HOUSEKEEPING BMPs

Debris and Trash Management

DESCRIPTION
Large volumes of debris and trash are often generated at construction sites including: packaging, pallets, wood waste, concrete waste, soil, electrical wiring, cuttings, and a variety of other materials. There are several techniques and procedures to minimize the potential of storm water contamination from solid waste through appropriate storage and disposal practices. Recycling at construction debris also reduces the volume of material to be disposed of and associated costs.

PRIMARY USE
Debris and trash management should be a part of all construction practices. By limiting the trash and debris on site, storm water quality is improved along with reduced clean up requirements at the completion of the project.

APPLICATIONS
Solid waste management for construction sites is based on proper storage and disposal practices by construction workers and supervisors. Key elements of the program are education and modification of improper disposal habits.
Cooperation and vigilance is required on the part of supervisors and workers to ensure that the recommendations and procedures are followed. Following are lists describing the targeted materials and recommended procedures:

- ☐ Construction (and Demolition) Debris
  - Dimensional lumber
  - Miscellaneous wood (pallets, plywood, etc)
  - Copper (pipe and electrical wiring)
  - Miscellaneous metal (studs, pipe, conduit, sheathing, nails, etc)
  - Insulation
  - Concrete, brick, and mortar
  - Shingles
  - Roofing materials
  - Gypsum board
- ☐ Trash
  - Paper and cardboard (packaging, containers, wrappers)
  - Plastic (packaging, bottles, containers)
  - Styrofoam (cups, packing, and forms)
  - Food and beverage containers
  - Food waste

Storage Procedures
- ☐ Wherever possible, minimize production of debris and trash.
- ☐ Designate a foreman or supervisor to oversee and enforce proper debris and trash procedures.
- ☐ Instruct construction workers in proper debris and trash storage and handling procedures.
- ☐ Segregate potentially hazardous waste from non-hazardous construction site debris.
- ☐ Segregate recyclable construction debris from other non-recyclable materials.
- ☐ Keep debris and trash under cover in either a closed dumpster or other enclosed trash container that limits contact with rain and runoff and prevents light materials from blowing out.
- ☐ Store waste materials away from drainage ditches, swales and catch basins.
- ☐ Do not allow trash containers to overflow.
- ☐ Do not allow waste materials to accumulate on the ground.
- ☐ Prohibit littering by workers and visitors.
- ☐ Police site daily for litter and debris.
- ☐ Enforce solid waste handling and storage procedures.

Disposal Procedures
- ☐ If feasible, recycle construction and demolition debris such as wood, metal, and concrete.
- ☐ General construction debris may be hauled to a licensed construction debris landfill (typically less expensive than a sanitary landfill).
- ☐ Use waste and recycling haulers/facilities approved by the local jurisdiction.

Education
- ☐ Educate all workers on solid waste storage and disposal procedures.
- ☐ Instruct workers in identification of solid waste and hazardous waste.
- ☐ Have regular meetings to discuss and reinforce disposal procedures (incorporate in regular safety seminars).
- ☐ Clearly mark on all debris and trash containers which materials are acceptable.

Quality Control
- ☐ Foreman and/or construction supervisor shall monitor on-site solid waste storage and disposal procedures.
- ☐ Discipline workers who repeatedly violate procedures.

Requirements
- ☐ Job-site waste handling and disposal education and awareness program.
- ☐ Compliance by workers.
- ☐ Sufficient and appropriate waste storage containers.
- ☐ Timely removal of stored solid waste materials.
- ☐ Training workers and monitoring compliance.

LIMITATIONS
Only addresses non-hazardous solid waste.
One part of a comprehensive construction site management program.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ● Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ● Capital Costs
- ● Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M−1

Chemical Management

DESCRIPTION
Chemical management addresses the problem of storm water polluted with chemical pollutants through spills or other forms of contact. The objective of the chemical management is to minimize the potential of storm water contamination from construction chemicals through appropriate recognition handling, storage, and disposal practices.

It is not the intent of chemical management to supersede or replaced normal site assessment and remediation procedures. Significant spills and/or contamination warrant immediate response by trained professionals. Suspected job-site contamination should be immediately reported to regulatory authorities and protective actions taken. Significant spills should be reported to the National Response Center (NRC) at (800) 424-8802.

PRIMARY USE
These management practices along with applicable OSHA and EPA guidelines should be incorporated at all construction sites that use or generate hazardous wastes. Many chemicals such as fuel, oil, grease, fertilizer, and pesticide are present at most construction sites.

INSTALLATION, APPLICATION AND DISPOSAL CRITERIA
The chemical management techniques presented here are based on proper recognition, handling, and disposal practices by construction workers and supervisors. Key elements are education, proper disposal practices, as well as provisions for safe storage and disposal. Following are lists describing the targeted materials and recommended procedures:

- ☐ Targeted Chemical Materials
  - Paints
  - Solvents
  - Stains
  - Wood preservatives
  - Cutting oils
  - Greases
  - Roofing tar
  - Pesticides, herbicides, & fertilizer
  - Fuels & lube oils
  - Antifreeze

Storage Procedures
- ☐ Wherever possible, minimize use of hazardous materials.
- ☐ Minimize generation of hazardous wastes on the job-site
- ☐ Segregate potentially hazardous waste from non-hazardous construction site debris.
- ☐ Designate a foreman or supervisor to oversee hazardous materials handling procedures.
- ☐ Keep chemicals in appropriate containers (closed drums or similar) and under cover.
- ☐ Store chemicals away from drainage ditches, swales and catch basins.
- ☐ Use containment berms in fueling and maintenance areas and where the potential for spills is high.

Waste Handling
- ☐ Ensure that adequate hazardous waste storage volume is available.
- ☐ Ensure that hazardous waste collection containers are conveniently located.
- ☐ Do not allow potentially hazardous waste materials to accumulate.
- ☐ Enforce hazardous waste handling and disposal procedures.
- ☐ Clearly mark on all hazardous waste containers which materials are acceptable for the container.

Disposal Procedures
- ☐ Ensure that adequate cleanup and containment materials are available onsite.
- ☐ Regularly schedule hazardous waste removal to minimize on-site storage.
- ☐ Use only licensed hazardous waste haulers.

Education
- ☐ Instruct workers on safety procedures for construction site chemical storage.
- ☐ Instruct workers in identification of chemical pollutants.
- ☐ Ensure that workers are trained in procedures for spill prevention and response.
- ☐ Educate workers of potential dangers to humans and the environment from chemical pollutants.
- ☐ Educate all workers on chemical storage and disposal procedures.
- ☐ Have regular meetings to discuss and reinforce distribution, handling, and disposal procedures (incorporate in regular safety seminars).
- ☐ Establish a continuing education program to indoctrinate new employees.

Quality Assurance
- ☐ Foreman and/or construction supervisor shall monitor on-site chemical storage and disposal procedures.
- ☐ Educate and if necessary, discipline workers who violate procedures.
- ☐ Ensure that the hazardous waste disposal contractor is reputable and licensed.

Requirements
- ☐ Job-site chemical and hazardous waste handling and disposal education and awareness program.
- ☐ Commitment by management to implement chemical storage and hazardous waste management practices.
- ☐ Compliance by workers.
- ☐ Sufficient and appropriate chemical and hazardous waste storage containers.
- ☐ Timely removal of stored hazardous waste materials.

Cost
- ☐ Possible modest cost impact for additional chemical storage containers.
- ☐ Small cost impact for training and monitoring.
- ☐ Potential cost impact for hazardous waste collection and disposal by licensed hauler-actual cost depends on type of material and volume.

LIMITATIONS
This practice is not intended to address site-assessments and pre-existing contamination. Major contamination, large spills and other serious hazardous waste incidents require immediate response from specialists.

Demolition activities and potential pre-existing materials, such as lead and asbestos, are not addressed by this program. Site-specific information on plans is necessary.

Contaminated soils are not addressed.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ● Capital Costs
- ● Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M−2

Concrete Waste Management

DESCRIPTION
Concrete waste at construction sites comes in two forms; 1) excess fresh concrete mix including truck and equipment washing, and 2) concrete dust and concrete debris resulting from demolition. Both forms have the potential to impact water quality through storm water runoff contact with the waste.

PRIMARY USE
Concrete waste is present at most construction sites. This BMP should be utilized at sites in which concrete waste is present.

APPLICATIONS
A number of water quality parameters can be affected by introduction of concrete – especially fresh concrete. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of both cement and aggregate dust are also generated from both fresh and demolished concrete waste.

Unacceptable Waste Concrete Disposal Practices
- ☐ Dumping in vacant areas on the job-site.
- ☐ Illicit dumping off-jobsite.
- ☐ Dumping into ditches or drainage facilities.

Recommended Disposal Practices
- ☐ Avoid unacceptable disposal practices listed above.
- ☐ Develop pre-determined, safe concrete disposal areas.
- ☐ Provide a washout area with a minimum of 6 cubic feet of containment area volume for every 10 cubic yards of concrete poured.
- ☐ Never dump waste concrete illicitly or without property owners knowledge and consent.
- ☐ Overflow of washdown water shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.

Education
- ☐ Drivers and equipment operators should be instructed on proper disposal and equipment washing practices (see above).
- ☐ Supervisors must be made aware of the potential environmental consequences of improperly handled concrete waste.

Enforcement
- ☐ The construction site manager or foreman must ensure that employees and pre-mix companies follow proper procedures for concrete disposal and equipment washing.
- ☐ Employees violating disposal or equipment cleaning directives must be re-educated or disciplined if necessary.

Demolition Practices
- ☐ Monitor weather and wind direction to ensure concrete dust is not entering drainage structures and surface waters.
- ☐ Where appropriate, construct sediment traps or other types of sediment detention devices downstream of demolition activities.

Requirements
- ☐ Use pre-determined disposal sites for waste concrete.
- ☐ Prohibit dumping waste concrete anywhere but pre-determined areas.
- ☐ Assign pre-determined truck and equipment washing areas.
- ☐ Educate drivers and operators on proper disposal and equipment cleaning procedures.

Costs
- ☐ Minimal cost impact for training and monitoring.
- ☐ Concrete disposal cost depends on availability and distance to suitable disposal areas.
- ☐ Additional costs involved in equipment washing could be significant.

LIMITATIONS
Concrete waste management is one part of a comprehensive construction site waste management program.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ● Capital Costs
- ● Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M−3

Concrete Sawcutting Waste Management

DESCRIPTION
Sawcutting of concrete pavement is a routine practice, necessary to control shrinkage cracking immediately following placement of plastic concrete. It is also used to remove curb sections and pavement sections for pavement repairs, utility trenches, and driveways. Sawcutting for joints involves sawing a narrow, shallow groove in the concrete, while sawcutting for removals is usually done full depth through the slab. Water is used to control saw blade temperature and to flush the detritus from the sawed groove. The resulting slurry of process water and fine particles and high pH must be properly managed.

A number of water quality parameters can be affected by introduction of concrete fines. Concrete affects the pH of runoff, causing significant chemical changes in water bodies and harming aquatic life. Suspended solids in the form of saw fines are also generated from sawcutting operations.

DESIGN CRITERIA
Slurry Collection
- ☐ During saw cutting operations, the slurry and cutting shall be continuously vaccumed to control the flow of water from the operation site.
- ☐ The slurry and cutting shall not be allowed to drain to the storm drain system, swale, stream or other water body.
- ☐ The slurry and cutting shall not be allowed to remain on the pavement to dry out.

Slurry Disposal
- ☐ Develop pre-determined, safe slurry disposal areas.
- ☐ Collected slurry and cuttings shall be discharged in an area protected by one or more sediment removal BMPs and shall be done in a manner that does not result in a violation of groundwater or surface water quality standards.
- ☐ Never dump waste illicitly or without property owner's knowledge and consent.
- ☐ Slurry may be disposed of in facilities designated for washdown of concrete trucks (see M-3, Concrete Waste Management).

MAINTENANCE
Project personnel should inspect the operations to assure that operators are diligent in controlling the water produced by the saw cutting activities. Following operations the pavement should be inspected to ensure that waste removal has been adequately performed.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

Implementation Requirements
- ○ Capital Costs
- ● Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend
- ○ Significant Impact
- ● Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M−4

Sanitary Facilities

DESCRIPTION
Facilities for collection and disposal of sanitary waste must be provided and properly managed to minimize the potential contamination of surface water with septic waste. Location of portable facilities away from storm drain systems and surface waters or containment is necessary in case of spills.

PROCEDURES
- ☐ Sanitary facilities must be provided on the site in close proximity to areas where people are working.
- ☐ Portable toilets must be provided if no permanent facilities are available.
- ☐ Locate portable toilets a minimum of 20 feet away from storm drain inlets, conveyance channels, or surface waters.
- ☐ If unable to meet 20-foot distance requirements, provide containment for portable toilets.
- ☐ Portable toilets should be regularly serviced.

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ○ Sediment
- ● Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ● Other Construction Wastes

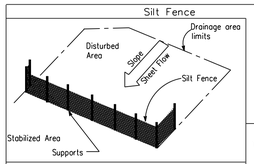
Implementation Requirements
- ○ Capital Costs
- ● Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

M−7

EROSION & SEDIMENT CONTROL BMPs

Silt Fence



DESCRIPTION
A silt fence consists of geotextile fabric supported by wire mesh netting or other backing stretched between metal posts with lower edge of the fabric securely embedded six-inches in the soil. The fence is typically located downstream of disturbed areas to intercept runoff in the form of sheet flow. A silt fence provides both filtration and time for sediment settling by reducing the velocity of the runoff.

PRIMARY USE
Silt fence is normally used as perimeter control located downstream of disturbed areas. It is only feasible for non-concentrated, sheet flow conditions. If it becomes necessary to place a silt fence where concentrated flows may be experienced (e.g. where two silt fences join at an angle, or across minor channels or gullies), it will be necessary to reinforce the silt fence at that area by a rock berm or sand bag berm, or other structural measures that will support the silt fence.

APPLICATIONS
Silt fence is an economical means to treat overland, non-concentrated flows for all types of projects. Silt fences are used as perimeter control devices for both site developers and linear (roadway) type projects. They are most effective with coarse to silty soil types. Due to the potential of clogging and limited effectiveness, silt fence should be used with caution in areas that have predominantly clay soil types. In this latter instance a soils engineer or soil scientist should confirm the suitability of silt fence for that application.

DESIGN CRITERIA
- ☐ Fences are to be constructed along a line of constant elevation (along a contour line) where possible.
- ☐ Maximum drainage area shall be 0.25 acre per 100 linear feet of silt fence.
- ☐ Maximum flow to any 20 foot section of silt fence shall be 1 CFS.
- ☐ Maximum distance of flow to silt fence shall be 200 feet or less. If the slope exceeds 10 percent the flow distance shall be less than 50 feet.
- ☐ Maximum slope adjacent to the fence shall be 2:1.
- ☐ If 50% or less soil, by weight, passes the U.S. Standard sieve No. 200, select the apparent opening size (A.O.S.) to retain 85% of the soil.
- ☐ If 85% or more of soil by weight, passes the U.S. Standard sieve No. 200, silt fence shall not be used unless the soil mass is evaluated and deemed suitable by a soil scientist or geotechnical engineer concerning the erodibility of the soil mass, dispersive characteristics, and the potential grain-size characteristics of the material that is likely to be eroded.
- ☐ Stone overflow structures or other outlet control devices shall be installed at all low points along the fence or spaced at approximately 300 feet if there is no apparent low point.
- ☐ Filter stone for overflow structure shall be 1-1/2" washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- ☐ Silt fence fabric must meet the following minimum criteria:
  - ○ Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 90-lbs.
  - ○ Puncture Rating, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 60-lbs.
  - ○ Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 280-psi.
  - ○ Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening size of a Geotextile, U.S. Sieve No. 30 or Smaller.
  - ○ Ultraviolet Resistance, ASTM D4355. Minimin 70 Percent.
- ☐ Fence posts shall be galvanized steel and may be T-section or L-section, 1.3 pounds per linear foot minimum, and 4 feet in length minimum.
- ☐ Silt fence shall be supported by galvanized steel wire fence fabric as follows:
  - ○ 4"x4" mesh size, W1.4/1.4, minimum 14-gauge wire fence fabric;
  - ○ Hog wire, 12 gauge wire, small openings installed at bottom of silt fence;
  - ○ Standard 2"x2" chain link fence fabric; or
  - ○ Other welded or woven steel fabrics consisting of equal or smaller spacing as that listed herein and appropriate gauge wire to provide support.
- ☐ A-6-inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel to prevent bypass of runoff under the fence. Fabric shall overlap at abutting ends a minimum of 3 feet and shall be joined such that no leakage or bypass occurs.
- ☐ Sufficient room for the operation of sediment removal equipment shall be provided between the silt fence and other obstructions in order to properly maintain the fence.
- ☐ The ends of the fence shall be turned upstream to prevent bypass of storm water.

LIMITATIONS
Minor ponding will likely occur at the upstream side of the silt fence, which could result in minor localized flooding. Silt fences are not intended for use as check dams in swales or low areas subject to concentrated flow. Silt fences shall not be used where soil conditions prevent a minimum toe-in depth of 6 inches or installation of support posts to a depth of 12 inches.

Silt fence can interfere with construction operation; therefore planning of access routes onto the site is critical. Silt fence can fail structurally under heavy storm flows, creating maintenance problems and reducing the effectiveness of the system.

MAINTENANCE REQUIREMENTS
Silt fence should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A) for buildup of excess sediment, undercutting, sags, and other failures. Sediment should be removed when it reaches approximately one-half the height of the fence. In addition, determine the source of excess sediment and implement appropriate BMPs to control the erosion. If the fabric becomes damaged or clogged, it should be repaired or replaced as necessary.

* (SEE SHEET 2 FOR S-1 DRAWINGS)

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ● Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

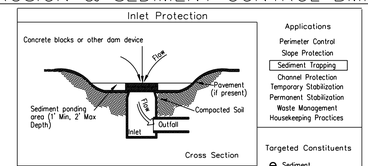
Implementation Requirements
- ◒ Capital Costs
- ● Maintenance
- ● Training
- ◒ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=0.75

S−1

Inlet Protection



DESCRIPTION
Inlet protection consists of a variety of methods of intercepting sediment at low point inlets through the use of stone, filter fabric, inlet inserts, and other materials. This is normally located at the inlet, providing either detention or filtration to reduce sediment and floatable materials in storm water.

PRIMARY USE
Inlet protection should be considered a secondary defense in site erosion control due to the limited effectiveness and applicability of the technique. It is normally used in new developments that include new inlets or roads with new curb inlet or during major repairs to existing roadways.

Inlet protection has limited use in developed areas due to the potential for flooding, traffic safety, pedestrian safety, and maintenance problems. Inlet protection can reduce sediment in storm sewer systems by serving as a back up system to onsite controls or by reducing sediment loads from controls with limited effectiveness.

APPLICATIONS
Different inlet protection variations are used for different conditions as follows:

- ☐ Filter barrier protection (similar to a silt fence barrier around the inlet) is appropriate when the drainage area is less than one acre and the basin slope is less than five (5) percent. This type of protection is not applicable in paved areas.
- ☐ Block and gravel (crushed stone, recycled concrete is also appropriate) protection is used when flows exceed 0.5 c.f.s. and it is necessary to allow for overtopping to prevent flooding.
- ☐ Excavated impoundment protection around a drop inlet may be used for protection against sediment entering a storm drain system. With this method, it is necessary to install weep holes to allow the impoundment to drain completely. The impoundment shall be sized such that the volume of excavation shall be equal to 1800 to 3600 cubic feet per acre of disturbed area entering the inlet for full effectiveness.

DESIGN CRITERIA
- ☐ Special caution must be exercised when installing inlet protection on publicly traveled streets or in developed areas. Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures.
- ☐ Filter fabric protection shall be designed and maintained in a manner similar to silt fence.
- ☐ Where applicable, filter fabric, posts, and wire backing shall meet the material requirements specified in BMP Fact Sheet S-1, Silt Fence.
- ☐ Filter gravel shall be 3/4 inch (Block and Gravel Protection) or 1-1/2 to 2 inch (Excavated Impoundment Protection) washed stone containing no fines. Angular shaped stone is preferable to rounded shapes.
- ☐ Concrete blocks shall be standard 8" x 8" x 16" concrete masonry units.
- ☐ Maximum depth at flow shall be eight (8) inches or less.
- ☐ Positive drainage is critical in the design of inlet protection. If overflow is not provided for at the inlet, excess flows shall be routed through established swales, streets, or other watercourses to minimize damage due to flooding.
- ☐ Filter Barrier Protection
  Silt Fence shall consist of nylon geotextile supported by wire mesh, W1.4 x W1.4, and galvanized steel posts set a minimum of 1 foot depth and spaced not more than 6 feet on center. A 6 inch wide trench is to be cut 6 inches deep at the toe of the fence to allow the fabric to be laid below the surface and backfilled with compacted earth or gravel. This entrenchment prevents any bypass of runoff under the fence.
- ☐ Block and Gravel Protection (Curb and Drop Inlets)
  Concrete blocks are to be placed on their sides in a single row around the perimeter of the inlet, with ends abutting. Opening in the block should face outward, not upward. 1/2" x 1/2" wire mesh shall then be placed over the outside face of the blocks covering the holes. Filter stone shall then be piled against the wire mesh to the top of the blocks with the base of the stone being a minimum of 18 inches from the blocks. Alternatively, where loose stone is a concern (street, etc.), the filter stone may be placed in appropriately sized geotextile fabric bags. Periodically, when the stone filter becomes clogged, the stone must be removed and cleaned in a proper manner or replaced with new stone and piled back against the wire mesh.
- ☐ Excavated Impoundment Protection
  An excavated impoundment shall be sized to provide a storage volume of between 1800 and 3600 cubic feet per acre of disturbed area. The trap shall have a minimum depth of one foot and a maximum depth of 2 feet as measured from the top of the inlet and shall have sideslopes of 2:1 or flatter. Weep holes are to be installed in the inlet walls to allow for the complete dewatering of the trap. When the storage capacity of the impoundment has been reduced by one-half, the silt shall be removed and disposed in a proper manner.
- ☐ Inlet inserts are commercially available to remove sediment, constituents (pollutants) adsorbed to sediment, and oil and grease. Maintenance is required to remove sediment and debris that could clog the filters. Inlet inserts must have a bypass function to prevent flooding from clogging or high flows.

LIMITATIONS
Special caution must be exercised when installing inlet protection on publicly traveled streets or in developed areas. Ensure that inlet protection is properly designed, installed and maintained to avoid flooding of the roadway or adjacent properties and structures.

Inlet protection is only viable at low point inlets. Inlets that are on a slope cannot be effectively protected because storm water will bypass the inlet and continue downstream, causing an overload condition at inlets downstream.

MAINTENANCE REQUIREMENTS
Inlet protection should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When silt fence is used and the fabric becomes clogged, it should be cleaned or, if necessary, replaced. Also, sediment should be removed when it reaches approximately one-half the height of the inlet protection device. If a sump is used, sediment should be removed when the volume of the basin is reduced by 50%.

For systems using filter stone, when the filter stone becomes clogged with sediment, the stones must be pulled away from the inlet and cleaned or replaced. Since cleaning of stone at a construction site may be difficult, an alternative approach would be to use the clogged stone as fill material and put new stone around the inlet.

SPECIFICATIONS
Specifications for construction of this item may be found in the Standard Specifications for Public Works Construction - North Central Texas Council of Governments, Section 201.5 Inlet Protection.

* (SEE SHEET 2 FOR S-4 DRAWINGS)

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ◒ Floatable Materials
- ○ Other Construction Wastes

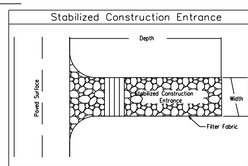
Implementation Requirements
- ● Capital Costs
- ● Maintenance
- ○ Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Varies

S−4

Stabilized Construction Entrance



DESCRIPTION
A stabilized construction entrance consists of a pad consisting of crushed stone, recycled concrete or other rock like material on top of the geotextile filter cloth to facilitate the removal of sediment and other debris from construction equipment prior to exiting the construction site. This directly addresses the problem of silt and mud deposition in roadways used for construction site access. For added effectiveness, a wash rack area can be incorporated into the design to further reduce sediment tracking (See Wheel Wash, Fact Sheet S-10).

PRIMARY USE
Stabilized construction entrances are used primarily for sites in which significant truck traffic occurs on a daily basis. It reduces the need to remove sediment from streets. If used properly, it also directs the majority of traffic to a single location, reducing the number and quantity of disturbed areas on the site and providing protection for other structural controls through traffic control.

APPLICATIONS
Stabilized construction entrances are a required part of the erosion control plan for all site developments larger than one acre and a recommended practice for all construction sites. If possible, controlled entrances should be incorporated into small lot construction due to the large percentage of disturbed area on the site and the high potential for offsite tracking of silt and mud.

DESIGN CRITERIA
- ☐ Stabilized construction entrances are to be constructed such that drainage across the entrance is directed to a controlled, stabilized outlet on site with provisions for storage, proper filtration, and removal of wash water.
- ☐ The entrance must be sloped away from the paved surface so that storm water is not allowed to leave the site onto roadways.
- ☐ Minimum width of entrance shall be 15 feet.
  Stone shall be placed in a layer of at least 12-inches thickness. The stone shall be minimum of 3 to 5 inch coarse aggregate.
- ☐ Prevent shortcutting of the full length of the construction entrance by installing barriers as necessary.
- ☐ The geotextile fabric must meet the following minimum criteria:
  - ○ Tensile Strength, ASTM D4632 Test Method for Grab Breaking Load and Elongation of Geotextiles, 300-lbs.
  - ○ Puncture Strength, ASTM D4833 Test Method for Index Puncture Resistance of Geotextiles, Geomembranes, and Related Products, 120-lbs.
  - ○ Mullen Burst Rating, ASTM D3786 Standard Test Method for Hydraulic Bursting Strength of Textile Fabrics-Diaphragm Bursting Strength Tester Method, 600-psi.
  - ○ Apparent Opening Size, ASTM D4751 Test Method for Determining Apparent Opening Size of a Geotextile, U.S. Sieve No. 30 (max).
- ☐ When necessary, vehicles must be cleaned to remove sediment prior to entrance onto paved roads, streets, or parking lots. When washing is required, it shall be done on a constructed wheel wash facility that drains into an approved sediment trap or sediment basin or other sedimentation/filtration device.
- ☐ Minimum dimensions for the entrance shall be as follows:

Tract Area	Avg. Tract Depth	Min. Width of Entrance	Min. Depth of Entrance
< 1 Acre	100 feet	15 feet	20 feet
< 5 Acre	200 feet	20 feet	50 feet
> 5 Acres	>200 feet	25 feet	75-100 feet

LIMITATIONS
Selection of the construction entrance location is critical. To be effective, it must be used exclusively.

Stabilized entrances are rather expensive considering that it must be installed in combination with one or more other sediment control techniques, but it may be cost effective comparable to labor-intensive street cleaning.

MAINTENANCE REQUIREMENTS
Construction entrances should be inspected regularly (at least as often as required by the TPDES Construction General Permit, Appendix A). When sediment has substantially clogged the void area between the rocks, the aggregate mat must be washed down or replaced. Periodic re-grading and top dressing with additional stone must be done to keep the efficiency of the entrance from diminishing.

If the stabilized construction entrance is not effectively removing sediment from wheels then a wheel wash should be considered.

* (SEE SHEET 2 FOR S-9 DRAWINGS)

Applications
Perimeter Control
Slope Protection
Sediment Trapping
Channel Protection
Temporary Stabilization
Permanent Stabilization
Waste Management
Housekeeping Practices

Targeted Constituents
- ◒ Sediment
- ○ Nutrients Toxic Materials
- ○ Oil & Grease
- ○ Floatable Materials
- ○ Other Construction Wastes

Implementation Requirements
- ● Capital Costs
- ● Maintenance
- ● Training
- ○ Suitability for Slopes > 5%

Legend
- ● Significant Impact
- ◒ Medium Impact
- ○ Low Impact
- ? Unknown or Questionable Impact

Fe=N/A

S−9

MAINTENANCE AND INSPECTION PROCEDURES: CONTROL MEASURES WILL BE INSPECTED AT LEAST ONCE A WEEK OR WITHIN 24 HOURS OF ANY STORM EVENT OR 0.5 INCHES OR GREATER. IF A REPAIR IS NECCESSARY IT WILL BE DONE AT THE EARLIEST PRACTICABLE DATE BUT WITHIN 48 HOURS.

STANDARD EROSION CONTROL

Sheet 1 of 3 (Details)

ENGINEERING DEPARTMENT
CITY OF GARLAND, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	SHEET NO.
BY: COG	BY: COG	6/08			DTLEC1.DWG	of
CHKD:	CHKD:					

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