volume of runoff equivalent to a 15-year, 20-minute rain event. Residential additions or accessory structures 1,200 square feet or greater, should accommodate run-off detention for the increase in lot coverage. Smaller projects should not concentrate runoff flow and should alleviate problematic areas. Sediment and debris may enter and clog the systems overtime. Design your system with maintenance for the homeowner in mind.

