

Erosion Control BMPs for Construction Site Storm Water Runoff Control

One of the pollutants contributing to storm water pollution that most people are unaware of is sediment. Sediment contains nitrogen, phosphorous and possibly other contaminants. When rain carries sediment into our local streams and Humboldt Bay, nitrogen and phosphorous trigger algae growth which reduces water clarity, depletes oxygen, creates odors and leads to fish kills. Just the mere presence of extra sediment in our streams and Humboldt Bay increases turbidity (cloudiness) which reduces photosynthesis and food production. Sediment deposition also destroys fish habitat and spawning areas.

The main goal is to prevent erosion before it happens. Erosion control is typically 90-98% effective. Erosion control measures should be supplemented with sediment control measures in case erosion does occur. All new development and redevelopment projects that could possibly cause sediment runoff from disturbed areas into the storm drain system or watercourse should consider the use of the following Best Management Practices:

- **Scheduling** will reduce the amount of soil exposed and the duration of its exposure to wind, rain and vehicle tracking.
 - **Scheduling:**
 - Incorporates the use of a schedule or flow chart to layout the construction plan.
 - Works out the sequencing and time frame for the initiation and completion of tasks such as site clearing, grading, excavation, pouring foundations, installing utilities, etc.
 - Incorporates erosion and sediment control BMPs.
 - Minimizes land disturbing activities scheduled between October and April. Extra BMPs should be implemented during these months to protect the site from erosion.
 - Should avoid major grading operations between October and April.
 - Should allow enough time before rainfall begins to stabilize soil with vegetation or physical means (i.e. installing temporary sediment trapping devices).
 - **Limitation:**
 - None
- **Erosion Control Blankets** decrease soil compaction, protect disturbed soil from rain impact, increase water infiltration, protect seeds from runoff and moderate soil temperature to enhance vegetation growth.
 - **Application:**
 - Erosion control blankets or geotextiles should be used on slopes steeper than 3:1 and where the erosion hazard is high.
 - Make sure that the blanket or textile is properly anchored.
 - They definitely should be used on slopes adjacent to sensitive areas such as streams, wetlands or other bodies of water.
 - The blankets or geotextiles should be used in disturbed areas where the plants are slow to develop.
 - All blankets and geotextiles should be periodically inspected throughout the course of construction.
 - They should be inspected after heavy rain events for erosion and undermining. Any failures should be repaired immediately.
 - If a washout or breakage occurs, repair damage to the slope and then re-anchor or re-install.
 - The benefit of erosion control blankets as opposed to hydraulic seeding or mulch is that they're effective immediately.
 - **Limitation:**
 - They're usually more expensive than other erosion control measures because of high material and labor costs.
- **Hydro-mulching/Hydroseeding** is a planting technique that employs a wet slurry of seed, mulch fiber, fertilizer and water allowing for rapid plant growth on disturbed areas.
 - **Application:**
 - Mulch is mixed in a tank along with water seed and fertilizer.
 - When sprayed on the ground or on a slope, a continuous blanket will form that will hold seeds in place and retain soil moisture.
 - On steep slopes and slopes susceptible to wind, the mulch should be hydraulically applied or straw mulch should be appropriately anchored.
 - To prevent displacement by wind, hydraulic fiber mulches and/or tackifying agents are useful.
 - When applying, make sure the coverage is consistent. All areas should look the same.
 - Different types of mulches include: vegetable fibers, wood bark chips, hydraulic mulches from recycled paper, hydraulic mulches from wood fiber and hydraulic bonded fiber matrices.
 - **Limitation:**
 - Hydraulic mulches and seeding take 24 to 48 hours before they're effective as erosion control measures.
- **Fiber Rolls** are composed of biodegradable fibers stuffed into a photo-degradable open weave netting. They allow water to pass through the fibers and trap suspended sediment, increase filtration rates, slow runoff and reduce erosion.
 - **Application:**
 - Fiber rolls can be used along the face of exposed slopes to shorten slope length and decrease flow velocity.
 - They are very useful at grade breaks where slopes transition to a steeper slope.
 - They also can be used along stream banks to assist stabilization and in drainage swales to slow flows.
 - They should follow the contour lines of the slope and be overlapped.
 - Any split, torn, unraveled or slumping fiber rolls should be repaired or replaced.
 - During prolonged rainfall, they should be inspected daily and repaired when necessary.
 - In most cases, fiber rolls do not need to be removed and can be abandoned in place.
 - If they are not excessively soiled after landscaping is in place, they can be removed and reused.
 - **Limitation:**
 - Fiber rolls are not effective for high surface flows or long and steep slopes.
 - Their primary purpose is not sediment control, although they do provide some sediment removal.
 - They should be used along with other sediment control measures.

Erosion Control BMPs (continued)

- **Slope Grading** reduces erosion potential by decreasing runoff velocities, trapping sediment and allowing an increase in water infiltration into the soil.
 - *Application:*
 - In order to facilitate the long-term stabilization of vegetation, all construction slopes should have the surface roughened, stair-step graded or terraced.
 - Surface roughening will benefit seeding, planting and mulching.
 - Stair step grading is applicable to gradual slopes of non-sandy soils.
 - Any sort of terracing is usually permanent. Therefore, terracing should be designed based on the site conditions and approved by a registered engineer.
 - *Limitation:*
 - Roughening may increase costs and result in sloughing with certain soil types.
 - Relying solely on roughening for temporary erosion control can result in limited effectiveness during intense rain events. Therefore, roughening should be used in conjunction with other erosion control measures such as seeding and mulching.
 - For sandy soils or very shallow or steep slopes, stair-step grading may not be practical.
- **Construction Site Entrance/Exit** should be stabilized to reduce the tracking of mud onto public roads by construction vehicles.
 - *Application:*
 - Stabilized construction site access should be created for any sites where mud or dirt can be tracked onto public roads, where dust can be problematic during dry weather and on sites adjacent water bodies.
 - A stabilized construction entrance is a pad of aggregate underlain with filter cloth.
 - The purpose is to reduce or eliminate sediment being tracked onto public roadways by construction vehicles.
 - They are moderately effective in removing sediment from vehicles leaving a construction site.
 - If sediment is still being tracked onto public roadways after the entrance has been stabilized, a tire wash should be considered. A tire wash is a ditch filled with aggregate and underlain with a fiber cloth.
 - A drainage ditch needs to be built to convey water from the tire wash to a sediment trapping area.
 - A hose with an automatic shutoff nozzle should be used to wash off tires.
 - *Limitation:*
 - A stabilized entrance requires periodic top dressing of additional stones.
 - They can be expensive especially when used in conjunction with a tire wash because a sediment trap of some kind must be provided to collect runoff.
 - Another limitation of a tire wash is that a double wide access is required to avoid having non-construction vehicles driving through the tire wash.
- **Water Conservation Practices** on construction sites reduces the potential for erosion and the transport of pollutants off site.
 - *Application:*
 - All water equipment should be kept in good working condition.
 - All water equipment should be inspected at least twice weekly. Repair all water leaks immediately.
 - Irrigation controllers need to be reset according to seasonal needs. Avoid using water to clean construction areas.
 - Sweep paved areas whenever practical.
 - All construction water runoff should be directed to areas where it can be soaked into the ground.
 - When washing vehicles and equipment, a commercial washing facility should be used whenever possible.
 - Washing of equipment on the construction site should be discouraged. If vehicle and equipment washing is done on site, minimize water use, retain all runoff on-site and do not use soaps or chemicals.
 - *Limitation:*
 - None
- **Landscape Management** can reduce erosion, decrease sediment runoff and prevent pollution. The proper use of soil, materials and chemicals used in landscaping can decrease the discharge of pollutants and sediment into the storm drains and waterways.
 - *Application:*
 - Native, non-invasive, drought tolerant and pest tolerant vegetation should be used whenever possible.
 - Minimize the use of chemicals by purchasing less toxic alternatives and using only the minimum amount necessary.
 - Landscaping materials should be stored under tarps to protect them from wind and rain.
 - All landscape related grading and excavation should be scheduled for dry weather.
 - All areas being revegetated should be inspected for establishment of new vegetation and replanted when necessary.
 - Check dams or ditches should be used to divert runoff away from storm drains.
 - Storm drains inlets should be protected with sediment control measures.
 - *Limitation:*
 - Native, non-invasive, drought tolerant and pest tolerant vegetation may not be readily available from suppliers.
- **Preservation of Existing Vegetation** serves as an effective form of erosion and sediment control.
 - *Application:*
 - Before any project begins, efforts should be made to preserve existing vegetation.
 - Clearly mark areas not to be disturbed with construction fencing at all times.
 - All contractors on site should be notified where these areas are.
 - Any damage to these areas must be repaired in accordance with the landscaping plan.
 - *Limitation:*
 - Protecting existing vegetation requires planning and may restrict the area available for construction activities.

Sediment Control BMPs for Construction Site Storm Water Runoff Control

One of the pollutants contributing to storm water pollution that most people are unaware of is sediment. Sediment contains nitrogen, phosphorous and possibly other contaminants. When rain carries sediment into our local streams and Humboldt Bay, nitrogen and phosphorous trigger algae growth which reduces water clarity, depletes oxygen, creates odors and leads to fish kills. Just the mere presence of extra sediment in our streams and Humboldt Bay increases turbidity (cloudiness) which reduces photosynthesis and food production. Sediment deposition also destroys fish habitat and spawning areas.

Traditional sediment controls (silt fence, sand/gravel bags, drain inlet protection, etc.) are typically 40-50% effective if properly installed and maintained. Therefore, all sediment control measures need to be supplemented with erosion control measures. They require routine maintenance. Once sediment builds up to 1/3 the height of the structure, sediment should be removed off site or to a location where it won't erode back on to the site. All new development and redevelopment projects that could possibly cause sediment runoff from disturbed areas into the storm drain system or watercourse should consider the use of the following Best Management Practices:

- **Scheduling** will reduce the amount of soil exposed and the duration of its exposure to wind, rain and vehicle tracking.
 - **Scheduling:**
 - Incorporates the use of a schedule or flow chart to layout the construction plan.
 - Works out the sequencing and time frame for the initiation and completion of tasks such as site clearing, grading, excavation, pouring foundations, installing utilities, etc.
 - Incorporates erosion and sediment control BMPs.
 - Minimizes land disturbing activities scheduled between October and April. Extra BMPs should be implemented during these months to protect the site from erosion.
 - Should avoid major grading operations between October and April.
 - Should allow enough time before rainfall begins to stabilize soil with vegetation or physical means (i.e. installing temporary sediment trapping devices).
 - **Limitation:**
 - None

- **Silt Fencing** intercepts and slows the flow of sediment laden runoff. Silt fences serve as a filter to slowly release filtered water.
 - **Application:**
 - Silt fences can be used along the perimeter of the project site, along streams and watercourses, at the bottom of exposed slopes and around temporary soil stockpiles (i.e. fill dirt).
 - They need to be installed along level contours.
 - When installing, dig a small ditch and backfill on top of the bottom end of the fence. Make sure the leading end of the bottom end of the fence is pointing towards the slope.
 - The length of slope drained into a stretch of fence should be no greater than 100 feet.
 - Any single stretch of fence should be limited to 500 feet.
 - The last 6 feet on either side of the fence should slope into a "J" or "L" shape to allow for ponding.
 - Individual fence segments should not be connected.
 - Silt fences should be inspected following rain events.
 - When sediment build-up reaches one-third of fence height, the sediment needs to be removed.
 - Undercut, split, torn or slumping silt fences should be repaired or replaced.
 - When project is done or landscaping completed, they can be removed.
 - **Limitation:**
 - Silt fences should not be used in streams, channels or on slopes.

- **Gravel / Sand Bag Barriers** intercept and slow the flow of sediment laden runoff. They serve as a filter to slowly release filtered water.
 - **Application:**
 - Gravel or sand bags can be used along the perimeter of a construction site or parallel to roadways to keep sediment off of paved areas.
 - Stacked gravel or sand bags placed along a level contour to detain runoff from disturbed areas retain sediment suspended in the runoff and release water as sheet flow.
 - They also can be used to divert runoff flow, create a temporary sediment basin or as a check dam.
 - They are more practical than silt fences or fiber rolls for prolonged construction projects because they are more durable.
 - Gravel bags are preferred over sand bags near storm drain inlets because they filter water without preventing it from entering the storm drain.
 - Sand bags can act as a complete water barrier after being inundated with water.
 - Gravel and sand bags need to be inspected after significant storm events.
 - When sediment reaches one-third barrier height, accumulated silt must be removed.
 - All washouts and other damages to barriers need to be repaired as needed.
 - **Limitation:**
 - Installing sand or gravel bags can be labor intensive.
 - They should not be used to detain runoff flows with a high concentration of sediment.
 - Do not completely surround drain inlets with gravel or sand bags. Use sand bags to create an L or J shape from the curb pointing up slope or away from the drain to cause a ponding effect.
 - Never stack sand bags above the level of a curb.

Sediment Control BMPs (continued)

- **Fiber Rolls** are composed of biodegradable fibers stuffed into a photo-degradable open weave netting. They allow water to pass through the fibers and trap suspended sediment, increase filtration rates, slow runoff and reduce erosion.
 - *Application:*
 - Fiber rolls can be used along the face of exposed slopes to shorten slope length and decrease flow velocity.
 - They are very useful at grade breaks where slopes transition to a steeper slope.
 - They also can be used along stream banks to assist stabilization and in drainage swales to slow flows.
 - They should follow the contour lines of the slope and be overlapped.
 - Any split, torn, unraveled or slumping fiber rolls should be repaired or replaced.
 - During prolonged rainfall, they should be inspected daily and repaired when necessary.
 - In most cases, fiber rolls do not need to be removed and can be abandoned in place.
 - If they are not excessively soiled after landscaping is in place, they can be removed and reused.
 - *Limitation:*
 - Fiber rolls are not effective for high surface flows or long and steep slopes.
 - Their primary purpose is not sediment control, although they do provide some sediment removal.
 - They should be used along with other sediment control measures.
- **Storm Drain Inlet Protection** consists of temporary devices constructed around storm drains to improve the quality of water being discharged to inlets by ponding sediment laden runoff and increasing settling time.
 - *Application:*
 - Drain inlet protection is useful where sediment laden surface runoff may enter an inlet.
 - Gravel bag protection is applicable for high flows. However, it is necessary to allow for overtopping to prevent flooding. If overtopping is expected, a drain inlet sediment trap would be appropriate.
 - Silt fences or temporary drain inlet filters could be used as well.
 - All bare areas around inlet must be stabilized, smooth, compact and brought up to the grade of the inlet.
 - Accumulated sediment must be disposed of properly.
 - Inspect all inlets after rainfall events and once every 24 hours during extended rainfall events.
 - *Limitation:*
 - Drain inlet protection is only appropriate for small drainage areas unless used with erosion control measures.
 - Do not allow ponding to encroach into traffic or onto surfaces that are susceptible to erosion.
 - Drain inlet protection requires frequent maintenance to remove sediment deposits.
 - Do not completely surround drain inlets with gravel or sand bags. Use sand bags to create an L or J shape from the curb pointing up slope or away from the drain to cause a ponding effect.
 - Never stack sand bags above the level of a curb.
- **Sediment Basins** is a controlled storm water release structure. They pond runoff and allow sediment to settle out.
 - *Application:*
 - Sediment basins are formed by excavation of earth across a low drainage area.
 - They should be located where a low embankment can be constructed across a swale or excavation, where failure would not cause loss of life or property and in an area accessible for maintenance work (sediment removal, inlet and outlet maintenance, etc.).
 - Rock or vegetation should be used at the basin inlet to prevent erosion.
 - Make sure the riser pipe connection to the horizontal pipe leading through the embankment is water tight.
 - Provide anti-seep collars on the barrel.
 - Outlet structure (corrugated metal or reinforced concrete pipe) should be placed on firm, smooth foundation with base securely anchored with concrete or other means to prevent flotation.
 - Outlet pipe needs to have dewatering holes, an anti-vortex device and trash rack attached to the top of the riser to prevent floating debris from flowing out of the basin or obstructing the system.
 - Outlet protection (rocks) should be used at the pipe outlet to prevent erosion.
 - Following a storm event, dewater within seven days. Install a safety fence around the basin to prevent unauthorized entry
 - *Limitation:*
 - Always seek out erosion control measures before selecting a sediment basin.
 - Basins must be designed by a registered professional civil engineer.
 - They require large surface areas and regular maintenance to remove sediment build up.
- **Dust Control** consists of making the effort to prevent exposed soil from being transported by wind.
 - *Application:*
 - Control measures consist of chemical or structural measures.
 - Chemical measures include water, salts or organic spray on adhesives.
 - Structural measures include blankets, geotextiles or tarps (i.e. to cover unused fill dirt).
 - Dust control should be utilized on all construction sites with exposed soils.
 - It is particularly important in wind-prone areas and areas with silt and clay soils.
 - Dust control is a temporary measure to be utilized as an intermediate treatment between site disturbance and construction, paving or re-vegetation.
 - If an area is exposed to excessive winds or vehicle traffic, it should be inspected daily.
 - *Limitation:*
 - Dust control measures are temporary.
 - Chemical measures require re-application.
 - Structural measures require routine inspections to ensure they stay in place.
 - Excessive use of water to control dust may cause unwanted non-storm water discharges.

Sediment Control BMPs (continued)

- **Straw Bale Barriers** pond runoff and allow sediment to settle out.
 - *Application:*
 - Straw bale barriers can be used as a sediment control measure at the bottom of erodible slopes, at the outfall of culverts/pipes, around the perimeter of a site, around temporary stock piles or spoilage areas and parallel to a roadway to keep sediment off of paved areas.
 - When installing straw bale barriers, make sure they are staked and entrenched to avoid undercutting.
 - *Limitation:*
 - Straw bale barriers should not be used for extended periods of time because they rot and don't stay together.
 - They should not be used as a sediment control measure for steep slopes, paved surfaces or as drain inlet protection.
 - They are also very labor intensive to install and maintain.

- **Construction Site Entrance/Exit** should be stabilized to reduce the tracking of mud onto public roads by construction vehicles.
 - *Application:*
 - Stabilized construction site access should be created for any sites where mud or dirt can be tracked onto public roads, where dust can be problematic during dry weather and on sites adjacent water bodies.
 - A stabilized construction entrance is a pad of aggregate underlain with filter cloth.
 - The purpose is to reduce or eliminate sediment being tracked onto public roadways by construction vehicles.
 - They are moderately effective in removing sediment from vehicles leaving a construction site.
 - If sediment is still being tracked onto public roadways after the entrance has been stabilized, a tire wash should be considered. A tire wash is a ditch filled with aggregate and underlain with a fiber cloth.
 - A drainage ditch needs to be built to convey water from the tire wash to a sediment trapping area.
 - A hose with an automatic shutoff nozzle should be used to wash off tires.
 - *Limitation:*
 - A stabilized entrance requires periodic top dressing of additional stones.
 - They can be expensive especially when used in conjunction with a tire wash because a sediment trap of some kind must be provided to collect runoff.
 - Another limitation of a tire wash is that a double wide access is required to avoid having non-construction vehicles driving through the tire wash.

- **Landscape Management** can reduce erosion, decrease sediment runoff and prevent pollution. The proper use of soil, materials and chemicals used in landscaping can decrease the discharge of pollutants and sediment into the storm drains and waterways.
 - *Application:*
 - Native, non-invasive, drought tolerant and pest tolerant vegetation should be used whenever possible.
 - Minimize the use of chemicals by purchasing less toxic alternatives and using only the minimum amount necessary.
 - Landscaping materials should be stored under tarps to protect them from wind and rain.
 - All landscape related grading and excavation should be scheduled for dry weather.
 - All areas being revegetated should be inspected for establishment of new vegetation and replanted when necessary.
 - Check dams or ditches should be used to divert runoff away from storm drains.
 - Storm drains inlets should be protected with sediment control measures.
 - *Limitation:*
 - Native, non-invasive, drought tolerant and pest tolerant vegetation may not be readily available from suppliers.

- **Preservation of Existing Vegetation** serves as an effective form of erosion and sediment control.
 - *Application:*
 - Before any project begins, efforts should be made to preserve existing vegetation.
 - Clearly mark areas not to be disturbed with construction fencing at all times.
 - All contractors on site should be notified where these areas are.
 - Any damage to these areas must be repaired in accordance with the landscaping plan.
 - *Limitation:*
 - Protecting existing vegetation requires planning and may restrict the area available for construction activities.

Pollution Prevention BMPs for Construction Site Storm Water Runoff Control

Some people are unaware of the problems storm water runoff creates. Storm water runoff causes pollution in our streams, rivers, bays and ocean by carrying pollutants from the earth's surface. Bacteria from animal and pet waste, oil and fluids from cars and equipment, fertilizer and pesticides from lawns and farms and many other pollutants contribute to storm water pollution.

At construction sites, erosion and sediment control measures are not the only areas of concern when it comes to storm water pollution. All new development and redevelopment projects that could possibly contribute to storm water pollution should also consider the use of the following Best Management Practices:

- **Spill Prevention and Control** will minimize or eliminate the discharge of hazardous and non-hazardous materials into storm drains and watercourses.
 - *Application:*
 - Hazardous and non-hazardous materials include but are not limited to fuels, lubricants, paints, solvents, cement, mortar, herbicides and fertilizers.
 - Storage areas for all of these materials must be provided on-site.
 - An on-site fueling area for equipment and vehicles needs to be provided.
 - Sufficient spill control clean up materials should be located near material storage, use areas and fueling areas.
 - Containment structures for storage and fueling areas need to be inspected regularly.
 - Spill prevention and control plans should be updated regularly and appropriate clean up materials should be stocked whenever a new type of chemical comes on site.
 - When a hazardous spill occurs, notify the State Office of Emergency Service (OES) at 1.800.852.7550.
 - *Limitation:*
 - The procedures and practices contained in this pamphlet are general.
 - Contractors need to identify appropriate practices for the materials used on-site.
- **Vehicle and Equipment Maintenance** is necessary to prevent and control leaks from equipment and vehicles.
 - *Application:*
 - All major maintenance, fueling and washing of construction vehicles and equipment should be conducted off-site whenever feasible.
 - Regularly maintain and inspect equipment and vehicles for damaged hoses, leaky gaskets and other service problems.
 - All equipment and vehicle service and storage areas should be located away from watercourses and storm drains.
 - Service and storage areas should be properly contained with berms, sandbags or other barriers.
 - Do not use soaps, solvents, degreasers, steam cleaning or other similar methods for on-site cleaning.
 - Always use drip pans or cloths if draining or replacing fluids on-site.
 - Wash out areas should use a sump to pump wash out water into the sewer.
 - Inspect all containment structures to ensure they are intact.
 - Make sure all waste fluid containers are leak proof.
 - Any sumps used in wash areas need to be regularly serviced.
 - *Limitation:*
 - Some wash water discharges may need to be pretreated before being discharged into the sewer.
 - All discharges into the sewer must have a pH range of 5-10.
 - Any discharge below or above that pH range needs to be treated. Any discharge with a pH of less than 2.0 or greater than 12.5 is a hazardous waste and must be dealt with accordingly.
- **Concrete and Cement Disposal** is important because concrete and cement mortars are toxic to fish and the aquatic environment.
 - *Application:*
 - When using cement or concrete, avoid mixing excess amounts.
 - Keep wet and dry cement and concrete away from storm drains and watercourses.
 - When storing concrete and cement, make sure they are contained and covered in order to protect them from rain and prevent runoff.
 - Identify a location for a waste water pit away from storm drains and watercourses. The pit must be large enough to hold the amount of waste created.
 - When possible, recycle the wash out water by pumping it back into the mixer. Waste water should be pumped to the sewer. If neither practice is feasible, let water percolate through the soil and then dispose of the hardened concrete into the trash.
 - Never dispose of the waste water into the streets, storm drains, drainage ditches or waterways.
 - Wash out mixers only in designated areas where the water will drain into a waste water pit or a location away from storm drains and waterways to allow for hardening.
 - On-site concrete wash out, waste storage and disposal procedures should be monitored at least weekly.
 - *Limitation:*
 - Wash out area takes away space that could be used for other construction purposes.
- **Water Conservation Practices** on construction sites reduces the potential for erosion and the transport of pollutants off site.
 - *Application:*
 - All water equipment should be kept in good working condition.
 - All water equipment should be inspected at least twice weekly. Repair all water leaks immediately.
 - Irrigation controllers need to be reset according to seasonal needs. Avoid using water to clean construction areas.
 - Sweep paved areas whenever practical.
 - All construction water runoff should be directed to areas where it can be soaked into the ground.
 - When washing vehicles and equipment, a commercial washing facility should be used whenever possible.
 - Washing of equipment on the construction site should be discouraged. If vehicle and equipment washing is done on site, minimize water use, retain all runoff on-site and do not use soaps or chemicals.
 - *Limitation:*
 - None

Pollution Prevention BMPs (continued)

- **Landscape Management** can reduce erosion, decrease sediment runoff and prevent pollution. The proper use of soil, materials and chemicals used in landscaping can decrease the discharge of pollutants and sediment into the storm drains and waterways.
 - *Application:*
 - Native, non-invasive, drought tolerant and pest tolerant vegetation should be used whenever possible.
 - Minimize the use of chemicals by purchasing less toxic alternatives and using only the minimum amount necessary.
 - Landscaping materials should be stored under tarps to protect them from wind and rain.
 - All landscape related grading and excavation should be scheduled for dry weather.
 - All areas being revegetated should be inspected for establishment of new vegetation and replanted when necessary.
 - Check dams or ditches should be used to divert runoff away from storm drains.
 - Storm drains inlets should be protected with sediment control measures.
 - *Limitation:*
 - Native, non-invasive, drought tolerant and pest tolerant vegetation may not be readily available from suppliers.