

Erosion Control Basics & Stormwater BMP 101



City of Bloomington Utilities

Goals

- Introduce the BMP's that are often used on construction sites
- Provide examples of the good, the bad and the ugly
- Share our experiences with different erosion controls
- Provide time for your questions and an opportunity to clarify our expectations

Stormwater Pollution Prevention Plan (SWPPP)

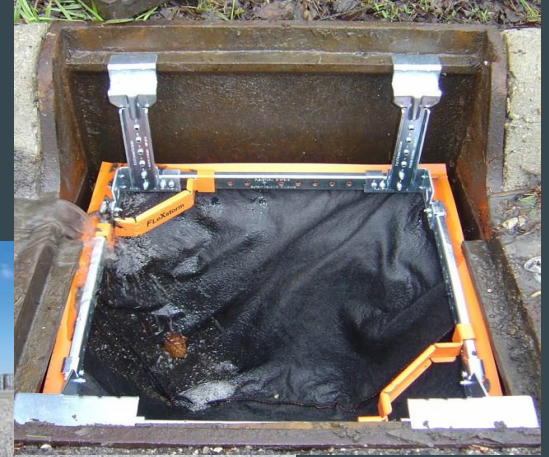
- Site-specific
- Identifies all of the activities and conditions at their site that could cause water pollution.
- Details the steps the facility will take to prevent the discharge of any unpermitted pollution.

SWPPP Goals

- Stabilize the site as soon as possible
- Protect slopes and channels
- Reduce impervious surfaces and promote infiltration
- Control the perimeter of the site
- Protect receiving waters adjacent to the site
- Follow pollution prevention measures
- Minimize the area and duration of exposed soils
- Post-construction BMPs must manage pollutants caused by finished structure

Best Management Practices (BMPs)

BMPs are structural, vegetative or managerial practices used to treat, prevent or reduce water pollution.



Erosion Control Sequence

- Found in the SWPPP portion of most plans
- This section, can keep you in compliance
- Lines out what needs done, and when

EROSION CONTROL SEQUENCE

1. THE CONTRACTOR SHALL ENSURE ALL PERSONNEL ON THE PROJECT ARE FAMILIAR WITH THE APPROPRIATE EROSION CONTROL MEASURES. THIS SHALL INCLUDE A VISUAL PRESENTATION OF SATISFACTORY AND UN-SATISFACTORY EXAMPLES OF EROSION CONTROL FEATURES AND METHODS.

2. CONTACT THE CITY OF BLOOMINGTON UTILITIES STORMWATER MS4 STAFF PRIOR TO COMMENCING CONSTRUCTION. AT THIS MEETING A QUALIFIED INDIVIDUAL SHALL BE IDENTIFIED THAT WILL BE RESPONSIBLE FOR INSTALLATION, MONITORING AND MAINTENANCE OF ALL EROSION CONTROL FEATURES.

3. POST PERMITS ON PERMIT BOARD IN PUBLIC ACCESSIBLE LOCATION. PERMIT BOARD SHALL INCLUDE: CONTACT PHONE NUMBERS OF CONTRACTOR AND PROPERTY OWNER, APPROVED PERMITS, IDEM SPILL LINE EMERGENCY NUMBERS, PRINTED PLAN SET LOCATION, SELF MONITORING LOG BOOK LOCATION AND CONTRACTOR TRAINING INFORMATION.

NOTE: EROSION CONTROL MEASURES ARE TO BE INSTALLED WELL IN ADVANCE OF ANY GRADING ACTIVITY.

4. INSTALL SILT FENCE WHERE SHOWN ON SHEET C501 & C502 PER THE DETAIL ON SHEET C802.

5. INSTALL SEDIMENT BASKETS IN THE EXISTING INLETS ALONG CLARIZZ BLVD. AND KINGSTON DR. WHERE INDICATED ON SHEETS C501 AND C502 AND PER THE DETAIL ON SHEET C803.

6. INSTALL CONSTRUCTION ENTRANCE WHERE SHOWN ON C502. CONSTRUCTION ENTRANCES SHALL BE GRAVEL AS DETAILED ON C802. BARRICADE THE OTHER 3 PROPOSED ENTRANCES AROUND THE SITE.

7. CONSTRUCT THE TEMPORARY "DURING CONSTRUCTION" COMPONENTS OF BIORETENTION POND NUMBERS 1-9 WHERE SHOWN ON C501/C502 AND AS DETAILED ON SHEET C804.

8. PERFORM CONSTRUCTION ACTIVITIES AS SHOWN ON THE PLANS. STRIP TOPSOIL LAYER WHERE REQUIRED FOR BUILDING CONSTRUCTION AND STOCKPILE ABOVE SILT FENCE AND SEED PER THE DETAILS ON C902. DO NOT DISTURB TURF AREAS OUTSIDE OF CONSTRUCTION LIMITS. DISTURBED AREAS ANTICIPATED TO BE IDLE FOR MORE THAN 14 DAYS SHALL BE SEEDED PER THE SEEDING DETAILS ON SHEET C803.

9. ALL EROSION CONTROL STRUCTURES SHALL BE KEPT IN WORKING ORDER AND INSPECTIONS CONDUCTED AS DESCRIBED IN THE MAINTENANCE NOTES FOR EACH DETAIL ON THIS SHEET AND C902.

10. UPON COMPLETION OF CONSTRUCTION OF ALL IMPROVEMENTS REDISTRIBUTE TOP SOIL TO ALL PROPOSED GRASSED AREAS. MULCH SEED ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF ALL EARTHMOVING AND UNDERGROUND UTILITY WORK IN ACCORDANCE WITH THE MULCH SEEDING SPECIFICATIONS ON SHEET C803. WATER SEEDED AREAS UNTIL MATURE TURF IS ESTABLISHED.

11. SEE SECTION C2 FOR SEQUENCE DESCRIBING STORM WATER QUALITY MEASURE IMPLEMENTATION.

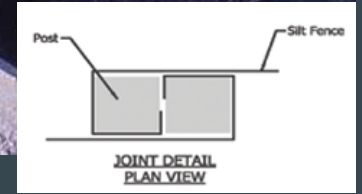
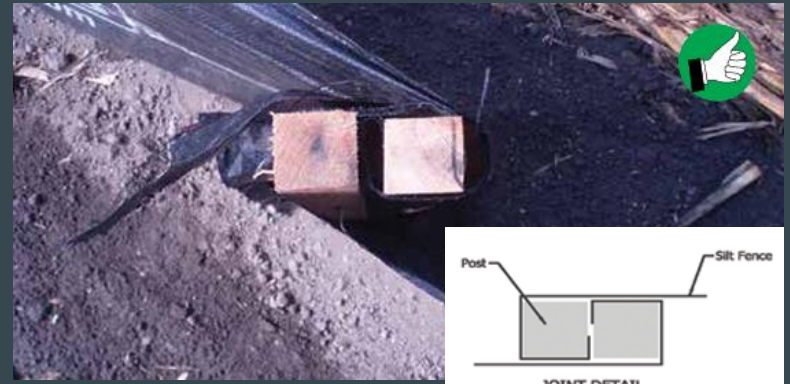
Silt Fencing



Silt fence is not an appropriate BMP for concentrated flows, nor can it be used across jurisdictional waterways.



Silt fence is overwhelmed with sediment and requires maintenance.



Joint between two segments of silt fence properly installed.



“J” hook the end of the silt fence uphill to prevent water from bypassing fence.

Inlet Protections

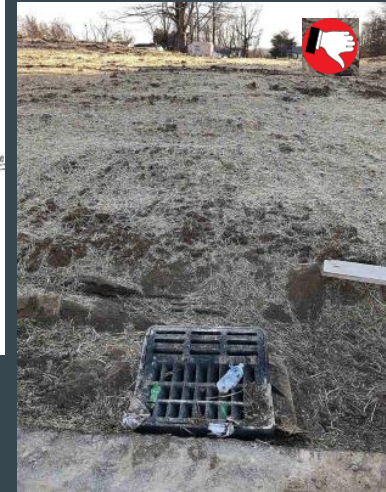
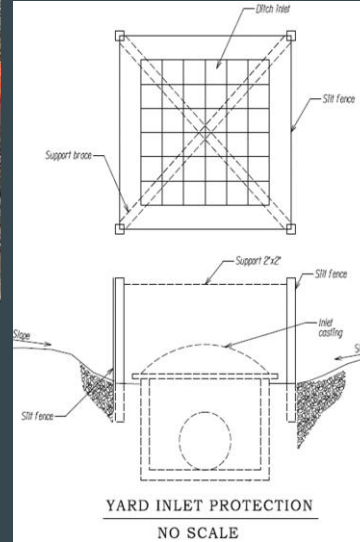


Filter sock inlet protection staked correctly.



Inlet bag protection can be used on curb inlets with active traffic. Maintain bags after each storm event. Bags can get heavy and hard to maintain when very full.

Inlet basket has accumulated sediment and material that must be removed.



All stormwater inlets must have inlet protections in place.

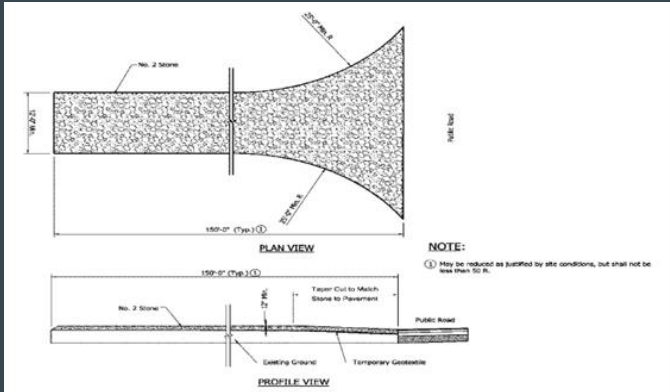
Ingress/Egress



Construction entrance installed correctly, steep slope could not be avoided.



Construction entrance not the minimum 50' long. Tracking onto the roadway will become a safety hazard.

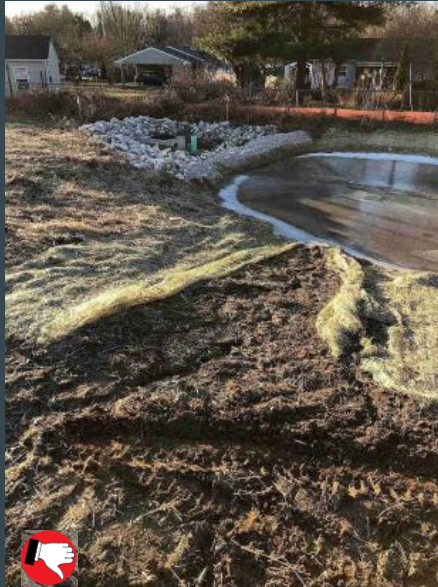


Standard drawing, Construction Entrance.

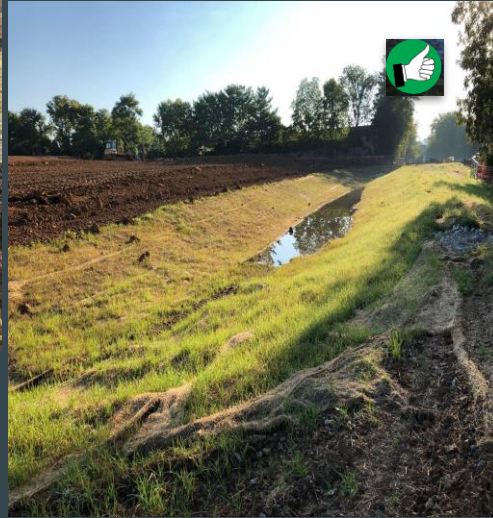


Insufficient #2 stone on construction entrance. Tracking onto public roadway. Mud tracked onto paved roads becomes a safety issue.

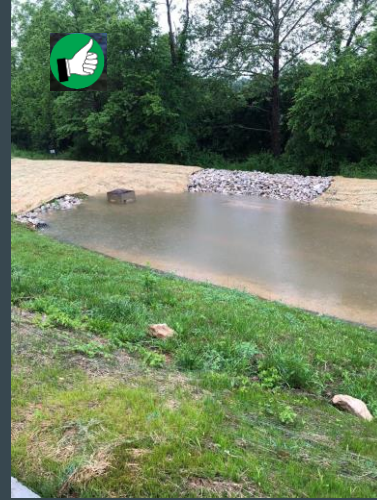
Sediment Basin



Once sediment basin banks have been stabilized they must be maintained



Sediment basin with stabilized sides and perforated riser and pyramid filter stone for the outlet



A large sediment basin with stabilized side slopes & emergency overflow that is armored



A poorly constructed sediment basin

Rock Check Dams



Check dam shaped correctly with low weir in the middle and tied into the slopes.



Rock check dam not built to specification. Not shaped correctly, no filter stone, no geotextile. The check dam should be rebuilt.



Check dam is much bigger than necessary. Wasted material, wasted money, can cause flooding, and will be much more difficult to remove.



Check dam not shaped correctly causing water to bypass dam and erode slopes.

Disturbed Areas

Storm water flowing through disturbed areas causes erosion. Minimizing the amount of water flowing through the disturbed areas will decrease erosion.

- Divert Off-Site Water
- Keep Water Off Slopes
- BMPs in a Series
- Identify the Hot Spots
- Temporary seeding



Materials Management



Fueling operations are located in a secondary containment to contain any spills or leaks.



Prevent fuel or other toxic spills. Locate spill cleanup kits in accessible areas and clean up immediately.



Locate fueling operations, temporary toilets and staging away from waterways and other hot spots.



Good housekeeping includes trash collection.



Keep construction debris contained in designated areas, away from hot spots and BMPs.

Concrete Washout



Good Example of an effective plastic lined dumpster washout. However, this washout has reached its capacity.



- Not meant for solids which can rip the liner
- Clearly labeled and easily accessible
- Strapped down so liner doesn't blow into container



Concrete washout water held within an impermeable container with signage.



Plastic liner is too thin or punctured. Dumpster leaking while driver was washing out. Soil around dumpster contaminated, must be excavated and disposed of as per Standard Specifications 203.

Alterations that we have approved and seen work, case by case basis



Steep slopes to the basin

Little access without degradation
to the site

Fencing installed to help protect
and preserve the basin

