

LINCOLN

Transportation and Utilities

Best Management Practices

Trevor Hansen

Construction Phase BMPs – Overview & Alternative Solutions



Construction Entrances - Alternative methods to rock

Can be more effective, reusable, smaller footprint onsite

Mats/Rumble Plates

FODS mat



Wheel Wash Stations



Storm Sewer Inlet Protection

City of Lincoln standard for curb inlets



Utilize low profile options that do not protrude into traffic



Other effective options



Inlet protection needed during all phases of construction
During construction....



Bag damaged. Not best BMP. Upstream areas need to be stabilized.



What we don't want



Sending sediment runoff downstream is a violation



Street flooding example. near block entire inlet opening

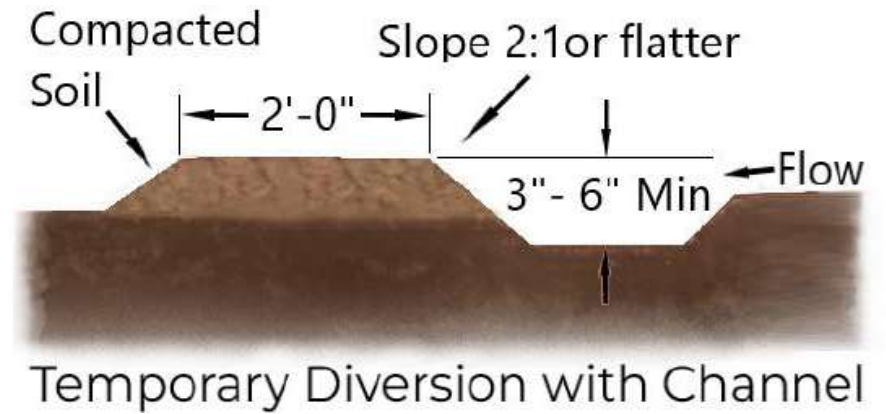


Back of Curb BMPs



Reinstall BMPs after paving is completed. vegetation is critical

Alternative measure – Instruct paving crews to install berm near back of curb before leaving.



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Temporary soil stockpiles in R.O.W need to be protected from runoff if not removed by end of day



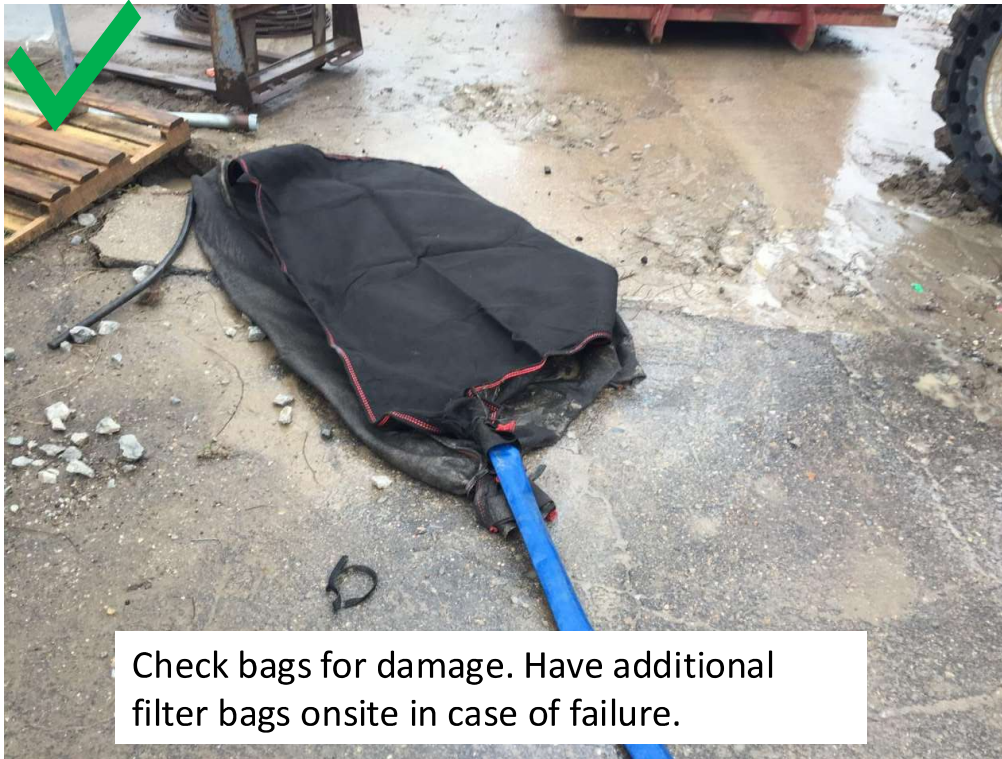
Plastic coverings an easy and effective measure



Mobile type wattle barriers good option that can be reinstalled easily



Dewatering



Utilize additional measures downstream of bag



Sediment Basins

Reinforced outlet protection – can withstand heavy velocity



Temp “baffle” barrier great option to improve effectiveness



Permanent Outlet Structures

Must incorporate safety mechanism (grate, railings, fencing, etc.) if structure poses a safety hazard.



Permanent outlet structures need protection during construction phase

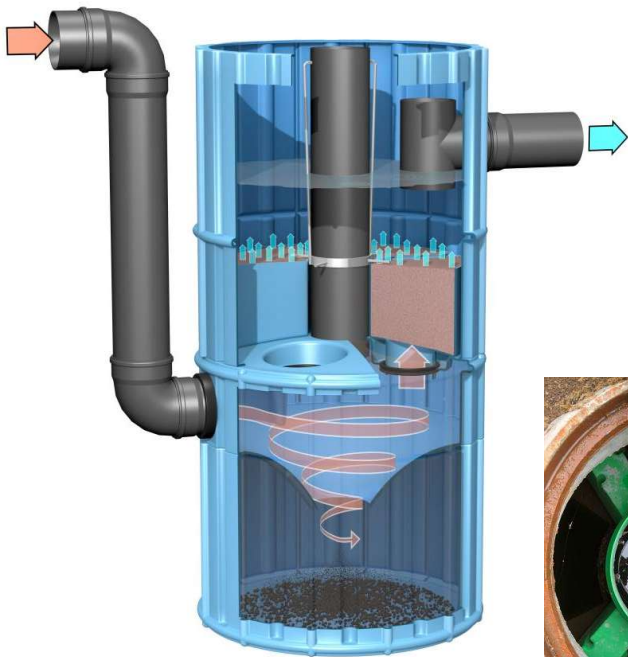


Post Construction BMPs



Hydrodynamic Separators

How they work...



Need to inspect.....



Maintenance requires vac truck....



critical to pass info on to future owners on how to maintain



Extended Detention Basins

Outlet structure is critical. Must have ability to dewatering 24-72 hours after rain event.

Most Common Issue we see is basin holding water for too long.



1 week after rain event

Alternative options with positive results



Horizontal Underdrain with rock filter



Utilizing skimmer devices in design

Dewatering options that reduce clogging



Straw like device with multiple vertical openings.

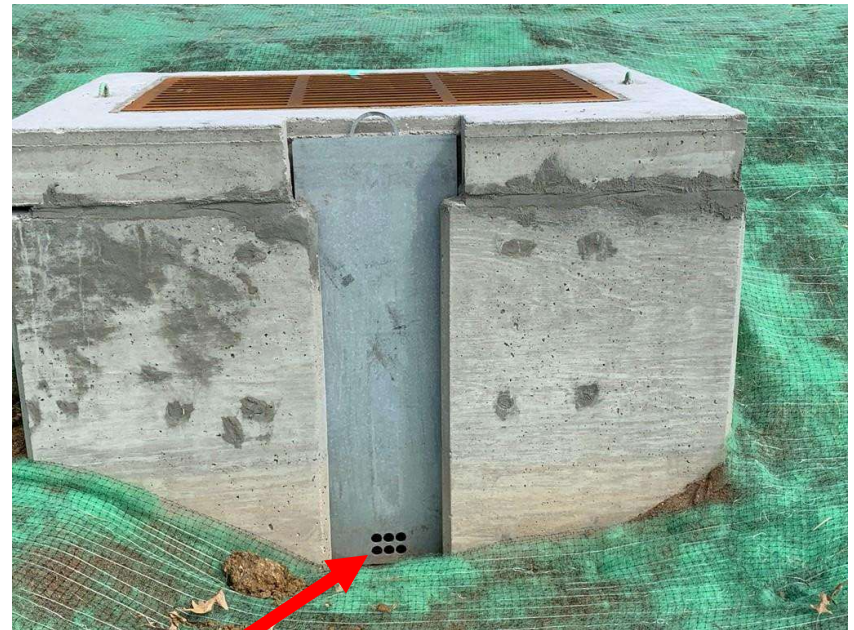
Agri Drain Water Quality Inlets



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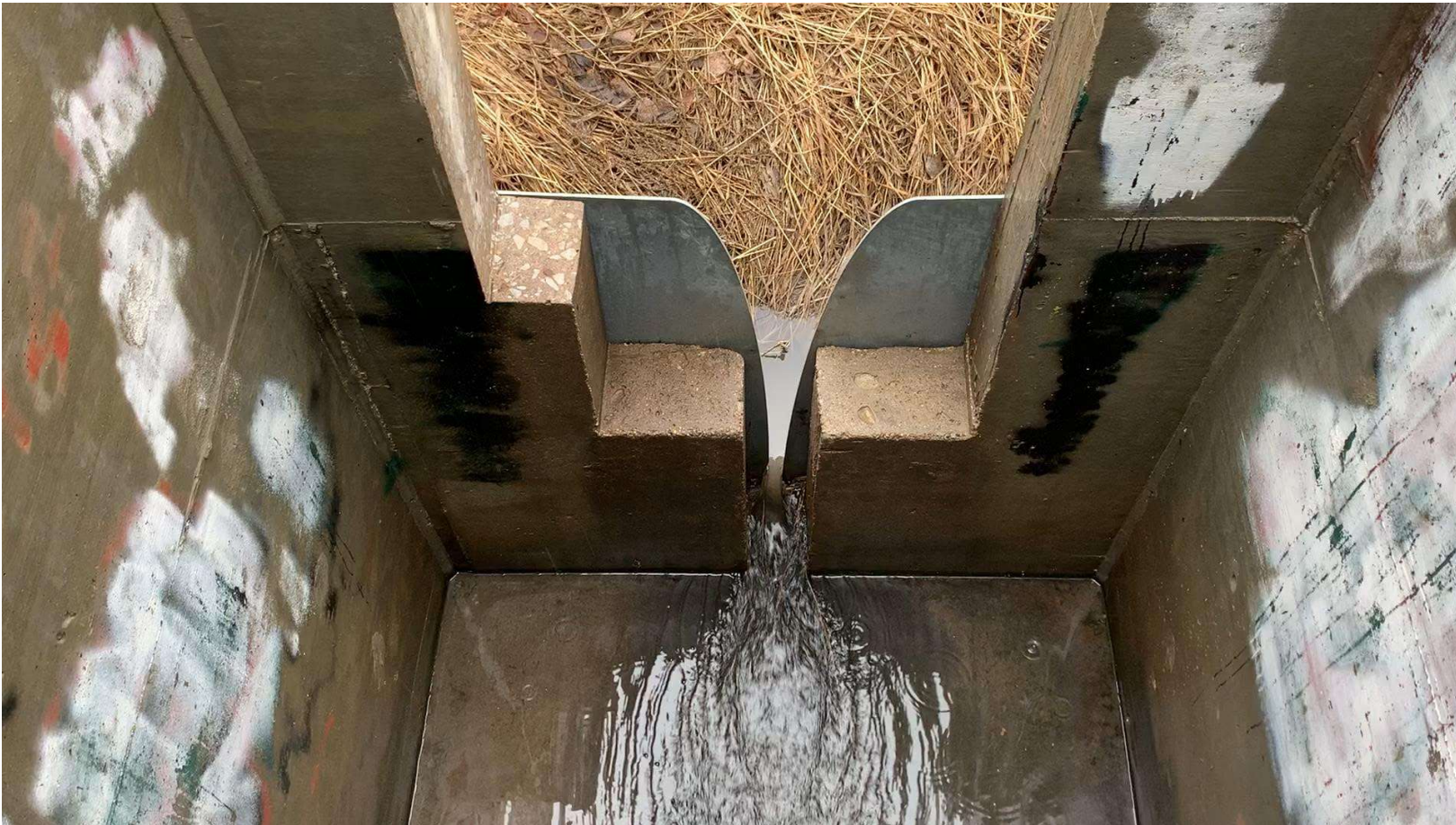
Orifice Plates

Oriface holes too small. Clogging issues....



Alternative (improved) Option – Elliptical Design

reduces clogging potential



Concrete forebays – great option and easy to maintain and cleanout



Rain Guardian “turret” structure



Outfall Installation issues



Missing rock rip rap....



Pipe FES separating



Buried rock rip rap is useless



Ensuring correct grading is critical for positive drainage



Basin must be able to dewatering within 24-72 hours after rain event



Landscaping

Keep it simple for future crews to maintain



Is mulch always the best option for ground cover?



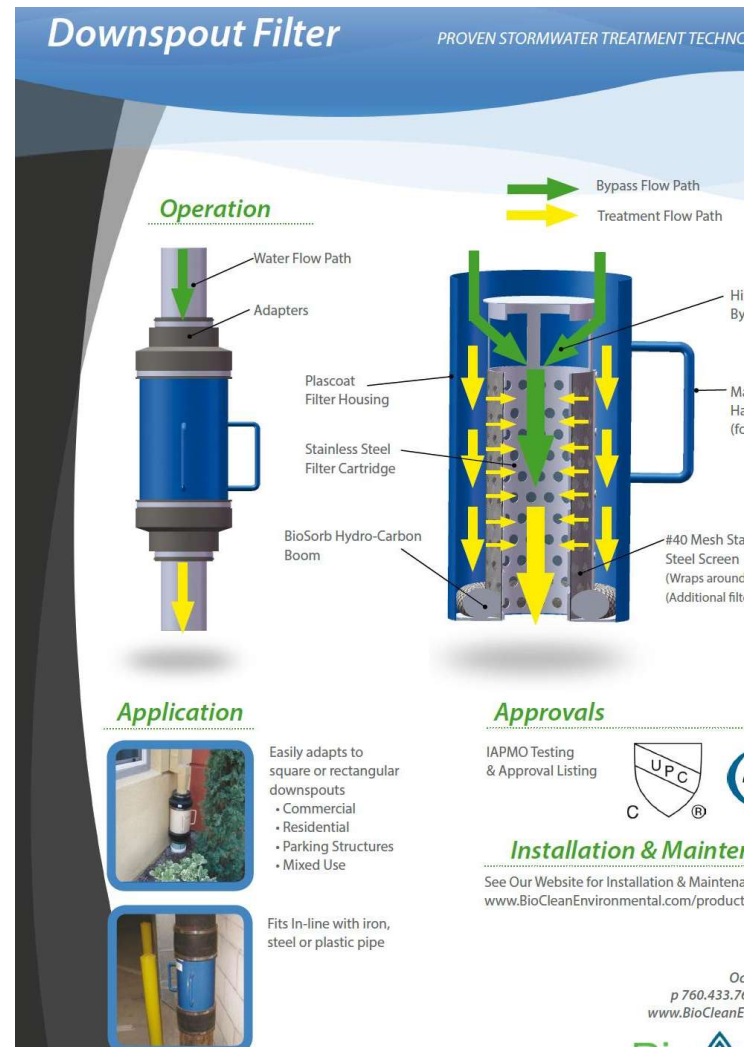
example of mulch floating away leaving bare soil



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Downspout Filters

More widely used. Great option to collect debris before water enters bioretention cell or underground vault



Permanent Area Inlet Filters

Not always the best option but can be effective if designed correctly and used with other BMPs.



Cartridge Based Inlet Filtration – Can treat array of pollutants (metals, bacteria, etc.)



Fabco Industries



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Pervious Pavement

Pervious Concrete. Wear & tear Issues.....



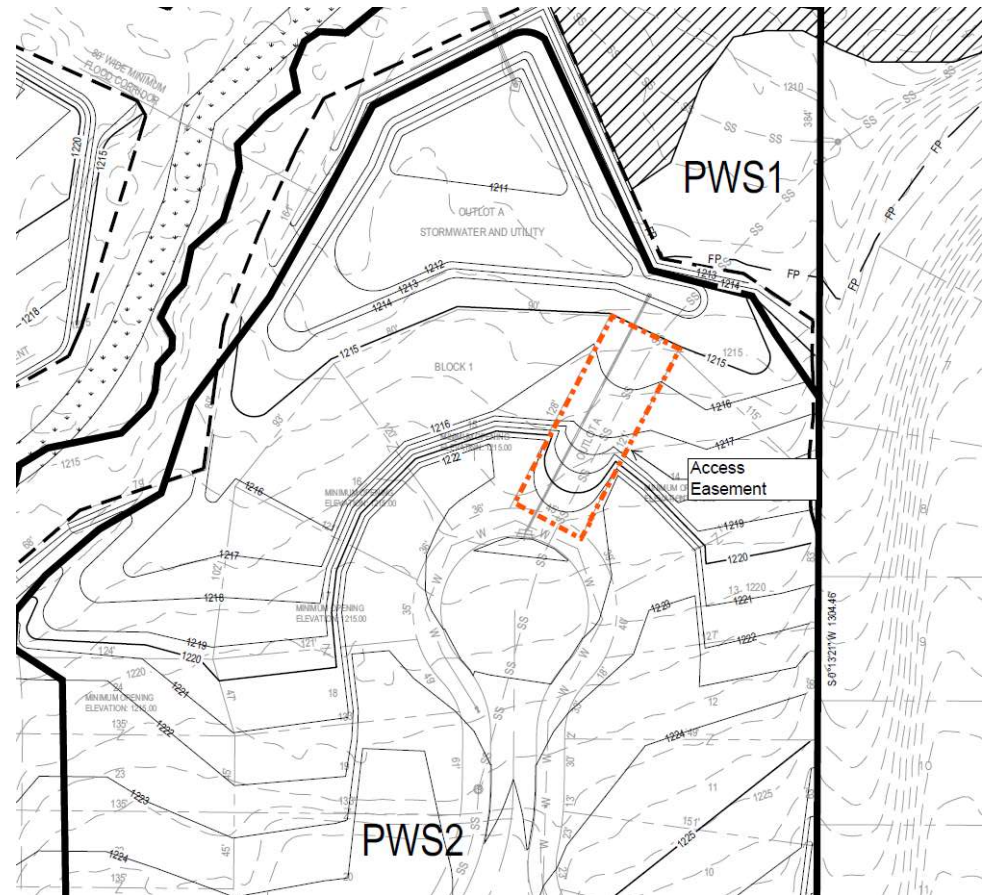
City Alley Project utilizing pervious pavers. Great Option



Need to incorporate access options in designs



Note on plans access easements and options



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