

# STORM WATER QUALITY MANAGEMENT



City of  
Corpus  
Christi

## **GUIDANCE DOCUMENT FOR DEVELOPMENTAL PLANNING & CONSTRUCTION ACTIVITIES**

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## **REFERENCES**

# 1.0 INTRODUCTION



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**INTRODUCTION**



## **1.0 INTRODUCTION**

The November 16, 1990, regulations established requirements of a two-part permit application designed to facilitate development of site-specific permit conditions for municipalities with a population of 100,000 or more. The Clean Water Act (CWA) requires that NPDES permits for discharges from Municipal Separate Storm Sewer System (MS4) include a requirement to effectively prohibit non-storm water discharges (including discharges from construction activities) into the storm sewers. The CWA also requires NPDES permits for discharges to include controls to reduce the discharge of pollutants to the maximum extent practicable by implementation of management practices, control techniques, engineering methods, and other provisions appropriate for the control of such pollutants.

In response to EPA municipal storm water permit requirements, the City of Corpus; Texas Department of Transportation-Corpus Christi District; Corpus Christi Junior College District; Port of Corpus Christi Authority, and Texas A&M University-Corpus Christi submitted a Joint Part 1 permit application to EPA in May, 1992 and Joint Part 2 application in May, 1993.

The City of Corpus Christi, along with its co-permittees, were issued NPDES permit No. TXS000601 in April, 1995, which became effective on June 1, 1995. The permit provides the opportunity to propose appropriate management programs to control pollutants in discharges from the MS4. One of the management programs required by EPA is to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from developments to the MS4, during construction and after construction.

Inherent in planning for the control and reduction of pollutants in storm water runoff after the construction phase, is the need to consider the contribution each individually developed site may make, the contribution a collection of developed sites may make and the contribution that undeveloped sites may make. In addition, the methodologies of treating polluted runoff differ and have varying cost-effectiveness when comparing runoff from each individual site and the collected runoff from a hundred individual sites. Best management practices need to be applied to whole drainage watersheds as a system as well as to individual sites.

## **1.1 BACKGROUND**

### ***1.1.1 Clean Water Act***

The 1972 amendments to the Federal Water Pollution Control Act (also referred to as the Clean Water Act) prohibit the discharge of any pollutants to waters of the United States from a point source unless the discharge is authorized by a National Pollutant Discharge Elimination System (NPDES) permit. Efforts to improve water quality under the NPDES program traditionally have focused on reducing pollutants in discharges of industrial process wastewater and from municipal sewage treatment plants. Efforts to address storm water discharges under the NPDES program have

generally been limited to certain industrial categories with effluent limitations for storm water.

Congress amended the Clean Water Act (CWA) in 1987 to require the Environmental Protection Agency (EPA) to establish phased NPDES requirements for storm water discharges. To implement these requirements, on November 16, 1990, EPA published (55 Federal Register 47990) the initial permit application requirements for (a) 11 categories of storm water discharges associated with industrial activity, and (b) discharges from MS4s located in municipalities with a population of 100,000 or more.

### *1.1.2 Construction Activity Storm Water Discharge Regulated as Industrial Activity*

One of the 11 categories of industrial activity covered under this regulation is a construction activity (including cleaning, grading, and excavation) disturbing 5 or more acres. Storm water discharges into waters of the United States & such a construction activity are unlawful, unless authorized by an NPDES permit. Storm water runoff can become polluted by picking up soil particles and other pollutants as it flows over construction sites. By requiring a construction activity to have an NPDES storm water permit, this regulation provides a way for EPA to monitor and manage these discharges and to reduce the amount of pollutants.

The regulation presents two (2) permit application options. The first option is to submit an individual permit application to EPA. The second option is to file a notice of intent (NOI) to seek coverage under a general permit in accordance with the requirements of the final general permits issued by EPA on September 9, 1992 (57 Federal Register 41176). A copy of the final general permit is included in Section 6.0 of this handbook. One of the major requirements of the general permit is that the operator(s) of the construction activity should prepare and implement a storm water pollution prevention plan (SW3P) to reduce the pollutants in storm water discharged from the construction site.

### *1.1.3 New Proposed General Permit for Construction Activities*

The EPA General Permit for Construction Activities expired on September 9, 1997. The EPA published a new proposed general permit for construction activities entitled "Proposed Reissuance of NPDES General Permits for Storm Water Discharges from Construction Activities" in the Federal Register on June 2, 1997 (62 FR 29785). Final publication is anticipated, but did not occur prior to publication of this Guidance Document. A copy of the new proposed General Permit is included in Section 6.0 - Regulations.

## **1.2 PURPOSE**

This handbook has been prepared to provide technical guidance related to erosion and sediment controls and other measures to reduce pollutants from developing sites. The purpose of the document is three-fold:

- (1) To be used as a guidance manual to implement a local storm water quality

management program for new residential, commercial, and industrial developments and significant redevelopments. (i.e., when the storm water quality management programs proposed are approved by EPA and proposed regulations are adopted by the City of Corpus Christi).

- (2) To be used as a general guidance manual in preparing individual storm water permit applications for construction activities or in preparing and implementing SW3Ps required under provisions of the general permits for construction activities promulgated by EPA on September 9, 1992.
- (3) To be used as a guidance manual to implement a local storm water management program for construction activities to satisfy the requirements established by NPDES Permit No. TXS000601.

The technical guidance and best management practices (BMPs) described in this handbook will provide information to owners, engineers, architects, and contractors to facilitate compliance with EPA NPDES storm water permit requirements and with local regulations. The handbook: discusses the preparation of erosion and sediment and other source control plans, the incorporation of BMPs in the design phase of improvements, and their implementation during construction.

### **1.3 ORGANIZATION OF THE HANDBOOK**

This handbook is organized to function as a user's guide to meet the purposes described above. The remainder of the handbook is divided into four (4) sections:

- **Section 2.0** provides an overview of the erosion and sedimentation process as well as basic principles of erosion and sediment control and other source controls.
- **Section 3.0** discusses the technical criteria for controls designed to minimize the discharge of pollutants from areas of new development and significant redevelopment during construction and after construction is complete.
- **Section 4.0** describes various BMPs to control pollutants from construction sites, the applicability of these BMPs, and the minimum standards and criteria for designing and using the BMPs.
- **Section 5.0** discusses typical requirements of a SW3P for construction activities, the process for selecting BMPs, and the procedure to develop SW3Ps. Considerations have been given to requirements stipulated in the September 9, 1992 general permits.
- **Section 6.0** contains Federal, state, and local regulations pertaining to control of storm water discharges from construction activities. Currently, the only regulations are those promulgated by EPA.

## **1.4 DISCLAIMER**

This handbook is intended to provide general guidance in managing storm water discharge from construction sites and completed land developments. Technical and guidance data included have come from a number of sources. Careful consideration must be given to selecting the most appropriate control measures based on site-specific features. Additional information from professionals, agencies, organizations, and institutions with expertise in a particular area may be required in selecting, designing, and installing the BMPs.

The handbook does not describe all NPDES storm water permit requirements for SW3Ps. Instead, the handbook includes a copy of the September 9, 1992 general permit for construction activities in Section 6.0. The sample NOIs and PPPs presented were developed to illustrate an example of one possible way to comply with EPA general permit requirements. However, it is the individual applicant's responsibility to have a thorough understanding of the EPA NPDES general permit regulations and guidelines to assure compliance with the requirements for preparing a NOI and PPP for a specific project.

Since the final general permit was issued by EPA on September 9, 1992, all EPA general permit requirements may not be addressed in this handbook.

As stated in the Purpose, this document was prepared as a guidance manual and is not intended to replace the need for a site specific plan for activities requiring an NPDES storm water permit. Use of information in this document is at the sole risk of the users. The City of Corpus Christi along with its co-permittees and their agents and consultants do not represent that material contained in this document is adequate for compliance with EPA requirements or that it is accurate in all respects.

## **1.5 ACKNOWLEDGMENTS**

This handbook contains information provided from handbooks developed in other cities and states. The manuals/handbooks prepared by Harris County, Harris County Flood Control District, the City of Houston, the Wisconsin Department of Natural Resources, the City of Austin Department of Environmental Protection, the Florida Department of Environmental Regulation, and the manual jointly developed by the North Carolina Sedimentation Control Commission, the North Carolina Department of Natural Resources and Community Development, and the North Carolina Agricultural Extension Service were used extensively. In addition, information contained in the preliminary draft of the Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices prepared by EPA and the preliminary draft of Storm Water Quality Management Guidance Manual prepared by Turner Collie & Braden, Inc. for Harris County, also was used in preparing this handbook.

# 2.0 PRINCIPLES OF STORM WATER MANAGEMENT



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## **2.0 PRINCIPLES OF STORM WATER MANAGEMENT FOR DEVELOPMENTAL PLANNING AND CONSTRUCTION ACTIVITIES**

In order to develop Storm Water Management plans, the effects of urbanization and the accompanying construction activities should be understood.

### **2.1 URBANIZATION AND SURFACE WATER QUALITY**

#### *Urbanization and Surface Water Quality:*

Urbanization tends to increase runoff from previously undeveloped areas. Surface area for infiltration is reduced by removing vegetation and increasing the extent of impervious surface. Reduced vegetative resources also reduces evapotranspiration. Natural surface depressions which provide storage are cleared and graded smooth. As a result, runoff volumes, flow rates and flow velocities may increase significantly. The impacts and control measures for increased storm water quantities are addressed in drainage design manuals prepared by the City of Corpus Christi.

Urban development may also impair water quality. Pollutants can be generated during construction and afterwards from the operation and activities of the urban land use. Urban land uses include residential, commercial, industrial, transportation, public and other uses. Urban land use activities generate wastes and residuals that, if handled improperly, can contaminate runoff. Increased runoff volume and velocities from impervious areas also increase off-site pollutant transport, further impacting receiving water. This guidance manual will focus on the storm water quality impacts of urban land use activities for site stabilization, and appropriate control measures.

Manmade residential canals may effect water quality in several ways. Excessive depth and inadequate circulation can create depleted levels of dissolved oxygen which can lead to fish kills. Fertilizers that runoff from adjacent lawns can produce algae blooms that can harm naturally occurring wildlife.

Specific pollutants generated by urban land uses include floatables, sediment, nutrients, oxygen demand, oil and grease, trace metals, toxic chemicals and bacteria. The causes and effects of these pollutants are summarized below.

#### *Floatables:*

Floatable debris includes plastic and paper products, yard refuse, metal and glass containers, tires, etc. These pollutants are relatively large, decompose slowly and degrade the visual aesthetics of the receiving water and shorelines. They present a physical danger to vegetation and wildlife, through habitat congestion, entangling or ingestion. These pollutants originate from litter and improperly disposed refuse.

### *Sediment:*

Suspended sediment in high concentrations can cause multiple impacts. Impacts in receiving streams may include increased turbidity, reduced light penetration, reduced prey capture for sight feeding predators, clogging of gills/filters of fish and aquatic invertebrates, and reduced angling success. Impacts in slower receiving water such as lakes and estuaries include siltation, with subsequent smothering of benthic communities, changes in bottom substrate composition, and decreased depth (creating a need for dredging). Sediment with high clay or organic content carries trace metals and toxicants, posing a risk to benthic life upon resuspension. Sedimentation impacts are affected by a number of inter-related site factors, including soils, topography, surface cover and climate. The predominantly clayey soils in the Corpus Christi region have low permeability, which can result in increased runoff rates and velocities. While the flat topography of the area helps reduce the scouring effects of higher velocities, establishment of vegetative cover can shield the soil and promote infiltration. However, coastal regions in Texas are subject to storms ranging from localized showers and intense thunderstorms to hurricanes.

### *Nutrients:*

Increased phosphorus and nitrogen levels can accelerate eutrophication in downstream fresh and tidal water. Eutrophication can lead to surface algal scums, water discoloration, odors, depressed oxygen levels, release of toxins.

Nutrients tend to build-up on impervious surfaces. Runoff from these areas can lead to high nutrient loads. Intensively landscaped areas and wash water from outdoor cleaning activities are also potential sources of nutrients.

### *Oxygen Demand:*

Dissolved oxygen (DO) is an indicator of water quality impact. The abundance of DO indicates a capacity to support aquatic life. Decomposition of organic matter by microorganisms depletes DO levels, especially in slower moving streams, lakes and estuaries. Rising temperature from changing weather can also deplete DO, by decreasing the solubility of oxygen in water.

The degree of potential DO depletion from organic matter and microorganisms is measured by either the biochemical oxygen demand (BOD) test or the chemical oxygen demand (COD) test. Urban runoff can depress DO levels after large storms. BOD solids can accumulate in bottom sediment during storms causing anoxic (zero oxygen) conditions in shallow, slow-moving or poorly-flushed receiving waters.

Generally, older highly impervious, highly-populated urban areas with leaking sanitary sewer systems (i.e., sewage overflow) can cause the greatest export of BOD. Moderate BOD

export has been reported from newer, low density suburban residential development.

#### *Oil and Grease:*

Oil and grease contain a wide variety of hydrocarbons, some of which are toxic to aquatic life at low concentrations. Surface sheen is usually an indication of the presence of hydrocarbons. However, some hydrocarbons, especially weathered crankcase oil, appear in solution or emulsion and have no sheen. Hydrocarbons have a strong affinity for sediment, and much of the hydrocarbon load absorbs onto particles and settles out. If not captured by BMPs, hydrocarbons tend to accumulate in bottom sediments of lakes and estuaries.

The major source of hydrocarbons is leakage from crankcase oil and other lubricating agents from the automobile. Hydrocarbon concentrations generally are highest in runoff from parking lots, roads and service stations. Residential land uses generate less hydrocarbon export, with the exception of illegal dumping of used oil in storm sewers.

#### *Trace Metals:*

Trace heavy metals are a concern because of their toxic effects on aquatic life and the possibility of water supply contamination. The heavy metals with the highest concentrations in urban runoff are copper, lead, zinc, and cadmium. Metals are introduced in waste oils that are illegally dumped into the MS4. Other heavy metals may be found when inappropriate connections between sanitary and storm sewers are present. Most heavy metals absorb to particulates, which settle out and reduce the metals immediately available for biological uptake.

#### *Toxic Chemicals:*

Other toxic chemicals present in urban runoff include pesticides, herbicides and synthetic organic compounds. Concentrations of these substances in runoff from residential and commercial areas rarely exceed current safety criteria. However, relatively little sampling of runoff has been reported from industrial areas, which might be a greater source of toxicants. Sources of pesticides, herbicides and other toxic compounds include illegally disposed or applied household hazardous wastes, such as waste oil, paint thinners, pesticides, herbicides and preservatives.

#### *Bacteria:*

Bacteria levels in undiluted urban runoff usually exceed public health standards for contact recreation. Bacteria multiply faster during warm weather, and substantial differences in bacteria populations are to be expected between summer and winter. The bacteria test; however, is a count of coliform bacteria, which are an indirect and often imprecise indicator of pathogens and viruses which may be present. Thus, the health implications may be



unclear. Nonetheless, while most urban land uses export enough bacteria to exceed health standards, older and more intensively developed urban areas generally produce the greatest export. The problem is especially significant in areas that experience sanitary sewer overflows that export bacteria derived from human wastes. Areas with improperly maintained or failed septic tank systems are also potentially significant.

## 2.2 CONSTRUCTION ACTIVITIES AND SURFACE WATER QUALITY

Construction activities produce many different kinds of pollutants which may cause storm water contamination problems. Construction activities remove grass, rocks, pavement and other protective ground covers resulting in the exposure of underlying soil. Because the soil surface is unprotected, dirt particles are easily washed away by rain. The water carrying the particles eventually reaches streams, rivers, lakes, or coastal waters where it slows down, allowing the particles to settle to the bottom. Gradually, layers of these clays and silts build up in the stream, lake, or coastal water and may reduce its capacity, or cover the areas where fish spawn. The particles may also cloud the water which can kill the plants growing there.

Construction greatly increases the potentials for erosion and sedimentation at a site. Erosion rates on disturbed land may increase from 100 to 1,000 times that of pre-construction rates. BMPs applied to construction sites and activities can substantially reduce the impact of man-induced erosion. To accomplish this, it is important to review and identify potential erosion problems early in the construction site planning process. Appropriate measures can then be developed and incorporated into the construction plan for effective erosion and sediment control.

In addition to erosion and sedimentation problems, construction projects may require the use of toxic or hazardous materials such as petroleum products, pesticides, herbicides, and building materials which may pollute storm water running off the construction site. These types of pollutants can often contain small amounts of metals and other toxic materials which may be harmful to humans, plants, and fish in streams. Source control BMPs and good housekeeping can prevent these materials from mixing with storm water and reduce the potentials for pollution.

### *Erosion Process*

Erosion is the process by which soil or rock material is loosened and removed. Soil erosion can be caused by water or wind actions. There are four categories or stages of water induced erosion:

- **Splash:** Raindrops impact on exposed soils and dislodge soil particles, making them easier to transport.
- **Sheet:** Overland sheet flow transports sediments dislodged by raindrop impact.
- **Rill and Gully:** Concentrations of overland flow into rivulets and channels of increasing size, and velocity which result in erosive action on exposed surfaces.
- **Stream and Channel:** Erosion of channel banks or bottoms from increased or higher flows and velocity discharge.

Wind erosion can be significant at construction sites. Wind erosion can cause the separation and gradual removal of silt, clay and organic matter from surface soils, leaving the remaining materials sandy and infertile. The windblown soils can cause abrasive damage to surfaces and vegetation, as well as deposition problems.

### *Sedimentation*

Sedimentation is the deposition of soil particles transported by water or wind. Reduced velocities, whether natural or induced as with settling basins, allow particles to settle. Larger or heavier particles such as gravel and sand settle more rapidly than finer particles such as clay and silt.

### *Factors Impacting Erosion and Sedimentation*

The magnitude and extent of erosion and sedimentation impacts are affected by a number of inter-related site factors:

- **Soils**

According to the Soil Survey of Nueces County (SCS), most of the soils within and adjacent to Corpus Christi are underlain by and were formed from heavy clays of the Beaumont geologic formation. By far, the largest acreage consists of Victoria soils. These soils have a fine-textured surface layer and subsoil that contain clay with a high shrink-swell ratio. This characteristic alone may be responsible for the failure of sewer and water lines, foundations and walls, power line and pole alignment, and pavements that crack and heave. Salinity of the subsoil, poor surface and internal drainage, and erosion are among the factors that contribute to corrosion of utility installations, failures of septic systems, cost of maintaining streets and expressways, and problems in disposing of storm water.

Loamy and sandy soils lie in bands on slopes along the Nueces River and along the Laguna Madre in the vicinity of Flour Bluff. Surface drainage is good in most places, and internal drainage is good in many places. Galveston and Mustang fine sands are in these areas. They are low in fertility, and their surface layer has low water holding capacity. Below a depth of 3 or 4 feet, these soils have a layer of sandy clay or sandy clay loam that is less permeable than the surface layer. Because the thickness of the sandy layers vary considerably, the area should be surveyed in detail before it is developed.

- Topography

Topography affects runoff rates, volumes and direction, and indirectly affects vegetative cover. Increased runoff velocities and possibly discharge result from long, steep slopes and channeling. Vegetation may also be more difficult to reestablish on slopes with greater exposure to wind or sun.

- Surface cover

The type and condition of surface cover greatly affects the volume and velocity of runoff. Well established vegetation shields the soil from the impact of falling rain, reduces flow velocity, disperses flow, and promotes infiltration. Impervious surfaces protect soil from erosion but prevent infiltration, increasing the potential runoff volume and velocity. Wind erosion can be significant on unprotected, disturbed surface areas.

- Climate

Climate is a fundamental aspect of the hydrologic cycle. The frequency, intensity and duration of rainfall and temperature affect the potential amount of runoff and erosion from a given site at a given time of year. Coastal regions in Texas are subject to moderate to high temperatures, and storms ranging from localized showers and intense thunderstorms to hurricanes. Also, the timing and duration of construction directly affects the amount of exposure to runoff-producing rain.

## **2.3 BASIC PRINCIPLES OF EROSION AND SEDIMENT CONTROL AND OTHER SOURCE CONTROLS**

The following basic principles of erosion and sedimentation control derive from two basic objectives. First, protection of soils from the erosive forces of rain, wind and runoff; and secondly, the on-site capture of eroded soils and sediments.

### **1. Review site conditions prior to development.**

Consider all existing conditions at the site, including soils, topography, drainage patterns and existing vegetation. Modifications to site topography, cover and drainage patterns will change the site hydrology and runoff. Such modification will require well-engineered erosion and sediment controls during and after construction.

### **2. Divert up slope runoff.**

Overland flow from up slope areas should be diverted around disturbed areas to minimize the amount of erosion generating runoff from the disturbed area.

### **3. Minimize the extent of disturbed areas.**

The disturbed areas' size and the duration of disturbance should be minimized to the extent practicable, to minimize the amount of sediment leaving the site. Natural cover should be retained to the maximum extent feasible. Protective measures for significant trees and stands that have been chosen to be retained, should be included in the construction site plan.

### **4. Schedule clearing and grading to minimize exposure.**

Where practicable, construction activities should be sequenced to minimize amount of area disturbed at one time. Plan the development stages so that only the areas which are actively being developed are exposed. All other areas should be protected with temporary or permanent vegetation or mulching. Grading should be completed as soon as possible after it is initiated. Seasonal variations in climate should be considered where practicable.

### **5. Stabilize disturbed areas.**

Temporary or permanent stabilization of exposed soils should be provided as soon as practicable but no more than 14 days after the construction activity has ceased. Stabilization practices may include temporary seeding, permanent seeding, mulching, geotextiles, sodding, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures.

**6. Keep runoff velocities low.**

Clearing vegetation reduces infiltration and surface roughness, resulting in increased runoff volumes and velocities. Measures that break slopes and diffuse flows and divert flows to stabilized outlets can reduce problems associated with concentrated flows and velocities.

**7. Retain sediment on the site.**

While the site is disturbed, measures should be used to trap pollutants and to prevent their movement from the site. Suspended sediment can be captured by filtration or sedimentation measures. Filtration devices include filter fabric fences, straw bales, filter fabric barriers and drop inlet baskets. Sedimentation devices include sediment basins and sediment traps. Transported sediments, such as on truck beds and equipment tires, can be hosed off, and runoff can be directed to temporary or permanent sedimentation basins where practicable. The paved streets adjacent to the site entrance should be cleaned daily to removed any sediments tracked from the site.

**8. Prepare drainage facilities to handle concentrated or increased runoff.**

Drainage channel(s) should be protected to prevent scour and erosion. Rock, sod and other means of stabilization can be used on outlets providing conveyance to the storm drainage system. Such measures can provide protection against erosion and provide filtration of larger particles.

**9. Inspect and maintain control measures.**

Vital to the success of the above eight principles is the periodic and thorough checking and maintenance of the erosion and sediment control practices used. A routine "end of day check" with periodic detailed inspection could be used to apply this principle. Improperly maintained practices may cause more damage than they prevent. Failure of a practice may be hazardous or damaging to both people and property, as in the case of a large sediment basin failure, or a breached dike. It is essential to properly inspect practices and correct problems as soon as they develop.

**10. Control sources of other pollutants.**

The most economical and effective source control for other potential pollutants, (e.g., petroleum products, pesticides and herbicides) generated on construction sites, is the exercise of good housekeeping practices. These practices will minimize the potential of pollutant material mixing with storm water runoff. Efforts should be made to store only enough product to complete the project. Potential pollutants

should be kept in their original containers, stored neatly, and out of the weather if possible. Manufacturer's instructions on the use and disposal of products should be followed. Whenever possible, all of a product should be used completely before disposing of the container. Daily inspections should be conducted to ensure proper use and disposal of potential pollutants.

# **3.0 PLANNING FOR DEVELOPMENT AND SIGNIFICANT REDEVELOPMENT**



City of  
Corpus  
Christi



### 3.0 PLANNING FOR DEVELOPMENT AND SIGNIFICANT REDEVELOPMENT

#### *Urbanization and Surface Water Quality:*

**Urbanization tends to increase runoff from previously undeveloped areas.** Surface area for infiltration is reduced by removing vegetation and increasing the extent of impervious surface. Reduced vegetative resources also reduces evapotranspiration. Natural surface depressions which provide storage are cleared and graded smooth. As a result, runoff volumes, flow rates and flow velocities may increase significantly. The impacts and control measures for increased storm water quantities are addressed in flood control drainage design manuals prepared by the City of Corpus Christi.

**Urban development may also impair water quality.** Pollutants can be generated during construction and afterwards from the operation and activities of the urban land use. Urban land uses include residential, commercial, industrial, transportation, public and other uses. Urban land use activities generate wastes and residuals that, if handled improperly, can contaminate runoff. Increased runoff volume and velocities from impervious areas also increase pollutant transport off-site, further impacting receiving water. This guidance manual will focus on the storm water quality impacts of urban land use activities after site stabilization, and appropriate control measures.

Planning for development and significant redevelopment is a process that includes two major steps relating to planning for storm water quality controls. These steps are planning for **post-construction** and **during-construction** storm water quality controls. Though the during-construction controls will be required first, the post-construction planning is generally performed first as discussed in the following sections.

Planning for effective storm water management begins in the planning stage for development and redevelopment projects. During the early stages of land use and preliminary infrastructure design, decisions are made which will effect the ultimate quality of the storm water runoff after the development is completed. This occurs after all permanent pollution control measures are in place and the land is occupied with the users that the development was designed for. During the site planning stage of development, areas sensitive to storm water pollution are identified. These areas include water supply sources, recreational waters, wetlands, island dunes, and other areas with particularly sensitive ecological systems. Consideration for environmentally sensitive areas during the planning stage of development will allow for the incorporation of measures into the development plan that will avoid or minimize negative impact to these areas. This planning results in the "**post-construction**" controls to be discussed and specified in this section.

The second component of planning for development is the preparation and implementation of a

pollution prevention plan for use during the construction of the development. Construction activities that occur during the development or redevelopment of property can cause pollution of storm water if proper temporary measures are not taken. According to the EPA, sediment runoff rates from construction sites are typically 10 to 20 times greater than those of agricultural lands, and 1,000 to 2,000 times those of forest lands. A part of the planning process for development and redevelopment within the City of Corpus Christi is the preparation of a storm water pollution plan. This planning results in the "**during-construction**" controls to be discussed and specified in this section.

The **post-construction** controls must recognize the need for both individual controls at the individual site level and more comprehensive controls which are implemented at the drainage system level. An emphasis is given to pollution control measures based on a "drainage watershed" approach that will serve multiple properties. Such a systems approach needs to be funded through a mechanism which reflects the benefits to the public in general and the entire system served. A regional drainage district with an assessment program and/or impact fees can facilitate system-wide solutions that are more effective at reaching a certain water quality standard and are more cost-effective, in the long run, to construct and maintain than requiring a myriad of individual solutions to meet that same water quality standard.

The basic requirements for storm water management during developmental planning and construction are divided into the following four (4) sections:

- **3.1 Comprehensive Master Plan Land Use Policies** lists various policies effecting storm water structural and non-structural controls that have been previously adopted by the City of Corpus Christi, as policy statements within the Land Use portion of the City's Comprehensive Master Plan.
- **Section 3.2 Planning Requirements for Site Development (Post-Construction)** discusses the considerations that are important when planning the development of new sites or the redevelopment of an existing site. Considerations include the possibility of greenbelts, the need for detention facilities, and the impact of site location on the required structural or non-structural controls to maintain good storm water quality.
- **Section 3.3 Planning Requirements for Site Development (During-Construction)** describes the required storm water pollution planning requirements for three classes of developments, based upon size of development.

**3.3.1 Development of Sites 5 Acres or More - Requires site specific NPDES Storm Water Pollution Prevention Plan**

**3.3.2 Development of Sites Less than 5 Acres and Greater than ¼ Acre - Requires site specific Pollution Control Plan**

**3.3.3 Development of Sites ¼ Acre or Less & Single-Lot, Single-Family Residential Construction - Does not require site specific plan but requires compliance with Pollution Control Measures**

- **Section 3.4 Pollution Control Measures (Post and During Construction)** are the minimum structural and non-structural storm water pollution control practices required for site development projects.

### 3.1 COMPREHENSIVE MASTER PLAN LAND USE POLICIES

The Comprehensive Master Plan for Land Use in the City of Corpus Christi contains policy statements that will be followed where reasonably attainable in the development of sites.

#### 3.1.1 Provide flood plain management to reduce erosion, peak flows, and poor water quality.

*"Where flooding, erosion, and water pollution are related directly to development, adequate regulations are needed to mitigate or entirely prevent an increase of these types of problems."*

*"The City will strive to assure storm water discharges occur where the soil is stable, or require dissipaters"*

*"Where feasible, the City will encourage drainage channels in residential areas to be of a swale type design as they are more compatible with the residential development than the traditional "v" type ditch; natural ground cover rather than concrete liners are preferred."*

#### 3.1.2 The obligations for storm water management should be shared by individual property owners and the whole community.

*"The obligations for collection, storage, and treatment of storm water should be shared by individual property owners and the community. At the same time, the optimal design for storm water collection and storage should strike a balance between capital costs, operation and maintenance costs, public convenience, risk of significant water-related damage, environmental protection and enhancement, and other community objectives."*

#### 3.1.3 Implement traditional and non-traditional methods for management of storm water drainage.

*"A critical concern within already developed areas is the drainage/flood potential of additional drainage from new developments. Some traditional methods have and will continue to be effective solutions to drainage problems. However, as the technology for assessing the impacts of new development have become more sophisticated, some cities have found non-traditional solutions to control increased amounts of runoff. One of these non-*

*traditional solutions includes the development of "on-site" retention and detention facilities. Another potential solution is special financing for drainage improvements. The City should study these new methods and implement those that will help alleviate storm water drainage problems in areas where it is cost effective."*

*"The City will work with Federal and State agencies to use, where feasible and environmentally beneficial, natural or man-made wetlands as storm water retention facilities"*

3.1.4 Encourage the development of greenbelts in combination with drainage facilities.

*"Greenbelts can provide a connective function between residential areas and parks, schools, shopping centers, and other areas of activity. Green belts established adjacent to creeks can provide a unique location for walkways, bikeways, and jogging trails away from automobile traffic."*

3.1.5 Encourage the use of storm water drainage ditches lined with a pervious surface such as turf grass rather than concrete lining.

*"Impervious surfaces such as concrete prevent percolation and filtering of storm water runoff. Pervious surfaces allow some percolation and filtering of runoff and improve water quality at outfalls into the creek and bay system."*

3.1.6 In order to improve water quality, the City should consider encouraging or requiring industrial developments to provide "wet ponds" to filter storm drainage.

*"Consideration should be given to on-site facilities or participation in larger, multi-user ponds. Such ponds can help filter particulates from industrial runoff before discharging into the creek and bay system."*

3.1.7 The City should create a special overlay zoning district in the Oso Parkway Corridor.

*"A special overlay zoning district should be created within the areas covered by the Southside Area Development Plan, the Westside Area Development Plan, and the Port/Violet Area Development Plan that protects environmentally sensitive lands, best utilizes private and public open spaces, encourages limited access along the Oso Parkway, and protects*

*water quality. The zoning district would require a site plan review process for any activity within the Oso Parkway overlay district.”*

### 3.2 PLANNING REQUIREMENTS FOR SITE DEVELOPMENT (Post-Construction)

Residential and commercial developments shall provide storm water quality structural or non-structural control measures to control post construction storm water pollution where reasonably attainable. The measures utilized will depend on the size of the development and the site location. The following factors and measures will be considered in the approval of development plans by the City of Corpus Christi:

#### 3.2.1 *Storm Water Quality Management Plans*

##### A. *Residential, Commercial & Industrial Developments 5 acres or More*

Preparing for effective storm water management begins in the initial planning stage of development and redevelopment projects. As such, a Storm Water Management Plan in the form of a preliminary engineering report and analysis will be submitted at the time of a preliminary plat submission or site plan for all developments of 5 acres or more.

The submitted engineering report should provide a brief description of the project with maps showing the area to be served (generally the preliminary plat); ultimate land use assumptions; hydraulic calculations based upon established procedures (such as the rational method); on-site drainage plan which details the direction of flow, collection structures, size and required capacity; demonstration to the conformance with existing Master Plan drainage and/or the need for Master Plan amendment for both on-site and off-site improvements; and the delineated route of runoff to ultimate outfall source. The intent of the last requirement is to determine ultimate capacity for water quality treatment at an ultimate outfall station.

Also during this preliminary engineering analysis and plat development, the owner must identify environmentally sensitive areas located on-site and environmentally sensitive areas that may be impacted by storm water pollution from the site. Areas of investigation include, but are not limited to, water supply sources, recreational waters, wetlands, barrier island dunes, and other sensitive ecological systems.

The preliminary engineering assessment will be sealed and signed by a Licensed Professional Engineer licensed to practice engineering in the State of Texas.

The resultant engineering assessment and planning study submitted for the proposed development will assist the City's assessment of the development's compliance with "**post-construction**" procedures and measures discussed in this section.

**B. *Residential Developments Less than 5 Acres***

A site specific Storm Water Quality Management Plan is not required but the planning for the development of the site should include consideration of the factors and BMP's suggested in this section.

**C. *Commercial and Industrial Development Currently Regulated by EPA***

Commercial or industrial development as defined in 40 CFR 122.26(b)(14), including construction activities that will disturb five or more acres of total land area as a part of a larger common plan of development or sale, should provide storm water quality structural or non-structural control measures as required by current EPA regulations.

Such development is required to submit to the City a copy of an individual NPDES permit application or General Permit NOI, as applicable, together with the development permit or plat application. If the NPDES permit application or NOI is not available at the time of application, a statement of intent to file an NOI should be provided, and a copy of the NPDES permit or NOI, when it is available, should be submitted.

**D. *Other Commercial and Industrial Development Less than 5 Acres***

A site specific Storm Water Quality Management Plan is not required but the planning for the development of the site should include consideration of the factors and BMP's suggested in this section.

**3.2.2 *Environmentally Sensitive Areas***

During the planning for development, areas sensitive to storm water pollution should be identified. These would include areas such as water supply sources, recreational waters, wetlands, and streams with sensitive ecological systems. This information will first assist in evaluating if the project can be located in a particular area without potential damaging results, and secondly, it will provide the criteria on which to base cost-effective storm water control measures.



Environmentally sensitive areas are more susceptible to being impacted by the effects of storm water runoff from the site development than other environs. These areas generally contain a multitude of plant, animal, insect, bird, and fish species that depend on water quality to maintain a healthy ecosystem.

Vegetated buffer strips along the boundaries of environmentally sensitive areas are an effective means of reducing pollutants, siltation, and erosive velocities that can occur from overland flow from site development runoff. A buffer strip 20-feet wide of preferably native vegetation will usually suffice, and should be utilized where possible.

Drainage outfalls that will discharge directly into environmentally sensitive receiving waters or wetlands should be located with consideration for the natural topography and drainage patterns of the environmentally sensitive area. Velocity control should be provided at the outfall opening to eliminate erosion of the environmentally sensitive area. Rock rubble placed at the outfall will allow for velocity reduction as well as trapping of some floating debris and sediments from the storm water runoff from the development.

#### A. *Receiving Waters*

The following list of water bodies are considered as environmentally sensitive receiving waters for the purpose of this guidance document.

- Corpus Christi Bay
- Nueces Bay
- Oso Bay
- Laguna Madre
- Nueces River
- Oso Creek
- West Oso Creek
- Petronilla Creek
- Gulf of Mexico

The receiving waters include perennial and intermittent streams that are natural habitat areas to these listed waterways. However, manmade drainage structures are not considered receiving waters. Additional areas may also be determined as being environmentally sensitive based upon the TNRCC's stream segment classification system as referenced from the *State of Texas Water Quality Inventory*. These are waters that have been designated "Exceptional Quality Aquatic Habitat" by TNRCC or have been identified as providing Endangered/Protected Species Habitat by the Texas Parks and Wildlife Department.

**B. *Wetlands***

Wetlands are defined by the U.S. Army Corps of Engineers and the U.S. Environmental Protection Agency as follows:

*Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar area.*

Official determinations of wetland boundaries are performed by the U.S. Corps of Engineers or qualified wetland delineators. These determinations are typically valid for a five year period.

**C. *State Owned Submerged Lands***

All plats of land that border on submerged lands belonging to the State of Texas require State-approved determination of boundary between the state-owned lands and privately-owned property.

**D. *Corps of Engineers Section 10 and 404 activities***

Certain projects and activities which will disturb jurisdictional wetlands or waters of the United States, will require permits from the U.S. Army Corps of Engineers. It is the obligation of the owner/developer to obtain all required permits from the U.S. Army Corps of Engineers and to maintain the conditions of the permit. The Developer must obtain

permits before beginning any activities that require permits. Approval of site plans or plats by the City does not relieve the owner/developer from the need for U.S. Army Corps of Engineers permits.

**E. *Dune and Beachfront Activities***

Projects and activities that will occur within 1000' of the mean high tide line of the Gulf of Mexico will usually require a Dune Protection Permit and/or Beachfront Construction Permit from Nueces County and/or the City of Corpus Christi. The specific regulations are specified in the City of Corpus Christi Dune Protection and Beach Access Plan or the Nueces County Beach Management Plan.

The drainage systems for new development on the barrier islands should utilize the natural drainage patterns of the islands so that the new drainage systems will not interfere with the processes of dune formation or plant succession.

**F. *Areas adjacent to Nueces River Water Supply***

Development of areas adjacent to the Nueces River must comply with City restrictions concerning storm water drainage in these areas. Drainage systems upstream from the fresh water intake station on the Nueces River should be designed to reduce runoff contamination into the City's raw water drinking supply.

**G. *Floodplains***

Floodplains occur along the fringe of drainageways and represent the extent of flooding expected during the designated flooding event. The Federal Emergency Management Agency (FEMA) has performed flood insurance studies on the major water bodies, streams, and drainageways within the Corpus Christi area, and has designated regulatory floodplains for these areas. FEMA publishes maps that show the extent of the 100 year floodplain and the 500 year floodplain. The building code requires the finished floor of structures to be constructed above the 100 year flood elevation. Filling is allowed within FEMA regulatory floodplains in order to raise structures and critical facilities above the 100 year flood elevations, as long as other regulatory requirements are met.

The City of Corpus Christi has established 100 year flood elevations for drainageways not

included within the FEMA regulatory areas. The 100 year flood elevations adopted by the City should be used to determine considerations for site development such as the appropriate elevations for proposed construction.

During the planning for site development, available information that delineates floodplain boundaries or elevations should be reviewed in order to assess the impacts of development.

#### H. *Floodways*

Floodways are designated by FEMA as the area along rivers, streams, and drainageways that must remain unobstructed in order to allow the passage of 100 year floods without the flood level rising more than an acceptable amount (1.0 foot). Filling or the construction of structures that will block the flow of flood waters is prohibited within floodways unless hydraulic analysis is provided that determines that the proposed construction will not effect the 100 year flood levels.

#### I. *Velocity Zones*

Velocity Zones (V Zones) are areas along the shoreline of the Gulf of Mexico, Laguna Madre, Corpus Christi Bay, Nueces Bay, and Oso Bay where storm driven waves can effect the structures of a development. Wave height analysis performed by FEMA is added to the calculated 100 year still water depth to determine the extent of the effect of storm driven waves. Areas with a wave component 3-feet or greater are designated as velocity zones. Within these zones, the building code of the City of Corpus Christi requires additional structural protection to counter the force of waves.

During the planning for site development, FEMA maps should be reviewed to determine if the site is within velocity zones in order to assess the impacts of development.

#### 3.2.3 *Greenbelts*

Greenbelts should be planned where possible to function in combination with drainageways. Grassy drainage swales through greenbelt areas will encourage percolation of drainage waters and reduce erosion from unlined channels. Park land and street right of ways can sometimes be combined to allow sufficient space for good greenbelt designs.

#### 3.2.4 *Retention/Detention Facilities*

Structural controls may be utilized on an individual basis to control pollutants or for flood control. Several of these controls are as follows:

- Dry Detention Basin
- Wet Detention Basin
- Dual Use Flood Control/Water Quality Basin
- Oil/Grit Separators

Detention ponds are appropriate if needed for peak flood control and will be reviewed by the City on an individual basis. In lieu of individual storm water treatment detention facilities on each site, the City will utilize regional facilities to provide storm water treatment if the need is indicated.

### ***3.2.5 Special Land Use Requirements***

Certain land uses have unique possibilities of polluting storm water due to the specific materials being utilized on these sites as well as the activities being conducted. There are numerous BMP's available that provide controls appropriate to each situation. The developer of each site will be allowed to select the appropriate controls necessary to maintain the quality of the storm water from their site. Section 4.9 *Long-Term Management Controls* contains suggested BMP's for site specific situations which may be utilized by the site specific plan.

- A. Fueling Stations "Fueling Station Practices," [BMP 4.9.5] and an "Oil/Grit Separator" [BMP 4.9.14] proposed in Section 4.0 *Best Management Practices*.
- B. Vehicle/equipment washing and steam cleaning facilities "Vehicle/Equipment Washing and Steam Cleaning Practices," [BMP 4.9.6] and an "Oil/Grit Separator" proposed in Section 4.0 *Best Management Practices*. [BMP 4.9.14]
- C. Facilities engaged in harmful liquid materials loading and unloading "Harmful Liquid Materials Loading and Unloading Practices," proposed in Section 4.0 *Best Management Practices*. [BMP 4.9.7]
- D. Facilities engaged in harmful liquids storage in above-ground tanks "Harmful Liquid Storage in Above-Ground Tank Practices," proposed in Section 4.0 *Best Management Practices*. [BMP 4.9.8]

- E. Facilities engaged in container storage of harmful liquids (such as oil, chemicals, & hazardous substances), food wastes, and hazardous wastes "Container Storage of Harmful Liquids, Food Wastes, Hazardous Wastes Practices," proposed in Section 4.0 *Best Management Practices*. [BMP 4.9.9]
  
- F. Facilities engaged in outdoor storage of raw materials that are subject to leaching and transport by erosion and sedimentation, such as gravel, sand, topsoil, compost, sawdust, wood chips, building materials, including lumber, which are subject to leaching; and concrete and metal products, which are subject to chemical erosion, corrosion and leaching, "Outdoor Storage Practices," proposed in Section 4.0 *Best Management Practices*. [BMP 4.9.11]
  
- G. Harmful liquids are liquids that may cause harm to the environment, such as oil, chemicals, and hazardous substances.

### **3.3 PLANNING REQUIREMENTS FOR SITE DEVELOPMENT (During Construction)**

In order to obtain approval from the City of Corpus Christi for building permits, earthwork, or site development, the developer will be required to make provisions for the control of pollution generated by construction activities in the following manner:

#### ***3.3.1 Development of Sites 5 Acres or More***

An NPDES Storm Water Pollution Prevention Plan is currently required by EPA for all construction projects where five (5) acres or more will be disturbed during development. Developments of sites that disturb five (5) acres or more within the City of Corpus Christi's jurisdiction must prepare an NPDES Storm Water Pollution Prevention Plan that satisfies EPA regulations. A copy of the NPDES Storm Water Pollution Prevention Plan must be provided to the City's Director of Engineering Services. A copy of any Notice of Intent (NOI) provided to EPA must be provided to the Director of Engineering Services. Approval of the elements of the NPDES Storm Water Pollution Prevention Plan is not required by the Director of Engineering Services. However, the Director of Engineering Services or Building Official may require correction of any deficiencies in the NPDES Storm Water Pollution Prevention Plan and may require additional measures in order to meet the requirements for Section 3.4 Pollution Control Measures. A copy of any Notice of Termination (NOT) submitted to EPA must be provided to the Director of Engineering Services. If the site is five (5) acres or more, but less than five (5) acres and more than 1/4 acre will be disturbed, an NPDES Storm Water Pollution Prevention Plan is not required, but a Pollution Control Plan described in Section 3.3.2 is required, unless the site is a single-lot, single-family residential construction.

#### ***3.3.2 Development of Sites Less than Five (5) Acres and More than 1/4 Acre***

A Pollution Control Plan (PCP) is required for commercial construction, industrial construction, multi-family residential construction, and development of a residential subdivision within the City of Corpus Christi's jurisdictional area where less than five (5) acres but greater than 1/4 acre will be developed, except where specifically exempted (as noted below). The area of the development will be based upon the platted lot area or, if not platted, upon the area of the tract owned by the developer, including all contiguous property owned by the same person. Disturbance of a partial area of a tract is not a condition that will cause a change of the category in development size. The Pollution Control Plan must include any such measures as required to comply with the Pollution Control Measures specified in Section 3.4. A Pollution Control Plan must be submitted to the Building Official for review before issuance of a building permit or approval to begin development. Implementation of the pollution control measures detailed in the plan is required.

Inspections of the status of the pollution control measures will be performed by City personnel during normal construction inspections and at other times when construction activities may be conducted. A certificate of occupancy will not be issued until the Building Official is satisfied that all temporary and permanent measures specified by the plan are complete. The Director of Engineering Services will not accept any improvements required under Section V of the Platting Ordinance until the Director of Engineering Services is satisfied that all temporary and permanent measures specified by the plan are complete, unless the Responsible Party has entered into a maintenance agreement with the City.

Submission of a site-specific Pollution Control Plan is not required for a single-lot, single-family residential construction, regardless of its size.

A Pollution Control Plan is not required when a portion of a previously developed tract of land is redeveloped, unless the redevelopment will result in the conversion of more than  $\frac{1}{4}$  acre from a porous surface to an impervious surface.

### 3.3.3 Development of Sites $\frac{1}{4}$ Acre or Less and Single-Lot, Single-Family Residential Construction.

A site specific PCP is not required for the development of sites which are  $\frac{1}{4}$  acre in size or less, nor for single-lot single-family residential construction. However, the Responsible Party shall comply with the Pollution Control Measures in Section 3.4. In order to obtain a building permit, a Responsible Party shall provide a written acknowledgment that the Responsible Party is aware of the Pollution Control Measures of the City of Corpus Christi and that the Responsible Party will comply with these measures during the development of the property. In order to obtain a certificate of occupancy, a Responsible Party must certify that all necessary temporary or permanent Pollution Control Measures specified in Section 3.4 are in place. If adequate Pollution Control Measures are not in place, the Building Official is authorized to withhold the certificate of occupancy. Prior to requesting acceptance of any improvements required by Section V of the Platting Ordinance, a Responsible Party must certify that all necessary permanent Pollution Control Measures specified in Section 3.4, other than the required stabilization, are in place. If adequate, Pollution Control Measures are not in place, the Director of Engineering Services will not accept any improvements required by Section V of the Platting Ordinance, unless the Responsible Party has entered into a maintenance agreement with the City. For the purpose of this section, the entire plat or site will be considered to be the area being disturbed unless the site plan specifically designates which areas will be disturbed and which areas will not be disturbed. The Responsible Party shall take appropriate measures to ensure no construction related activities disturb any area that is not designated as disturbed on the plat or site plan.



### 3.4 POLLUTION CONTROL MEASURES (Post and During Construction)

The Responsible Party of any construction site within the City of Corpus Christi shall implement measures necessary to control erosion, sedimentation, debris, and storm water pollution. The Responsible Party is responsible for maintenance and performance of the temporary pollution control measures until permanent pollution control measures are in place. The pollution controls are designed to be selected by the Responsible Party based on the most cost-effective and appropriate means to provide the required controls. In instances where a specific pollution problem is not present, controls are not required. Suggested BMPs are detailed in Section 4 of this guidance document.

#### 3.4.1 *Temporary Pollution Control Measures (During-Construction)*

##### A. Structural Control of Soil Erosion

1. Silt Fences should be utilized, where necessary, to retain the sediments from disturbed areas and decrease the velocity of sheet flows. [BMP 4.2.1.1 *Filter Fabric Fence*]
2. Straw bales should be utilized, where necessary, to retain sediments from disturbed areas and decrease the velocity of sheet flows. Straw bales are particularly useful in paved areas where silt fences cannot be erected. [BMP 4.2.2.1 *Straw Bale Fence*]
3. Stabilized construction entrances should be designed to reduce the amount of soil tracked off the construction site by vehicles leaving the site. A stabilized construction entrance should be utilized, if necessary, to control tracking. The Responsible Party should ensure that vehicles entering and leaving the construction site use the stabilized construction entrance. The owner or operator of a vehicle entering or leaving a construction site may not track soil off the construction site unless the operator uses the stabilized construction entrance. [BMP 4.7.1 *Stabilized Access Roads and Parking Areas*]
4. Vegetative buffer strips of appropriate size should be maintained, where necessary and practical, to aid in reducing the velocity of storm water and in trapping sediments in the storm water leaving the site. A vegetative buffer will usually suffice as a structural control until final stabilization is accomplished. [BMP 4.2.5 *Vegetative Buffer Strips*]

5. Inlet protection barriers must be installed around all inlets until the area immediately surrounding the inlet is paved or stabilized. [BMP 4.5.1.1 *Inlet Protection Barriers*]
- B. Waste disposal must be accomplished in a manner so that no solid wastes, including building materials, hazardous substances, oil, or packaging leave the site, except for disposal at an appropriate, approved solid waste management facility, in conformance with the Texas Solid Waste Disposal Act. To the extent practicable, no solid waste, including building materials, hazardous substances, or oil may be allowed to enter the City's Municipal Separate Storm Sewer System, the City's streets, or the navigable waters of the United States. Building materials include, but are not limited to, uncovered stockpiles of soil, sand, dry cement, lumber, bricks, or other products used in construction. The prime contractor who is issued the building permit, is responsible for the conduct of all subcontractors with regards to disposal of wastes generated by the construction activities at the site.
  - C. Dust control should be provided at whatever frequency required.
  - D. Chemicals, paints, solvents, fertilizers, and other toxic materials must be stored in waterproof containers. Except during applications, the contents must be kept in trucks or in storage facilities. Runoff containing such materials shall be collected, removed from the site, and disposed of at an approved solid waste or chemical disposal facility.
  - E. The Responsible Party may not allow the owner or operator of a concrete truck to wash out or discharge surplus concrete or drum wash water at a construction site unless the surplus concrete or drum wash water in concrete trucks is discharged at a facility on the construction site that will retain all concrete wash waters or leachates, including any wash waters or leachates mixed with storm water. Concrete wash waters and leachates may not be allowed to enter the municipal separate storm sewer system, City street, the waters of the United States, or ground waters.
  - F. The Responsible Party may adopt alternative procedures, such as regularly scheduled street cleaning in the immediate vicinity of the construction site, instead of adopting temporary structural controls for erosion. If alternative procedures will be used, the Responsible Party shall include those provisions in the NPDES Storm Water Pollution Prevention Plan, Pollution Control Plan, or the plans submitted for a building permit, if an NPDES Storm Water Prevention Plan or Pollution Control Plan is not required.

### 3.4.2 Permanent Pollution Control Measures (Post-Construction)

- A. Permanent stabilization must be applied to all unpaved areas that have reached final grade or those areas which will not be disturbed within the next 45 days. Permanent stabilization consists of sodding, seeding, or mulching with a seed bearing hay that will provide for new growth within a three (3) month period. New vegetative ground cover must be maintained by watering, regrading, reseeding, or sodding, as necessary until 70% growth coverage is obtained. Acceptance of improvements by the City can occur before the permanent stabilization coverage requirement is met, if the developer agrees to maintain the stabilization until coverage is achieved, and all other permanent measures are complete. Once permanent stabilization has been achieved, the Responsible Party may notify the Director of Engineering Services that permanent stabilization has been achieved. After inspection of the site by a City inspector, the Director of Engineering Services will send the Responsible party written confirmation that permanent stabilization has been achieved. [BMP 4.2.4.1 Seeding with Mulching]
- B. Erosion control structures must be provided, where necessary, to control erosive velocities in unlined channels or swales leaving the site. [BMP 4.1.3.1 Pipe Slope Drain and BMP 4.1.4.1 Paved Flume]
- C. Sediment traps must be provided on the site, as necessary, to control sedimentation from concentrated storm water discharges into an Environmentally Sensitive Area. Individual assessments must be made on a site specific basis. However, a rock rubble low berm must be installed around an outfall that discharges directly into an Environmentally Sensitive Area, unless this requirement is waived by the Director of Engineering Services because the Responsible Party has installed another type of sediment trap that provides equal or better protection. [BMP 4.3.2.1 Stone Outlet Sediment Trap] and BMP 4.3.2.2 Excavated Earth Outlet Sediment Trap]
- D. Stenciling, metal plates anchored in concrete inlets, precast manhole covers, wording stamped in concrete, or other acceptable form of signing, must be provided on top of any storm sewer inlets. [BMP 4.9.13 Inlet Stenciling]

### 3.4.3 Scheduling of Control Measures

Pollution control measures must be implemented and in a sequence that will provide maximum storm water pollution control based on the following principles:

- A. Down slope and side slope perimeter controls must be installed before land disturbing activity occurs.
- B. The Responsible Party shall not disturb the site until the Responsible Party is ready for construction to proceed.
- C. Efforts to provide cover or stabilize disturbed areas must occur as soon as possible.
- D. Construction of infiltration measures must be delayed until all upstream areas are finally stabilized.
- E. Do not remove temporary perimeter controls until all upstream areas are finally stabilized.

#### 3.4.4 *Inspection of Pollution Control Measures*

All erosion and sediment control measures will be checked every 7 days and within 24 hours following a rainfall of 0.5 inches or greater. Inspection records should be maintained by the responsible party.

#### 3.4.5 *Maintenance of Control Measures*

The Responsible Party shall maintain and ensure adequate performance of the temporary Pollution Control Measures until permanent Pollution Control Measures are in place.

Whenever the temporary or permanent Pollution Control Measures do not keep soil, sediment, and debris on the construction site, such excessive tracking of dirt offsite by vehicles and runoff of sediments from the site over sidewalks and into the streets and gutters, etc., the Responsible Party shall remove the soil, sediment and debris from streets, sidewalks, and inlets, as necessary, return the soil and sediment to the areas to be stabilized, and properly dispose of the debris.

The owner or person in control of the site is responsible for the maintenance of any Permanent Pollution Control Measures located on the site, unless the owner has dedicated the Permanent Pollution Control Measures to the City and has provided the City with any easements necessary to allow access to the Permanent Pollution Control Measures and to conduct any required maintenance activities.

# 4.0 BEST MANAGEMENT PRACTICES



City of  
Corpus  
Christi

## 4.0 BEST MANAGEMENT PRACTICES

The purpose of this chapter is to:

- describe BMPs to control pollutants from site developments after construction;
- describe BMPs to control pollutants on construction sites;
- identify where the BMPs apply; and
- provide minimum standards and criteria for designing and implementing the BMPs.

This chapter primarily addresses temporary BMPs designed to provide control of pollutants during construction and generally are removed from the site when no longer needed. In some situations, these BMPs may remain in place for years after the construction or land disturbance has ended. Additional requirements for these applications are noted when necessary.

The term **regulations** refers to *rules and laws of the United States government and to rules, laws, and ordinances to be established by the City of Corpus Christi to implement water quality controls for storm water runoff.*

This chapter includes descriptions and discussions of individual BMPs for the following:












- *Diverting flow (Section 4.1);*
- *Managing overland flow (Section 4.2);*
- *Trapping sediment in channelized flow (Section 4.3);*
- *Establishing permanent drainageways (Section 4.4);*
- *Protecting inlets (Section 4.5);*
- *Trapping sediment during site dewatering (Section 4.6);*
- *Preventing tracking (Section 4.7);*
- *Other source controls on construction projects (Section 4.8); and*
- *Long-term management controls (Section 4.9).*

**TABLE 4.1**  
**SUMMARY OF BEST MANAGEMENT PRACTICES**  
**FOR CONSTRUCTION ACTIVITIES**










Effectiveness ratings are not available for all BMPs listed in the Summary. The ratings indicated below are used to indicate relative effectiveness.

- 1 - Most Effective
- 2 - Moderately Effective
- 3 - Least Effective
- 0 - Unrated

| BMPs  | APPLICATION  | SYMBOL   | RELATIVE EFFECTIVENESS |
|---|--|--|------------------------|
| <p>4.1.1. Dikes and Swales</p> <p>4.1.1.1</p> <p>4.1.1.2</p> <p>4.1.1.3</p> <p>4.1.1.4</p> <p>4.1.1.5</p> | <p>Diverting overland flow to a stabilized outlet or sediment trapping device.</p> <p>Diversion Dike</p> <p>Interceptor Dike</p> <p>Diversion Swale</p> <p>Interceptor Swale</p> <p>Diversion Dike and Swale</p> | <p>⇒ (DD) ⇒</p> <p>⇒ (ID) ⇒</p> <p>⇒ (DS) ⇒</p> <p>⇒ (IS) ⇒</p> <p>⇒ (DDS) ⇒</p> | <p>1</p>               |
| <p>4.1.2.1 Downspout Extender</p>   | <p>Prevents water discharged from a building's downspouts from eroding disturbed areas.</p>  | <p>⇒ (DE) ⇒</p>  | <p>0</p>               |
| <p>4.1.3.1 Pipe Slope Drain</p>   | <p>Conveys concentrated surface runoff safely down slopes without causing erosion.</p>   | <p>⇒ (PSD) ⇒</p>   | <p>0</p>               |
| <p>4.1.4.1 Paved Flume</p>  | <p>Conveys concentrated surface runoff safely down slopes without causing erosion. Can be left in place permanently for final stabilization of the site.</p>   | <p>⇒ (PF) ⇒</p>  | <p>0</p>               |
| <p>4.1.5.1 Level Spreader</p>   | <p>Releases concentrated runoff from dike or swale evenly as sheet flow over a stabilized area.</p>  | <p>⇒ (LS) ⇒</p>  | <p>0</p>               |

| EMPs  | APPLICATION  | SYMBOL   | RELATIVE EFFECTIVENESS |
|---|--|--|------------------------|
| <p>3.3 Sediment Basin</p> <p>4.3.3.1</p> <p>4.3.3.2</p> | <p>Intercepts sediment-laden runoff in a waterway to reduce the amount of sediment leaving the disturbed area to protect drainage ways, properties, and rights-of-way below the sediment basin.</p> <p>Sediment Basin with Pine Outlet</p> <p>Sediment Basin with Stone Outlet</p> | <br> | 2                      |
| 4.4.2 Sodding   | Stabilizes disturbed areas to minimize erosion. Decreases the velocity of sheet flow. Protects drainway channels from erosion.   |   | 2                      |
| 4.5.1 Riprap  | Protects soil surfaces from erosion at outlets for storm sewers, swales and dikes, drop structures and channel side slopes.  |   | 0                      |
| 4.5.1.1 Inlet Protection Barriers                       | Placed around storm sewer inlets to prevent sediment from entering conveyance systems.   |   | 0                      |
| 5.2.1 Drop Inlet Insert Baskets                         | Placed within storm sewer inlet to prevent sediment from entering conveyance system.   |   | 0                      |
| 5.3.1 Storm Inlet Sediment Trap                         | Collects sediment around a curb inlet or yard drain to prevent sediment from entering conveyance system.   |   | 0                      |
| 4.6.1.1 Dewatering Settling Basin                       | Detains discharge pumped from excavated areas to allow the sediment to settle out.   |   | 0                      |
| 5.2.1 Sediment Tank                                     | Detains discharge pumped from excavated areas to allow the sediment to settle out.   |   | 0                      |
| 6.3.1 Sediment Sump Pit                                 | Traps and filters sediment from water pumped from excavated areas.   |   | 0                      |
| 7.1.1 Stabilized Construction Access                    | Reduces the amount of sediment transported onto public roads.  |   | 0                      |



| BMPs                                     | APPLICATION   | SYMBOL  | RELATIVE EFFECTIVENESS |
|--|---|---|------------------------|
| 4.2.1.1 Filter Fabric Fence              | Intercepts and detains small amounts of sediment from disturbed areas. Decreases the velocity of sheet flow.                        |   | 2                      |
| 4.2.1.2 Triangular Filter Fence          | Intercepts and detains small amounts of sediment from disturbed areas. Decreases the velocity of sheet flow.                        |   | 2                      |
| 4.2.2.1 Straw Bale Fence                 | Intercepts and detains small amounts of sediment from disturbed areas. Decreases the velocity of sheet flow.                        |   | 3                      |
| 4.2.3.1 Brush Berm                       | Intercepts and detains small amounts of sediment from disturbed areas. Reduces the velocity of sheet flow.                          |   | 0                      |
| 4.2.4.1 Seeding with Mulching            | Stabilizes disturbed areas to minimize erosion. Decreases the velocity of sheet flow.   |    | 2                      |
| 4.3.1.1 Reinforced Filter Fabric Barrier | A sediment barrier used in areas of concentrated flow.  |   | 2                      |
| 4.3.2 Sediment Traps                     | Intercepts sediment-laden concentrated runoff and traps the sediment to protect drainways, downstream properties and rights-of-way. | <br><br> | 3                      |
| 4.3.2.1                                  | Stone Outlet Sediment Trap  |   |                        |
| 4.3.2.2                                  | Excavated Earth Outlet Sediment Trap  |   |                        |
| 4.3.2.3                                  | Embankment Earth Outlet Sediment Trap   |   |                        |

## 4.1 DIVERTING FLOW

Concentrated or sheet runoff flow to a disturbed area greatly increases the amount of erosion of the disturbed area and the amount of sediment carried in runoff from the disturbed area. Diverting the runoff around the disturbed area generally is an effective BMP when the disturbed area cannot be stabilized immediately. Diverting runoff from the disturbed area also increases the practicability of controlling the pollutants from the disturbed area.

It is recommended that:

- **channelized runoff** from adjacent areas passing through the site should be diverted around disturbed areas whenever practicable.
- **sheetflow runoff** from adjacent areas of more than 10,000 square feet should be diverted around disturbed areas unless the disturbed area has less than 0.2% slope.
- **diverted runoff** should be conveyed in a manner that will not erode the conveyance and receiving channels.

Diversions may be *temporary* or *permanent BMPs* and include the following:

- *Dikes and swales* (Section 4.1.1)
- *Down spout extender* (Section 4.1.2)
- *Pipe slope drain* (Section 4.1.3)
- *Paved flume* (Section 4.1.4)
- *Level spreader* (Section 4.1.5)

### 4.1.1 *Dikes and Swales*

#### A. *Definition*

A **dike** and/or **swale** is constructed across the slope of a disturbed area.

#### B. *Purpose*

**Diversion dikes and swales** divert runoff around disturbed areas to a stabilized outlet where the water can be discharged without adversely impacting the receiving area or channel. Diversion dikes and swales can be used along the perimeter of the site or

disturbed area to carry sediment laden runoff to a sediment trapping facility. **Interceptor dikes and swales** are used to shorten the length of exposed slopes by intercepting runoff and diverting it to a stabilized outlet.

C. *Conditions Where Practice Applies*

1. Up slope of disturbed areas where erosion is likely to occur.
2. Up slope of soil piles.
3. To direct runoff from an area to a stabilized outlet sediment trap or sediment basin.

D. *Planning Considerations*

If the dike or swale is going to remain in place for longer than 14 days, it should be stabilized with temporary or permanent vegetation. The slope behind the dike or swale also is an important consideration. The dike or swale must have a positive grade to assure drainage, but if the slope is too steep, precautions must be taken to prevent erosion due to high flow velocity.

This practice is considered an economical one because it uses material available on the site and usually can be constructed with equipment used for site grading. The useful life of the practice can be extended by stabilizing the dike or swale with vegetation.

Permanent diversion dikes and swales should be planned as part of the initial site development. Design of a permanent diversion requires assessment of potential hazards in the event of failure and should be designed in accordance with existing regulatory agency design criteria.

E. *Design Criteria and Requirements*

**Timing** Diversions and outlets shall be constructed and stabilized prior to disturbing the project area.

**Capacity** The capacity of a permanent dike or swale should be designed in accordance with existing regulatory agency design criteria. The capacity of a temporary dike or swale shall be designed to carry the peak runoff from at least a 3-year 24-hour frequency storm with a freeboard not less than 0.3 feet. The drainage area of a temporary dike or swale shall not exceed five (5) acres.

*Cross section: Dikes*

Top width: 2 feet minimum  
 Height: 18 inches minimum measured from upslope toe or bottom of swale.

Side slopes: 2:1 or flatter

*Cross section: Swales*

Bottom width: 4 feet minimum; the bottom shall be level

Depth: 1 foot minimum

Side slope: 2:1 or flatter

*Grade and velocity*

The channel grades may be uniform or variable. Channel velocity should be non-erosive and may not exceed permissible velocities shown in Table 1. Flow behind dikes should be limited to grades between 0.05 and 1.00 percent.

**Table 1. Permissible velocities for diversion swales (in feet per second)**

| Soil Texture                           | Channel Vegetation |      |      |      |
|--|--------------------|------|------|------|
|  | Bare               | Poor | Fair | Good |
| Sand, silt, sandy loam, and silty loam | 1.5                | 1.5  | 2.0  | 3.0  |
| Silty clay, loam, and sandy clay loam  | 2.0                | 2.5  | 3.0  | 4.0  |
| Clay                                   | 2.5                | 3.0  | 4.0  | 5.0  |

**Table 2. Spacing for interceptor dikes and swales**

| Slope of Disturbed Area Above Interceptor | <3%     | 3-5%    | 5-10%   | >10%    |
|---|---------|---------|---------|---------|
| Maximum Distance Between Interceptors     | 500 ft. | 300 ft. | 200 ft. | 100 ft. |

### *Outlets*

Each diversion or interceptor dike and swale should have an adequate outlet capable of conveying runoff to a location where the discharge will not cause adverse impacts. The design elevation of the water surface in the dike or swale may not be lower than the design elevation of the water surface in the outlet at their junction when both are operating at design flow.

### *Stabilization*

The permanent dike side slopes ridge and the downslope side of the berm shall be stabilized either by sodding or seeding and mulching within 14 days of final grading. Swales shall be stabilized as specified in the BMPs for Concentrated Flow.

### F. *Inspection and Maintenance*

Dikes and swales shall be inspected within 24 hours after each rainfall and daily during periods of prolonged rainfall until the vegetative cover is stabilized. Thereafter, dikes and swales should be inspected at least once a week and within 24 hours of the end of a storm that is 0.5 inches or more of rainfall. Repairs shall be made immediately. The life expectancy of temporary diversion dikes and swales is 18 months.

### G. *Corresponding Technical Specifications*

- Item 4.1.1.1 Diversion Dikes
- Item 4.1.1.2 Interceptor Dikes
- Item 4.1.1.3 Diversion Swales
- Item 4.1.1.4 Interceptor Swales
- Item 4.1.1.5 Diversion Dikes and Swales

## **ITEM NO. 4.1.1.1 - DIVERSION DIKES**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control diversion dikes utilized during construction operations and prior to the final stabilization of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS.

### **PART 2 - PRODUCTS**

Provide materials specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted

and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing federal, state and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

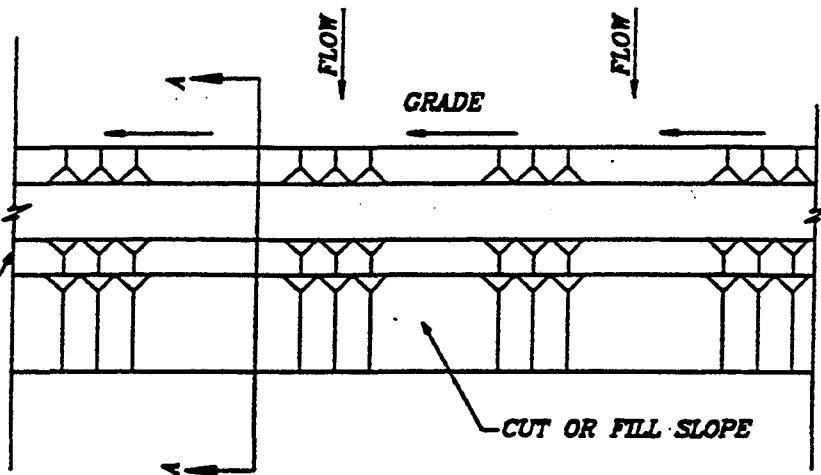
- A. Install diversion dikes at locations specified on the PLANS in accordance with applicable drawings enclosed.
- B. Unless otherwise indicated, maintain a minimum dike height of 18 inches, measured from existing or graded ground at the Up slope toe to the top of the dike.
- C. Flow from dike shall be diverted to sediment basins, stabilized outlets, or sediment trapping devices of the types and at locations shown on PLANS. The grades for dikes shall be as shown on PLANS, or, if not specified, provide positive drainage with maximum grade of 1% to outlet or basin.
- D. Area under dike shall be cleared, grubbed, and stripped of vegetation and root material. All trees, brush, stumps, roots, woody vegetation, oversized stones and rocks, obstructions, organic, and other objectional material shall be removed and disposed of from compacted soil used as fill material for dikes, including soil obtained from swale construction. Dike side slopes shall be 2:1 or flatter. Compact embankments by mechanically blading, tamping, and rolling soil in maximum lifts of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- E. Inspect dikes after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Maintain dikes at the required depth, grade, and cross section as specified on PLANS or in drawings. Remove projections or other irregularities which will impede normal flow.

### **3.03 Measurement and Payment**

- A. Unless indicated in the Proposal as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL as pay item, measure and pay for diversion dikes by the linear feet of completed and accepted diversion dikes. Diversion dikes, measured as stated, will be paid for at the unit price bid for "**Diversion Dikes, Complete In Place**".
  
- B. Payment for diversion dikes will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including but not limited to, embankment and excavation, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

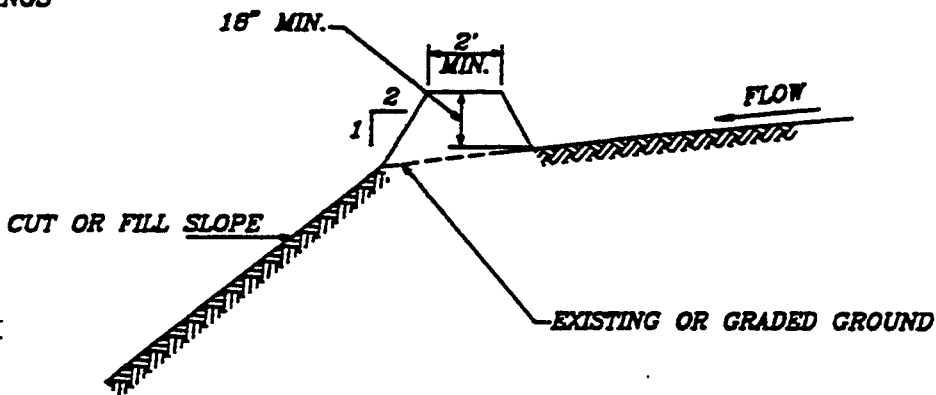


# DIVERSION DIKE



DISCHARGE ONTO STABILIZED  
OUTLET, SEDIMENT TRAPPING  
DEVICE OR LEVEL SPREADER  
AS SHOWN ON CONSTRUCTION  
DRAWINGS

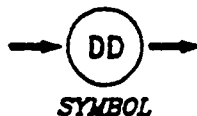
PLAN



SECTION A-A

GENERAL NOTES:

1. MATERIAL - MACHINE COMPACTED SOIL
2. HEIGHT - 18 INCHES MINIMUM, MEASURED FROM THE EXISTING OR GRADED GROUND AT THE UPSLOPE TOE TO THE TOP OF THE DIKE.
3. SIDE SLOPES - 2:1 OR FLATTER.
4. GRADE - AS SHOWN ON THE CONSTRUCTION DRAWINGS, IF NOT SHOWN, PROVIDE POSITIVE DRAINAGE TO POINT OF DISCHARGE.



**BMP 4.1.1.1**  
**DIVERSION DIKE**

## **ITEM NO. 4.1.1.2 - INTERCEPTOR DIKES**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control interceptor dike utilized during construction operations and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted

and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

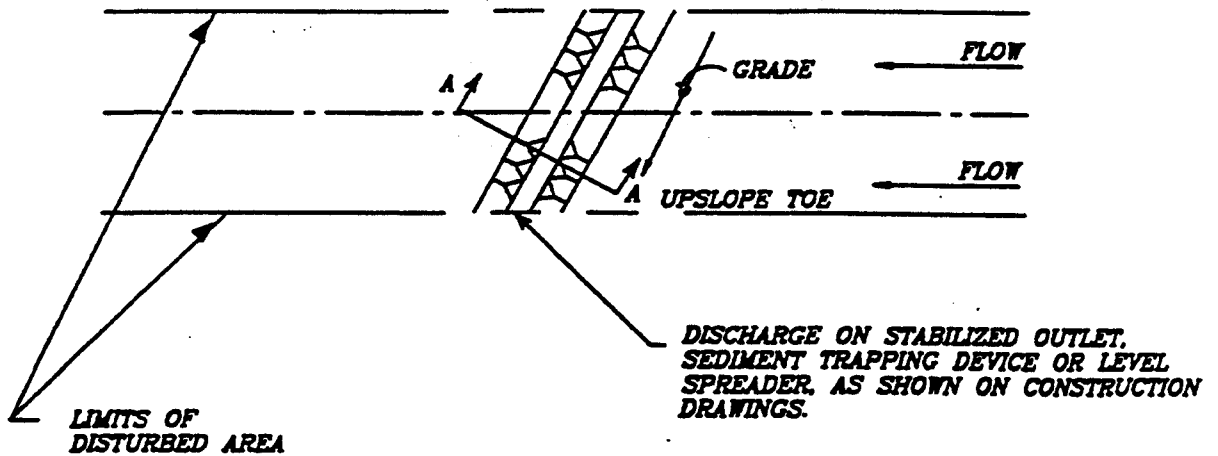
### **3.02 Construction Methods**

- A. Install interceptor dikes at locations specified on the PLANS in accordance with applicable drawings enclosed.
- B. Unless otherwise indicated, maintain a minimum dike height of 18 inches, measured from existing or graded ground at the Up slope toe to the top of the dike.
- C. Flow from dike shall be diverted to sediment basins, stabilized outlets, or sediment trapping devices of the types and at locations shown on PLANS. The grades for dikes shall be as shown on PLANS, or, if not specified, provide positive drainage with maximum grade of 1% to outlet or basin.
- D. Area under dike shall be cleared, grubbed, and stripped of vegetation and root material. All trees, brush, stumps, roots, woody vegetation, oversized stones and rocks, obstructions, organic, and other objectional material shall be removed and disposed of from compacted soil used as fill material for dikes, including soil obtained from swale construction. Dikes slopes shall be 2:1 or flatter. Compact embankments by mechanically blading, tamping, and rolling soil in maximum lifts of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 Density. Make at least one test per 500 cubic yards of embankment.
- E. Inspect dikes after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Maintain dikes at the required depth, grade, and cross section as specified on PLANS or in drawings. Remove projections or other irregularities which will impede normal flow.

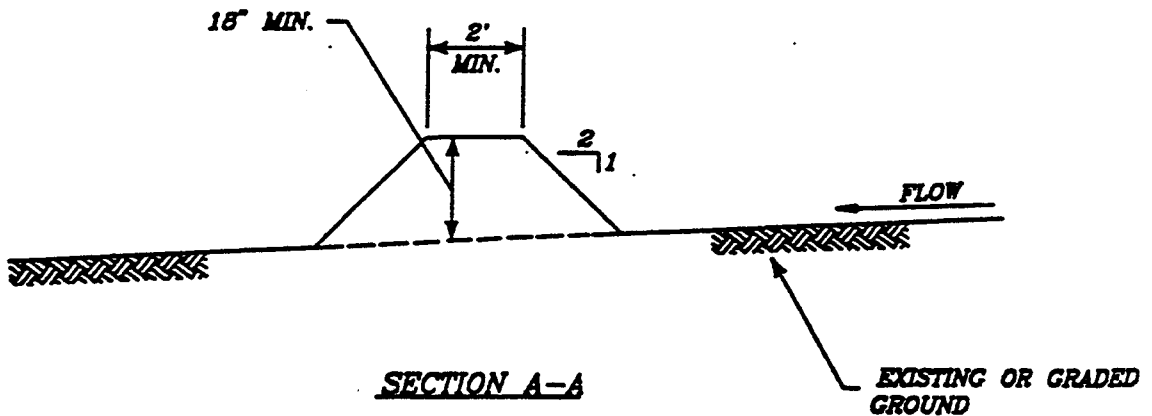
### 3.03 Measurement and Payment

- A. Unless indicated in the Proposal as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL as pay item, measure and pay for interceptor dike by the linear feet of completed and accepted interception dike. Interceptor dike, measured as stated, will be paid for at the unit price bid for **“Interceptor Dike, Complete In Place”**.
  
- B. Payment for interceptor dike will include and be full compensation for all labor, equipment materials, supervision, and all incidental expenses for construction of these items, complete in place, including but not limited to, embankment and excavation, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# INTERCEPTOR DIKE



PLAN



SECTION A-A

**GENERAL NOTES:**

1. MATERIAL - MACHINE COMPACTED SOIL
2. HEIGHT - 18 INCHES MINIMUM, MEASURED FROM THE EXISTING OR GRADED GROUND AT THE UPSLOPE TOE, TO THE TOP OF THE DIKE.
3. SIDE SLOPES - 2:1 OR FLATTER.
4. GRADE - AS SHOWN ON THE CONSTRUCTION DRAWINGS, IF NOT SHOWN, PROVIDE POSITIVE DRAINAGE TO POINT OF DISCHARGE.



**BMP 4.1.1.2**  
**INTERCEPTOR DIKE**

## **ITEM NO. 4.1.1.3 - DIVERSION SWALES**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control diversion swales utilized during construction operations and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted

and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated right-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in Item.

### **3.02 Construction Methods**

- A. Install diversion swales at location specified on the PLANS in accordance with applicable drawings enclosed.
- B. Flow from swales shall be diverted to sediment basins, stabilized outlets or sediment trapping devices of the types and at location shown on PLANS. The grades for swales shall be as shown on PLANS, or, if not specified, provide drainage with maximum grade of 1% to outlet or basin.
- C. Excavation for swale construction shall be carried out in such a manner that erosion and water pollution be minimal. The minimum depth and bottom width shall be 1 foot and 4 feet, respectively, with the swale bottom constructed to level. Excavation slopes shall be 2:1 or flatter. Excavation area shall be cleared, grubbed, and stripped of vegetation and root material.
- D. Inspect swales after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Maintain dikes and swales at the required depth, grade, and cross section as specified on PLANS or in drawings. Remove projections or other irregularities which will impede normal flow.

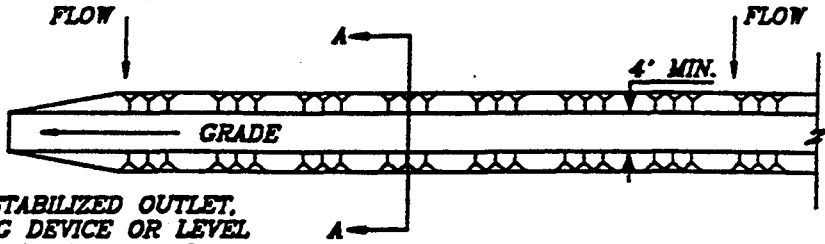
### **3.03 Measurement and Payment**

- A. Unless indicated in the Proposal as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL as pay item, measure and pay for diversion swales by the linear feet of completed and accepted interception swales. Diversion swales, measured as stated, will be paid for at the unit price bid for **"Diversion Swales, Complete In Place"**.

**B. Payment for diversion swales will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including but not limited to, embankment and excavation, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.**

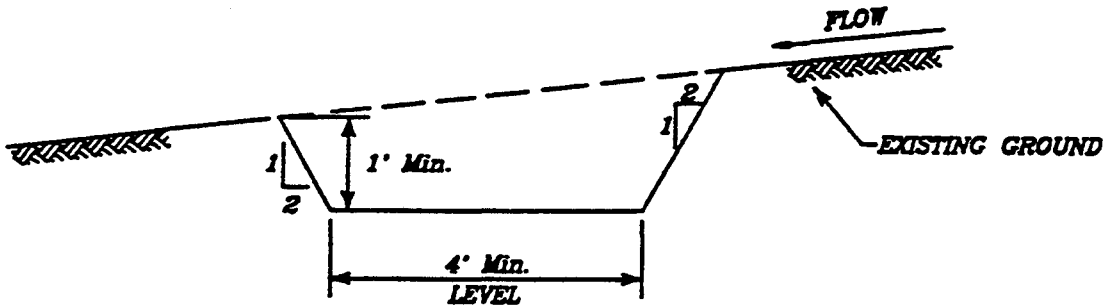


# DIVERSION SWALE



DISCHARGE ONTO STABILIZED OUTLET,  
SEDIMENT TRAPPING DEVICE OR LEVEL  
SPREADER AS SHOWN ON CONSTRUCTION  
DRAWINGS.

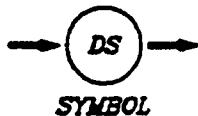
PLAN



SECTION A-A

**GENERAL NOTES:**

1. BOTTOM WIDTH - 4 FEET MINIMUM, CONSTRUCTED LEVEL.
2. DEPTH - 1 FOOT MINIMUM.
3. SIDE SLOPE - 2:1 OR FLATTER.
4. GRADE - AS SHOWN ON THE CONSTRUCTION DRAWINGS, IF NOT SHOWN, PROVIDE POSITIVE DRAINAGE TO POINT OF DISSCHARGE.



**BMP 4.1.1.3**  
**DIVERSION SWALE**

## **ITEM NO. 4.1.1.4 - INTERCEPTOR SWALES**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control interceptor swales utilized during construction operations and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in Place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted

and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Install interceptor swales at locations specified on the PLANS in accordance with applicable drawings enclosed.
- B. Flow from swales shall be diverted to sediment basins, stabilized outlets, or sediment trapping devices of the types and at locations shown on PLANS. The grades for dikes shall be as shown on PLANS, or, if not specified, provide positive drainage with maximum grade of 1% to outlet or basin.
- C. Excavation for swale construction shall be carried out in such a manner that erosion and water pollution be minimal. The minimum depth and bottom width shall be 1 foot and 4 feet, respectively, with the swale bottom constructed to level. Excavation slopes shall be 2:1 or flatter. Excavation area shall be cleared, grubbed, and stripped of vegetation and root material.
- D. Inspect swales after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Maintain dikes and swales at the required depth, grade, and cross section as specified on PLANS or in drawings. Remove projections or other irregularities which will impede normal flow.
- E. The spacing of interceptor swales shall be placed as shown on PLANS.

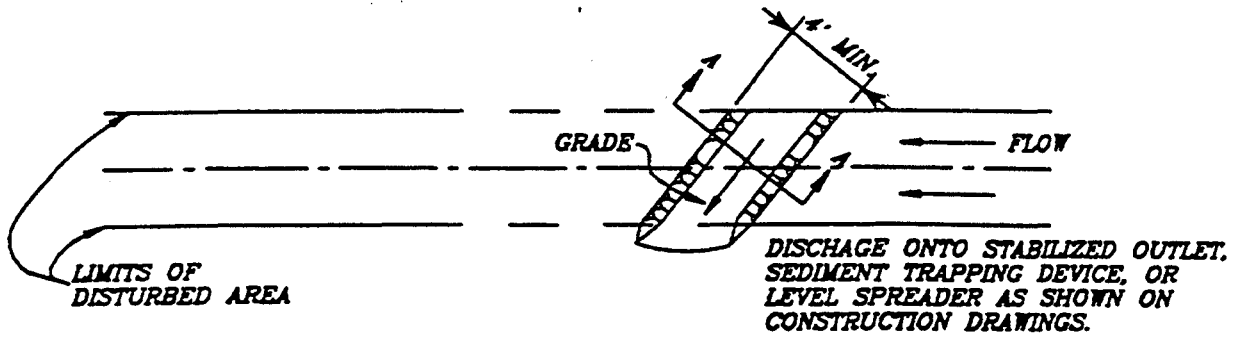
### **3.03 Measurement and Payment**

- A. Unless indicated in the Proposal as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL as pay item, measure and pay for interceptor swales by the linear feet of completed and accepted interception swales.

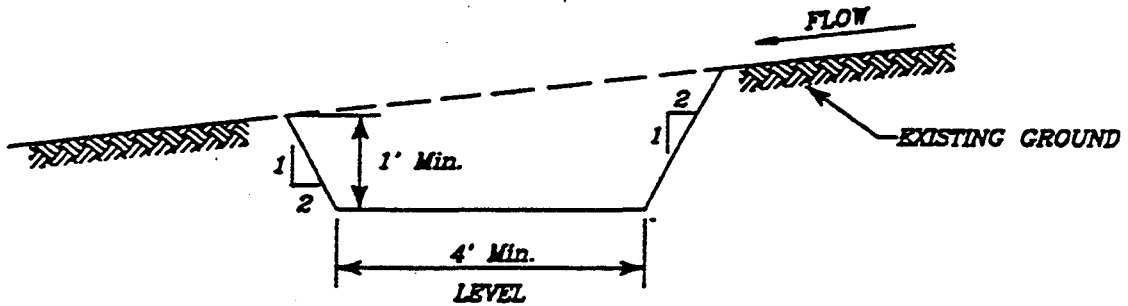
Interceptor swales, measured as stated, will be paid for at the unit price bid for **"Interceptor Swales, Complete In Place"**.

- B. Payment for interceptor swales will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including but not limited to, embankment and excavation, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# INTERCEPTOR SWALE



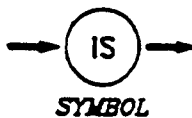
PLAN



SECTION A-A

GENERAL NOTES:

1. BOTTOM WIDTH - 4 FEET MINIMUM, CONSTRUCTED LEVEL.
2. DEPTH - 1 FOOT MINIMUM.
3. SIDE SLOPE - 2:1 OR FLATTER.
4. GRADE - AS SHOWN ON THE CONSTRUCTION DRAWINGS, IF NOT SHOWN, PROVIDE POSITIVE DRAINAGE TO POINT OF DISCHARGE.



**BMP 4.1.1.4**  
**INTERCEPTOR SWALE**

## **ITEM NO. 4.1.1.5 - DIVERSION DIKES AND SWALES**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control diversion dikes and swales utilized during construction operations and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the

Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in this Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Provide diversion dikes and swales at locations specified on the PLANS in accordance with applicable drawings enclosed.
- B. Unless otherwise indicated, maintain a minimum dike height of 18 inches, measured from existing or graded ground at the Up slope toe to the top of the dike.
- C. **Dike and Swale Stabilization:** When indicated on PLANS, stone stabilization shall be placed in a layer a minimum of 3 inches in thickness and embedded into the soil (6 inches if truck crossing is expected). The stone lining shall extend across the bottom and up the both sides of the channel a minimum height of 8 inches vertically, above the bottom. The stone lining on the dike side shall extend up the Up slope side of the dike a minimum height of 8 inches, measured vertically from the interface of the existing or graded ground and the Up slope toe of the dike, as shown in the Drawing. Coarse aggregate may be used in place of stone.
- D. Flow from swales shall be diverted to sediment basins, stabilized outlets, or sediment trapping devices of the types and at locations shown on PLANS. The grade for dikes and swales shall be as shown on PLANS, or, if not specified, provide positive drainage with maximum grade of 1 percent to outlet or basin.
- E. Area under dike shall be cleared, grubbed, and stripped of vegetation and root material. All trees, brush, stumps, roots, woody vegetation, oversized stones and rocks, obstructions, organic, and other objectional material shall be removed and disposed of from compacted soil used as fill material for dikes, including soil obtained from swale construction. Dike side slopes shall be 2:1 or flatter. Compact embankments by mechanically blading, tamping, and rolling soil in maximum lifts of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard

Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.

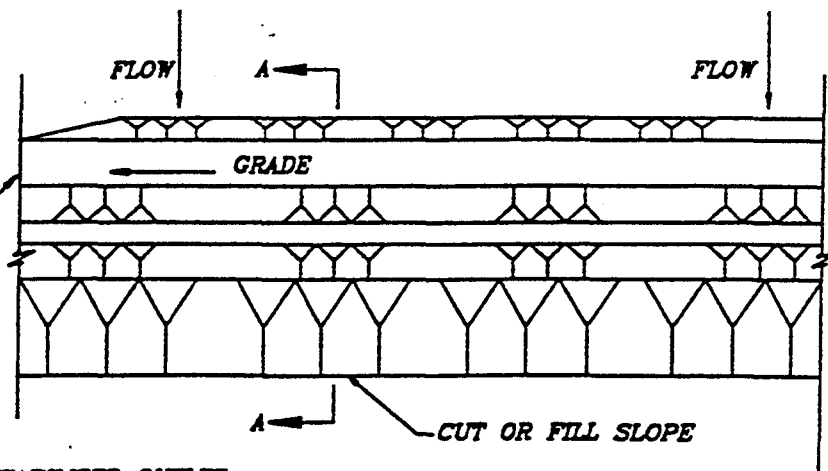
- F. Excavation for swale construction shall be carried out in such a manner that erosion and water pollution be minimal. The minimum depth and bottom width shall be 1 foot and 4 feet, respectively, with the swale bottom constructed to level. Excavation slopes shall be 2:1 or flatter. Excavation area shall be cleared, grubbed, and stripped of vegetation and root material.
- G. Inspect dike and swale after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Maintain dikes and swales at the required depth, grade, and cross section as specified on PLANS or in drawings. Remove projections or other irregularities which will impede normal flow.

### 3.03 Measurement and Payment

- A. Unless indicated in the Proposal as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL as pay item, measure and pay for diversion dike and swale by the linear feet of completed and accepted diversion and dike and swale. Diversion and dike and swale, measured as stated, will be paid for at the unit price bid for "**Diversion Dike and Swale, Complete In Place**".
- B. Payment for diversion dike and swale will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including but not limited to, embankment and excavation, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

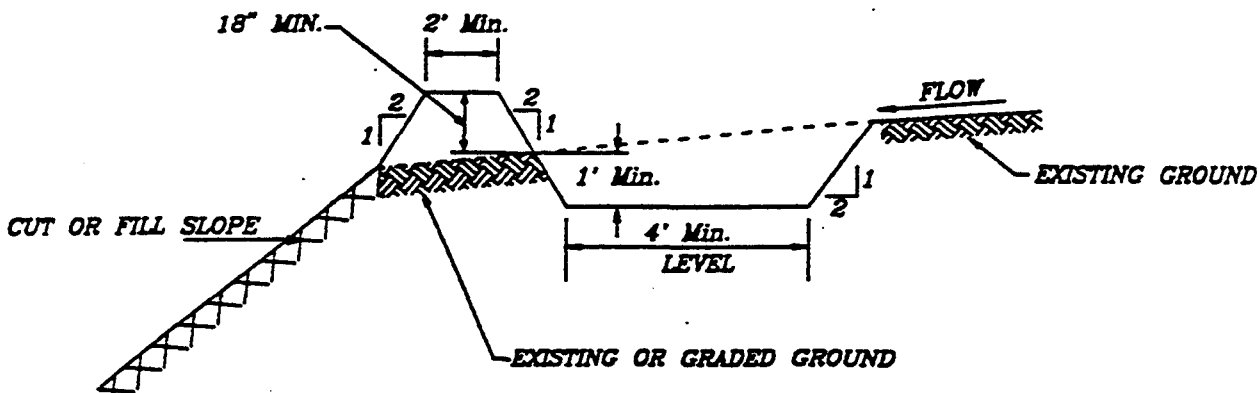


# DIVERSION DIKE WITH SWALE



DISCHARGE ONTO STABILIZED OUTLET, SEDIMENT TRAPPING DEVICE OR LEVEL SPREADER AS SHOWN ON CONSTRUCTION DRAWINGS

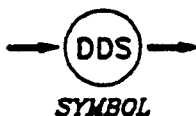
PLAN



SECTION A-A

GENERAL NOTES:

1. DIKE MATERIAL - MACHINE COMPACTED SOIL.
2. DIKE HEIGHT - 18 INCHES MINIMUM, MEASURED FROM THE EXISTING OR GRADED GROUND AT THE UPSLOPE TOE, TO THE TOP OF THE DIKE.
3. SIDE SLOPES OF THE DIKE WITH SWALE-2:1 OR FLATTER.
4. GRADE - AS SHOWN ON THE CONSTRUCTION DRAWINGS, IF NOT SHOWN, PROVIDE POSITIVE DRAINAGE TO POINT OF DISCHARGE.



BMP 4.1.1.5  
DIVERSION DIKE AND SWALE

#### **4.1.2 *Downspout Extender***

##### **A. *Definition***

A temporary tube, or pipe to convey water from a building's downspout to a stable area.

##### **B. *Purposes***

To prevent water discharged from a building's downspout from eroding disturbed areas.

##### **C. *Conditions Where Practice Applies***

On downspout discharging to disturbed areas.

##### **D. *Planning Considerations***

Conveying water from roofs can greatly decrease the amount of water flowing across disturbed areas.

##### **E. *Design Criteria and Requirements***

***Timing*** The downspout extender shall be installed as soon as downspout area installed.

***Removal*** Downspout extenders may be removed only after the disturbed area is stabilized by permanent best management practices.

***Materials*** Non-slotted, non-perforated PVC or similar plastic pipe material should be used.

##### **F. *Inspection and Maintenance***

Downspout extenders shall be inspected daily within 24 hours of the end of a storm that is 0.5 inches or greater during periods of prolonged rainfall and, minimally, at least once a week. Repair or replacement should be made immediately.

##### **G. *Corresponding Technical Specifications***

Item 4.1.2.1 Downspout Extender

## **ITEM NO. 4.1.2.1- DOWNSPOUT EXTENDER**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control downspout extenders utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on pipe and connections of type proposed.

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.

- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 Density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Install downspout extenders for building roof drains at locations specified on PLANS in accordance with enclosed drawing.
- B. The downspout extender shall have a slope of approximately 1 percent. Pipe diameter shall be 4 inches or as indicated on PLANS.
- C. Downspout shall be constructed of plastic pipe, flexible tubing or similar material.
- D. Inspect downspout extenders after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair damaged downspout extenders. Redress and replace stone, sod or other stabilizing material at the outlet as needed.

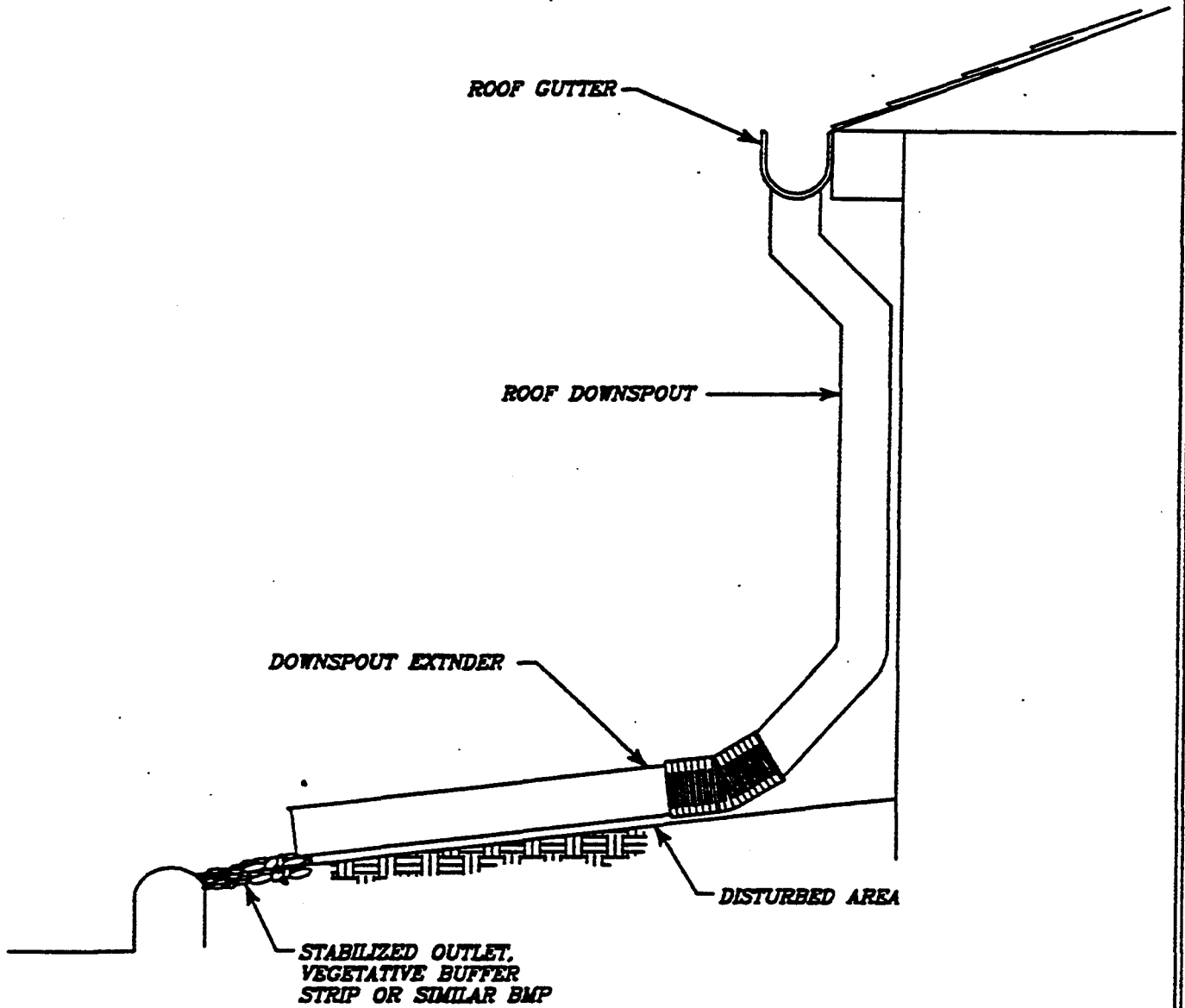
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for by the linear feet of completed and accepted downspout extender parallel to pipe laid from end of roof

downspout to end of stabilized outlet. Downspout extender, measured as stated, will be paid for at the unit price bid for **"Downspout Extender, Complete In Place."**

- B. Payment for downspout extender will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, placement of stone, sod or other stabilizing material, redressing or replacement of stones, sod or other stabilizing material and removal of erosion and sedimentation control systems at the end of construction.

# DOWNSPOUT EXTENDER



== (DE) ==  
SYMBOL

BMP 4.1.2.1  
DOWNSPOUT EXTENDER

### 4.1.3 *Pipe Slope Drain*

#### A. *Definition*

A rigid pipe with a prefabricated entrance temporarily placed to extend from the top of a slope to the bottom of a slope.

#### B. *Purpose*

The purpose of a pipe slope drain is to convey surface runoff safely down slopes without causing erosion.

#### C. *Conditions Where Practice Applies*

Pipe slope drains are to be used where concentrated flow of surface runoff must be conveyed down slope in order to prevent erosion. Recommended maximum drainage is five (5) acres.

#### D. *Planning Considerations*

A pipe slope drain should be used only temporarily. For permanent applications, a paved flume (Section 4.1.4) may be utilized.

#### E. *Design Criteria and Requirements*

*Dimensions* Unless other wise specified, pipe slope drains are to sized as follows:

| Pipe Diameter,<br>Inches | Maximum Drainage<br>Area, Acres |
|--------------------------|---------------------------------|
| 12                       | 0.5                             |
| 15                       | 1.0                             |
| 18                       | 1.5                             |
| 21                       | 2.5                             |
| 24                       | 3.5                             |
| 30                       | 5.0                             |

#### *Inlet*

The height of the earth dike at the entrance to the pipe slope drain should be equal to, or greater than, the diameter of the pipe accordance with enclosed sketch.

#### *Outlet*

The pipe slope drain should outlet onto a riprap apron, stabilized area, or stabilized water course. A sediment trapping device should be used to trap sediment from any sediment-laden water

conveyed by the pipe slope drain. A level spreader should be used if flow is to be discharged onto stabilized areas.

**F. *Inspection and Maintenance***

Slope drains should be inspected after each rain of 0.5 inches or greater; daily during periods of prolonged rain; and minimally, at least once a week. Damaged sections should be repaired. Riprap or stabilization at the outlet should be replaced as needed. Sediment in the stabilized outlet should be removed when accumulated to a depth of one-half the pipe diameter or one foot, whichever is less.

**G. *Corresponding Technical Specification***

Item 4.1.3.1      Pipe Slope Drain



## **ITEM 4.1.3.1- PIPE SLOPE DRAIN**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control pipe slope drains utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on corrugated metal pipe, flexible tubing, connecting band, and grommet materials.

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.

- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 Density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Install Slope Drains at locations specified on PLANS in accordance with enclosed drawing.
- B. Soil around and under entrance section shall be tamped to the top of the embankment in lifts appropriately sized for the method of compaction utilized.
- C. Subgrade shall be constructed to the required elevations. All soft sections and unsuitable material shall be removed and replaced. Compact subgrade thoroughly and shaped to a smooth, uniform surface.
- D. Fill material for embankment shall be free of roots, woody vegetation, oversized stones or rocks, or organic or other objectionable matters. Area under embankment shall be cleared, grubbed, and stripped of vegetation and root mat.
- E. The inlet pipe shall have a slope of 3 percent or steeper. Pipe diameter shall be as indicated on PLANS.
- F. The top of embankment over the inlet pipe and those carrying water to pipe shall be at least 1 foot higher at all points than the top of the inlet pipe.

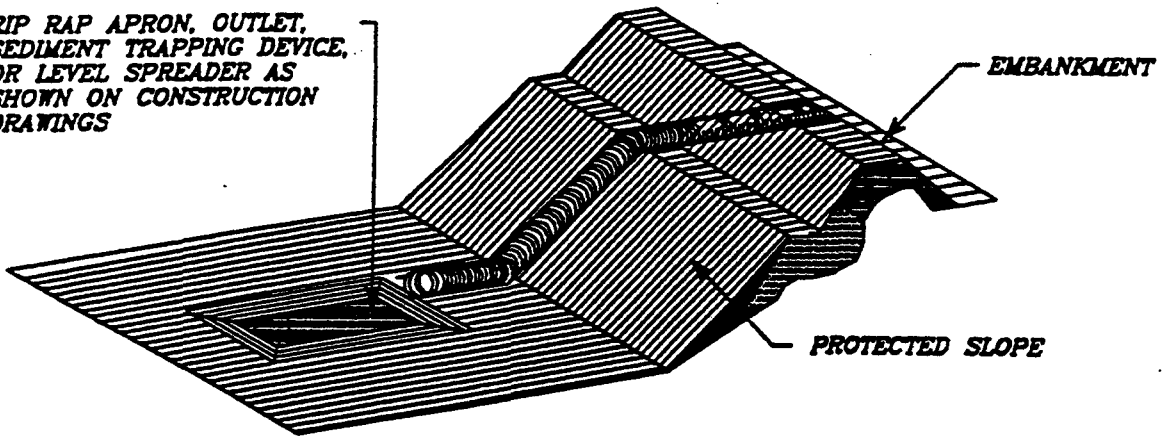
- G. Unless otherwise specified, the pipe shall be corrugated galvanized metal pipe with watertight connection bands.
- H. Pipe shall be secured with hold-down grommets spaced 10 feet on centers.
- I. Depth of Riprap Apron shall be equal to the pipe diameter with 2:1 side slopes and placed in minimum 12 inch thick layers.
- J. Inspect slope drains after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair damaged slope drain sections. Redress and replacing stone at the outlet as needed to replenish depleted stone. Remove sediment from riprap apron when the sediment has accumulated to one-half pipe diameter or one foot, whichever is less, for pipe slope drain.

### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for pipe slope drain by the linear feet of completed and accepted pipe slope drain parallel to pipe laid from end of entrance section to end of outlet. Pipe slope drain, measured as stated, will be paid for at the unit price bid for **"Pipe Slope Drain, Complete In Place"**.
- B. Payment for pipe slope drain will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

# PIPE SLOPE DRAIN

RIP RAP APRON, OUTLET, SEDIMENT TRAPPING DEVICE, OR LEVEL SPREADER AS SHOWN ON CONSTRUCTION DRAWINGS



LENGTH AS NECESSARY TO GO THRU EMBANKMENT

SEE FLARED ENTRANCE SECTION (DRAWING B)

DIA. + 12" (MIN.)

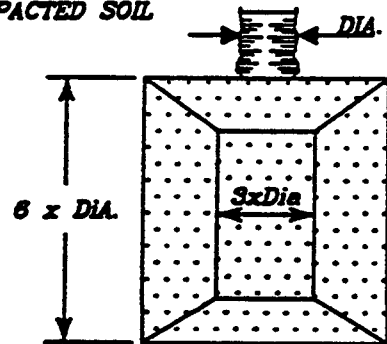
INLET PIPE  
SLOPE 3%

COMPACTED SOIL

CORRUGATED GALVANIZED METAL PIPE

4' Min.  
LESS THAN  
1% SLOPE

SECTION



RIPRAP SHALL CONSIST OF 6 INCH DIAMETER STONE PLACED AS SHOWN AND IN ACCORDANCE WITH THE CONSTRUCTION DRAWINGS.

RIPRAP APRON PLAN

GENERAL NOTES:

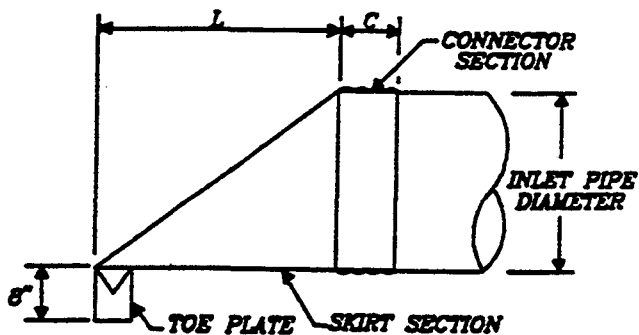
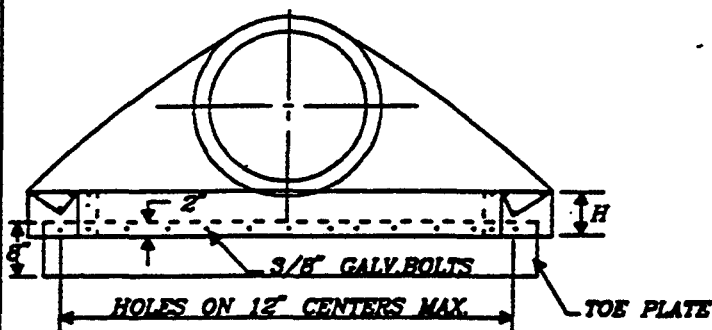
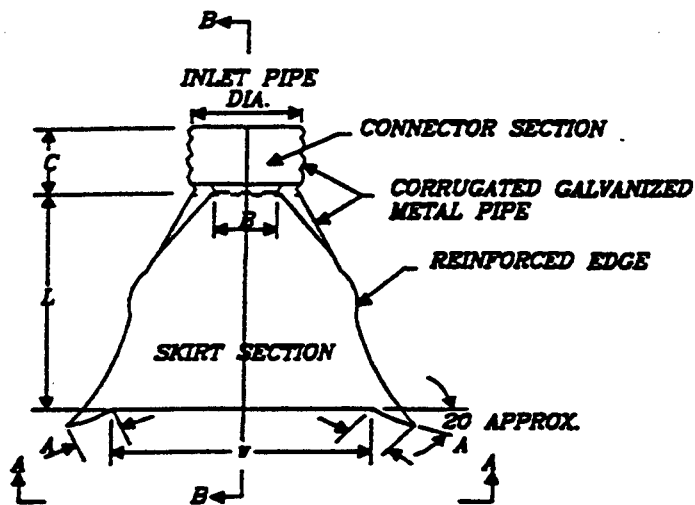
1. THE INLET PIPE SHALL HAVE A SLOPE OF 3 PERCENT OR GREATER. PIPE DIAMETER SHALL BE AS INDICATED ON THE CONSTRUCTION DRAWINGS..
2. THE TOP OF EMBANKMENT SHALL BE AT LEAST 1-FOOT HIGHER AT ALL POINTS THAN THE TOP OF THE INLET PIPE.
3. UNLESS OTHERWISE SPECIFIED, THE PIPE SHALL BE CORRUGATED GALVANIZED METAL PIPE WITH WATERTIGHT CONNECTION BANDS.
4. PIPE SHALL BE SECURED WITH HOLD-DOWN GROMMETS SPACED 10- FEET ON CENTERS.
5. DEPTH OF RIPRAP APRON SHALL BE EQUAL TO THE PIPE DIAMETER WITH 2:1 SIDE SLOPES AND PLACED IN MINIMUM 12 INCH THICK LFTS.

= (PSD) =  
SYMBOL

**BMP 4.1.3.1**  
**PIPE SLOPE DRAIN**  
**DRAWING A**

**NOTES:**

1. FLARED ENTRANCE SECTION TO BE USED WITH PIPE SLOPE DRAIN.
2. LENGTH OF TOE PLATE SHALL BE  $W + 10"$  FOR 12" TO 30" PIPE AND  $W + 22"$  FOR 36 TO 60 INCH PIPE. TOE PLATE SHALL BE GALVANIZED METAL PIPE WITH SAME THICKNESS AS PIPE.



| PIPE DIA. | SHEET THICKNESS | DIMENSIONS (WITH TOLERANCE OR MAXIMUM ALLOWED DIMENSION INDICATED) |           |             |                 |             |     |
|-----------|-----------------|--|-----------|-------------|-----------------|-------------|-----|
|           |                 | A<br>1" TOL  | B<br>MAX. | H<br>1" TOL | L<br>1 1/2" TOL | W<br>2" TOL | C   |
| 12"       | 0.064"          | 5"   | 5"        | 6"          | 21"             | 34"         | 24" |
| 15"       | 0.064"          | 7"   | 8"        | 6"          | 25"             | 30"         | 24" |
| 18"       | 0.064"          | 6"   | 10"       | 6"          | 31"             | 38"         | 24" |
| 21"       | 0.064"          | 6"   | 12"       | 6"          | 36"             | 42"         | 24" |
| 24"       | 0.064"          | 10"  | 15"       | 6"          | 41"             | 48"         | 24" |
| 30"       | 0.078"          | 12"  | 16"       | 6"          | 51"             | 60"         | 24" |

**BMP 4.1.3.1 (CONT.)  
FLARED  
ENTRANCE SECTION  
FOR PIPE SLOPE DRAIN  
DRAWING B**

#### 4.1.4 *Paved Flume*

##### A. *Definition*

A channel lined with bituminous concrete, portland cement concrete, or comparable non-erodible material placed to extend from the top of a slope to the bottom of a slope.

##### B. *Purpose*

The purpose of the paved chute or flume is to convey surface runoff safely down slopes without causing erosion.

##### C. *Conditions Where Practice Applies*

A paved chute or flume is to be used where concentrated flow of surface runoff must be conveyed down a slope in order to prevent erosion. The maximum allowable drainage area shall be 36 acres.

##### D. *Planning Considerations*

A paved flume may be used temporarily during construction of site improvements and/or permanently for final development of the site. If only temporary use is anticipated, a pipe slope drain may also be considered.

##### E. *Design Criteria and Requirements*

*Dimensions* Paved flumes are designated by size groups. These size groups are a function of certain dimensions.

###### **Size Group A:**

Height (H) of the dike at the entrance is at least 1.5 feet.

Depth (D) of the chute down the slope is at least eight (8) inches.

Length (T) of the inlet and outlet sections is five (5) feet.

###### **Size Group B:**

Height (H) of the dike at the entrance is at least two (2) feet.

Depth (D) of the chute down the slope is at least ten (10) inches.

Length (L) of the inlet and the outlet sections is six (6) feet.

The size is designated with a letter and a number, such as A-6, which denotes a Size Group A chute or flume with a six-foot (6 Foot) bottom width. The selected size shall be shown on the plans.

Each size group has various bottom widths and allowable drainage as shown below:

| Size | Bottom Width, b,<br>Ft. | Maximum<br>Drainage Area<br>Acres |
|------|-------------------------|-----------------------------------|
| A-2  | 2                       | 5                                 |
| A-4  | 4                       | 8                                 |
| A-6  | 6                       | 11                                |
| A-8  | 8                       | 14                                |
| A-10 | 10                      | 18                                |
| B-4  | 4                       | 14                                |
| B-6  | 6                       | 20                                |
| B-8  | 8                       | 25                                |
| B-10 | 10                      | 31                                |
| B-12 | 12                      | 36                                |

If a minimum of 75 percent of the drainage area will have a good grass or woodland cover throughout the life of the structure, the drainage areas listed above may be increased by 50 percent. If a minimum of 75 percent of the drainage area will have a good mulch cover throughout the life of the structure, the drainage areas listed above may be increased by 25 percent.

*Materials* A temporary paved flume may be constructed of bituminous concrete or unreinforced portland cement concrete. A permanent paved flume should have reinforcing steel. Portland cement concrete should be 2 ½ sack, 2000 psi slope paving concrete.

*Outlet* When a paved chute or flume is used, the velocity at its outfall should be checked for erosion potential downstream. When required, energy dissipation structures should be installed.

**F. *Inspection and Maintenance***

Inspect paved flumes within 24 hours after each rainfall of 0.5 inches or greater; daily

during periods of prolonged rainfall; and minimally, at least once a week. Repair damaged sections. Redress and replace stone or riprap at the outlet as needed. Remove sediment from the stabilized outlet when sediment has accumulated to a depth of one foot.

G. *Corresponding Technical Specifications*

Item 4.1.4.1 Paved Flume



## **ITEM NO. 4.1.4.1- PAVED FLUME**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control paved flumes utilized temporarily during construction or permanently for the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittal**

- A. Sieve analysis of aggregates conforming to requirements of this Item.
- B. Concrete mix design.

### **PART 2 - PRODUCTS**

#### **2.01 Concrete**

Concrete shall be bituminous concrete, Portland Cement Concrete (2 ½ sack, 2,000 psi), or comparable non-erodible material.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project area, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.

- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 Density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in this Item.

### **3.02 Construction Methods**

- A. Install Slope Drains at locations specified on PLANS in accordance with enclosed drawing. The size group (A or B) and the bottom width (b) of the flume will be designated on the PLANS.
- B. Soil around and under entrance section shall be tamped to the top of the embankment in lifts appropriately sized for the method of compaction utilized.
- C. Subgrade shall be constructed to the required elevations. All soft sections and unsuitable material shall be removed and replaced. Compact subgrade thoroughly and shaped to a smooth, uniform surface.
- D. Fill material for embankment shall be free of roots, woody vegetation, oversized

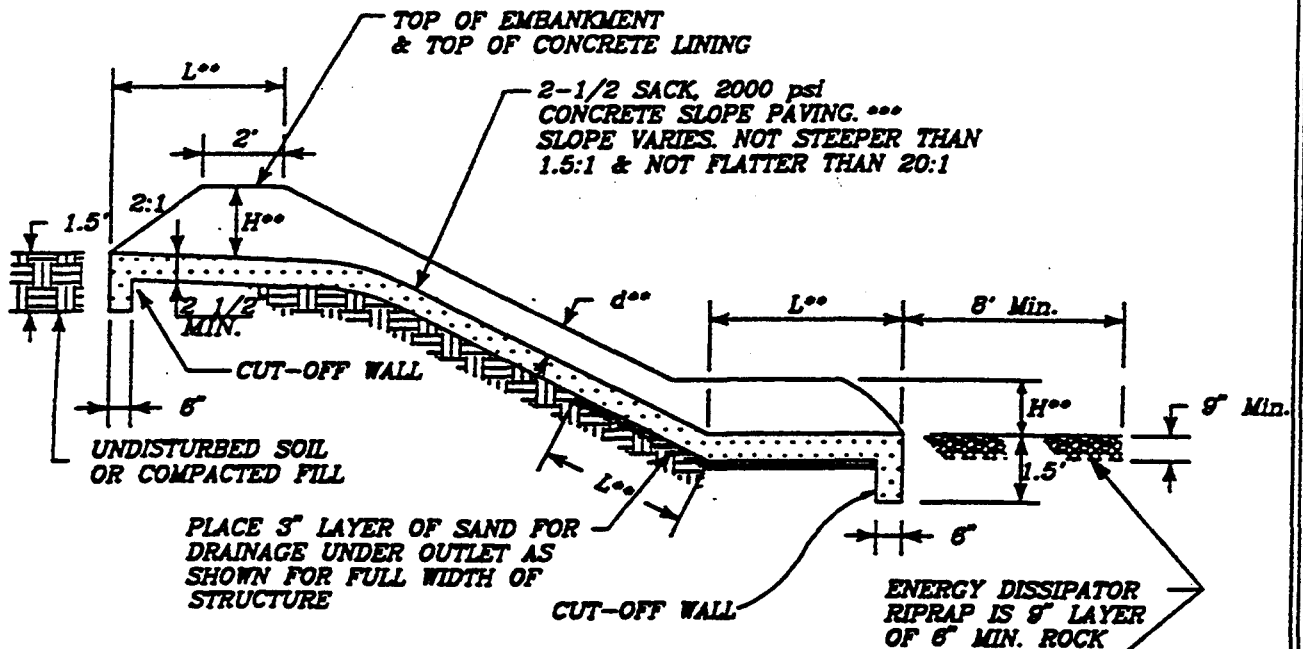
stories or rocks, or organic or other objectionable matters. Area under embankment shall be cleared, grubbed, and stripped of vegetation and root mat.

- E. Paved flumes to be utilized on a temporary basis during construction may be constructed without reinforcing steel. Permanent paved flumes shall be constructed with 2 ½ sack 2,000 psi slope paving concrete reinforced as indicated on the construction plans.
- F. Inspect paved flumes after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair damaged sections. Redress and replace stone at the outlet as needed to replenish depleted stone.
- G. Remove sediment from rip rap apron when the sediment has accumulated to a depth of one foot.

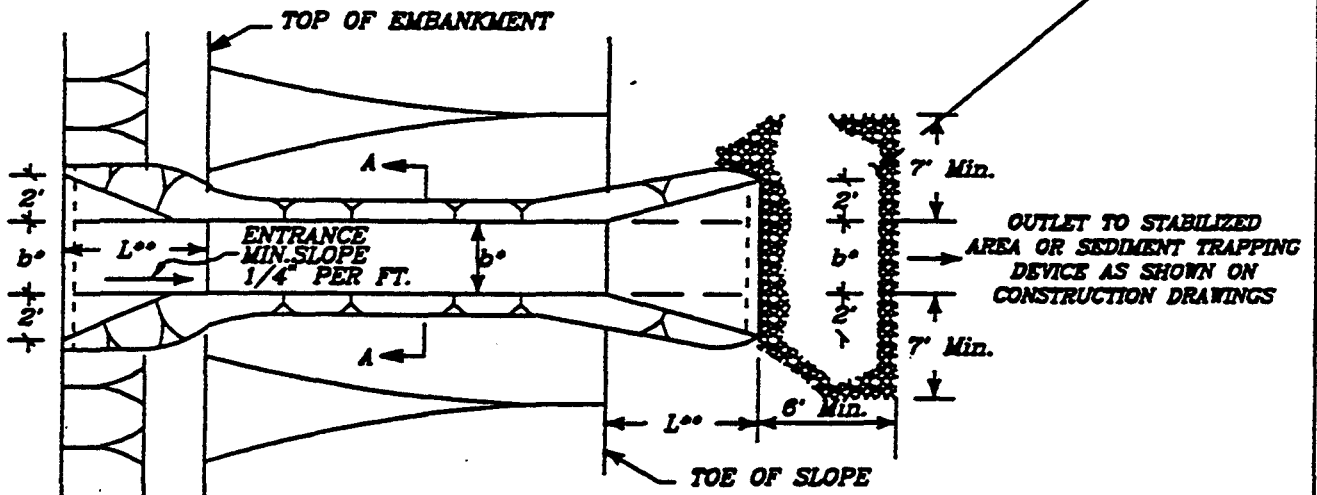
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for paved flume by the linear feet parallel with slope of completed and accepted paved flume. Paved flume, measured as stated, will be paid for at the unit price bid for **"Paved Flume, Complete In Place."**
- B. Payment for paved flume will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

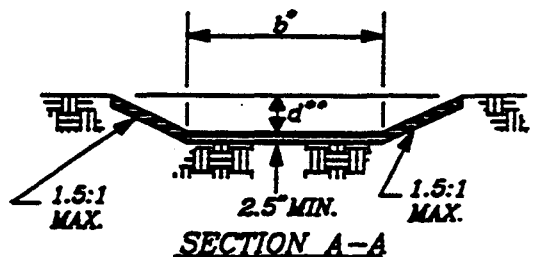
# PAVED FLUME



**PROFILE**



**PLAN VIEW**



**SECTION A-A**

- DIMENSION *b* IS SPECIFIED BY THE NUMBER DESIGNATED IN SIZE GROUP SUCH AS A-8 WHICH MEANS SIZE GROUP A WITH *b* EQUAL 6 FEET.
- STRUCTURE DIMENSIONS SHALL BE SPECIFIED BELOW
- TEMPORARY PAVED FLUME TO BE UNREINFORCED CONCRETE. PERMANENT PAVED FLUME MUST BE REINFORCED.

| DIMENSION | SIZE GROUP |      |
|-----------|------------|------|
|           | A          | B    |
| H MIN.    | 1.5'       | 2.0' |
| d MIN.    | 8'         | 10'  |
| L MIN.    | 5'         | 8'   |

= (PF) =  
SYMBOL

**BMP 4.1.4.1  
PAVED FLUME**

#### 4.1.5 *Level Spreader*

##### A. *Definition*

A **level spreader** is a specialized swale segment excavated on a level grade to allow uniform sheet flow to discharge onto stabilized surfaces.

##### B. *Purpose*

The purpose of the level spreader is to convert a concentrated flow of sediment-keep runoff into a sheet flow and to discharge it onto areas stabilized by existing vegetation without causing erosion.

##### C. *Conditions Where Practice Applies*

The level spreader is used only in those situations where the spreader can be constructed on undisturbed soil; where the area directly below the level lip is stabilized by existing vegetation; where the drainage area above the spreader is stabilized by existing vegetation (or the runoff to be discharged is relatively sediment free); and where the water will not be reconcentrated immediately below the point of discharge.

##### D. *Planning Considerations*

Level spreader can be used to discharge runoff by diversion or interceptor dikes and swales, slope drains, and other devices conveying concentrated flows.

##### E. *Design Criteria*

1. The design criteria for level spreader shall be a maximum of one (1) cubic foot per second per foot of length, based on the peak rate of flow from a three-year (3-year) frequency rainfall event. The minimum length shall be five (5) feet. An alternate such as a stabilized outlet, grassed waterway, etc., should be considered where the length of the level spreader exceeds 20 feet.
2. Final discharge should be over the level lip onto an existing stabilized area with a complete vegetative cover sufficiently established to be erosion resistant.

##### F. *Inspection and Maintenance*

Level spreaders should be inspected within 24 hours after each rainfall of 0.5 inches or more; daily during periods of prolonged rainfall; and minimum, at least once a week. Repairs should be made immediately. Remove sediment deposits and any projections or other irregularities which will impede normal flow.

***G. Corresponding Technical Specifications***

**Item 4.1.5.1    Level Spreader**

## **ITEM NO. 4.1.5.1- LEVEL SPREADER**

### **PART 1 - GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control level spreaders utilized during construction operations and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the

Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Install level spreaders at locations specified on the PLANS in accordance with drawing enclosed.
- B. Construct the level spreader on undisturbed soil and not on fill. Ensure that the spreader lip is level for uniform spreading of storm runoff.
- C. Excavation for level spreader construction shall be carried out in such a manner that erosion and water pollution be minimal. Excavation area shall be cleared, grubbed, and stripped of vegetation and root material.
- D. Inspect level spreaders after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Maintain at the required depth, grade, and cross section as specified on PLANS or in drawing. Remove sediment deposits as well as projections or other irregularities which will impede normal flow.

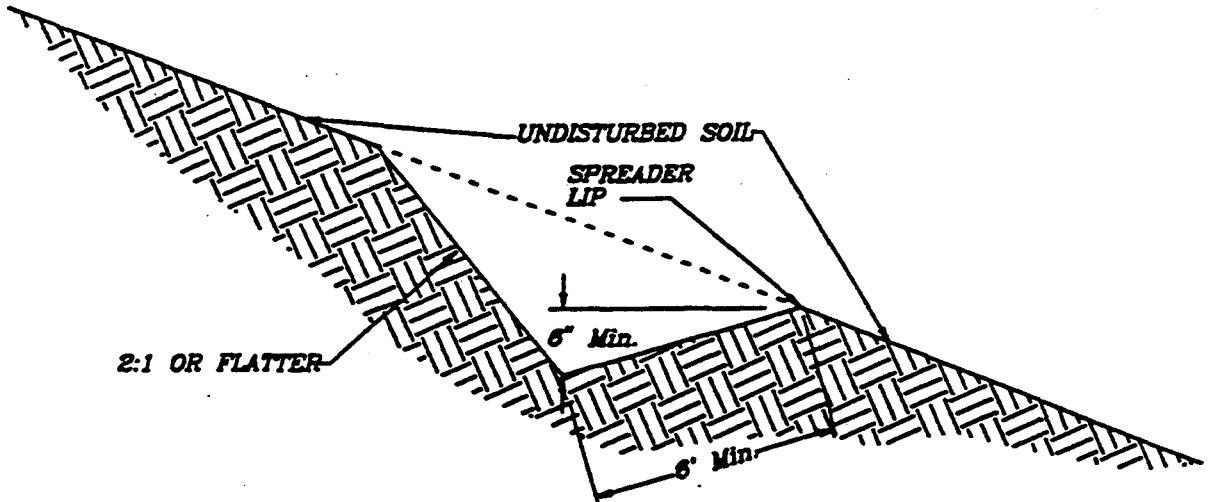
### **3.03 Measurement and Payment**

- A. Unless indicated in the Proposal as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL as pay item, measure and pay for level spreaders by the linear feet of completed and accepted level spreader. Level spreaders, measured as stated, will be paid for at the unit price bid for "Level Spreaders, Complete In Place".
- B. Payment for level spreaders will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including but not limited to, excavation, maintenance requirements, repair and replacement of damaged sections, removal of sediment

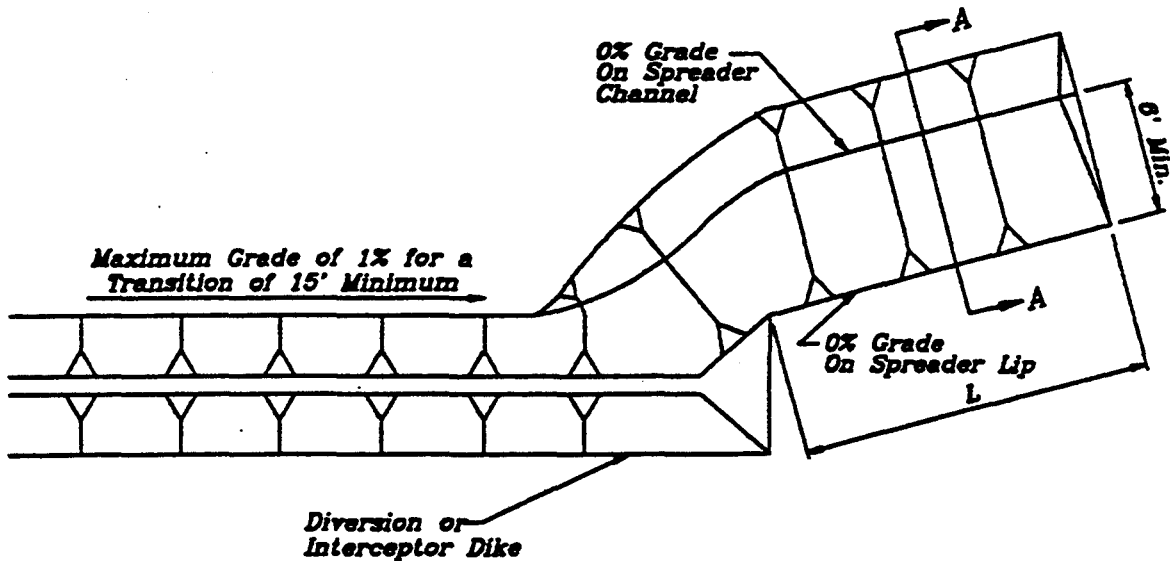


deposits, and removal of erosion and sedimentation control systems at the end of construction.

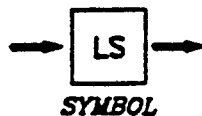
# LEVEL SPREADER



SECTION A-A



LEVEL SPREADER



**BMP 4.1.5.1**  
**LEVEL SPREADER**

## 4.2 MANAGING OVERLAND FLOW

**Overland flow** refers to runoff flowing as a “sheet” over the land and not concentrated in runoff channels. Generally, areas with overland flow are small in size. Best management practices usually are placed on side slope locations.

**Temporary BMPs** include:

- Filter fabric fences (Section 4.2.1)
- Straw bale fence (Section 4.2.2)
- Brush berm (Section 4.2.3)

**Permanent BMPs** include:

- Seeding with mulching (Section 4.2.4)
- Sodding (Section 4.4.2)

These BMPs are applicable to areas where overland flow occurs and where it is necessary to contain pollutants from soil storage piles. It is recommended that:

*Filter fences or equivalent BMPs be placed along all side slope and down slope sides of sites where less than 10 acres are disturbed at one time.*

*At sites with less than 10 acres disturbed at one time, where a channel or area of concentrated runoff passes through the site, filter fences should be placed along the channel edges to reduce sediment amounts reaching the channel.*

*Filter fences or equivalent BMPs be placed around soil piles with more than 10 cubic yards of material if the soil pile will exist for more than 14 days.*

*Vegetative buffer strips of original undisturbed grasses or new sodding may be used along perimeter of disturbed areas to trap sediment.*

### 4.2.1 Filter Fabric Fences

#### A. *Definition*

A temporary sediment fence consisting of a geotextile filter fabric stretched across and attached to supporting posts or frame and entrenched.

## B. Purposes

1. To intercept and detain small amounts of sediment from disturbed areas during construction operations to prevent sediment from leaving the site.
2. To decrease the velocity of sheet flows.

## C. Conditions Where Practice Applies

1. Down slope of disturbed areas where erosion is likely to occur in the form of sheet or rill erosion.
2. Around or down slope of soil piles.
3. Where the maximum size of the drainage area is 0.50 acres per 100 feet of fence length; the maximum length of slope behind the fence is 200 feet; and the maximum gradient behind the fence is 50% (2:1). The maximum slope length is as follows:

| Slope, %     | Maximum Slope Length |
|--------------|----------------------|
| < 0.2%       | 200                  |
| 0.2 to 0.5   | 175                  |
| 0.5 to 1.0   | 140                  |
| 1.0 to 2.0   | 100                  |
| 2.0 to 5.0   | 75                   |
| 5.0 to 10.0  | 50                   |
| 10.0 to 20.0 | 25                   |
| > 20.0       | 15                   |

4. Under no circumstances may filter fabric fences be used in streams, swales, ditches, or below ordinary high-water marks along streams. See reinforced filter fabric barriers (Section 4.3.1) for conditions with concentrated flow.

## D. Planning Considerations

1. Under normal conditions, filter fabric fences require removal of trapped sediment. If maintenance is difficult due to location or presence of wet soils that prohibit prompt cleaning after runoff events, additional parallel fences should be constructed.
2. Filter fabrics degrade due to ultraviolet light. Consult the manufacturer's specifications for useful life.

3. Woven and non-woven filter fabrics are available. Strength, permeability, and suitability for various soil textures vary with the type of fabric.
4. Parallel fences are needed on steep or long slopes.
5. Filter fabric fences will be more effective if runoff from areas Up slope of the disturbed area is diverted around the disturbed area.

*E. Design Criteria and Requirements*

*Timing* Filter fabric fences shall be installed prior to disturbing the Up slope area.

*Removal* Filter fabric fences may be removed once final stabilization of the disturbed area is completed.

*Placement* Filter fabric fences shall be placed on the contour to the extent practicable. Filter fences may not be placed perpendicular to the contour on slopes of greater than 2%. Parallel fences may be used. The parallel spacing may not exceed the slope lengths for the appropriate slope specified in Section C.3. The ends of the fence should be turned Up slope 1 to 2 feet in elevation to prevent flanking.

*Height* Filter fabric fences may not exceed 24 inches in height (not including the anchored material).

*Support* **Field constructed:** The full height of the filter fabric fence shall be supported by 2-inch x 2-inch wooden posts or equivalent. The posts shall be driven at least 8 inches into the ground. The maximum spacing of the posts shall be 3 feet. The filter fabric shall be stapled using at least 0.5-inch staples to the Up slope side of the posts.

**Factory pre-assembled with support netting:** The full height of the filter fabric fence shall be supported by 2-inch x 2-inch wooden posts or equivalent. The posts shall be driven at least 8 inches into the ground. The maximum spacing of the posts should be 8 feet. If support netting is not provided, then the spacing of the posts should not exceed 4 feet.

**Triangular filter fabric fence:** Attach the filter fabric to the fence structure fashioned from 6 gauge, 6-inch x 6-inch wire mesh, 18 inches on each side as shown on attached drawing. The fabric cover and skirt should be continuous wrapping of filter fabric. The skirt should form a continuous extension of the fabric on the upstream side

of the fence.

The triangular filter fabric fence may be secured in place using one of the following methods:

- The skirt may be toed-in 6 inches with mechanically compacted material;
- the skirt may be weighted down with a continuous layer of 3- to 5-inch graded rock; or
- the entire structure may be trenched-in 4 inches.

The triangular filter fabric fence structure and skirt, if provided, should be anchored securely in place using 6-inch wire staples on 2-foot centers on both edges and on the skirt, or staked using 18-inch by 3/8-inch diameter re-bar with tee ends.

The filter fabric material should be lapped over 6 inches to cover the segment joints. The joints should be fastened with galvanized shoat rings.

#### *Anchoring*

The filter fabric shall be anchored by spreading at least 8 inches of the fabric in a 4-inch x 4-inch trench or in a 4-inch deep V-trench on the Up slope side of the fence as shown in enclosed drawings. The trench shall be backfilled and compacted. (See Section 5.E. Design Criteria above for triangular fabric filter fence.)

#### *Fabric specifications*

The filter fabric shall meet the following specifications:

**Grab strength** 100 lb. minimum in any principal direction (D-1682)

**Mullen burst** Minimum 200 psi (ASTM D-3786)

**Equivalent opening size** Between 50 and 140 for soils with more than 15% by weight passing a No. 200 sieve

(specify on construction drawings) Between 20 and 50 for soils with less than 15 percent by weight passing a No. 200 sieve

**Water Flow Rate** Of 10 gal/min/ft<sup>2</sup> at 50mm constant head as determined by multiplying permittivity in sec-1 as determined by ASTM D-4491

**Ultraviolet ray inhibitors and stabilizers** Should provide an expected useable life comparable to anticipated construction period

Fabric with support netting shall be reinforced with an industrial polypropylene netting with a 3/4-inch spacing or equivalent. A heavy-duty nylon top support cord or equivalent is required.

**F. *Inspection and Maintenance***

1. Filter fabric fences shall be inspected within 24 hours after each rainfall of 0.5 inches or more; daily during periods of prolonged rainfall; and minimally, at least once a week. Repair or replacement should be made immediately.
2. Sediment deposits should be removed after each storm event and before deposits reach one-third the height of the fence.

**G. *Corresponding Technical Specification***

- Item 4.2.1.1 Filter Fabric Fence
- Item 4.2.1.2 Triangular Filter Fabric Fence

## **ITEM NO. 4.2.1.1 - FILTER FABRIC FENCE**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control filter fabric fences utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on geotextile fabric.

### **PART 2 - PRODUCTS**

#### **2.01 Filter Fabric**

Provide woven or non-woven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile fabric shall have a grab strength of 100 psi in any principal direction (ASTM D-4632), Mullen burst strength exceeding 200 psi (ASTM D-3786), and the equivalent opening size specified on PLANS. Filter fabric material shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0°F to 120°F. Representative Manufacturers: Marifi Inc. or equal.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and



discard the existing system.

- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing federal, state and local regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Provide filter fabric fence systems at locations specified on PLANS in accordance with enclosed drawing. Filter fabric fence systems shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.
- B. Attach the filter fabric to 1 inch by 2 inch wooden stakes spaced a maximum of 3 feet apart and embedded a minimum of 1 foot. The wooden stakes shall be installed at a slight angle toward the source of anticipated runoff.
- C. Trench in the toe of the filter fabric fence with a spade or mechanical trencher so that the downward face of the trench is flat and perpendicular to the direction of flow or for V-trench configuration as shown on the attached drawing. Lay filter

fabric along the edges of the trench. Backfill and compact trench.

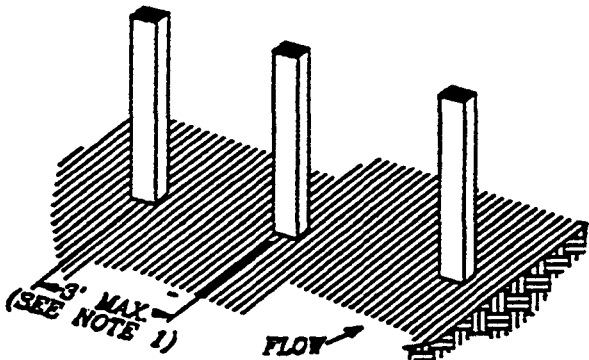
- D. The filter fabric should be provided in continuous rolls and cut to the length of the Silt Fence to minimize the use of joints. When joints are necessary, the fabric should be spliced together only at a support post with a minimum 6 inch overlap, and sealed securely.
- E. Inspect sediment filter barrier systems after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Repair or replace damaged section immediately to restore the requirements of this Item. Remove sediment deposits when silt reaches one-third of the height of the fence in depth.

### **3.03 Measurement and Payment**

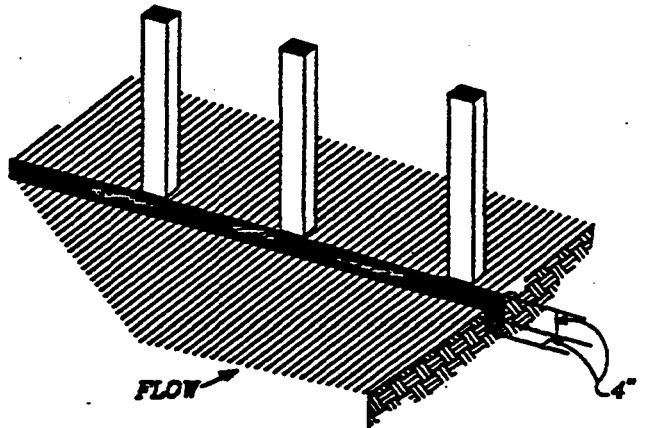
- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item measure and pay for the filter fabric fence by the linear feet of completed and accepted filter fabric fence between the limits of the beginning and ending of wooden stakes. Filter fabric fence, measured as stated, will be paid for at the unit price bid for **"Filter Fabric Fence, Complete In Place"**.
- B. Payment for filter fabric fence will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# FILTER FABRIC FENCE

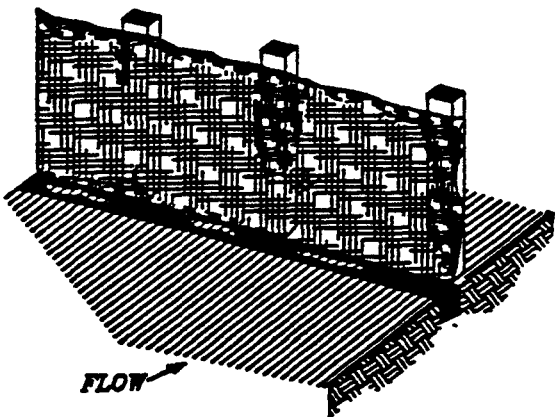
1. SET POSTS AT REQUIRED SPACING



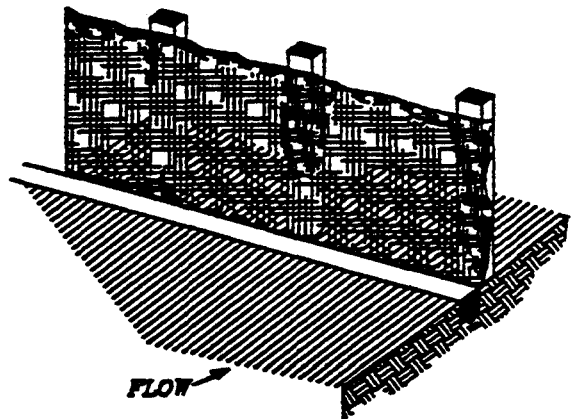
2. EXCAVATE A 4"x4" TRENCH UPSLOPE ALONG THE LINE OF STAKES.



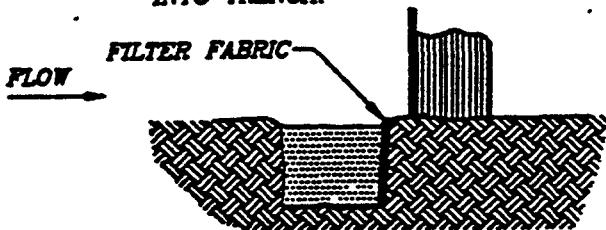
3. STAKE FILTER MATERIAL TO STAKES AND EXTEND IT INTO THE TRENCH.



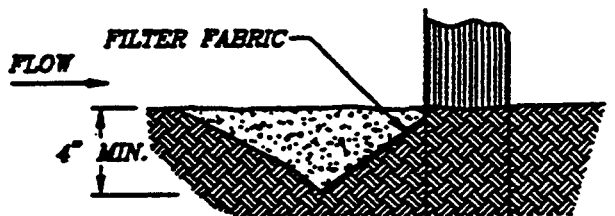
4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



EXTENSION OF FABRIC INTO TRENCH.

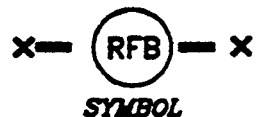


ALTERNATE V-TRENCH EXTENSION OF FABRIC INTO TRENCH.



**GENERAL NOTES:**

1. POSTS TO BE SET AT 3-FOOT MAXIMUM SPACING. IF FACTORY PREASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAXIMUM.
2. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.



**BMP 4.2.1.1**  
**FILTER FABRIC FENCE**

## **ITEM NO. 4.2.1.2 - TRIANGULAR FILTER FABRIC FENCE**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control triangular filter fabric fence utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on geotextile fabric.

### **PART 2 - PRODUCTS**

#### **2.01 Filter Fabric**

Provide woven or non-woven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile fabric shall have a grab strength of 100 psi in any principal direction (ASTM D-6832) Mullen burst strength exceeding 200 psi (ASTM D-3786), and the equivalent opening size specified on PLANS. Filter fabric material shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0°F to 120°F. Representative Manufacturers: Marifi Inc. or equal.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site installed by others prior to the start of construction under this contract until acceptance of the project or until directed by the Owner to remove and

discard the existing system.

- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

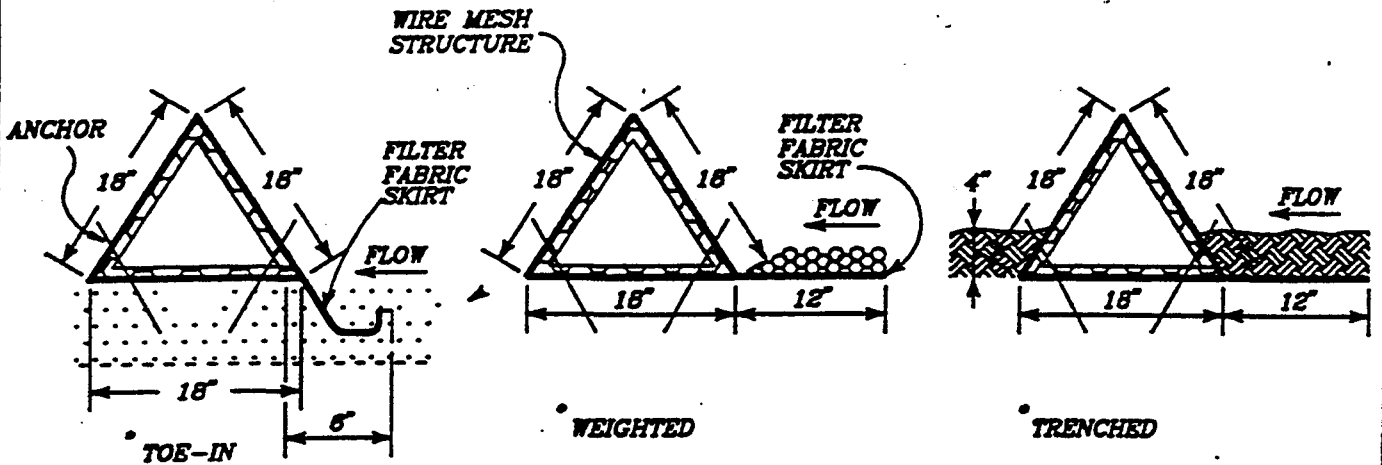
- A. Provide triangular filter fabric fence systems at locations specified on PLANS in accordance with enclosed drawing. Filter fabric fence systems shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.
- B. Attach the filter fabric to fence structure fashioned from 6 gauge, 6-inch by 6-inch wire mesh, 18 inches on each side as shown on attached drawing. The fabric cover and skirt should be continuous wrapping of fabric. The skirt should form a continuous extension of the fabric on the upstream side of the fence.

- C. The triangular fabric filter fence may be secured in place using one of the following methods:
  - 1. The skirt may be toed-in 6 inches with mechanically compacted material;
  - 2. The skirt may be weighted down with a continuous layer of 3-inch to 5-inch graded rock; or
  - 3. The entire structure may be trenched-in 4 inches.
- D. The triangular fabric filter fence structure and skirt, if provided, should be anchored securely in place using 6-inch wire staples on 2-foot centers on both edges and on the skirt, or staked using 18-inch by 3/8-inch diameter re-bar with tee ends.
- E. The fabric filter material should be lapped over 6 inches to cover the segment joints. The joints should be fastened with galvanized shoat rings.
- F. Inspect sediment filter barrier systems after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Repair or replace damaged section immediately to restore the requirements of this Item. Remove sediment deposits when silt reaches one-third of the height of the fence in depth.

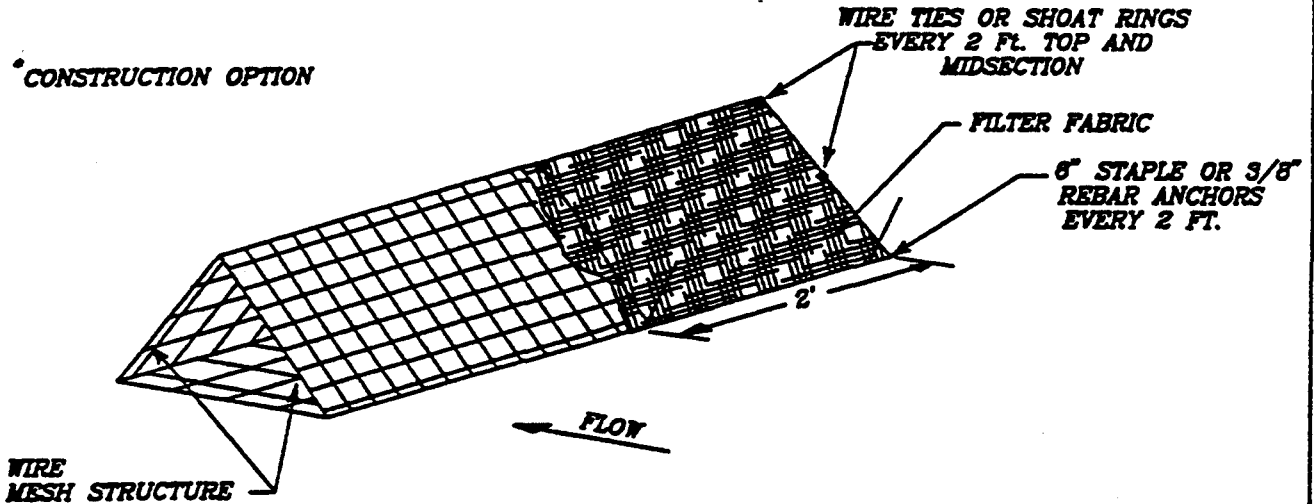
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item measure and pay for the triangular filter fabric fence by the linear feet of completed and accepted triangular filter fabric fence between the limits of the beginning and ending of wooden stakes. Triangular filter fabric fence, measured as stated, will be paid for at the unit price bid for "**Triangular Filter Fabric Fence, Complete In Place**".
- B. Payment for triangular filter fabric fence will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# TRIANGULAR FILTER FABRIC FENCE

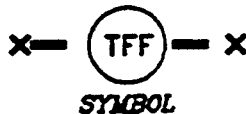


CONSTRUCTION OPTION



**GENERAL NOTES:**

1. BARRIER SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BARRIER.
2. THE FABRIC COVER AND SKIRT SHALL BE A CONTINUOUS WRAPPING OF FILTER FABRIC.. THE SKIRT SHALL BE A CONTINUOUS EXTENSION OF THE FABRIC ON THE UPSTREAM SIDE.
3. THE SKIRT SHALL BE WEIGHED WITH A CONTINUOUS LAYER OF 3 TO 5 INCH OPEN GRADED ROCK, OR TOED IN SIX INCHES WITH MECHANICALLY COMPACTED MATERIAL. OTHERWISE THE ENTIRE STRUCTURE SHALL BE TRENCHED IN 4 INCHES.
4. BARRIER AND SKIRT SHALL BE SECURELY ANCHORED IN PLACE USING 6 INCH WIRE STAPLES ON 2 FOOT CENTERS ON BOTH EDGES, OR STAKED USING 18 INCH BY 3/8 INCH RE-BARS WITH TOED ENDS.
5. FILTER MATERIAL SHALL BE LAPPED OVER ENDS 6 INCHES TO COVER SEGMENT JOINTS. JOINTS SHALL BE FASTENED WITH GALVANIZED SHOAT RINGS.
6. THE BARRIER STRUCTURE SHALL BE 6" BY 6" WIRE MESH , 18 INCHES ON EACH SIDE.



SYMBOL

**BMP 4.2.1.2**  
**TRIANGULAR**  
**FILTER FABRIC FENCE**

## 4.2.2 *Straw Bale Fence*

### A. *Definition*

A **straw bale fence** is a temporary sediment barrier consisting of a row of entrenched and anchored bales.

### B. *Purposes*

1. To intercept and detain small amounts of sediment from disturbed areas during construction operations to prevent sediment from leaving the site.
2. To decrease the velocity of sheet flows.

### C. *Conditions Where Practice Applies*

1. Down slope of disturbed areas where erosion is likely to occur in the form of sheet or rill erosion.
2. Around or down slope of soil piles.
3. Where the maximum size of the drainage area is 0.50 acres per 100 feet of fence length; the maximum length of slope behind the fence is 200 feet; and the maximum gradient behind the fence is 50% (2:1). The maximum slope length is as follows:

| Slope, %     | Maximum Slope Length (feet) |
|--------------|-----------------------------|
| < 0.2%       | 200                         |
| 0.2 to 0.5   | 175                         |
| 0.5 to 1.0   | 140                         |
| 1.0 to 2.0   | 100                         |
| 2.0 to 5.0   | 75                          |
| 5.0 to 10.0  | 50                          |
| 10.0 to 20.0 | 25                          |
| > 20.0       | 15                          |

4. Straw bales deteriorate with time. They should be utilized for short-term use where pollutant control is needed for less than 3 months.



5. Under no circumstances may straw bale fences be used in streams, swales, ditches, or below ordinary high-water marks along streams.

#### *D. Planning Considerations*

1. Under normal conditions, straw bale fences require removal of trapped sediment. If maintenance is difficult due to location or presence of wet soils that prohibit prompt cleaning after runoff events, additional parallel fences should be constructed.
2. As shown in Table 4.1, straw bale fences generally are considered less effective than filter fabric fences. However, they may be very useful in situations where removal of a filter fabric fence after the site is stabilized is not practicable.
3. Parallel fences may be used.
4. Straw bale fences will be more effective if runoff from areas Up slope of the disturbed area is diverted around the disturbed area.

#### *E. Design Criteria and Construction Requirements*

|                    |   |
|--------------------|---|
| <i>Timing</i>      | Straw bale fences shall be installed prior to disturbing the Up slope area.   |
| <i>Removal</i>     | Straw bale fences shall be removed once final stabilization of the disturbed area is completed.   |
| <i>Placement</i>   | Straw bale fences should be placed on the contour to the extent practicable. Straw bale fences may not be placed perpendicular to the contour on slopes of greater than 2%. The ends of the straw bale fence should be turned Up slope 1 to 2 feet in elevation to prevent flanking.            |
| <i>Entrenching</i> | The straw bale fence shall be entrenched at least 4 inches. The Up slope side of the bale shall be built up an additional 4 inches. See attached drawing.   |
| <i>Abutting</i>    | Straw bale fences shall be constructed by tightly abutting ends of adjacent bales. Gaps between bales shall be filled with straw.   |
| <i>Positioning</i> | All bales shall be wither-wire-bound or tied with nylon or polypropylene rope. Jute or cotton binding is not allowed. Straw bales shall be installed so that bindings are oriented around the sides rather than along the tops and bottoms of the bales to prevent degradation of the bindings. |
| <i>Anchoring</i>   | Each straw bale should be anchored securely by at least two stakes or   |

re-bars driven below the top of the bale and at least 18 inches into the ground. The first stake shall be driven towards the previously anchored bale to help create a tight fit. Exposed re-bars should be capped to protect against injuries.

**F. *Inspection and Maintenance***

1. Straw bale fences shall be inspected within 24 hours after each rainfall of 0.5 inches or more; daily periods of prolonged rainfall; and at a minimum, once a week. Repair or replacement should be made immediately.
2. Sediment deposits should be removed after each storm event and before deposits reach one-third the height of the fence.

**G. *Corresponding Technical Specification***

**Item 4.2.2.1 Straw Bale Fence**

## **ITEM NO. 4.2.2.1 - STRAW BALE FENCE**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control straw bale fences utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site installed by others prior to start of construction under this contract until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or

adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owners directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control practices should be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

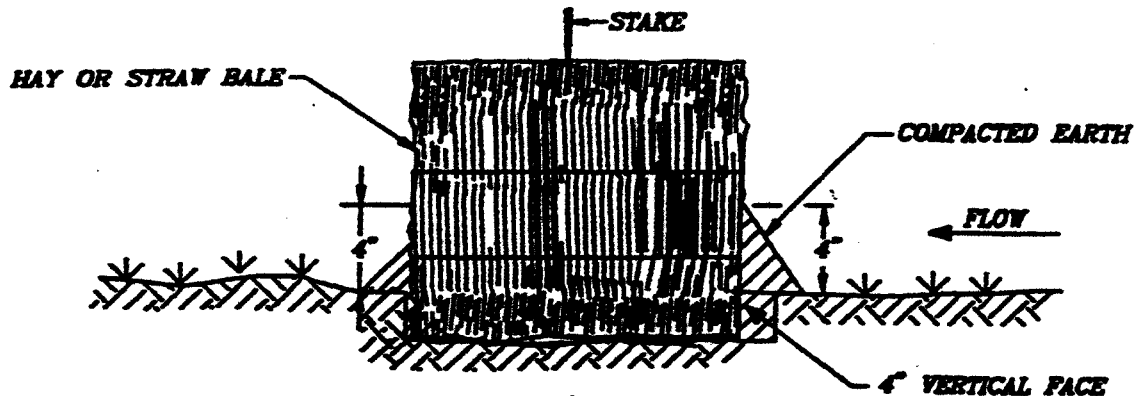
- A. Provide straw bale fences at location specified on PLANS in accordance with enclosed drawing.
- B. Straw bale fences shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.
- C. Bales shall be bound by either wire, nylon, or polypropylene rope tied across the hay bales. Jute or cotton binding is not allowed.
- D. Bales shall be placed in a row with ends tightly abutting the adjacent bales. Place bales with bindings parallel to ground surface.
- E. Each bale shall be embedded in the soil a minimum of 4 inches, where possible.
- F. Bales shall be securely anchored in place by 3/8-inch rebar stakes driven through the bales. The first stake in each bale shall be angled toward previously laid bale to force bales together.
- G. Fill the gaps between bales with straw to prevent water from escaping between bales. Wedge carefully in order not to separate bales.
- H. Inspect straw bale fences after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Repair or replace damaged section immediately to restore the requirements of this Item. Remove sediment deposits when silt reaches

one-third of the height of the fence in depth.

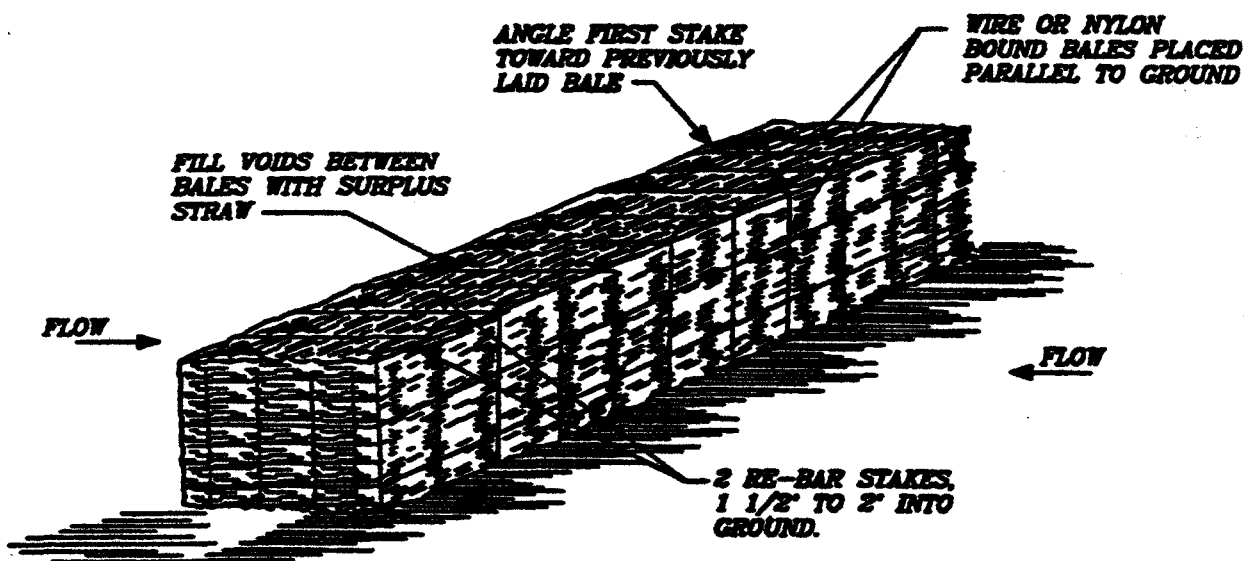
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for straw bale barrier by the linear feet of completed and accepted straw bale barrier. Straw bale barrier, measured as stated, will be paid for at the unit price bid for "Straw Bale Barrier, Complete In Place".
  
- B. Payment for straw bale fence will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embarkment and excavation, protection of trees, top soiling, dust control, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# STRAW BALE FENCE



**SECTION**



**ANCHORING DETAIL**

**GENERAL NOTES:**

1. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. FILL THE VOIDS BETWEEN BALES WITH SURPLUS STRAW. PLACE BALES WITH BINDING PARALLEL TO GROUND SURFACE.
2. WHERE POSSIBLE EACH BALE SHALL BE EMBEDDED IN THE SOIL A MINIMUM OF 4 INCHES.
3. BALES SHALL BE SECURELY ANCHORED IN PLACE BY 3/8 INCH REBAR STAKES DRIVEN THROUGH THE BALES. THE FIRST STAKE IN EACH BALE SHALL BE ANGLED TOWARDS THE PREVIOUS BALE TO FORCE THE BALES TOGETHER.
4. BALES SHALL BE BOUND BY EITHER WIRE OR NYLON ROPE TIED ACROSS THE HAY BALES.
5. MAINTENANCE WILL BE PERFORMED AS NEEDED.



**SYMBOL**

**BMP 4.2.2.1  
STRAW BALE FENCE**

### 4.2.3 *Brush Berm*

#### A. *Definition*

A **brush berm** is a temporary berm constructed of hand-placed brush from woody plants installed at the toe of a slope or at the perimeter of a developing area. Machine placement of brush berms is not permitted.

#### B. *Purpose*

The purpose of a brush berm is to intercept sediment-laden water from unprotected areas, detain the sediment, and release the water in sheet flow.

#### C. *Conditions Where Practice Applies*

The brush berm is used :

1. Where is an adequate source of woody brush that must be removed during development.
2. Where is little or no concentration of water in a channel or other drainage way above the berm, and
3. The contributing drainage area is less than two (2) acres.

#### D. *Design Criteria and Requirements*

A brush berm is constructed at the perimeter of a disturbed site within the developing area. It is not to be constructed outside the property lines without obtaining a legal easement from the affected adjacent property owners.

The following criteria shall be observed:

*Drainage Area*    Less than two (2) acres (recommended)

*Maximum Flow Through Rate*    40 gallons per minute per foot squared frontal area

*Height*    18 inches minimum height measured from the top of the existing ground at the Up slope toe to the top of the berm

*Anchoring*    Brush berms shall be secured using wire or nylon rope tied across the berm in crisscross fashion with a minimum tension of 50 lbs. The

rope shall be tied securely to 18-inch - 318-inch diameter rebar stakes driven into the ground on four-foot (4-foot) centers on both sides of the berm.

*Grade* Berms shall be built along contour lines at zero (0) percent grade or as near as possible.

*Material* Woody brush and branches, such as juniper, tallow, oak, or pine that are less than two (2) inches in diameter with dense foliage (leaves) on them. All material should be hand-placed with overlapping to eliminate channelization. Care should be taken to avoid the incorporation of annual weeds and soil into the brush berm. Fabric filter may be incorporated to increase the effectiveness of sediment trapping.

*Outlet* Runoff shall outfall directly to an undisturbed stabilized area.

#### *E. Inspection and Maintenance*

The area upstream from the brush berm should be maintained in a condition which will allow accumulated silt to be removed following the runoff of a rainfall event. At least once a week and after each rainfall event of 0.5 inches or more, inspections should be made by the responsible party. When silt reaches a depth equal to 1/3 the height of the berm or one (1) foot, whichever is less, the accumulated silt should be removed and disposed of at an approved site in a manner that will not contribute to additional siltation. The berm and its anchors should be repaired as needed to restore them to their original condition after each inspection. This may require additions to, or complete replacement of, as conditions warrant.

The brush berm shall be left in place until all upstream areas are stabilized and accumulated silt is removed. Brush shall be replaced every six (6) months or more often if loss of foliage occurs.

#### *F. Corresponding Technical Specification*

Item No. 4.2.3.1 Brush Berm



## **ITEM NO. 4.2.3.1- BRUSH BERM**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control brush berms utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or

adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

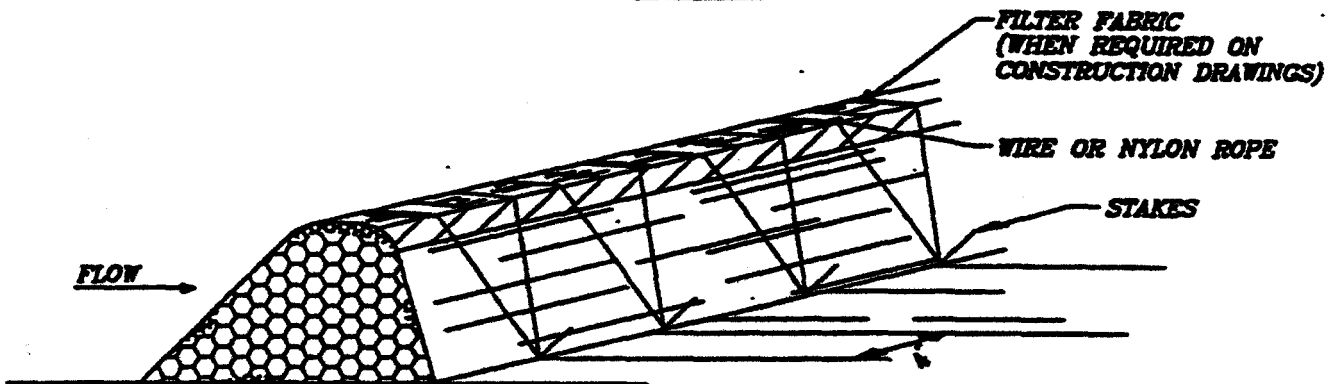
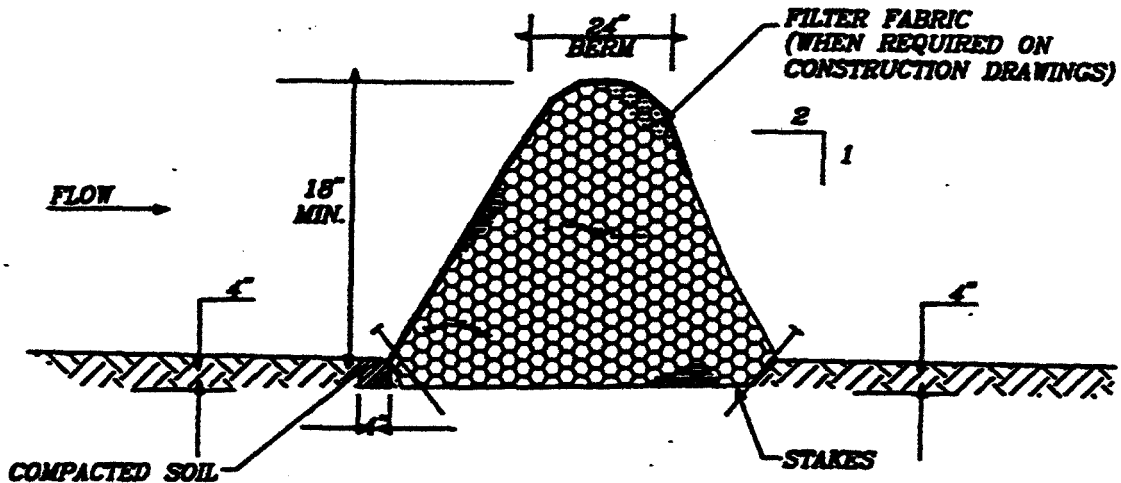
### **3.02 Construction Methods**

- A. Provide brush berms at locations specified on PLANS in accordance with applicable drawings listed below.
- B. Brush berms shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated. The Brush Berm shall be constructed along contour lines by hand placing method. Machine placement of the Brush Berm is not permitted.
- C. Use woody brush and branches having diameter less than 2-inches with 6-inches overlap. Avoid incorporation of annual weeds and soil into Brush Berm.
- D. The height shall be 18 inches minimum, measured from the top of existing ground at the Up slope toe to the top of the berm. The top width shall be 24 inches minimum and the side slope shall be 2:1 or flatter.
- E. The Brush Berm shall be embedded into the soil a minimum of 4 inches and anchored using either wire, nylon, or polypropylene rope across the berm with a minimum tension of 50 pounds. The rope shall be tied securely to 18-inch x 3/8-inch diameter rebar stakes driven into the ground on 4-foot centers on both sides of the berm.
- F. Inspect brush berms after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Repair or replace damaged section immediately to restore the requirements of this Item. Remove sediment deposits when silt reaches one-third the height of berm or one foot, whichever is less.

### 3.03 Measurement and Payment

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment of work performed under this Item. Include cost of work performed under this Item in contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for brush berm by the linear feet of completed and accepted brush berm. Brush berm, measured as stated, will be paid for at the unit price bid for **“Brush Berm, Complete In Place”**.
  
- B. Payment for construction's erosion and sedimentation control systems will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# BRUSH BERM



## GENERAL NOTES:

1. BRUSH - WOODY BRUSH AND BRANCHES HAVING DIAMETER LESS THAN 2 INCHES SHOULD BE PLACED WITH A 6 INCH OVERLAP. AVOID INCORPORATION OF ANNUAL WEEDS AND SOIL INTO BRUSH BERM.
2. HEIGHT - 18 INCHES MINIMUM, MEASURED FROM THE TOP OF EXISTING GROUND AT THE UPSLOPE TOE TO THE TOP OF THE BERM.
3. TOP WIDTH - 24 INCHES MINIMUM.
4. SIDE SLOPE - 2:1 OR FLATTER.
5. BRUSH BERMS SHALL BE CONSTRUCTED ALONG CONTOUR LINES BY HAND PLACING. MACHINE PLACEMENT OF BRUSH BERMS IS NOT PERMITTED.
6. THE BRUSH BERM SHALL BE EMBEDDED INTO THE SOIL A MINIMUM OF 4 INCHES
7. BRUSH BERMS SHALL BE ANCHORED USING EITHER WIRE OR NYLON ROPE ACROSS THE BERM WITH A MINIMUM TENSION OF 60 POUNDS.
8. THE ROPE SHALL BE TIED SECURELY TO 18 INCH X 3/8 INCH DIAMETER REBAR STAKES DRIVEN INTO THE GROUND ON 4 FOOT CENTERS ON BOTH SIDES OF THE BERM.
9. MAINTENANCE WILL BE PERFORMED AS NEEDED.



**BMP 4.2.3.1**  
**BRUSH BERM**

#### 4.2.4 *Hydromulch Seeding*

##### A. *Definition*

**Hydromulch seeding** is a temporary or permanent planting of grasses.

##### B. *Purposes*

To stabilize disturbed areas to minimize erosion and to reduce overland flow velocities.

##### C. *Conditions Where Practice Applies*

On exposed soils.

##### D. *Planning Considerations*

1. The effectiveness of seeding in controlling erosion is increased if drainage from Up slope areas is diverted around the exposed areas.
2. Seeding should be used in conjunction with other best management practices such as filter fabric fences or straw bale fences.
3. Seeding may not be considered as acceptable vegetative cover until the grasses are established.

##### E. *Design Criteria and Requirements*

**Seeding** shall be applied within seven (7) days of the end of active disturbance of the soil surface. A proper seed bed should be prepared before seeding. Seeding on all slopes shall be done in conjunction with mulching.

**Seeds** shall conform to requirements of U.S. Department of Agriculture Rules and Regulations as set forth in Federal Seed Act and Texas Seed Law. Use seed which has been treated with an approved fungicide. Container labels are to show purity and germination, and name and type of seed. Planting date, type, and rate of application as follows:

| <u>TYPE 'A'</u>                 | <u>RATE OF APPLICATION<br/>IN POUNDS PER ACRE</u> | <u>PLANTING DATE</u>     |
|---------------------------------|---|--------------------------|
| Hulled Bermuda Grass<br>98/88   | 40  | January 1 to<br>April 15 |
| Unhulled Bermuda Grass<br>98/88 | 40  |                          |
| Annual Rye Grass<br>(Gulf)      | 50  |                          |

| <u>TYPE 'B'</u>      | <u>RATE OF APPLICATION<br/>IN POUNDS PER ACRE</u> | <u>PLANTING DATE</u>     |
|----------------------|---|--------------------------|
| Hulled Bermuda Grass | 40  | April 15 to<br>October 1 |

| <u>TYPE 'C'</u>                 | <u>RATE OF APPLICATION<br/>IN POUNDS PER ACRE</u> | <u>PLANTING DATE</u>      |
|---------------------------------|---|---------------------------|
| Hulled Bermuda Grass<br>98/88   | 40  | October 1 to<br>January 1 |
| Unhulled Bermuda Grass<br>98/88 | 40  |                           |
| Rye Grass (Gulf)                | 30  |                           |

*Fertilizer* Provide fertilizer with analysis of 10 percent nitrogen, 20 percent phosphoric acid, and 10 percent potash. Determine percent by methods of Association of Official Agricultural Chemists. Container labels to show analysis. Rate of application to be 750 pounds per acre except during period of April 15 through September 1 when the rate may be reduced to 600 pounds per acre.

*Mulch* Mulch to be virgin wood cellulose fiber made from whole wood chips. Within the fiber mulch material, at least 20 percent of the fibers will be 10.7 mm in length and 0.27 mm in diameter. Rate of application to be 2,000 pounds per acre.

## ITEM 4.2.4.1 - HYDRO-MULCH SEEDING

### PART 1- GENERAL

#### 1.01 Description

- A. Scope: The work covered by this Item consists of furnishing all plant, labor, materials, equipment, supplies, suspension and tools, and performing all work necessary for top soiling, smoothing, seeding, fertilizing, watering, maintenance, and cleanup of all areas disturbed during construction, all in accordance with the drawings and TECHNICAL SPECIFICATIONS .
- B. General: The hydro-mulch seeding operations, together with all other necessary related work, to conform to the requirements specified in this Item. The area to be hydro-mulch seeded to be noted on PLANS.

### PART 2 - PRODUCTS

#### 2.01 Materials

- A. Seed: All seed must meet the requirements of U.S. Department of Agriculture Rules and Regulations as set forth in Federal Seed Act and Texas Seed Law. Type of seed, purity and germination requirements, rate of application, and planting dates are as follows:

|    | <b>Planting<br/>Type</b>               | <b>Rate Pounds<br/>per Acre</b> | <b>Date</b> | <b>Application</b>      |
|----|--|---------------------------------|-------------|-------------------------|
| 1. | Hulled Common Bermuda<br>Grass 98/88   | 40                              |             | Jan. 1 to<br>Apr. 15    |
|    | Unhulled Common Bermuda<br>Grass 98/88 | 40                              |             |                         |
|    | Annual Rye Grass (Gulf)                | 50                              |             |                         |
| 2. | Hulled Common Bermuda<br>Grass 98/88   | 40                              |             | Apr. 15<br>to<br>Oct. 1 |
| 3. | Hulled Common Bermuda<br>Grass 98/88   | 40                              |             | Oct. 1 to<br>Jan. 1     |
|    | Unhulled Common Bermuda<br>Grass 98/88 | 40                              |             |                         |
|    | Annual Rye Grass (Gulf)                | 30                              |             |                         |

- B. Fertilizer: Fertilizer to be water soluble with analysis of 10 percent nitrogen, 20 percent phosphoric acid, and 10 percent potash. Rate of application to be 750 pounds per acre except during the periods of April 15 through September 1, when the rate should be reduced to 600 pounds per acre.
- C. Mulch: Mulch to be virgin wood cellulose fiber made from whole wood chips. Within the fiber mulch material, at least 20 percent of the fibers will be 10.7 mm in length and 0.27 mm in diameter. Rate of application to be 2,000 pounds per acre. Soil stabilizers such as Terra Type III (or approved equal) to be applied at a rate of 40 pounds per acre on side slopes and "Terra Tack I" (or approved equal) to be applied at a rate of 40 pounds per acre in the flatter, upper portions of channel areas.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it



needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

After areas to receive hydro-mulch seeding have been completed to lines, grades, and sections shown on PLANS, apply seed, fertilizer and mulch at uniform average rates indicated in Section 2.01 Materials

### **3.03 Maintenance**

The hydro-mulch seeding to be adequately watered until established. Any areas damaged by erosion or areas that do not have an acceptable turfing to be reseeded.

### **3.04 Measurement and Payment**

Measure by square yard as indicated in PROPOSAL. Payment for work under this Item will be made at Contract price for "Hydro-Mulch Seeding", which price to be full compensation for all fertilizer, seed, equipment, materials, and labor necessary for fertilizing and seeding.

#### 4.2.5 *Vegetative Buffer Strips*

##### A. *Definition*

**Vegetative Buffer Strips** are strips of land that are not paved during development. The strips may remain either in native vegetation or landscape vegetation.

##### B. *Purposes*

To improve storm water quality of surface drainage from new developments into environmentally sensitive areas or onto paved areas that lead directly to storm sewer systems. The vegetation will trap eroded sediments and will filter some pollutants from the storm water.

##### C. *Conditions Where Practice Applies*

Buffer Strips may be used in areas of developments adjacent to environmentally sensitive areas or adjacent to paved areas if a structural sediment control BMP such as hay bales or fabric fencing is not being used.

##### D. *Planning Considerations*

Vegetative buffer strips can reduce the cost of structural improvements for erosion control if incorporated into the project during the planning phase.

Vegetative buffer strips should be utilized in conjunction with structural measures such as filter fabric fences and straw bales if the condition warrants.

##### E. *Design Criteria and Requirements*

A 20' wide buffer strip is recommended as a minimum practice to provide significant results for erosion control and pollutant removal of surface storm water. Wider strips can provide greater benefits particularly in habitat conservation for flora and fauna if native vegetation is preserved. For sites with steep slopes, the requirements for a buffer strip can be wider. A 10' wide strip is sometimes suitable for small sites with small contributing drainage areas.

The vegetative strip can be maintained as native vegetation or as landscape vegetation with similar results if the landscape vegetation is not heavily fertilized or treated with insecticides.

### 4.3 TRAPPING SEDIMENT IN CHANNELIZED FLOW

Channelized flow refers to runoff flowing through depressions, swales or channels. This section contains BMPs to control or trap sediment carried in channelized flow.

The practices vary by drainage area as follows:

- **For drainage areas of less than 2 acres:**  
*Reinforced filter fabric barrier* (Section 4.3.1)  
*Diversion dikes and swales* (Section 4.1.1)
- **For drainage areas of less than 5 acres:**  
*Sediment traps* (Section 4.3.2)
- **Drainage areas of less than 100 acres:**  
*Sediment basin* (Section 4.3.3).

#### 4.3.1 *Reinforced Filter Fabric Barrier*

##### A. *Definition*

A temporary sediment barrier used in areas of concentrated flow consisting of a filter fabric stretched across and attached to supporting posts and a wire fence and entrenched.

##### B. *Purpose*

1. To cause sediment carried in channelized or concentrated runoff to settle by reducing the velocity of the flow.

##### C. *Conditions Where Practice Applies*

1. Concentrated runoff can carry significant amounts of sediment. The use of reinforced filter fabric barriers should be limited to unstabilized minor swales, ditches or diversions where the maximum contributing area is no greater than 2 acres. For larger contributing areas, sediment traps or sediment basins should be used.
2. Reinforced filter fabric barriers may not be used in intermittent and perennial stream channels.

#### *D. Planning Considerations*

1. Under normal conditions, reinforced filter fabric barriers require removal of trapped sediment. If maintenance is difficult due to location or presence of wet soils that prohibit prompt cleaning after runoff events, additional parallel barriers should be constructed.
2. Filter fabrics degrade due to ultraviolet light. Consult the manufacturer's specifications for useful lifetime.
3. Woven and non-woven filter fabrics are available. Strength, permeability and suitability for various soil textures vary with the type of fabric.

#### *E. Design Criteria and Requirements*

*Installation* Reinforced filter fabric barriers shall be installed:

- a. prior to disturbing Up slope areas, or
- b. within 24 hours of constructing ditches, diversions or other channels.

*Removal* Reinforced filter fabric barriers shall remain in place and be maintained until final stabilization of disturbed Up slope areas and channels, ditches, and diversions is completed.

*Shape* When used in swales, ditches, or diversions, the elevation of the barrier at the top of the filter fabric at the flowline location in the channel shall be lower than the bottom elevation of the filter fabric at the ends of the barrier.

*Height* Reinforced filter fabric barriers shall be at least 18 inches but not not be more than 36 inches in height.

*Support* The full height of the reinforced filter fabric barrier shall be supported by 5-foot-long, 4-inch diameter posts or equivalent and a wire fence 42 inches in height. The posts shall be driven at least 12 inches into the ground. The maximum spacing of the posts shall be 10 feet. The wire fence shall be a minimum of 14 gauge and a maximum mesh spacing of 6 inches.

*Attachment* The wire mesh should be stapled to the posts on the Up slope side with heavy duty staples at least 1 inch long. The filter fabric

should be attached to the wire mesh with wire ties.

***Entrenching*** The filter fabric shall be anchored by spreading 8 inches of the fabric in a 4-inch x 4-inch trench on the Up slope side of the barrier as shown in the attached drawing. The wire mesh shall extend at least 2 inches into the trench. The trench shall be backfilled and compacted.

***Fabric Specifications***

The filter fabric shall meet the following specifications

**Grab strength:** 100 lb. minimum in any principal direction (ASTM D-1682)

**Mullen Burst:** Minimum 200 psi (ASTM D-3786)

**Equivalent opening size** (specify on construction drawings) between 50 and 140 for soils with more than 15 percent by weight passing a No. 200 sieve between 20 and 50 for soils with less than 15 percent by weight passing a No. 200 sieve

**Water Flow Rate** of 10 gal/min/ft<sup>2</sup> at 50mm constant head as determined by multiplying permittivity in sec-1 as determined by ASTM D-4491

**Ultraviolet radiation ray inhibitors and stabilizers** should provide an expected useful life comparable to anticipated construction period

***Spacing*** The spacing between barriers shall be determined based on the drainage area and the difference in elevation. For unpaved contributing areas, the contributing drainage area to each filter fabric barrier should not exceed 2 acres. For paved contributing areas, the contributing drainage area to each filter fabric barrier may not exceed 1 acre. The difference in elevation between barriers should not exceed 2/3rds the height of the filter fabric. (For example, a 3 foot barrier used on a 2% grade with an unpaved contributing area allows the barriers to be placed 100 feet part provided the contributing area between the barriers does not exceed 2 acres.)

**F. *Inspection and Maintenance***

1. Reinforced filter fabric barriers shall be inspected within 24 hours after each rainfall of 0.5 inches or greater, daily during periods of prolonged rainfall and at least once a week. Repair or replacement shall be made immediately.
2. Sediment deposits should be removed after each storm event and no later than at such time as deposits reach one third the height of the barrier.

**G. *Corresponding Technical Specification***

**Item 4.3.1.1 Reinforced Filter Fabric Barrier**

## **ITEM NO. 4.3.1.1 - REINFORCED FILTER FABRIC BARRIER**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control of filter fabric barriers which must be utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS.

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on geotextile fabrics.

### **PART 2 - PRODUCTS**

#### **2.01 Filter Fabric**

Provide woven or non-woven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile fabric shall have a minimum grab strength of 100 psi in any principal direction (ASTM D-4632), Mullen burst strength exceeding 200 psi (ASTM D-3786), and the equivalent opening size specified on PLANS. Filter fabric material shall contain ultraviolet inhibitors and stabilizers to provide a minimum of six months of expected usable construction life at a temperature range of 0°F to 120°F. Representative Manufacturers: Marifi Inc. or equal.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.

- C. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- D. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- E. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soils in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Provide filter fabric barrier systems at locations specified on PLANS in accordance with enclosed drawing. Filter fabric barrier systems shall be installed in such a manner that surface runoff will percolate through the system in sheet flow fashion and allow sediment to be retained and accumulated.
- B. Attach the woven wire support to steel fence posts (min. of 1.25 lbs. per linear foot & Brinell Hardness greater than 140) spaced 6 feet apart and embedded a minimum of 1 foot. Maximum spacing of 8 feet is allowed if posts are made of hot rolled steel, at least 4 feet long with Tee or Y-bar sections with the surface painted or galvanized. Provide safety caps on top of metal posts. The steel posts shall be installed at a slight angle toward the source of the anticipated runoff.



- C. Trench in the toe of the filter fabric barrier with a spade or mechanical trencher so that the downward face of the trench is flat and perpendicular to the direction of flow as shown on the attached drawing. Lay filter fabric along the edges of the trench. Backfill and compact trench.
- D. Woven wire shall be galvanized 2"x 4" welded wire fabric, 12-1/2 gauge. Securely fasten the filter fabric material on the woven wire with tie wires.
- E. The filter fabric should be provided in continuous rolls and cut to the length of the Silt Fence to minimize the use of joints. When joints are necessary, the fabric should be spliced together only at a support post with a minimum 6 inch overlap and sealed securely.
- F. Inspect sediment filter barrier systems after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Repair or replace damaged section immediately to restore the requirements of this Item. Remove sediment deposits when silt reaches one-third of the height of the barrier in depth.

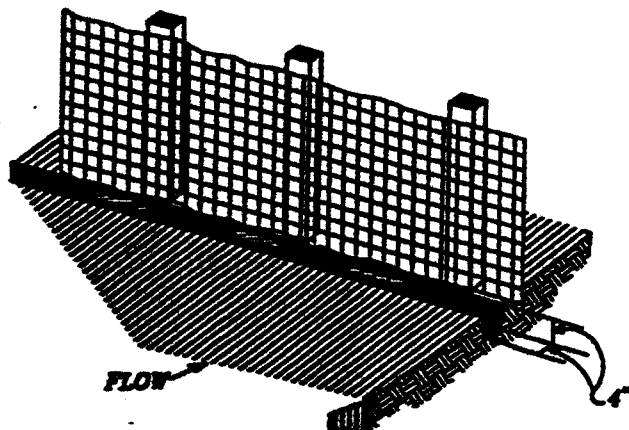
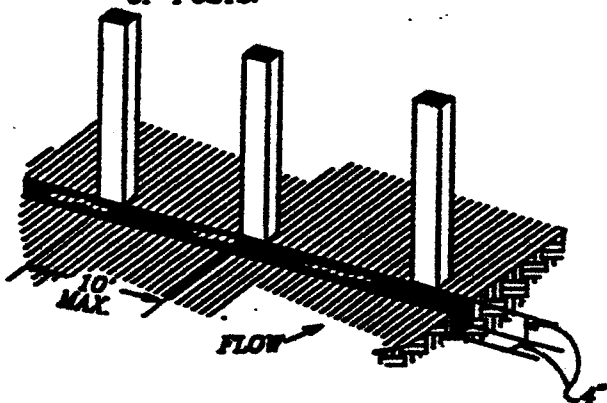
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for filter fabric barrier by the linear feet of completed and accepted filter fabric barrier between the limits of the beginning and ending of steel fence posts. Filter fabric barrier, measured as stated, will be paid for at the unit price bid for "**Filter Fabric Barrier, Complete In Place**".
- B. Payment for filter fabric barrier will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# REINFORCED FILTER FABRIC BARRIER

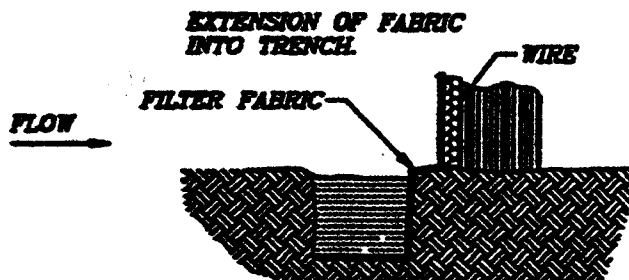
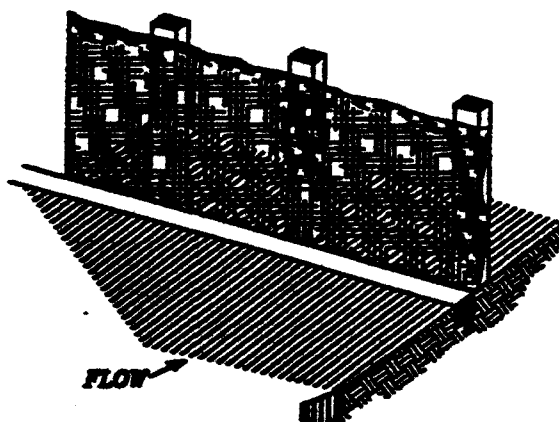
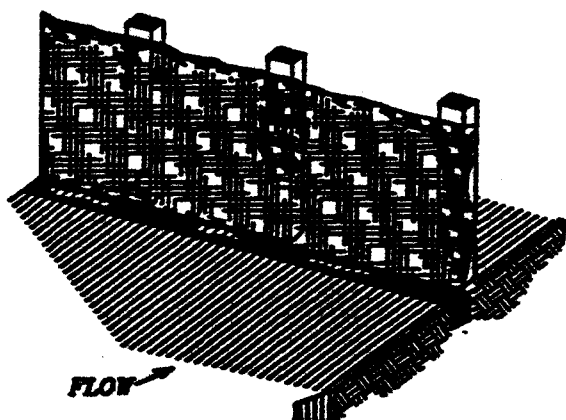
1. SET POSTS AND EXCAVATE 4" x 4" TRENCH UPSLOPE ALONG LINE OF POSTS.

2. SECURE WIRE FENCING TO POSTS



3. ATTACH FILTER MATERIAL TO WIRE FENCE AND EXTEND IT INTO THE TRENCH.

4. BACKFILL AND COMPACT THE EXCAVATED SOIL.



## GENERAL NOTES:

1. WOVEN WIRE FENCE TO BE FASTENED SECURELY TO FENCE POSTS WITH STAPLES.
2. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE FENCE, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER, THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.



**BMP 4.3.1.1**  
**REINFORCED**  
**FILTER FABRIC BARRIER**

### 4.3.2 *Sediment Traps*

#### A. *Definition*

A **sediment trap** is a small temporary basin formed by excavation and/or an embankment to intercept sediment-laden runoff and to trap and retain the sediment.

#### B. *Purpose*

The purpose of a sediment trap is to intercept sediment-laden runoff and trap the sediment to protect drainage ways, properties, and right-of-way below the sediment trap from sedimentation.

#### C. *Conditions Where Practice Applies*

A sediment trap usually is installed at points of discharge from disturbed areas. The drainage area should not exceed five acres.

#### D. *Planning Considerations*

The sediment trap should be located to obtain the maximum storage benefit from the terrain for ease of clean-out and disposal of the trapped sediment and to minimize interference with construction activities.

#### E. *Design Criteria and Requirements*

It is recommended that the volume of a sediment trap as measured at the elevation of the crest of the outlet be at least 1,800 cubic feet per acre of drainage area. The trap must be large enough to allow sediment to settle and must have the capacity to store the collected sediment until it is removed. The volume of the trap shall be calculated using standard mathematical procedures.

Excavation operations should be carried out in such a manner that erosion and water pollution will be minimal. Any excavated portion of sediment trap should have 2:1 or flatter slopes. The embankment should be mechanically compacted.

Sediment traps are named according to the type of outlet. Each type has different design criteria and will be discussed separately. The outlets should be designed, constructed, and maintained in such a manner that sediment does not leave the trap and that erosion of the outlet does not occur. A trap may have several different outlets with each outlet conveying part of the flow based on the criteria below, and the combined outlet capacity shall meet that criteria.

**A stone outlet sediment trap** consists of a basin formed by an embankment or excavation and an embankment. The outlet for the trap is over a level stone section. To provide for a ponding area, a triple layer of geotextile fabric wrapped stone core having a nominal diameter of one (1) foot shall be placed in the outlet structure. The core shall be covered by a minimum of six (6) inches of stone.

The minimum length (feet) of the stone outlet should be equal to six (6) times the drainage area (acres). The crest of the outlet (top of stone) shall be at least one (1) foot below the top of the embankment. Unless otherwise specified, all aggregate used should be at least three (3) inches thick and shall not exceed 1/2 cubic foot in volume (see drawing for Stone Outlet Sediment Trap for details).

**An excavated earth outlet sediment trap** is constructed at an opening or junction point of diversion dikes. A sedimentation area is excavated at this location to pond runoff, to reduce its velocity, and to cause sedimentation. The crest over which runoff must flow is level with the natural ground, and its length is defined by the width of the excavation. The length of the crest in feet should be equal to four times the drainage area in acres.

**An embankment earth outlet** is defined by a crest formed on a dike to allow runoff to be released at that location. The length of the crest should be equal to four times the drainage area in acres. The embankment at the crest should have a top width of 4 feet and have 2:1 side slopes. An emergency outlet in the embankment should be provided as shown on the attached drawing.

Each trap should be delineated on the plans in such a manner that it will not be confused with any other features. Each trap on a plan should have a number, and the numbers should be consecutive.

The following information should be shown for each trap in summary table form on the same sheet that the trap is on:

- type of trap
- size of outlet
- trap dimensions
- embankment height and excavation depth
- drainage area

**F. *Inspection and Maintenance***

The sediment trap will be inspected after each runoff event of 0.5 inch or greater and at a minimum of once a week. Repairs will be made promptly.

Sediment should be removed, and the trap restored to its original dimensions, when the sediment has accumulated to one-third of the design depth of the trap or one (1) foot, whichever is less. Sediment removed from the trap should be deposited in an approved spoils area and in such a manner that it will not cause additional siltation.

**G. *Corresponding Technical Specification***

- Item 4.3.2.1 Stone Outlet Sediment Trap
- Item 4.3.2.2 Excavated Earth Outlet Sediment Trap
- Item 4.3.2.3 Embankment Earth Outlet Sediment Trap

## **ITEM NO. 4.3.2.1 - STONE OUTLET SEDIMENT TRAP**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control stone outlet sediment traps utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on filter fabrics showing that they meet or exceed requirements of this Item.

### **PART 2 - PRODUCTS**

#### **2.01 Geotextile Fabric Wrap**

Provide woven and non-woven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile fabric shall have a grab strength exceeding 270 psi (ASTM D-6832) and equivalent opening size specified on PLANS. Filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F. Both the geotextile and threads shall be resistant to chemical attack, mildew and rot. Representative manufacturer: Marifi Inc. or equal.

#### **2.02 Rock and Stone**

Use open-graded rock with most of the fines removed. Rock shall be a minimum of 3 inches in diameter and less than ½ cubic foot in volume, unless otherwise specified on PLANS and drawings in this Item. Use only clean, hard rocks free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.

## **PART 3 - EXECUTION**

### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.**
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.**
- C. Maintain existing erosion and sedimentation control systems located within the project site installed by others prior to start of construction under this contract until acceptance of the project or until directed by the Owner to remove and discard the existing system.**
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.**
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.**
- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.**
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.**

### **3.02 Construction Methods**

- A. Install rock outlet sediment traps at locations specified on PLANS in accordance with enclosed drawing.
- B. Fill material for embankment shall be free of roots, woody vegetation, oversized stones or rocks, or organic or other objectionable matter. Area under embankment shall be cleared, grubbed, and stripped of vegetation and root mat.
- C. Limit of excavation and outlet length and height shall be as specified on PLANS. The side slopes shall be 2:1 or flatter.
- D. Maintain a minimum of 6 inches between top of core material and top of Stone Outlet, a minimum of 4 inches between bottom of core material and existing ground, and a minimum of 1 foot between top of stone outlet and top of embankment.
- E. Rock shall be embedded a minimum of 4 inches into existing ground.
- F. Core shall be a minimum of 1 foot in height and in width and shall be wrapped in a triple layer of geotextile fabric.
- G. Inspect rock outlet sediment traps and outlets after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair or replace damaged trap components to restore the requirements of this Item. Redress and replace stone as needed to replenish depleted stone. Remove sediment deposit and restore traps to original dimensions when the sediment has accumulated to one-half the design depth of the trap or one foot, whichever is less.

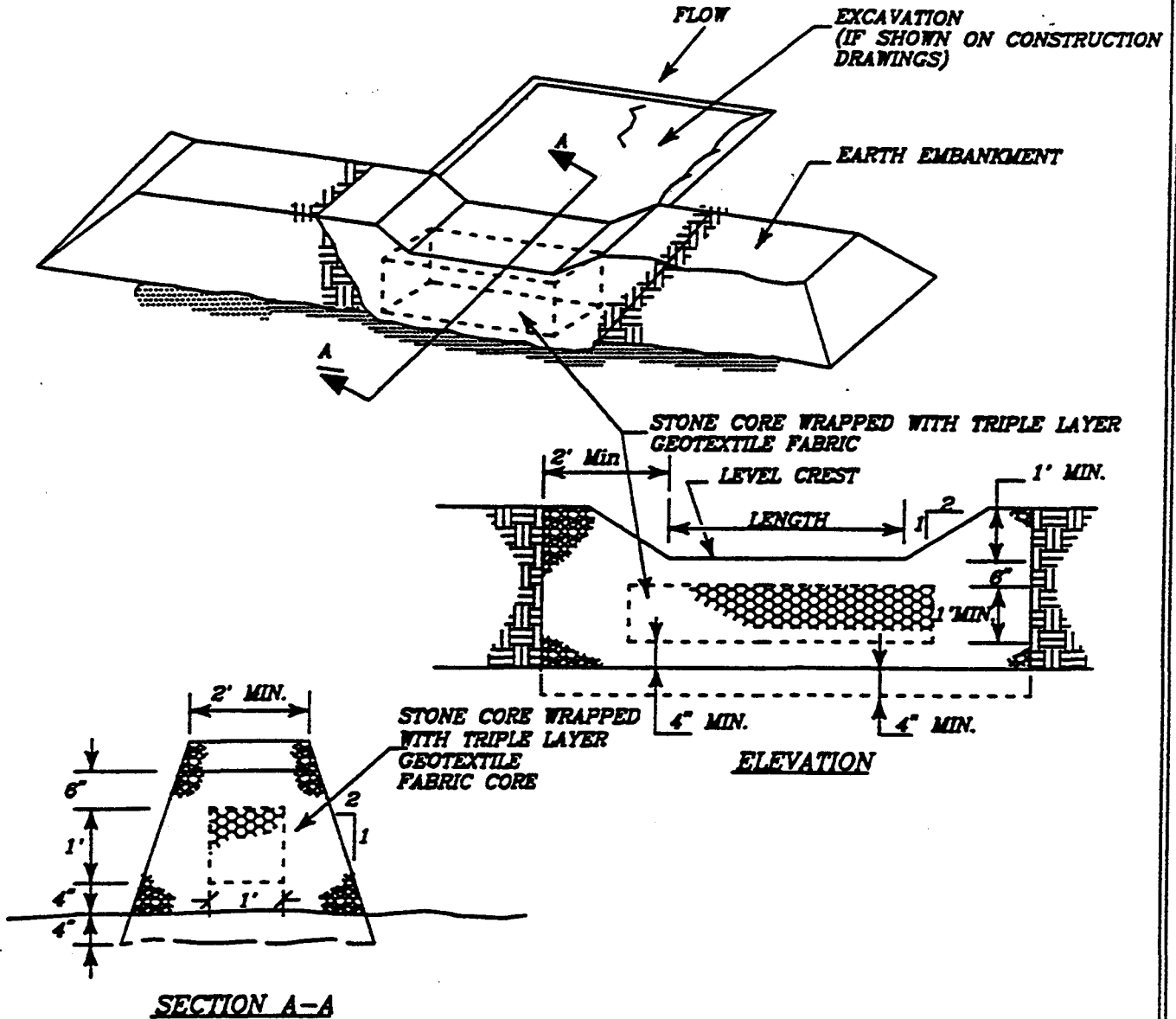
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for stone outlet sediment trap per each for the number of completed and accepted stone outlet sediment traps. Stone outlet sediment trap, measured as stated, will be paid for at the unit price bid for "Stone Outlet Sediment Trap, Complete In Place".
- B. Payment for stone outlet sediment trap will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of



these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

# STONE OUTLET SEDIMENT TRAP



**GENERAL NOTES:**

1. ROCK AND GEOTEXTILE FABRIC SHALL BE AS INDICATED BY THIS SPECIFICATION
2. DIMENSION - LIMIT OF EXCAVATION AND OUTLET LENGTH AND HEIGHT SHALL BE AS INDICATED ON THE CONSTRUCTION DRAWING.
3. SIDE SLOPE SHALL BE 2:1 OR FLATTER.
4. MAINTAIN A MINIMUM OF 6 INCHES BETWEEN TOP OF CORE MATERIAL AND TOP OF STONE OUTLET, A MINIMUM OF 4 INCHES BETWEEN BOTTOM OF CORE MATERIAL AND EXISTING GROUND AND A MINIMUM OF 1 FOOT BETWEEN TOP OF STONE OUTLET AND TOP OF EMBANKMENT.
5. ROCK SHALL BE EMBEDDED A MINIMUM OF 4 INCHES INTO EXISTING GROUND.
6. CORE SHALL BE A MINIMUM OF 1 FOOT IN HEIGHT AND IN WIDTH AND SHALL BE WRAPPED IN GEOTEXTILE FABRIC.
7. PONDING ON SEDIMENT LADEN RUNOFF IN SEDIMENT TRAP ACCOMPLISHED BY EMBANKMENT OR EXCAVATION DEPENDING ON TERRAIN. REFERENCE CONSTRUCTION DRAWINGS FOR TRAP TYPE AND DIMENSIONS.
8. OUTLET ONTO STABILIZED AREA.



SYMBOL

**BMP 4.3.2.1**  
**STONE OUTLET**  
**SEDIMENT TRAP**

## **ITEM 4.3.2.2 - EXCAVATED EARTH OUTLET SEDIMENT TRAP**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control excavated earth outlet sediment traps utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on filter fabrics showing that they meet or exceed requirements of this Item.

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract , until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion

and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.

- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

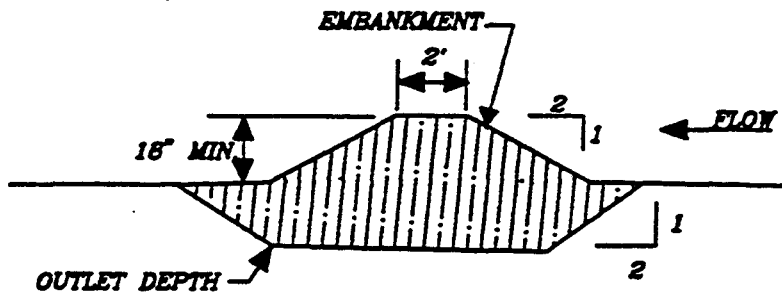
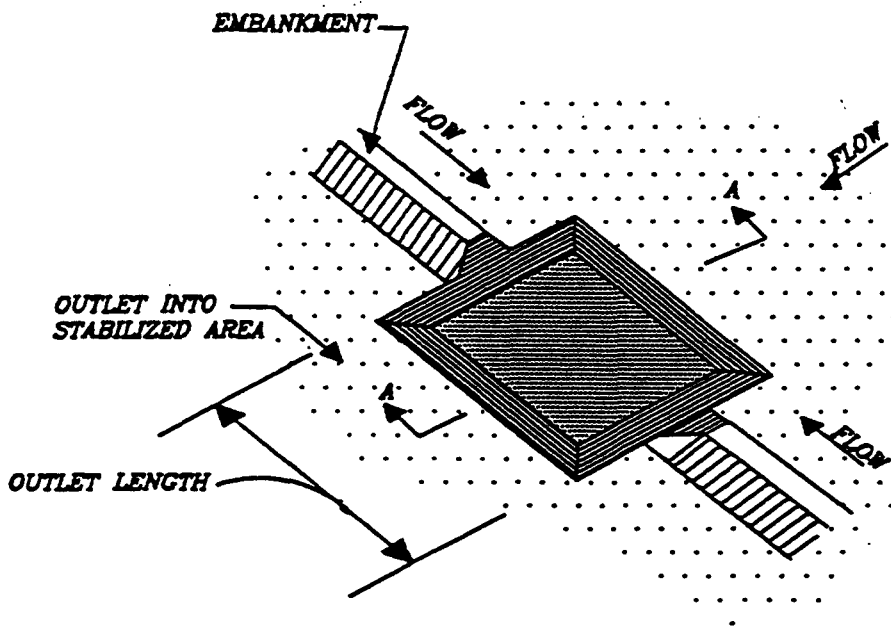
### **3.02 Construction Methods**

- A. Install excavated outlet sediment traps at locations specified on PLANS in accordance with enclosed drawing.
- B. Fill material for embankment shall be free of roots, woody vegetation, oversized stones or rocks, or organic or other objectionable matter. The area under the embankment shall be cleared, grubbed, and stripped of vegetation and root material.
- C. Limit of excavation and outlet length and height shall be as specified on PLANS. The side slopes shall be 2:1 or flatter.
- D. Inspect excavated earth outlet sediment traps and outlets after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair or replace damaged trap components to restore the requirements of this Item. Remove sediment deposit and restore traps to original dimensions when the sediment has accumulated to one-half the design depth of the trap or one foot, whichever is less.

### 3.03 Measurement and Payment

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for excavated earth outlet sediment trap per each for the number of completed and accepted excavated earth outlet sediment trap. Excavated earth outlet sediment trap, measured as stated, will be paid for at the unit price bid for **"Excavated Earth Outlet Sediment Trap, Complete In Place"**.
  
- B. Payment for excavated earth outlet sediment trap will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# EXCAVATED EARTH OUTLET SEDIMENT TRAP



**SECTION A-A**

**GENERAL NOTES:**

1. CONSTRUCT THE TRAP IN ACCORDANCE WITH THE DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS.
2. TOP WIDTH OF EMBANKMENT SHALL BE 2 FEET.
3. SIDE SLOPES SHALL BE 2:1 OR FLATTER.
4. OUTLET ONTO STABILIZED AREA.



**BMP 4.3.2.2**  
**EXCAVATED EARTH**  
**OUTLET SEDIMENT TRAP**

## **ITEM NO. 4.3.2.3 - EMBANKMENT EARTH OUTLET SEDIMENT TRAP**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control embankment earth outlet sediment traps utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS.

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil

site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Unless otherwise indicated, compact embankment, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-98 density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

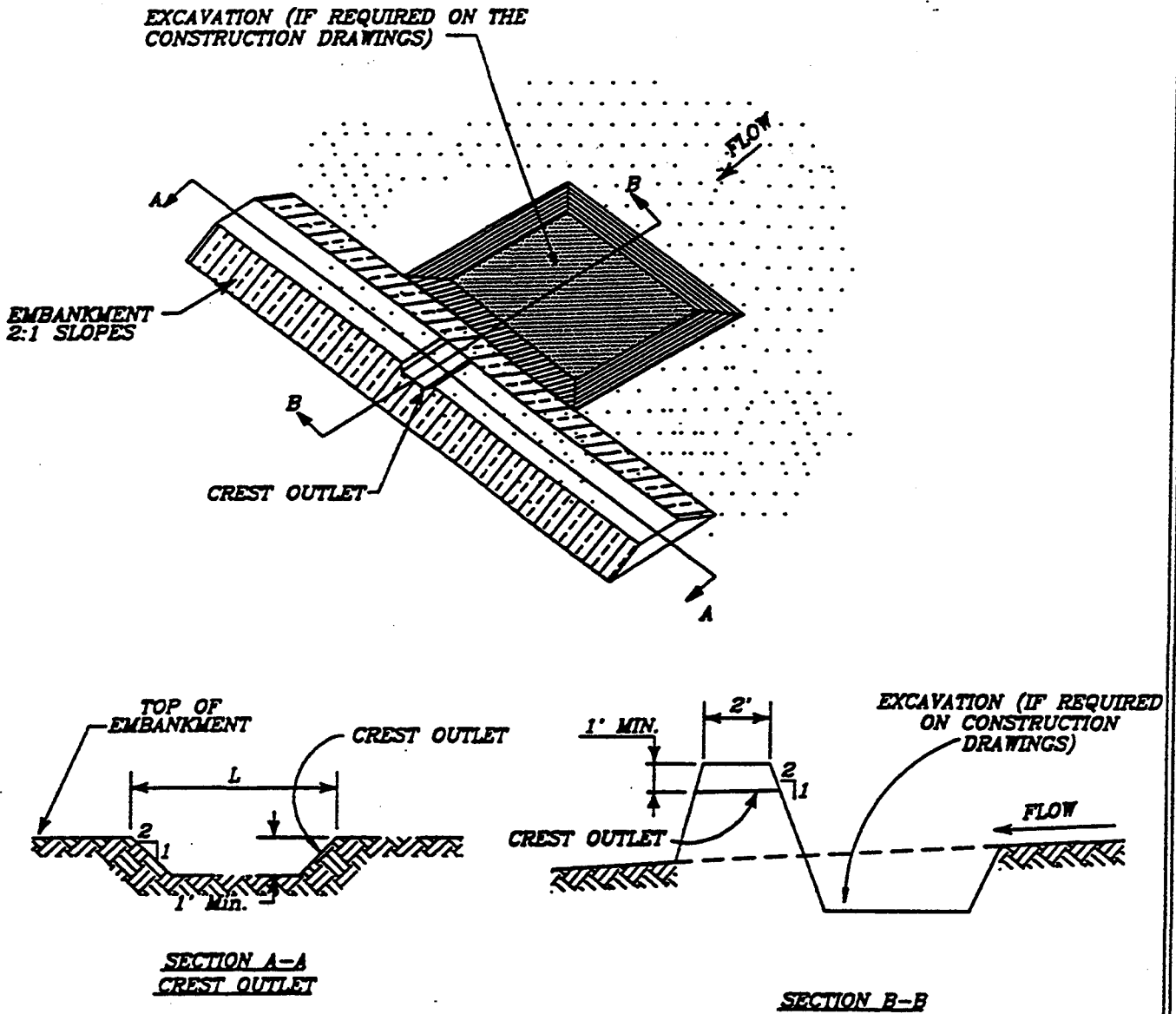
- A. Install embankment earth outlet sediment traps at locations specified on PLANS in accordance with enclosed drawing.
- B. Fill material for embankment shall be free of roots, woody vegetation, oversized stones or rocks, or organic or other objectionable matter. Area under embankment shall be cleared, grubbed, and stripped of vegetation and root material.
- C. Limit of excavation and outlet length and height shall be as specified on PLANS. The side slopes shall be 2:1 or flatter.
- D. Inspect embankment earth outlet sediment traps and outlets after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair or replace damaged trap components to restore the requirements of this Item. Remove sediment deposit and restore traps to original dimensions when the sediment has accumulated to one-half the design depth of the trap or one foot, whichever is less.



### 3.03 Measurement and Payment

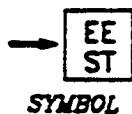
- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for embankment earth outlet sediment trap per each for the number of completed and accepted embankment earth outlet sediment trap. Embankment earth outlet sediment trap, measured as stated, will be paid for at the unit price bid for **"Embankment Earth Outlet Sediment Trap, Complete In Place"**.
  
- B. Payment for embankment earth outlet sediment trap will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# EMBANKMENT EARTH OUTLET SEDIMENT TRAP



## GENERAL NOTES:

1. CONSTRUCT THE TRAP IN ACCORDANCE WITH THE DIMENSIONS SHOWN ON THE CONSTRUCTION DRAWINGS.
2. TOP WIDTH OF EMBANKMENT SHALL BE 2 FEET.
3. SIDE SLOPES SHALL BE 2:1 OR FLATTER.
4. OUTER CREST OUTLET FLOWLINE SHALL BE AT LEAST 1 FOOT BELOW THE TOP OF THE EMBANKMENT.
5. OUTLET ONTO STABILIZED AREA WITH LEVEL SPREADER



**BMP 4.3.2.3**  
**EMBANKMENT EARTH**  
**OUTLET SEDIMENT TRAP**

### 4.3.3 *Sediment Basin*

#### A. *Definition*

A **sediment basin** is a temporary barrier or dam constructed across a water way or excavated location to intercept sediment-laden runoff and to trap and retain the sediment.

#### B. *Purpose*

The purpose of a sediment basin is to intercept sediment-laden runoff and to reduce the amount of sediment leaving the disturbed area by reducing runoff velocity. Reducing runoff velocity allows the larger particles to settle out in order to protect drainage ways, properties, and rights-of-way below the sediment basin from sedimentation.

#### C. *Conditions Where Practice Applies*

A sediment basin applies where physical site conditions or land ownership restrictions preclude installation of barrier-type erosion control measures to control runoff, erosion, and sedimentation adequately. A sediment basin may be used below construction operations which expose critical areas to soil erosion.

#### D. *Planning Considerations*

1. For common drainage locations that serve an area with 10 or more disturbed areas at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, should be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained, does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization sediment basin. For drainage locations which serve 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, smaller sediment basins and/or sediment traps should be used. At a minimum, silt fences, or equivalent sediment controls are required for all side slope and down slope boundaries of the construction area.
2. For drainage locations serving less than 10 acres, sediment basins and/or sediment traps should be used. At a minimum, silt fences or equivalent sediment controls are required for all side slope and down slope boundaries of the construction area unless a sediment basin providing storage for 3,600 cubic feet of storage per acre drained is provided.

### **E. Design Criteria and Requirements**

- 1. The sediment basin should be located to obtain the maximum storage benefit from the terrain and for ease of clean out of the trapped sediment. It should be located to minimize interference with construction activities and construction of utilities.**
- 2. Size of the basin: The volume of the sediment basin, as measured from the bottom of the basin to the elevation of the crest of the low-flow riser, should be at least 3,600 cubic feet per acre of total drainage area (1.0 inch over the watershed). If this volume is not attainable, then a smaller volume may be provided, but in no case should the volume be less than 1,800 cubic feet per acre drained.**
- 3. Riser design: A vertical pipe or box-type riser joined (watertight connection) to a pipe (barrel should extend through the embankment and outlet beyond the downstream toe of the fill). The minimum capacity of the riser should be the peak flow from the 3-year storm when the water surface is at the crest elevation. The minimum size of the barrel should be eight (8) inches in diameter.**

**The crest elevation should be at least 18 inches above the top of the riser.**

- The riser should be designed to provide for automatic dewatering following a storm event. This can be achieved by using perforated pipe wrapped with a well-secured filter cloth. Drawdown time should exceed 30 hours.**
- An antivortex device and trash rack should be installed securely on top of the riser.**
- The riser should have a base attached with a watertight connection and should have sufficient strength to prevent flotation of the riser.**
- Antiseep collars will be required when the soil conditions or length of service make piping through the backfill a possibility.**

**The number of collars will be determined from the backfill conditions and the length of pipe installed.**

**Cutoff collars will be spaced at not more than 25-foot centers. If only one (1) is used, it should be placed not more than 25 feet from the riser. Collars and their connections to the pipe should be watertight and should be located no closer than two (2) feet to a pipe joint.**

4. Embankment cross section: The minimum top width shall be four feet. The side slopes should not be steeper than 2:1.
5. Entrance of runoff into basin: Points of entrance to surface runoff into excavated sediment basins should be protected to prevent erosion. Diversions, grade stabilization structures, or other water control devices should be installed as necessary to assure direction of runoff and to protect points of entry into the basin.
6. Safety

It is recommended that sediment basins be fenced or otherwise made inaccessible to people or animals, unless this is deemed unnecessary due to the remoteness of the site or other circumstances.

7. Information to be considered in design:

Sediment basin design and construction plans should be done in accordance with local entity criteria and submitted for review, and should include the following:

- Specific location of basin
- Geotechnical information
- Plan view of dam and storage basin
- Cross section of dams and riser
- Details of pipe connections, riser to pipe connection, riserbase, trash rack, antivortex device and when required, antiseep collars
- Runoff calculations for the three (3) year frequency storm
- Storage computation:

Total required (total drainage area x 3600 c.f./ac.)

- Total available (calculated volume of basin).
- Level of sediment at which cleanout shall be required; to be stated a distance from the riser crest to the sediment surface (elevation below which volume represents one third of basin volume).

- Calculations showing design of piping.
- Other information deemed necessary by the reviewing public entity.

#### F. *Planning Considerations*

##### *Temporary*

*sediment basins* should be used on sites where:

- failure of the structure would not result in loss of life, damage to homes or buildings, or interruption of use or service of public roads or utilities;
- the drainage area does not exceed 100 acres; and
- the basin is to be removed within 24 months after the beginning of construction of the basin.

#### *G. Inspection and Maintenance*

The sediment basin should be inspected within 24 hours after each rainfall of 0.5 inches or greater; daily during periods of prolonged rainfall; and at a minimum, once a week. Repair or replacement should be made immediately.

The sediment basin should be cleaned out when the volume, as described above, is reduced by one-third, except in no case should the sediment level be permitted to build up higher than one (1) foot below the principal spillway crest. This cleanout should restore the original design volume in the sediment basin. The elevation corresponding to the maximum allowable sediment level should be determined during the design of the basin and should be stated on the final plans as a distance below the top of riser and should be clearly marked on the riser.

The sediment should be placed in an approved spoils disposal site.

#### *H. Corresponding Technical specifications*

- Item 4.3.3.1 Sediment Basin with Pipe Outlet
- Item 4.3.3.2 Sediment Basin with Stone Outlet

## **ITEM NO. 4.3.3.1- SEDIMENT BASIN WITH PIPE OUTLET**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of sediment basins with pipe outlets utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS.

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on outlet pipe, perforated riser, and connectors.

### **PART 2 - PRODUCTS**

#### **2.01 Pipe**

Use corrugated metal pipe for outlet pipe and riser pipe.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the

erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.

- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in this Item.

### **3.02 Construction Methods**

- A. Provide sediment basins at locations specified on PLANS. Sediment basin shall be constructed in accordance with construction drawings shown on PLANS.
- B. Installation of sediment basins shall not be started until permits from governmental agencies, where required, have been obtained.
- C. Fill material for embankment for pipe outlet shall be free of roots, woody vegetation, oversized stones or rocks, or organic or other objectionable matter. Area under embankment shall be cleared, grubbed, and stripped of vegetation and root material.
- D. Install outlet pipe and riser as shown on attached drawing.
- E. Inspect sediment basin after each rainfall, daily during periods of prolonged rainfall, and at a minimum once a week. Maintain basin dimensions necessary to obtain



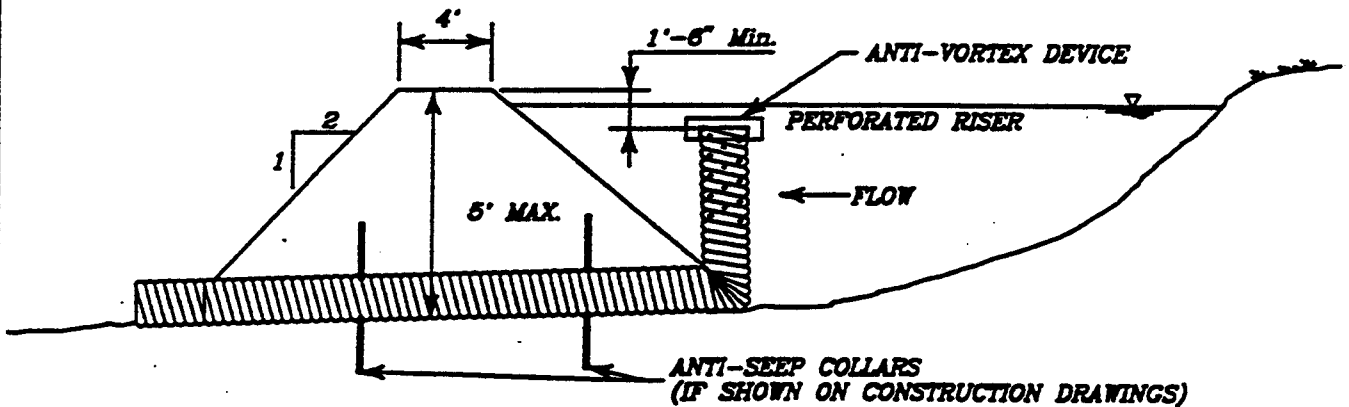
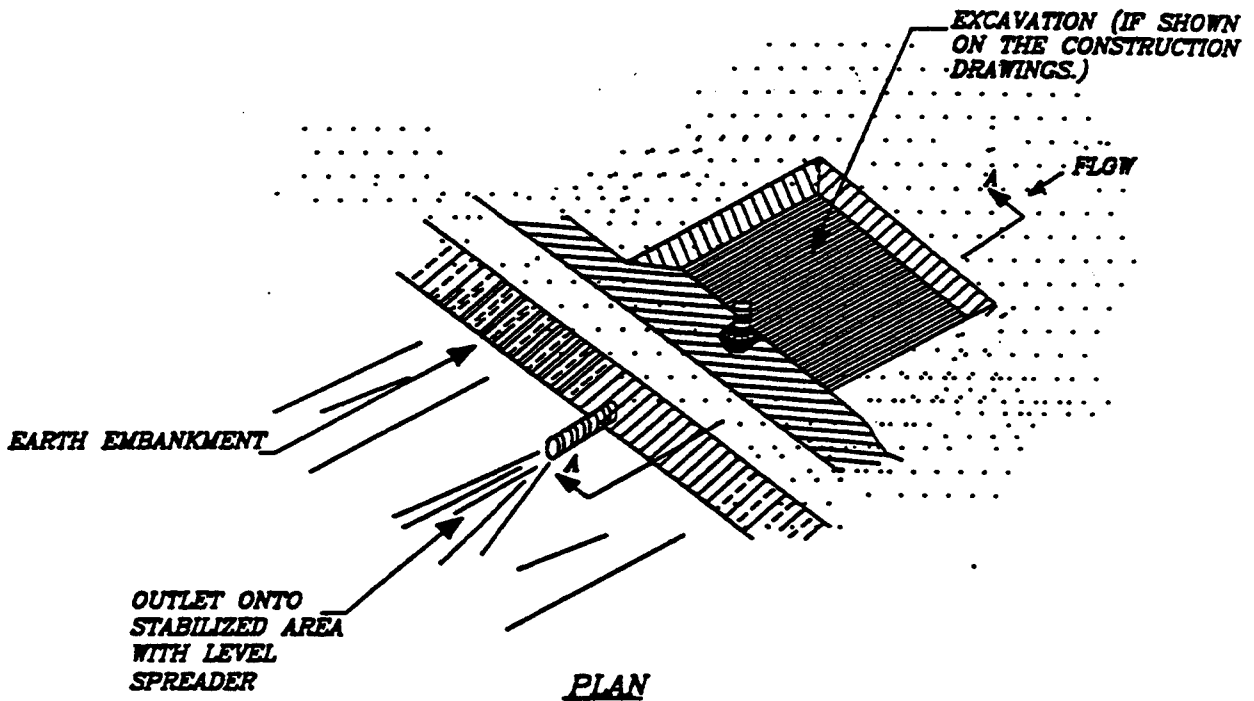
the required basin volume as shown on PLANS. Repair and replace damaged components of the basin.

- F. Remove sediment deposits when design basin volume is reduced by one-third or sediment level is one foot below the principal spillway crest, whichever is less.

### **3.03 Measurement and Payment**

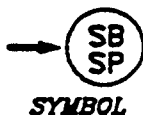
- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for sediment basin by the square yard of completed and accepted sediment basin. Sediment basin with pipe outlet, measured as stated, will be paid for at the unit price bid for "**Sediment Basin, Complete In Place**".
- B. Payment for sediment basin with pipe outlet will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# SEDIMENT BASIN WITH PIPE OUTLET



## GENERAL NOTES:

1. PIPE MATERIAL - CORRUGATED METAL PIPE
2. DIMENSIONS - LIMIT OF EXCAVATION AND PIPE DIAMETER SHALL BE AS SPECIFIED ON THE CONSTRUCTION DRAWINGS.
3. EMBANKMENT HEIGHT - MINIMUM OF 1 1/2 FEET ABOVE THE CREST OF THE RISER.
4. SIDE SLOPES - 2:1 OR FLATER.
5. RISER PERFORATION - SPECIFIED ON THE CONSTRUCTION DRAWINGS.
6. ALL PIPE CONNECTIONS SHALL BE WATERTIGHT.
7. FILL MATERIAL AROUND PIPE SHALL BE COMPACTED IN 4 INCH LIFTS. A MINIMUM OF 2 FEET OF COMPACTED BACKFILL SHALL BE PLACED OVER THE PIPE BEFORE CROSSING IT WITH CONSTRUCTION EQUIPMENT.
8. PONDING OF SEDIMENT LADEN RUNOFF IN SEDIMENT BASIN ACCOMPLISHED BY EMBANKMENT OR EXCAVATION DEPENDING ON TERRAIN. REFERENCE CONSTRUCTION DRAWING FOR BASIN TYPE AND DIMENSIONS.



**BMP 4.3.3.1**  
**SEDIMENT BASIN WITH**  
**PIPE OUTLET**

## **ITEM NO. 4.3.3.2 - SEDIMENT BASIN WITH STONE OUTLET**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of sediment basins with stone outlets utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS.

#### **1.03 Submittal**

Manufacturer's catalogue sheets and other pertinent information on filter fabrics showing that they meet or exceed requirements of this item.

### **PART 2 - PRODUCTS**

#### **2.01 Geotextile Fabric Wrap**

Provide woven or non-woven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile shall have a grab strength exceeding 270 psi (ASTM D-6832) and equivalent opening size specified on PLANS. Both the geotextile and threads shall be resistant to chemical attack, mildew and rot. Representative manufacturer: Marifi, Inc. or equal.

#### **2.02 Rock and Stone**

Use open-graded rock with most of the fines removed. Rock shall be a minimum of 3 inches in diameter and less than 1/2 cubic foot in volume, unless otherwise specified on PLANS and drawings with this item. Use only clean, hard rocks free from adherent coatings, salt, alkalis, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter. Crushed concrete in the size range specified can be used for this purpose.

### **PART 3 - EXECUTION**

#### **3.01 General**

A. Provide erosion and sedimentation control systems at the locations shown on

**PLANS.** Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on **PLANS** and set out in this Item.

- B.** No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C.** Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing systems.
- D.** Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E.** Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on **PLANS**, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F.** Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a minimum of 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- G.** Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- H.** Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in this Item.

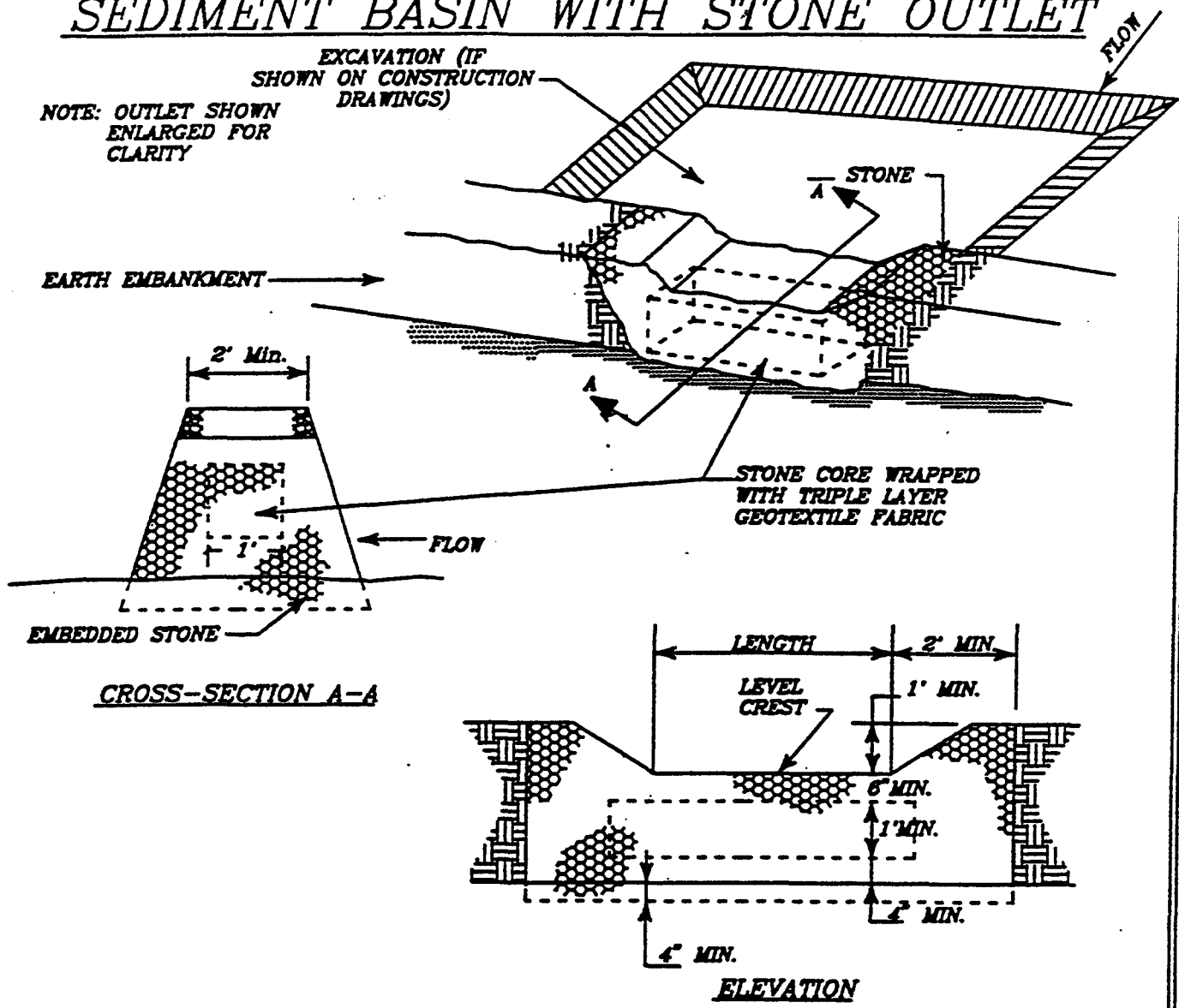
### 3.02 Construction Methods

- A. Provide sediment basins at locations specified on PLANS. Sediment basins shall be constructed in accordance with construction drawings shown on PLANS.
- B. Installation of sediment basins shall not be started until permits from governmental agencies, where required, have been obtained.
- C. Install stone outlet for sediment basin at location specified on plans and in accordance with enclosed drawing.
- D. Inspect sediment basin after each rainfall, daily during periods of prolonged rainfall, and a minimum, once a week. Maintain basin dimensions necessary to obtain the required basin volume as shown on PLANS. Repair and replace damaged components of the basin.
- E. Remove sediment deposits when design basin volume is reduced by one-third or sediment level is one foot below the principal spillway crest, whichever is less.

### 3.03 Measurement and Payment

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item, including testing. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for sediment basin by the square yard of completed and accepted sediment basin. Sediment basin, measured as stated, will be paid for at the unit price bid for "**Sediment Basin, Complete In Place**".
- B. Payment for sediment basin will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# SEDIMENT BASIN WITH STONE OUTLET



## GENERAL NOTES:

1. DIMENSIONS LIMIT OF EXCAVATION AND OUTLET LENGTH AND HEIGHT SHALL BE AS INDICATED ON THE CONSTRUCTION DRAWINGS.
2. SIDE SLOPES SHALL BE 2:1 OR FLATTER.
3. MAINTAIN A MINIMUM OF 6 INCHES BETWEEN THE TOP OF CORE MATERIAL AND THE TOP OF THE STONE OUTLET, A MINIMUM OF 4 INCHES BETWEEN BOTTOM OF CORE MATERIAL AND EXISTING GROUND AND A MINIMUM OF 1 FOOT BETWEEN THE TOP OF STONE OUTLET AND THE TOP OF EMBANKMENT.
4. ROCK SHALL BE EMBEDDED A MINIMUM OF 4 INCHES INTO THE EXISTING GROUND.
5. CORE SHALL BE A MINIMUM OF 1 FOOT IN HEIGHT AND IN WIDTH AND SHALL BE WRAPPED IN A TRIPLE LAYER OF GEOTEXTILE FABRIC.
6. PONDING OF SEDIMENT LADEN RUNOFF IN SEDIMENT BASIN ACCOMPLISHED BY EMBANKMENT OR EXCAVATION DEPENDING ON TERRAIN. REFERENCE CONSTRUCTION DRAWINGS FOR BASIN TYPE AND DIMENSION.
7. OUTLET ONTO STABILIZED AREA.



BMP 4.3.3.2  
SEDIMENT BASIN WITH  
STONE OUTLET

## 4.4 ESTABLISHING PERMANENT DRAINWAYS

Site modifications change local drainage patterns, resulting in increased runoff in existing or new drainways. This occurs during and after construction. Planned permanent drainways, whether existing or new, require careful design to provide proper conveyance without causing erosion and to improve water quality during and after construction. This practice applies to channels, including ditches, swales and diversions, constructed as part of a development to transport surface runoff. This does not apply to major, continuously flowing natural streams. This section will focus on considerations related to erosion and sedimentation control. Existing local public entity design criteria should be consulted for evaluation of shape, depth, and capacity of permanent drainage channels.

Drainway practices include:

- **Vegetated channels:**

*Sodding* (Section 4.4.2)

*Grassed waterway* (Section 4.4.3)

*Reinforced grassed waterway* (Section 4.4.4)

- **Lined Channels :**

*Riprap* (Section 4.4.5)

*Lined waterways* (Section 4.4.6)

### 4.4.1 Permanent Drainway Considerations

The two primary elements in drainway design are cross-section shape and lining. The two main design considerations are capacity and erosion resistance, which require evaluation of flow volume and velocity.

#### A. *Cross-Sections*

Three typical cross-sections are:

1. **Triangular (V-shaped):**

For relatively small flows, such as along roadsides. Flow velocities may range from low to high, depending on channel slope and lining.

## **2. Parabolic:**

For larger flows and where space is available for a wide, shallow channel with low-velocity flow.

## **3. Trapezoidal:**

For large flows and relatively high velocities. Lining typically is concrete or riprap.

### **B. Capacity**

The capacity of a permanent drainway should be evaluated using local public entity design criteria.

### **C. Velocity**

Drainways should be designed so that the expected flow velocity from the design storm does not exceed the permissible velocity for the type of lining used.

Outlets should be checked for stability. Excessive velocities or grade changes may require protective or stabilizing structures, transition sections, or energy dissipators, to prevent erosion or scour.

Velocities also can be controlled by using sodding or seed and mulch practices on contributing land surfaces to reduce entering discharges and velocities.

### **D. Lining**

Lining is determined by erosion resistance and drainage requirements. All-vegetated linings are appropriate for low velocities. See the following sections for discussion of grass lined channels. Riprap, properly sized and graded, may be used for low to high velocities. Gabions have manufacturer-set limits. Concrete linings have no specific velocity limit, but velocities in concrete channels must not exceed the permissible velocity of the receiving channel.

## **4.4.2 Sodding**

### **A. Definition**

**Sodding** is the application of sod rolls or mats to rapidly establish a permanent grass cover to stabilize disturbed areas.



## B. *Purpose*

Used to prevent channel erosion by protection and decreasing flows and velocities, through in-channel and upland flow retardance and infiltration. Stabilizes disturbed areas to minimize erosion by decreasing the velocity of sheet flow.

## C. *Conditions Where Practice Applies*

Sodding may be used where initial flow velocity is low to moderate.

Sodding can be applied to unstabilized swales, ditches or diversions where flow velocities are less than 5 feet per second. For greater velocities, see Section 4.4.4 Reinforced Grass Waterways. Sodding is also applicable to any disturbed area with overland flow runoff.

## D. *Planning Considerations*

Sod may be established for a longer period than seeding or mulching. Sodding also includes sod ditch checks.

## E. *Design Criteria and Requirements*

### 1. Preparation:

Test the soil to determine lime and fertilizer requirements. Additives should be spread evenly over the area and incorporated into the top 4 to 8 inches of soil. Topsoiling may be used.

Before laying the sod, clear the soils surface of stones, debris sticks and clods larger than 2 inches in diameter. Grade the surface, filling or leveling to avoid standing water, and to achieve a level final grade.

Firm the soil by rolling or cultipacking. Avoid excessive compaction from use of heavy equipment on the area.

### 2. Installation:

Install the sod no later than 7 days after final grading of the channel or area. The sod must be moist, and installation should be completed within 2 days of harvest.

Begin placement downslope, and progress upslope. Placement shall be in staggered rows, as in laying bricks, at right angles to the direction of flow.

For grassed waterways, edges should butt tightly together. Extend the sod sideways from the channel centerline to a point at least 1 foot in elevation above the flowline elevation. Along the perimeter of the sodded area, one strip of sod should be extended outward a minimum of 30 inches beyond others at 8-foot intervals or closer.

On slopes of 3:1 or greater, or wherever erosion may be a problem, secure the sod with stakes or staples. In critical areas, secure sod with netting and staples.

Roll newly installed sod to establish firm contact between root and soil.

Irrigate after rolling, to a depth of 4 inches below the sod. Keep the sodded areas moist to a depth of 4 inches until the grass takes root.

### 3. Sod Checks For Channels:

Sod checks are rows of sod laid laterally across a swale or ditch to decrease flow velocity and should be 6 feet wide and placed at increments of:

$$\frac{1}{(\text{channel slope})} \times (1 \text{ foot})$$

For example, sod checks shall be placed every 50 feet along a channel with a slope of 0.02.

## F. *Inspection and Maintenance*

After the first week, water as needed to maintain adequate moisture in the root zone and to prevent dormancy of the sod. Mow only after the sod is firmly rooted, usually in about 2 to 3 weeks. Do not remove more than 1/3 of the shoot during mowing.

Maintain grass height between 2 to 3 inches unless otherwise specified. Inspect sod within 24 hours after each rainfall or daily during periods of prolonged rainfall. Damaged sod should be repaired or replaced immediately.

## G. *Corresponding Technical Specification*

### Item 4.4.2.1 Sodding

## **ITEM 4.4.2.1- SODDING**

### **PART 1- GENERAL**

#### **1.01 Description**

- A. Scope: Furnish plants, materials, labor, equipment and appliances, and perform all operations in connection with the planting of sod within the areas designated on the PLANS for the purpose of surface stabilization, channel stabilization and/or vegetation buffer strips.
- B. Related work: as called for on PLANS as specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.02 Quality Assurance**

The following documents, used as standards, are to be considered a part of these specifications.

- 1. American Joint Committee on Horticultural Nomenclature, "Standardized Plant Names", Second Edition, 1942.
- 2. American Association of Nurserymen, Inc. "American Standard for Nursery Stock."

### **PART 2 - PRODUCTS**

#### **2.01 Materials**

- A. Sod: Certified grade cultivated St. Augustine grass sod; with strong, fibrous root system; free from stones and burned or bare spots.
- B. Topsoil: Fertile, agricultural soil typical of locality and capable of sustaining vigorous plant growth; from well drained site that is free of flooding; free from admixture of subsoil, slag or clay, stones, lumps, live plants and their roots, sticks and other extraneous matter; pH value of minimum 5.4 and maximum 7.0. Use topsoil excavated from site only if conforming to specified requirements.
- C. Fertilizer: Commercial type conforming to FS SF-241, Type 1, Grade A recommended for grass, with fifty percent of the elements derived from organic sources; of proportion necessary to eliminate any deficiencies of topsoil as indicated in analysis.

- D. Wooden Pegs: Of sufficient size and length to ensure satisfactory anchorage of sod on slope in excess of 2:1.
- E. Roll Lite Erosion Control Mulching Fabric as manufactured by Gulf States Paper Corporation or equal.
- F. Water: Clean, fresh, and free of substances or matter which would inhibit vigorous growth of grass.

## **PART 3 - EXECUTION**

### **3.01 General**

- A. Provide erosion and sedimentation control systems at the location shown PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner.
- C. Remove and dispose of sediment deposits at the project spoil site. If a project spoil site is not designed on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Sediment shall not allowed to flush into stream or drainage way.
- D. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- E. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the projects site. Conduct all construction operations under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Preparation of Subgrade**

- A. Fine grade subgrade, eliminating uneven areas and low spots. Maintain lines, levels, profiles, and contours. Make changes in grade gradual. Blend slopes into level areas.
- B. Remove foreign materials, undesirable plants and their roots, stones, and debris. Do not bury foreign materials beneath areas to be sodded. Remove and replace subsoil which has been contaminated with petroleum products.

- C. Cultivate subsoil to a depth of 3 inches where topsoil is to be placed. Repeat cultivation in areas where equipment, used for hauling and spreading topsoil, has compacted subsoil.

### **3.03 Placing Topsoil**

- A. Spread topsoil to a depth of minimum 2 inches over entire area to be sodded.
- B. Place topsoil during dry weather and on dry unfrozen subgrade.
- C. Grade to eliminate rough and low areas, ensuring positive drainage. Maintain levels, profiles and contours of subgrade.
- D. Remove stones, roots, grass, weeds, debris, and other foreign nonorganic material while spreading.

### **3.04 Fertilizing**

- A. Apply fertilizer at rate recommended by manufacturer. Apply after fine grading and prior to compaction. Mix thoroughly into upper 2 inches of topsoil.
- B. Lightly water to aid the breakdown of fertilizer.
- C. Apply fertilizer within 48 hours before laying sod.

### **3.05 Laying Sod**

- A. Lay sod as soon as possible after delivery to prevent deterioration.
- B. Full Sodding: Lay sod closely knit together with no open joints visible, and pieces not overlapped. Stagger sod units to avoid continuous seams. Lay smooth and flush with adjoining grass areas, paving, and top surfaces of curbs.
- C. Strip Sodding: Lay sod in the following pattern: 3-inch continuous sod strip, 12-inch topsoil, 3-inch continuous sod strip. See dirt areas between sod strips.
- D. On slopes 2:1 and steeper, lay sod perpendicular to slope and secure every row with wooden pegs at maximum 2 feet on center. Drive pegs flush with soil portion of sod.
- E. Prior to placing sod, on slopes 3:1 or where indicated, place Hold/Gro or Roll/Lite on equal over topsoil. Securely anchor in place with posts sunk firmly into the ground at maximum 16 feet on center along pitch of slope and equal to width of

wire mesh horizontally across slopes.

- F. Immediately water sodded areas after installation. Water in sufficient amounts to saturate sod and upper 4 inches of soil.
- G. After sod and soil has dried sufficiently to prevent damage, roll sodded areas to ensure good bond between sod and soil and remove minor depressions and irregularities. Ensure rolling equipment weight not over 250 pounds or less than 150 pounds.

### **3.06 Maintenance**

- A. Begin maintenance of plant materials immediately after planting and continue maintenance until issuance of Certificate of Acceptance of project.
- B. Maintenance to include measures necessary to establish and maintain plants in a vigorous and healthy growing condition, including the following:
  - 1. When herbicides are used for weed control, apply in accordance with manufacturer's instructions. Remedy damage resulting from use of herbicides.
  - 2. Watering sufficient to saturate root system.
  - 3. Disease and insect control.

### **3.07 Measurement and Payment**

Measure by the square yard of area sodded. Payment for work under this Item will be made at contract price for "Full Sodding", or "Strip Sodding", as indicated on PROPOSAL, which price to be full compensation for all fertilizer, sod, equipment, materials and labor necessary for fertilizing and sodding.

#### 4.4.3 *Grassed Waterways*

##### A. *Definition*

A **grassed waterway** is a constructed drainway or channel with vegetated lining established by sodding or seeding.

##### B. *Purpose*

To prevent channel erosion by providing a protective cover and decreasing velocity through retardance.

##### C. *Conditions Where Practice Applies*

Grassed waterways may be used to convey flows with velocities of no more than 5 ft./sec. Grass type, slope and soil conditions will determine final allowable velocities

##### D. *Planning Considerations*

Permissible 25 year velocities and Manning's "n" values are on Table 4.4.3.

**TABLE 4.4.3**

| MANNING'S "n" VALUES AND ALLOWABLE 25 YEAR VELOCITIES FOR CHANNEL DESIGN |  |                                    |                                    |
|--|--|------------------------------------|------------------------------------|
| Channel Description  | Roughness Coefficient or Manning's "n" Value | Average Velocity (Feet Per Second) | Maximum Velocity (Feet Per Second) |
| Grass Lined:   |  |                                    |                                    |
| Predominately Clay   | 0.04   | 3.0                                | 5.0                                |
| Predominately Sand   | 0.04   | 2.0                                | 4.0                                |

*Source: Harris County Flood Control District, Criteria Manual for the Design of Flood Control and Drainage Facilities*

Channels should be located to conform with and use the natural system. The channel course should avoid sharp changes in direction or grade.

Grass-lined channels must not be subject to sedimentation from disturbed areas. Sediment traps may be needed at channel inlets and outlets.

Grass-lined channels should be constructed early in the project before grading and paving increase runoff rates so that dense, resistant vegetation can be established before use of the channel. Temporary water diversions may be needed until the vegetation is established.

Protective liners such as geotextile fabrics or special mulch protection may be needed until the vegetation is established. If design velocities exceed 2 ft./sec. for bare soil conditions, these protections must be used for seeding practices, or sodding must be used.

#### *E. Design Criteria and Requirements*

*Timing*      Vegetation and any protective materials shall be installed within 7 days of final channel grading.

*Capacity*     The capacity of the channel and the required width and depth dimensions should be evaluated in accordance with existing regulatory entity's design criteria.

*Outlets*      All grassed waterways shall have a stable outlet with adequate capacity designed and built to prevent erosion of channels and banks.

#### *F. Inspection and Maintenance*

Grassed waterways should be inspected within 24 hours after each rainfall greater than 0.5 inches; daily during periods of prolonged rainfall until the vegetation is established firmly; and at a minimum, once a week. During the initial establishment period, repairs and replacements should be made immediately.

After the grass has become established, the channel should be checked periodically. All repairs or replacement should be made as soon as possible. If the channel is to be mowed, it should be done in a manner that will not damage the grass. No more than 1/3 of the shoot should be removed with any mowing.

#### **4.4.4 Reinforced Grassed Waterways**

##### *A. Definition*

**Reinforced grassed waterways** are waterways with vegetated linings that are reinforced with a structural or fabric matrix, or include reinforced sections, for higher velocity conveyance, erodible soils, or baseline flow.



## B. Purpose

To prevent channel erosion by providing a protective cover, and decreasing flows and velocity through retardance and infiltration.

## C. Conditions Where Practice Applies

Waterways with grass linings may be used to convey flows with velocities of no more than 6 ft./sec. Reinforcement matrices allow higher velocities, or use with less resistant soils.

Rock or concrete centers are suitable where there are high velocity permanent baseline flows.

## D. Planning Considerations

Where stone pavers, grid pavers or other erosion-resistant material are used to supplement the vegetation, velocities can be increased by 2.0 ft./sec.

Stone or riprap centers are subject to clogging from sediment. Proper rock size for stone centers can be determined from Figure 4.4.5 in Section 4.4.5.

Geotextile reinforced grassed waterways are a relatively new practice for stabilizing vegetated channels, and require careful engineering analysis and design.

Temporary sediment control measures such as mulching and filter fabric barriers may be needed in conjunction with the geotextile matrix.

## E. Design Criteria and Requirements

|                           |   |
|---------------------------|---|
| <i>Timing</i>             | Vegetation and any protective materials should be installed within seven days of final channel grading.   |
| <i>Capacity</i>           | The capacity of the channel and the required width, depth and other dimensions should be evaluated in accordance with existing regulatory entity design criteria.                 |
| <i>Energy Dissipation</i> | Riprap or gabions should be placed for a length of at least 20 feet from storm sewer outfalls and other conveyance structures to dissipate energy associated with turbulent flow. |
| <i>Outlets</i>            | All grassed waterways should have a stable outlet with adequate capacity designed and built to prevent erosion of channels and banks.   |

*Placement of Reinforcement Material*      Materials shall be placed and anchored to the manufacturer' specifications.

Geotextile matrices may be utilized as root-reinforcement, and shall extend up the side slope.

#### *F. Inspection and Maintenance*

Grassed waterways should be inspected within 24 hours after each rainfall greater than 0.5 inches; daily during periods of prolonged rainfall; and at a minimum of once a week until the vegetation is firmly established. During the initial establishment period, repairs and replacements should be made immediately.

After the grass has become established, the channel should be checked periodically. All repairs or replacement should be made as soon as possible. If the channel is to be mowed, it should be done in a manner that will not damage the grass. No more than one-third of the shoot should be removed with any mowing.

Riprap should be checked periodically for dislodged stones to assure that scour does not occur beneath the riprap layer.

#### **4.4.5 *Riprap***

##### *A. Definition*

**Riprap** is a layer of crushed concrete, loose rock, or aggregate placed over an erodible soil surface.

##### *B. Purpose*

Riprap protects the soil surface from the erosive forces of water and allows some infiltration.

##### *C. Conditions Where Practice Applies*

Riprap may be used for soil-water interfaces where the soil conditions, water turbulence and velocity, expected vegetative cover, and ground water conditions are such that the soil may erode under design flow conditions.

Specific locations include channels, ditches, and diversions with permanent frequent low-flow or dry weather discharge.

Riprap also may be used as an erosion protection practice for storm drain outlets, drop structures, and shorelines.

#### D. *Planning Considerations*

Riprap may be unstable on very steep slopes, especially when rounded rock is used. For slopes steeper than 2:1, consider using materials other than riprap for erosion protection.

#### E. *Design Criteria and Requirements*

*Size* Riprap linings can be designed to withstand most flow velocities. The following chart gives stable stone sizes/hr. flow velocities up to 17 ft/sec.

*Placement* of riprap should be designed in accordance with existing regulatory entity criteria.

#### F. *Inspection and Maintenance*

Lined waterways shall be inspected weekly for 3 months after installation. Riprap should be checked periodically for dislodged stones and to assure that scour does not occur beneath the riprap layer. Repairs should be made immediately.

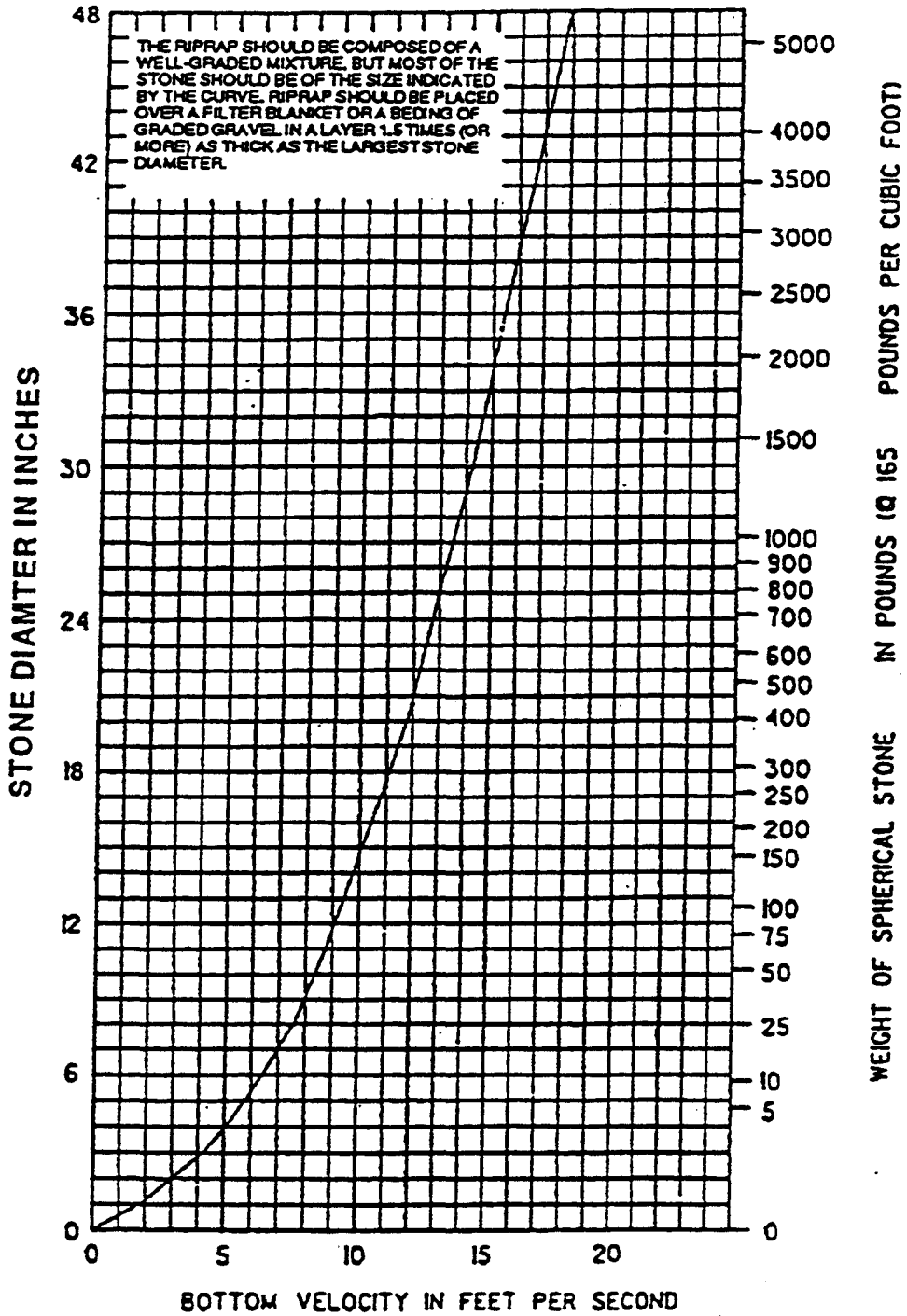


FIGURE 4.4.5 DESIGN CHART FOR RIPRAP LININGS

#### 4.4.6 *Lined Waterways*

##### A. *Definition*

Lined waterways are channels with erosion-resistant linings paved with concrete, flagstone, gabion, or similar material.

##### B. *Purpose*

Pavement protects the soil surface from the erosive forces of water.

##### C. *Conditions Where Practice Applies*

Paved linings may be used for soil-water interfaces where the soil conditions, water turbulence and velocity, expected vegetative cover, and ground water conditions are such that the soil may erode under design flow conditions. Generally, velocities over 5 feet per second will require lined waterways.

##### D. *Planning Considerations*

Rigid liners such as concrete or flagstone can carry large volumes of water without eroding. Unlike riprap - which can adjust to foundation conditions without failure - concrete and flagstone are less forgiving of foundation conditions. Flows and velocities in paved channels introduce high energies that must be controlled and dissipated to avoid damage to channel outlets and receiving streams.

Gabions, which are coated steel basket matrices enclosing rock, are slightly more flexible than pavement, but allow similar high velocities due to relatively low roughness.

Channels with smooth pavement such as concrete or flagstone usually are not limited by velocity, take up less land area, and can be constructed to limited site conditions compared to channels with other linings. Additionally, they provide a formal definition of water conveyance and require less maintenance.

Foundation and hydraulic design must be executed competently to assure structural stability and adequate function. Appropriate measures are needed to reduce exit velocities to protect receiving waters and outlets.

##### E. *Design Criteria and Requirements*

*Timing* Permanent materials must be installed within 14 days after final channel grading.

*Velocity*

Manning's "n" values for concrete and flagstone are given below. When the Froude Number approaches critical (between 0.7 and 1.3), channel flows may become unstable, and the designer should consider modifying the channel slope. Reaches for supercritical flow should be straight unless special design features are used.

| Lining Material | Manning's "n" |
|-----------------|---------------|
| Concrete:       |               |
| Trowel Finish   | 0.012-0.014   |
| Float Finish    | 0.013-0.017   |
| Gunitite        | 0.016-0.022   |
| Flagstone       | 0.020-0.025   |
| Gabion          | 0.025-0.030   |

*Cross-section*

*Shape*

Cross-sections may be triangle, parabolic, or trapezoidal. Reinforced concrete- or gabion-lined channels may be rectangular.

*Design*

*Thickness*

Concrete for linings should be a dense durable product, plastic enough for through consolidation but stiff enough to stay in place on side slopes. Minimum concrete thickness and minimum strength should be in accordance with existing public design criteria.

Flagstone thickness should be a minimum of 4 inches including the mortar.

Gabion thickness depends on manufacturer specifications and stone sizes, which may range from 4 to 8 inches. Gabion weirs should be founded on a gabion apron which extends downstream. The apron length will depend on hydraulic and soils conditions, but in no case shall extend downstream less than the minimum lengths given in the following table:

| Apron Length          |         |
|-----------------------|---------|
| Gravel                | 6 Feet  |
| Coarse or medium sand | 9 Feet  |
| Fine or silty sand    | 12 Feet |
| Clay                  | 9 Feet  |

*Source: City of Austin Environmental Handbook*

- Cutoff** Cutoff walls are needed at the beginning and end of paved channels to protect against undercutting. Additional cutoff walls, traverse joints, and expansion joints may also be needed.
- Depth** The depth of the channel should be evaluated in accordance with existing regulatory entity design criteria.
- Outlets** All channels should have a stable outlet with adequate capacity, and should be designed and built to prevent erosion of channels and banks.

#### F. *Inspection and Maintenance*

Lined waterways shall be inspected weekly for 3 months after installation. Afterwards, inspect channels at regular intervals as well as after major rains. Make repairs promptly.

Concrete-lined channels should be inspected periodically to assure that there is no undermining.

Outlets should be checked for scour. If there is scour, appropriate energy dissipation measures shall be taken.

Carefully check road crossing for indications of bank failures, scour holes, and piping; make repairs immediately.

## 4.5 PROTECTING INLETS

Because the BMPs to minimize the movement of pollutants from the site can never be 100% effective, there remains a need to restrict pollutants from entering inlets, catch basins, culverts and other conveyance structures to restrict pollutants from reaching receiving waters.

All storm sewer inlets that are made operable during construction should be protected so that storm water runoff will not enter without first being filtered or otherwise treated to remove sediment. It is not practical to control drainage areas larger than one acre with this measure alone. Erosion control on the exposed land is also needed to limit the movement. The measure should be left in place until adequate cover is established.

It is critical that storm sewer inlets not be completely blocked. **Blocking an inlet** will cause streets to flood, sediment to build up and become a hazard, and public safety may be impaired.

BMPs include:

- Inlet protection barriers (Section 4.5.1)
- Drop inlet insert basket (Section 4.5.2)
- Storm inlet sediment trap (Section 4.5.3)

### 4.5.1 *Inlet Protection Barriers*

#### A. *Definition*

An **inlet protection barrier** is a temporary barrier constructed around a stone drain inlet, catch basin or culvert.

#### B. *Purpose*

To prevent sediment and other pollutants from entering conveyance systems.

#### C. *Conditions Where Practice Applies*

At the location where runoff enters conveyance system structures such as curb inlets, drop inlets and culverts.

#### D. *Planning Considerations*

This BMP uses many of the design criteria and requirements of Section 4.3.1 Filter Fabric Barriers and Section 4.2.2 Straw Bale Fences.



E. *Design Criteria and Requirements*

*Timing*            The inlet protection barrier should be installed before the drainage area is disturbed.

*Removal*           The inlet protection barrier shall remain in place and be maintained until the disturbed area is stabilized by permanent best management practices.

*Placement*        The inlet protection barrier shall surround the inlet. Where the elevation of curbs or adjacent ground surfaces are higher than the top of the inlet structure, a storm inlet sediment trap may be used as discussed in Section 4.5.3.

*Protection  
barriers  
on soil*

Filter fabric barriers and straw bale barriers constructed on soil shall meet the following requirements:

**Filter fabric barrier**    The design criteria and requirements and maintenance requirements contained in Section 4.3.1 shall be used for all filter fabric barriers used for inlet protection with the posts located at all corners or approximately every 90 degrees.

**Straw bale barrier**     The design criteria and requirements and maintenance requirements contained in Section 4.2.1 shall be used for all straw bale barriers used for inlet protection.

*Protection  
barriers on  
paved surfaces*

Filter fabric barriers on paved surface shall be constructed to meet the design criteria and requirements and maintenance requirements contained in 4.3.1 except for the following:

- a. Support for the filter fabric shall be provided by a heavy gauge welded fence or 2 or 3 layers of 8 inch cement blocks.
- b. The filter fabric shall extend outward away from the filter fabric barrier along the pavement for at least 12 inches and be covered with at least 4 inches of gravel or nylon gravel filled bags.

- c. The filter fabric shall be wired to the welded support structure or cement blocks or weighted down by an additional layer of cement blocks.

Protection to inlets with completed pavement surfaces can also be provided by one of the following methods.

- a. Straw bales can be placed in the gutter on each side of a curb inlet to filter runoff and cause sedimentation in the gutter.
- b. Sand bags can be placed in the gutter on each side of a curb inlet to pond water and cause sedimentation in the gutter.

**F. *Inspection and Maintenance***

1. Inlet protection barriers should be inspected within 24 hours after each rainfall of 0.5 inches or greater; daily during periods of prolonged rainfall; and at least once a week. Repair or replacement should be made immediately.
2. Sediment deposits should be removed after each storm event and no later than at such time as deposits reach one-third the height of the fence or barrier.

**G. *Corresponding Technical Specification***

**Item 4.5.1.1 Inlet Protection Barriers**

## **ITEM NO. 4.5.1.1 - INLET PROTECTION BARRIERS**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control inlet protection barriers utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS.

#### **1.03 Submittals**

Manufacturer's catalogue sheets and other pertinent information on filter fabrics showing that they meet or exceed requirements of this Item.

### **PART 2 - PRODUCTS**

#### **2.01 Filter Fabric**

Provide woven or nonwoven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile fabric shall have a grab strength of 100 psi in any principal direction (ASTM D-4632), Mullen burst strength exceeding 200 psi (ASTM D-3786), and equivalent opening size specified on PLANS. Filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F. Representative manufacturer: Marifi Inc. or equal.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.

- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State, and local regulations.
- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Install inlet protection barriers of the type specified on PLANS in accordance with enclosed drawings.
- B. Inspect inlet protection barriers after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair or replace damaged barrier components to restore the requirements of this Item. Remove sediment deposit when the sediment has accumulated to one-half the height of the barrier.

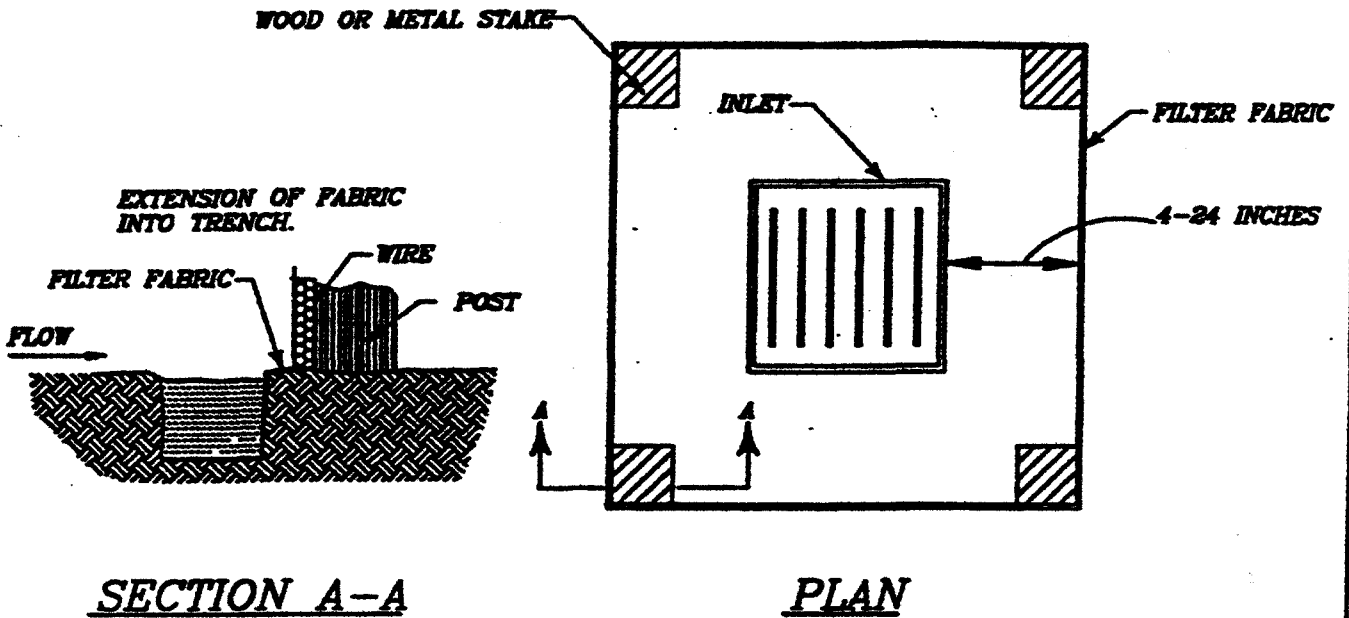
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this

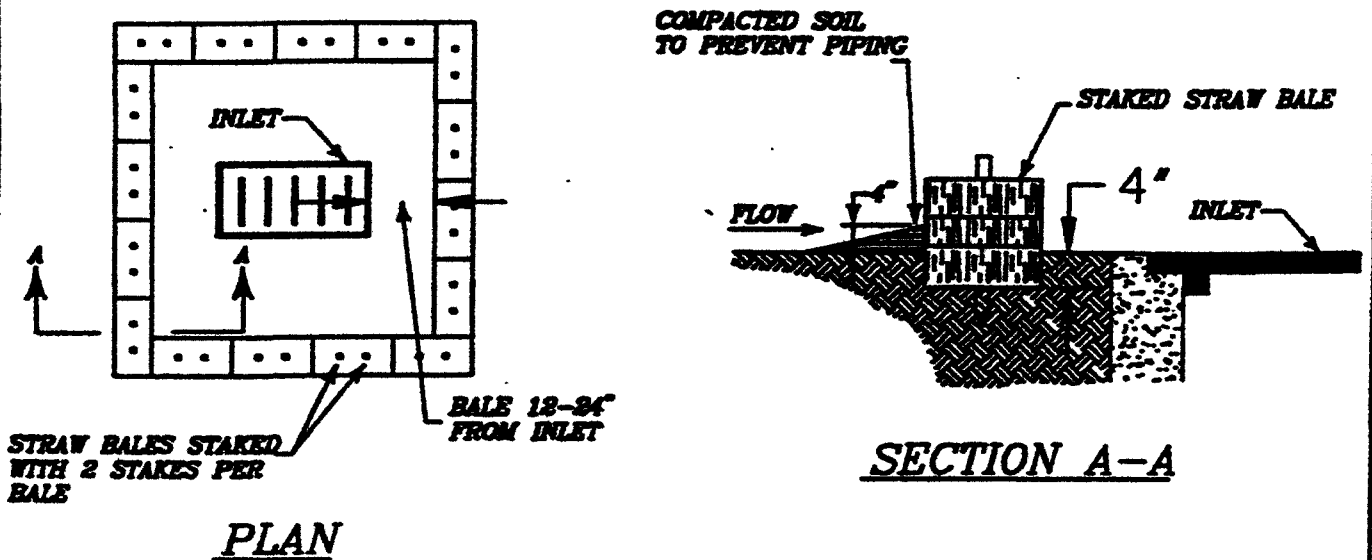
Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for inlet protection barriers by the linear foot along offsite outside face of completed and accepted inlet protection barriers. Inlet protection barriers, measured as stated, will be paid for at the unit price bid for **"Inlet Protection Barriers, Complete In Place."**

- B. Payment for inlet protection barriers will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# SILT FENCE INLET PROTECTION BARRIER



# STRAW BALE DROP INLET PROTECTION BARRIER



STRAW BALES STAKED WITH 2 STAKES PER BALE

BALE 18-24" FROM INLET

PLAN

SECTION A-A



SYMBOL

**BMP 4.5.1.1**  
**INLET PROTECTION BARRIERS**

#### 4.5.2 *Drop Inlet Insert Basket*

##### A. *Definition*

A **drop inlet insert basket** is a temporary barrier placed within a storm drain inlet consisting of a filter fabric supported by a metal framework.

##### B. *Purpose*

To prevent sediment and other pollutants from entering conveyance systems.

##### C. *Conditions Where Practice Applies*

1. At the location where runoff enters conveyance system structures such as drop inlets.
2. Where the disturbed area within the drainage area is less than 0.25 acres per inlet.

##### D. *Planning Considerations*

This method has been developed to provide a barrier where a barrier surrounding the inlet is not practical or safe.

##### E. *Design Criteria and Requirements*

*Timing* The drop inlet insert basket or equivalent measure should be installed before the drainage area is disturbed. An inlet insert basket can be used after upper portion (Stage II) construction of drop inlets to replace another measure used to protect the lower portion (Stage I) drop inlet.

*Removal* The inlet insert basket should remain in place and be maintained until the disturbed area is stabilized by permanent best management practices.

*Placement* The inlet insert basket should fit into the drop inlet without gaps around the insert as illustrated in the enclosed drawings.

##### *Basket*

*Design* The support for the inlet insert basket should consist of fabricated metal as illustrated in the drawings. The basket shall be approximately 14 inches in depth.

The top frame of the basket shall be constructed with two short sides of 2-inch x 2-inch and a single long side of 1-inch x 1-inch, 1/8-inch angle

iron.

The basket hangers shall be constructed of 2-inch x 1/4-inch iron bars.

The bottom frame shall be constructed of 1-inch x 1/4-inch iron bar of 1/4-inch plate with center 3 inches removed.

The sides of the inlet basket shall be a minimum 1/4-inch diameter iron rods or equivalent. A minimum of 14 rods shall be welded in place between the top frame/basket hanger and the bottom frame.

*Fabric*

*Placement*

The filter fabric shall be pushed down and formed to the shape of the basket. The sheet of fabric shall be large enough to be supported by the basket frame when holding sediment and extend at least 6 inches past the frame. The inlet grate shall be placed over the basket/frame, serving as a fabric anchor.

*Fabric*

*Specifications*

The filter fabric shall meet the following specifications:

**Grab strength** 45 lb. minimum in any principal direction (ASTM D-1682)

**Mullen Burst** Minimum 60 psi (ASTM D-3786)  
The fabric shall have an opening no greater than a number 20 U. S. Standard Sieve.

**Water Flow Rate** Should be approximately 120 gal/min/ft<sup>2</sup> at 50mm constant head as determined by multiplying permittivity in sec<sup>-1</sup> as determined by ASTM D4491.

*Ultraviolet ray  
inhibitors and*

*stabilizers*

Should provide an expected useable life comparable to the anticipated construction period.

*F. Inspection and Maintenance*

1. Drop inlet insert baskets should be inspected within 24 hours after each rainfall of 0.5 inches or greater; or daily during periods of prolonged rainfall; and at a minimum at least once a week. Repair or replacement should be made immediately.



2. Sediment deposits should be removed after each storm event and no later than at such time as deposits reach one third the of the basket.

**G. *Corresponding Technical Specification***

**Item 4.5.2.1 Drop Inlet Insert Baskets**

## **ITEM 4.5.2.1 - DROP INLET BASKETS**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control drop inlet baskets utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittals**

Manufacturer's catalogue sheets and other pertinent information on filter fabrics showing that they meet or exceed requirements of this Item.

### **PART 2 - PRODUCTS**

#### **2.01 Filter Fabric**

Provide woven or nonwoven geotextile filter fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile fabric shall have a grab strength of 100 psi in any principal direction (ASTM D-4632), Mullen burst strength exceeding 200 psi (ASTM D-3786), and equivalent opening size specified on PLANS. Filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of 6 months of expected usable construction life at a temperature range of 0°F to 120°F. Representative manufacturer: Marifi Inc. or equal.

#### **2.02 Metals**

Provide steel frame members in accordance with ASTM A36.

### **PART 3 - EXECUTION**

#### **3.01 General**

A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.

- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Install drop inlet baskets at locations specified on PLANS in accordance with enclosed drawing.
- B. The inlet insert basket shall fit into the inlet without gaps around the insert as illustrated in Figure 1.
- C. The support for the inlet insert basket shall consist of fabricated metal as illustrated in Figures 1A and 1B. The basket shall be approximately 14 inches in depth.

- D. The top frame of the basket shall be constructed with two short sides of 2 inch by 2 inch and single long side of 1 inch by 1 inch, 1/8 inch angle iron. The basket hangers shall be constructed of 2 inch by 1/4 inch iron bars. The bottom frame shall be constructed of 1 inch by 1/4 inch iron bar or 1/4 inch plate with center 3 inches removed.

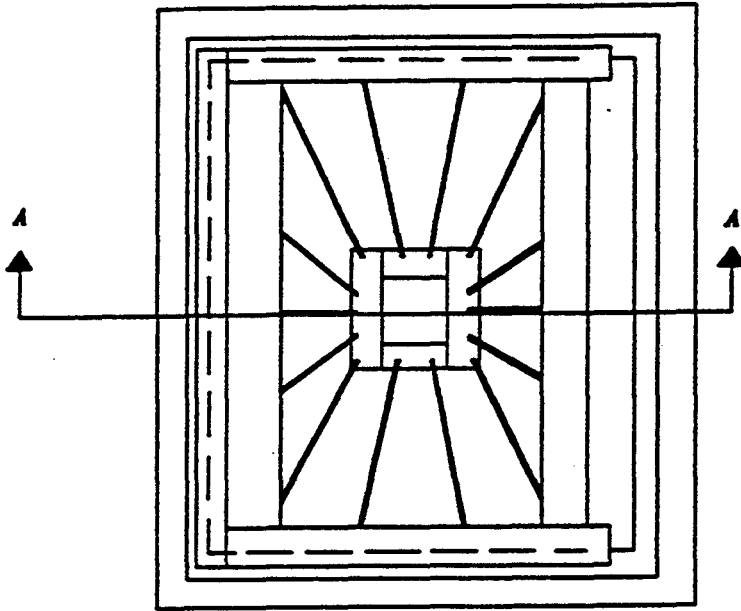
The sides of the inlet basket shall be a minimum 1/4 inch diameter iron rods or equivalent. A minimum of 14 rods shall be welded in place between the top frame/basket hanger and the bottom frame. Exact dimensions for top frame and insert basket will be determined based on the dimensions of the type of inlet being protected.

- E. The filter fabric shall be pushed down and formed to the shape of the basket. The sheet of fabric shall be large enough to be supported by the basket frame when holding sediment and extend at least 6 inches past the frame. The inlet grate shall be placed over the basket/frame; serving as a fabric anchor.
- F. Inspect drop inlet baskets after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair or replace damaged basket components to restore the requirements of this Item. Remove sediment deposit after each storm event.

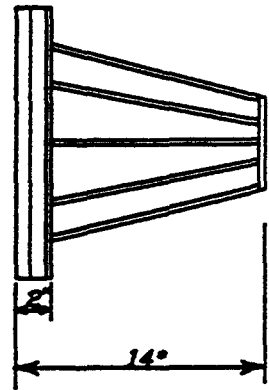
### 3.03 Measurement and Payment

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for drop inlet baskets per each for the number of completed and accepted drop inlet baskets. Drop inlet baskets, measured as stated, will be paid for at the unit price bid for **"Drop Inlet Baskets, Complete In Place"**.
- B. Payment for drop inlet baskets trap will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

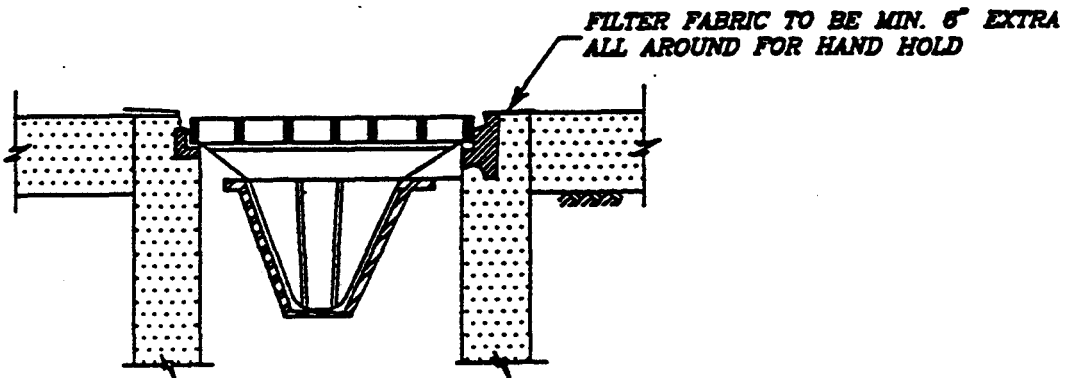
# DROP INLET INSERT BASKET



**PLAN**  
(WITH FILTER FABRIC AND  
GRATE REMOVED)



**SIDE VIEW**  
(BASKET ONLY)  
MAY BE DECREASED IF INLET  
IS OF INSUFFICIENT DEPTH.



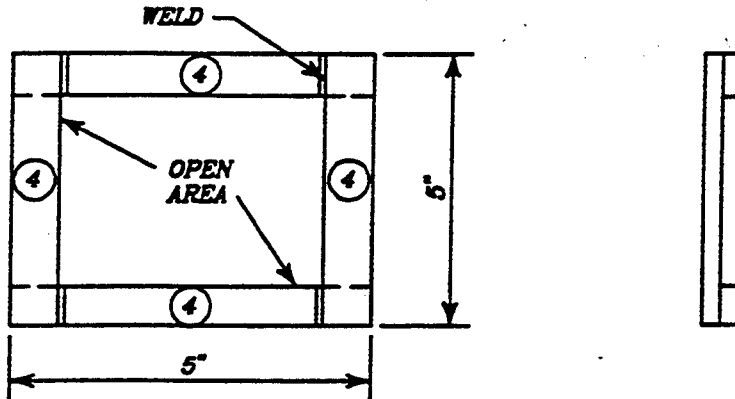
**SECTION A-A**



**BMP 4.5.2.1**  
**DROP INLET BASKETS**  
**DRAWING A**

# DROP INLET INSERT BASKET

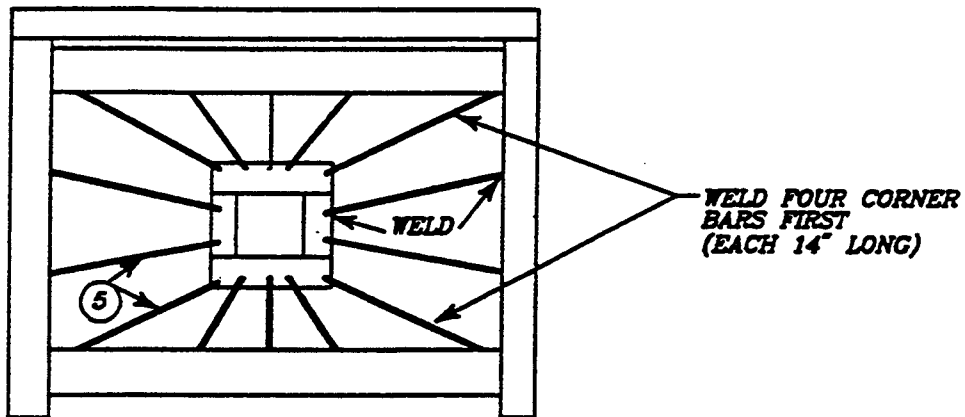
## BOTTOM FRAME



## BAR SCHEDULE

| NO. | SNAPS | SIZE | THICKNESS | LENGTH | QUANTITY |
|-----|-------|------|-----------|--------|----------|
| ④   | BAR   | 1"   | 1/4"      | 5"     | 4        |

## ROD PLACEMENT



## ROD SCHEDULE

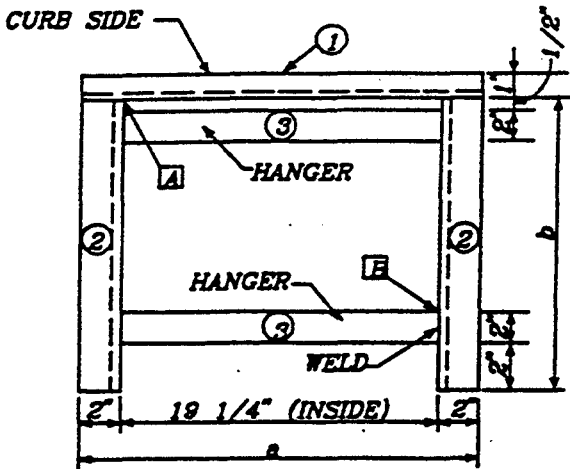
| NO. | SHAPE | SIZE         | THICKNESS | LENGTH                     | QUANTITY |
|-----|-------|--------------|-----------|----------------------------|----------|
| ⑤   | ROD   | 1/4"<br>MIN. | -         | 12" TO 14"<br>(CUT TO FIT) | 14       |

DIB

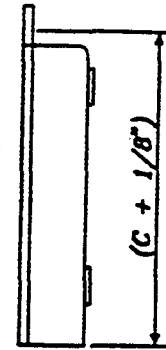
SYMBOL

BMP 4.5.2.1 (CONT.)  
DROP INLET INSERT BASKET  
DRAWING C

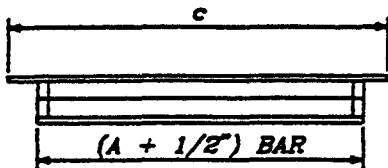
# TOP FRAME AND BASKET HANGER



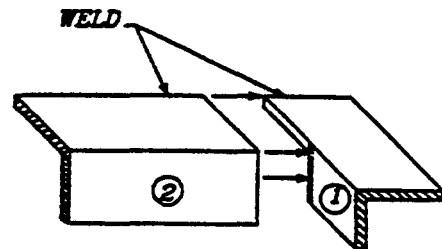
PLAN



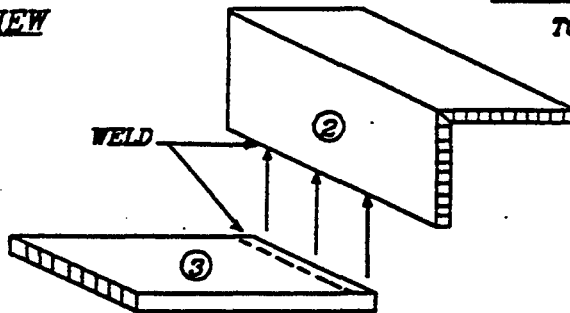
SIDE VIEW



FRONT VIEW



CONNECTION - [A]  
TOP FRAME



CONNECTION - [B]  
BASKET HANGER  
TO TOP FRAME

### BAR SCHEDULE

| NO. | SNAPS | SIZE  | THICKNESS | LENGTH* | QUANTITY |
|-----|-------|-------|-----------|---------|----------|
| 1   | ANGLE | 1"X1" | 1/8"      | a       | 1        |
| 2   | ANGLE | 2"X2" | 1/8"      | b       | 2        |
| 3   | BAR   | 2"    | 1/4"      | c       | 2        |

\*LENGTH AS NECESSARY TO FIT AREA STORM SEWER INLET TYPE TO BE PROTECTED.

DIB

SYMBOL

**BMP 4.5.2.1 (CONT.)**  
**TOP FRAME AND**  
**BASKET HANGER**  
**DRAWING B**

### 4.5.3 *Storm Inlet Sediment Traps*

#### A. *Definition*

A **storm inlet sediment trap** is a temporary sediment trap used to collect sediment around a curb inlet or yard drain.

#### B. *Purpose*

To prevent sediment and other pollutants from entering conveyance systems.

#### C. *Conditions Where Practice Applies*

At the locations where runoff enters conveyance system structures such as curb inlets and drop inlets.

#### D. *Planning Considerations*

**Timing** The storm inlet sediment trap should be installed before the drainage area is disturbed.

**Removal** The storm inlet sediment trap should be removed prior to placement of pavement surface at curb inlets. Storm inlet sediment traps used with area inlets and yard drains may be removed once the adjacent disturbed area has been stabilized.

**Roadways** The storm inlet sediment trap can be used in roadways. Install the trap on the opposite side of the opening and divert water (through temporary curb opening or other means) from the roadway to the trap so not to interfere with traffic.

#### E. *Design Criteria and Requirements*

1. Install either a yard drain inlet or curb drain inlet sediment trap as specified on plans.
2. The depth of the trap should be at least 2 feet to minimize resuspension of sediment. The minimum surface area of the sediment trap should be 625 square feet for every acre of drainage area. Side slopes should be 2:1 or flatter.

#### F. *Inspection and Maintenance*

Inspect sediment traps after each rainfall greater than 0.5 inches; daily during periods of prolonged rainfall; and at a minimum of once a week. Repair or replace



damaged trap components immediately to restore the requirements of this item. Remove sediment deposit and restore traps to original dimensions when the sediment has accumulated to one-half the design depth of the trap or one foot, whichever is less.

G. *Corresponding Technical Specification*

Item No. 4.5.3.1 Storm Inlet Sediment Trap

## **ITEM NO. 4.5.3.1 - STORM INLET SEDIMENT TRAPS**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control storm inlet sediment traps utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect, repair, or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or

adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owners directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing federal, state and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in Item.

### **3.02 Construction Methods**

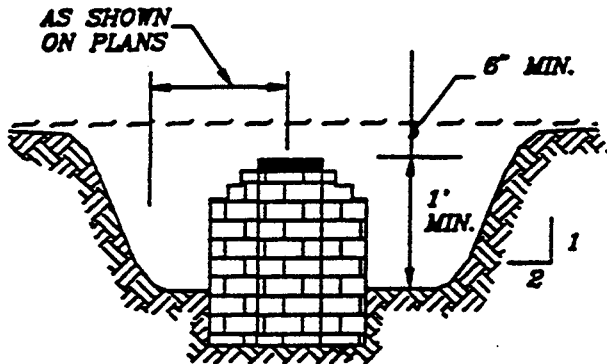
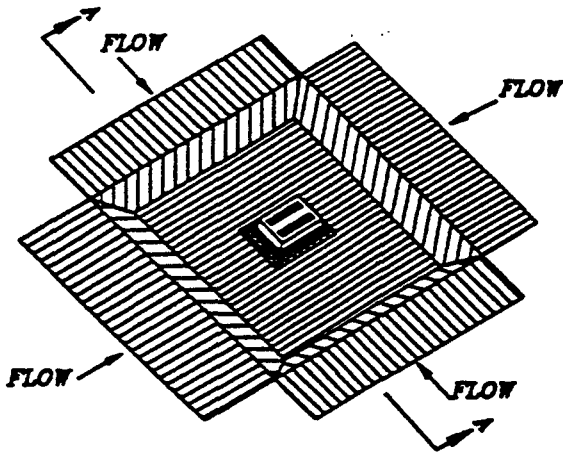
- A. Excavate storm inlet sediment traps at locations specified on PLANS in accordance with enclosed drawing.
- B. Limit of excavation and outlet length and height shall be as specified on PLANS. The side slopes shall be 2:1 or flatter.
- C. Inspect rock outlet sediment traps and outlets after each rain, daily during period of prolonged rainfall, and at a minimum once a week. Repair or replace damaged trap components to restore the requirements of this Item. Redress and replace stone as needed to replenish depleted stone. Remove sediment deposit and restore traps to original dimensions when the sediment has accumulated to one-half the design depth of the trap or one foot, whichever is less.

### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for storm inlet sediment trap per each for the number of completed and accepted storm inlet sediment trap. Storm inlet sediment trap, measured as stated, will be paid for at the unit price bid for "Storm Inlet Sediment Trap, Complete In Place".
- B. Payment for storm inlet sediment trap will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for

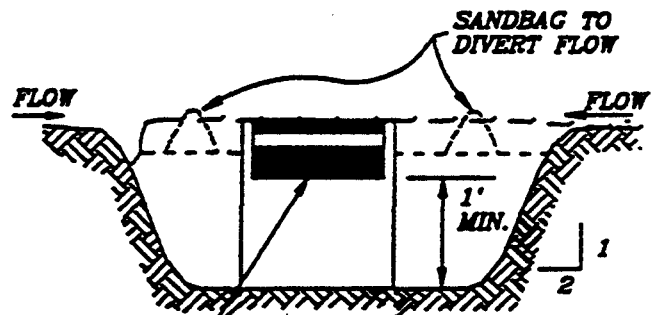
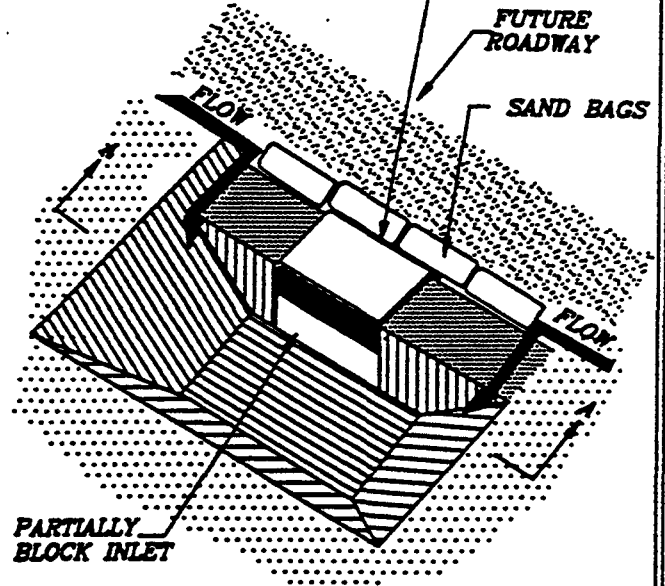
construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

# STORM INLET SEDIMENT TRAPS



SECTION A-A  
AREA GRATE INLET

BLOCK INLET WITH PLYWOOD AND SANDBAGS, AS NECESSARY, TO PREVENT WATER FROM ENTERING INLET OTHER THAN AT OPENING PROVIDED.



SECTION A-A  
CURB INLET

NOTE: WHERE CURB IS IN PLACE, PROVIDE A 1' WIDE OPENING IN THE CURB, OR USE A SANDBAG DAM TO FORCE WATER OVER THE CURB TO THE TRAP.

## GENERAL NOTES:

1. INSTALL EITHER A GRATE INLET OR CURB INLET SEDIMENT TRAP AS SHOWN BY THE CONSTRUCTION DRAWINGS.
2. THE LIMITS OF EXCAVATION SHALL BE AS SHOWN BY THE CONSTRUCTION DRAWINGS.
3. SIDE SLOPE SHALL BE 2:1, OR FLATTER.
4. MAINTAIN A MINIMUM OF 1 FOOT MEASURED VERTICALLY FROM THE BOTTOM OF EXCAVATION FOR INLET OPENING.
5. WHEN THE INLET IS IN A ROADWAY, INSTALL THE TRAP ON THE OPPOSITE SIDE OF THE OPENING AND DIVERT WATER FROM THE ROADWAY TO THE TRAP.



SYMBOL

BMP 4.5.3.1  
STORM INLET SEDIMENT TRAP

## 4.6 TRAPPING SEDIMENT DURING SITE DEWATERING

Pumping of suspended or resuspended sediment can cause substantial amounts of pollutants to leave a construction site and enter lakes, streams, and wetlands.

Water pumped from the site should be treated by one of the following:

*Dewatering settling basins* (Section 4.6.1)

*Sediment tank* (Section 4.6.2)

*Sediment sump pit* (Section 4.6.3)

### 4.6.1 Dewatering Settling Basins

#### A. *Definition*

**A Dewatering settling basin** is a temporary basin designed and constructed to control sediment contained in water pumped in the process of dewatering a site.

#### B. *Purpose*

To detain sediment-laden discharge from dewatering a site for sufficient time to allow the majority of the sediment to settle out.

#### C. *Design Criteria and Requirements*

**Basin Area** The minimum area of the settling basin in square feet shall be determined as shown below where the peak discharge is the flow into the basin based on the 3-year storm.

Area<sub>basin</sub> (ft<sup>2</sup>) w 240 x peak discharge (cfs)

#### **Basin**

**Structure** The basin shall consist of an excavated basin, a filter fabric fence, a filter fabric barrier, or a straw bale fence. The basin shall be constructed and maintained in accordance with the following practices:

4.2.1 Filter Fabric Fences

4.2.2 Straw Bale Fences

4.3.1 Filter Fabric Barrier

4.3.2 Sediment Traps

4.3.3 Sediment Basins

## **Outlet**

**Protection** The basin shall discharge to a vegetated or otherwise stabilized area.

### **D. *Maintenance***

The dewatering settling basin shall be maintained at all times the site is being dewatered.

### **E. *Corresponding Technical Specifications***

|              |                                       |
|--------------|---------------------------------------|
| Item 4.2.1.1 | Filter Fabric Fences                  |
| Item 4.2.2.1 | Straw Bale Fences                     |
| Item 4.3.1.1 | Filter Fabric Barrier                 |
| Item 4.3.2.1 | Stone Outlet Sediment Trap            |
| Item 4.3.2.2 | Excavated Earth Outlet Sediment Trap  |
| Item 4.3.2.3 | Embankment Earth Outlet Sediment Trap |
| Item 4.3.3.1 | Sediment Basin with Pipe Outlet       |
| Item 4.3.3.2 | Sediment Basin with Stone Outlet      |

## **4.6.2 *Sediment Tank***

### **A. *Definition***

A **sediment tank** is a fabricated tank constructed from steel drums or other type of tank used to trap and filter sediment from water pumped from excavated areas.

### **B. *Purpose***

A sediment tank traps and retains sediment from water being pumped from excavated areas.

### **C. *Conditions Where Practice Applies***

Sediment tanks are generally used to treat water from deep excavations where space is limited.

### **D. *Design Criteria and Requirements***

The location of the sediment tank should be convenient for clean out and disposal of the trapped sediment and should minimize the interference with construction activities. The size of the tank can be estimated from the formula indicated below

where the pump discharge is the flow pumped into the tank.

Storage (cubic foot) - 16 x pump discharge (gallons per minute).

The attached drawing provides an illustration of a sediment tank. Alternative container designs can be used if the storage volume is adequate.

If recycled 55-gallon steel drums are used, they must be made free of chemical contamination.

E. *Inspection and Maintenance*

Inspection should be made periodically during pumping and after each pumping. The tank should be cleaned out when one-third of the sediment tank is filled with silt. Sediment collected in the tank should be disposed of at an approved site in a manner that will not contribute to additional siltation.

F. *Corresponding Technical Specifications*

Item 4.6.2.1 Sediment Tank



## **ITEM NO. 4.6.2.1 - SEDIMENT TANK**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control sediment tanks utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials as specified in Part 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by offsite Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or

adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

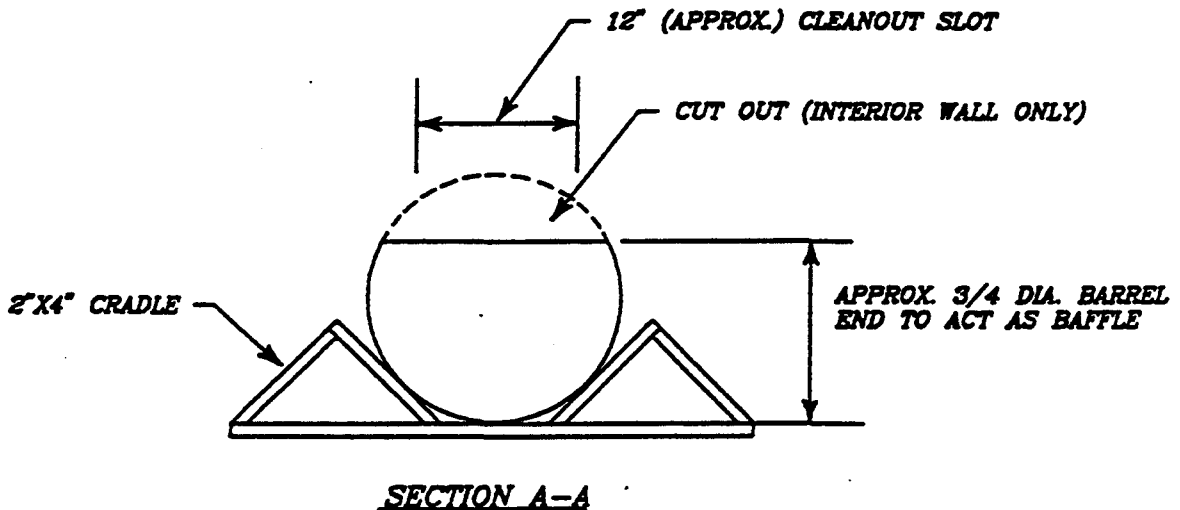
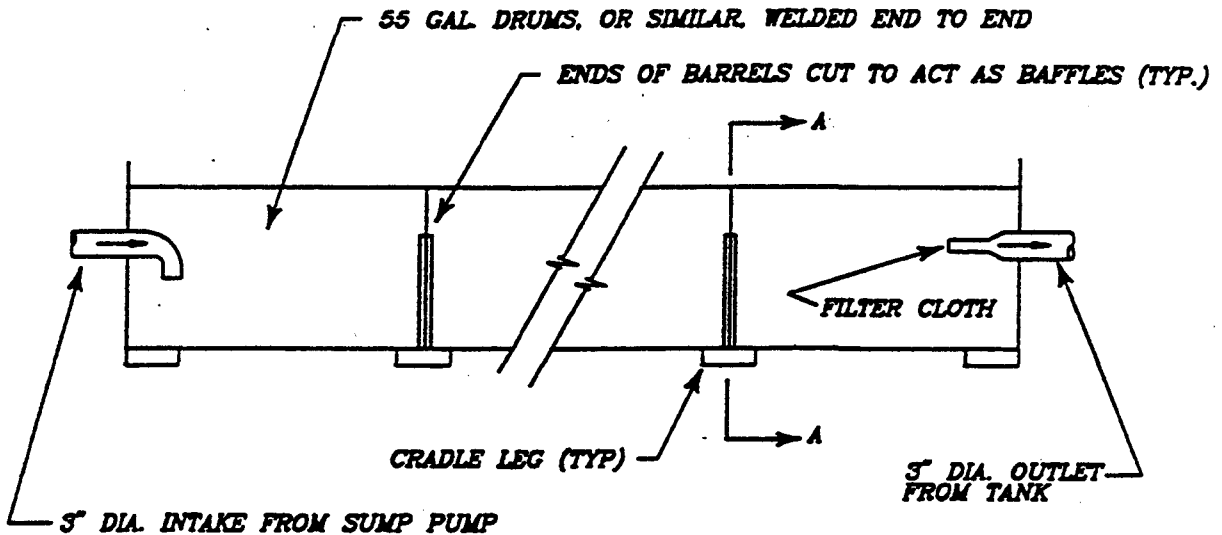
- A. Install sediment tank at location specified on PLANS in accordance with enclosed drawing.
- B. Steel drums or other type of tanks may be used, providing that the volume requirements are met. If recycled steel drums are used, they must be free of chemical contamination.
- C. Inspection shall be made by the contractor after each pumping, and when one-third (1/3) of the sediment tank is filled with silt, the contractor shall clean out the tank.
- D. Sediment collected in the tank shall be disposed of at an approved site in a manner that will not contribute to additional siltation.
- E. The sediment tank shall be removed when the construction is completed.

### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for sediment tank per each for the number of completed and accepted sediment tank. Sediment tank, measured as stated, will be paid for at the unit price bid for "**Sediment Tank, Complete In Place**".

- B. Payment for sediment tank will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, set-up of sediment tank, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, and removal of erosion and sedimentation control systems at the end of construction.

# PORTABLE SEDIMENT TANK



**GENERAL NOTES:**

1. STEEL DRUMS OR OTHER OF TYPE OF TANKS MAY BE USED, PROVIDING THAT THE VOLUME REQUIREMENTS ARE MET.
2. INSPECTION SHALL BE MADE AFTER EACH PUMPING, AND WHEN ONE-THIRD (1/3) OF THE SEDIMENT TANK IS FILLED WITH SILT, CLEAN OUT THE TANK.
3. SEDIMENT COLLECTED IN THE TANK TO BE DISPOSED OF AT AN APPROVED SITE, AS DIRECTED BY THE ENGINEER.
4. THE SEDIMENT TANK TO BE REMOVED WHEN THE CONSTRUCTION IS COMPLETED.



**BMP 4.6.2.1**  
**PORTABLE SEDIMENT TANK**

### 4.6.3 *Sediment Sump Pit*

#### A. *Definition*

A **sediment sump pit** is a temporary pit with a discharge standpipe which is constructed to trap and filter sediment from water pumped from excavated areas.

#### B. *Purpose*

A sediment sump pit collects water retained in excavated areas and removes sediment before the water is pumped from the site.

#### C. *Conditions Where Practice Applies*

Sump pits are constructed for collecting water during construction and are particularly useful during excavation for building foundations.

#### D. *Design Criteria and Requirements*

A perforated standpipe made from 12- to 24-inch diameter corrugated steel pipe or PVC pipe should be placed in the center of the pit to collect filtered water. The standpipe should extend 12 to 18 inches above the lip of the pit. A base of two-inch (2-inch) aggregate shall be placed in the pit to a depth of 12 inches. The pit surrounding the standpipe should be backfilled with two-inch (2-inch) aggregate after installing the standpipe. Discharge of water pumped from the standpipe shall be conveyed to a sediment trapping device such as a rock berm, brush berm, stone outlet structure, sediment trap, sediment basin, or other appropriate device or to an area protected by any of these devices. The number of sump pits and their locations shall be determined by an engineer.

#### E. *Inspection and Maintenance*

Sediment sump pits should be inspected daily during periods of pumping. Sediment sump pits may be used for excavation pumpage with minimal maintenance. Silt deposits in standpipe may limit effectiveness and need to be removed. The sites of sump pits should be restored to stabilized condition when the construction is complete.

#### F. *Corresponding Technical Specifications*

Item 4.6.3.1 Sediment Sump Pit

## **ITEM NO. 4.6.3.1 - SEDIMENT SUMP PIT**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control sediment sump pit utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

#### **2.01 Rock and Stone**

Use open-graded rock with most of the fines removed. Rock shall be 2 inches in diameter unless otherwise specified on PLANS and drawings in this Item. Use only clean, hard rocks free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the

Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.

- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it needs to be disposed of in accordance with existing Federal, State and local regulations.
- F. Unless otherwise indicated, compact embankments, excavations, and trenches by mechanically blading, tamping, and rolling soil in a maximum of 8-inch layers. Compaction density shall be at a maximum of 90 percent Standard Proctor ASTM D-698-78 density. Make at least one test per 500 cubic yards of embankment.
- G. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control system shall be repaired immediately.
- H. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

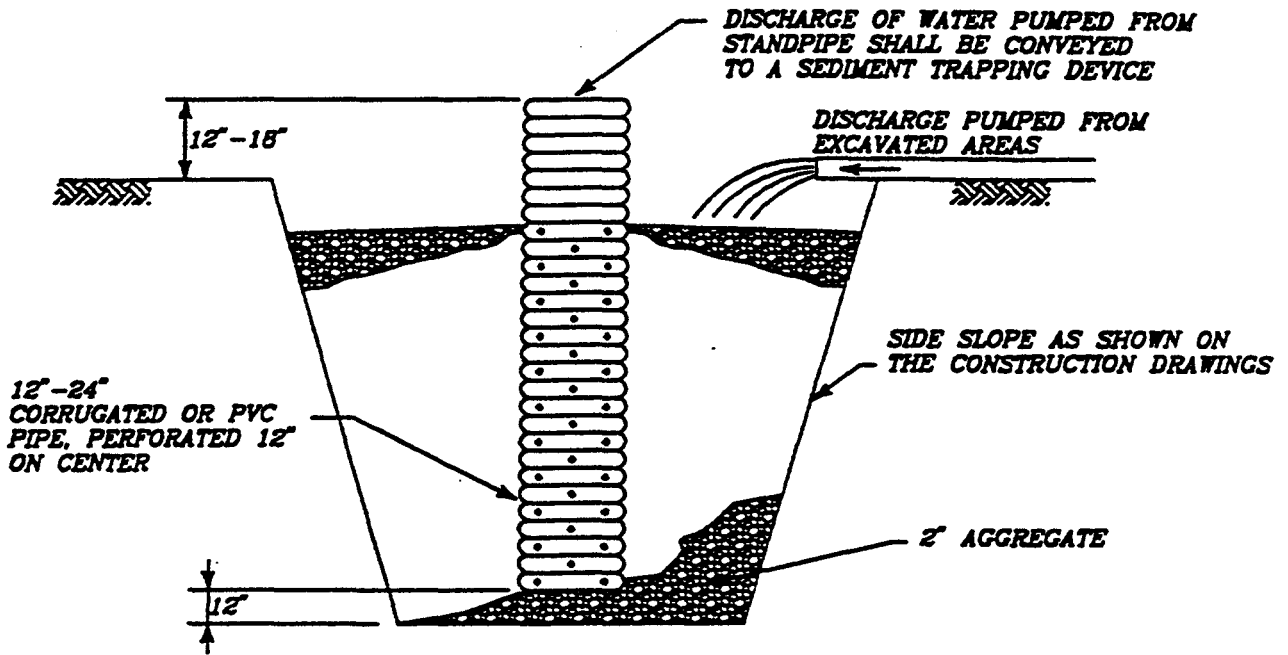
- A. Install sediment sump pits at locations specified on PLANS in accordance with enclosed drawing.
- B. The dimensions of pit are optional.
- C. The standpipe should be constructed by perforating a 12"-24" diameter corrugated or PVC pipe.
- D. The standpipe should extend 12"-18" above the lip of the pit.
- E. Discharge of water pumped from the standpipe shall be conveyed to a sediment trapping device or to an area protected by any of these devices.
- F. The sites of sump pits shall be filled, compacted to the density of the surrounding soil and the surface stabilized when the construction is completed.

### 3.03 Measurement and Payment

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for sediment sump pit per each for the number of completed and accepted sediment sump pit. Sediment sump pit, measured as stated, will be paid for at the unit price bid for "**Sediment Sump Pit, Complete In Place**".
  
- B. Payment for sediment sump pit will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.



# SEDIMENT SUMP PIT



## GENERAL NOTES:

1. DIMENSIONS AS SHOWN ON CONSTRUCTION DRAWINGS.
2. THE STANDPIPE SHOULD BE CONSTRUCTED BY PERFORATING A 12"-24" DIAMETER CORRUGATED OR PVC PIPE.
3. THE STANDPIPE SHOULD EXTEND 12"-18" ABOVE THE LIP OF THE PIT.
4. DISCHARGE OF WATER PUMPED FROM THE STANDPIPE SHALL BE CONVEYED TO A SEDIMENT TRAPPING DEVICE SUCH AS A ROCK BERM, BRUSH BERM, STONE OUTLET STRUCTURE, SEDIMENT TRAP, OR SEDIMENT BASIN, OR TO AN AREA PROTECTED BY ANY OF THESE DEVICES.
5. THE SITES OF SUMP PITS SHALL BE RESTORED TO A STABILIZED CONDITION WHEN CONSTRUCTION IS COMPLETED.
6. MAINTENANCE WILL BE PERFORMED AS NEEDED.



SYMBOL

**BMP 4.6.3.1**  
**SEDIMENT SUMP PIT**

## 4.7 PREVENTING TRACKING

Sediment reaching streets generally has a clear path of conveyance to lakes, streams, and wetlands. Control of this source of pollutants is approached in two ways. First, best management practices are identified to minimize the amount of sediment being tracked onto streets. Second, cleanup of the sediment that reaches the street is required.

Required elements:

- Each site should have graveled roads, access drives and parking areas of sufficient width and length to prevent sediment from being tracked onto public and private roadways.
- Sediment stuck to vehicle tires, axles and other under carriage components should be removed from vehicles before they exit the construction site.
- Any sediment reaching a public or private road should be removed by street cleaning (not flushing) before the end of each workday.

The section contains the design criteria and requirements for temporary gravel site roads and parking areas.

### 4.7.1 *Stabilized Access Roads and Parking Areas*

#### A. *Definition*

A **stabilized access road and parking area** is a gravel-stabilized pad located at points of vehicular access and parking on the construction site.

#### B. *Purpose*

To reduce the amount of sediment transported onto public roads.

#### C. *Conditions Where Practice Applies*

At access points to the construction sites.

#### D. *Planning Considerations*

The amount of sediment being transported from the site can also be reduced by using other best management practices.

E. *Design Criteria and Requirements*

- Timing** The stabilized access shall be installed as soon as practicable before the start of site disturbance.
- Removal** The stabilized access shall remain in-place and be maintained until the disturbed area is stabilized by permanent best management practices.
- Location** The stabilized access shall be located to provide maximum use by all construction vehicles.
- Dimensions** The stabilized access shall consist of at least 8 inches of 2 to 3 inch aggregate or crushed concrete; 50 feet in length or the distance from the road to the specific construction area, whichever is less; and at least 7 feet in width. The width shall be 14 feet if it is necessary to have vehicles pass on the site.

**Stabilized  
Access Pad  
Alternative  
Materials**

Suggested materials for use in construction of access pads shall include the following:

*Gravel* Coarse gravel of 2- to 3-inch aggregate applied on top of existing soil in an application thickness of at least 8 inches. This depth should be monitored and maintained throughout construction. A separation geotextile fabric should be provided as a permeable separator to prevent mixing of coarse aggregate with underlying soil.

*Cement  
Stabilized*

*Soil* Compacted, cement stabilized soil, limestone aggregate or other fill material in an application thickness of at least 8 inches.

*Wood Mats*

*Mud Mats* Oak or other hardwood timbers placed edge to edge and across support wooden beams which are placed on top of existing soil in an application thickness of at least 6 inches.

*Steel Mats* Perforated mats placed across perpendicular support members.

*Sediment Removal Techniques* Suggested methods for removal of large accumulations of sediment on vehicle tires, axles, and other undercarriage components should include the use of high pressure water hoses to flush off under carriages. Water and sediment should be filtered to avoid sediment from running into water courses, wetlands, or storm water conveyance systems.

F. *Inspection and Maintenance*

The stabilized access shall be inspected daily. Areas not meeting the design criteria and requirements shall be repaired or replaced immediately.

G. *Corresponding Technical Specification*

Item 4.7.1.1 Stabilized Construction Exit

## **ITEM NO. 4.7.1.1 - STABILIZED CONSTRUCTION EXIT**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes the installation of erosion and sedimentation control stabilized construction exits utilized during construction and prior to the final development of the site.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

#### **1.03 Submittals**

- A. Manufacturer's catalogue sheets and other pertinent information on geotextile fabric.
- B. Sieve analysis of aggregates conforming to requirements of this Item.

### **PART 2 - PRODUCTS**

#### **2.01 Separation Geotextile**

Provide woven or nonwoven geotextile fabric made of either polypropylene, polyethylene, ethylene, or polyamide material. Geotextile fabric shall have a minimum grab strength of 270 psi in any principal direction (ASTM D4632) and the equivalent opening size specified on PLANS. Both the geotextile and threads shall be resistant to chemical attack, mildew and rot.

#### **2.02 Coarse Aggregates**

- A. Coarse aggregates shall consist of crushed stone, gravel, crushed blast furnace slag, or combinations thereof. Particles shall compose of clean, hard, durable materials free from adherent coatings, salt, alkali, dirt, clay, loam, shale, soft or flaky materials, or organic and injurious matter.

B. Coarse aggregates shall conform to the following gradation requirements.

| <b>Sieve Size<br/>(Square Mesh)</b> | <b>Percent Retained<br/>(By Weight)</b> |
|-------------------------------------|---|
| 2-1/2"                              | 0                                       |
| 2"                                  | 0-20                                    |
| 1-1/2"                              | 15 - 50                                 |
| 3/4"                                | 60- 80                                  |
| No. 4                               | 95-100                                  |

### **2.03 Materials for Alternative Construction Methods**

Use materials specified in PART 3 - 3.02.J.

## **PART 3 - EXECUTION**

### **3.01 General**

- A. Provide erosion and sedimentation control systems at the locations shown on PLANS. Such systems shall be of the type indicated and shall be constructed in accordance with the requirements shown on PLANS and set out in this Item.
- B. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- C. Maintain existing erosion and sedimentation control systems located within the project site, installed by others prior to start of construction under this contract, until acceptance of the project or until directed by the Owner to remove and discard the existing system.
- D. Inspect and repair or replace components of all erosion and sedimentation control systems as specified for each type of system. Unless otherwise directed, maintain the erosion and sedimentation control systems until the project is accepted by the Owner. Remove erosion and sedimentation control systems promptly when directed by the Owner. Discard removed materials offsite.
- E. Remove and dispose sediment deposits at the project spoil site. If a project spoil site is not designated on PLANS, dispose of sediment offsite at location not in or adjacent to stream or floodplain. Off-site disposal will be the responsibility of the Contractor. Sediment to be placed at the project site should be spread, compacted and stabilized in accordance with the Owner's directions. Sediment shall not be allowed to flush into stream or drainage way. If sediment has been contaminated, it

needs to be disposed of in accordance with existing Federal, State and local regulations.

- F. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- G. Contractor shall employ protective measures described in Item General Source Controls to avoid damage to existing trees to be retained on the project site. Conduct all construction operation under this Contract in conformance with the erosion control practices described in that Item.

### **3.02 Construction Methods**

- A. Provide stabilized access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes when shown on PLANS.
- B. Provide stabilized construction exits, and truck washing areas when approved by owner. Construction traffic shall not be allowed to leave construction site and move directly onto public roadway, alley, sidewalk, parking area, or other right-of-way in areas other than at locations of stabilized construction exits.
- C. Vehicles leaving construction areas shall have their tires cleaned to remove sediment prior to entrance onto public right-of-way. When washing is needed to remove sediment, Contractor shall construct a truck washing area. Truck washing shall be done on stabilized areas which drain into sediment traps.
- D. Detail for stabilized construction exit is shown in Drawing attached at the end of this Item. Use the same specifications for construction of all other stabilized areas. Roadway width shall be at least 14 feet for one-way traffic and 20 feet for two-way traffic and shall be sufficient for all ingress and egress. Furnish and place geotextile fabric as a permeable separator to prevent mixing of coarse aggregate with underlying soil. Exposure of geotextile fabric to the elements between laydown and cover shall be a maximum of fourteen days to minimize damage potential.
- E. Roads and parking areas shall be graded to provide sufficient drainage away from stabilized areas. Use sand bags, gravel, boards, or similar methods to prevent sediment from entering public right-of-way, storm drain, ditch, and watercourse.
- F. The stabilized areas shall be inspected and maintained daily. Provide periodic top dressing with additional coarse aggregates to maintain the required depth. Repair

and cleanout damaged measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto public right-of-way shall be removed immediately.

- G. The length of the stabilized area shall be as shown on PLANS, but not less than 50 feet. The thickness shall not be less than 8 inches. The width shall not be less than full width of all points of ingress or egress.
- H. Stabilization for other areas shall have the same course aggregate, thickness, and width requirements as the stabilized construction exit, except where specified otherwise on PLANS.
- I. Stabilized area may be widened or lengthened to accommodate truck washing area when authorized by Owner. Outlet Sediment Trap must be provided for truck washing area.
- J. Alternative methods of construction may be utilized when shown on plans, indicated on a special provision to this Item, or when approved by the Owner. These methods include the following.
  - 1. Cement Stabilized Soil - Compacted, cement stabilized soil, limestone aggregate or other fill material in an application thickness of at least 8 inches.
  - 2. Wood Mats/Mud Mats - Oak or other hardwood timbers placed edge to edge and across support wooden beams which are placed on top of existing soil in an application thickness of at least 6 inches.
  - 3. Steel Mats - Perforated mats placed across perpendicular support members.

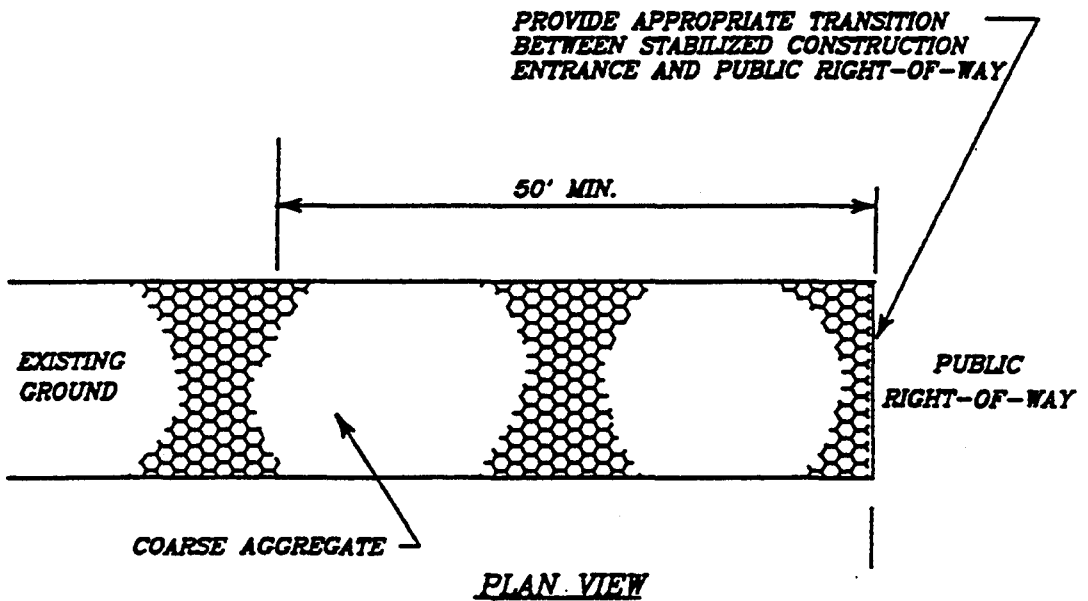
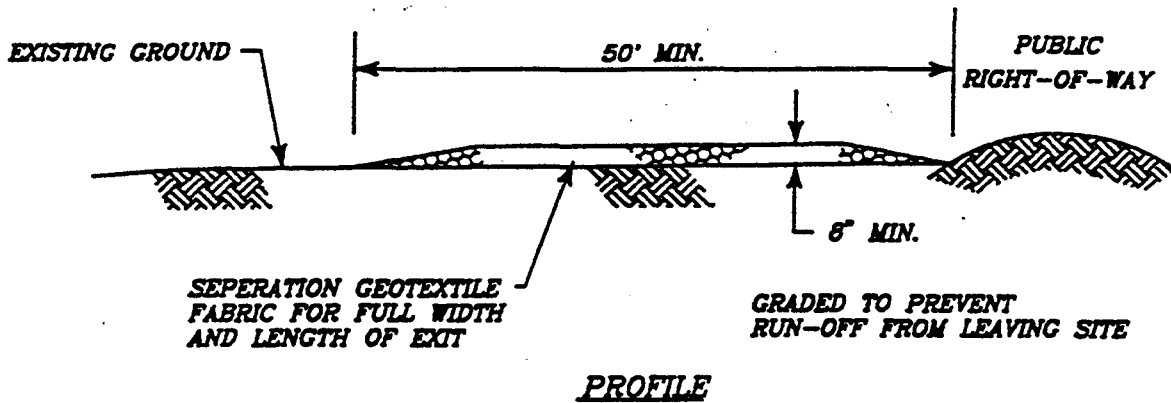
### **3.03 Measurement and Payment**

- A. Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component. When indicated in PROPOSAL FORMS as pay item, measure and pay for stabilized construction roads, parking areas, exits, and truck washing area, if provided, by the square yard of aggregate placed in 8-inch layer. Stabilized construction roads, parking areas, exits, and truck washing area, if provided, measured as stated, will be paid for at the unit price bid for **"Stabilized Construction Road & Exit, Complete In Place"**.



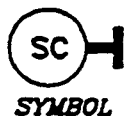
- B. Payment for stabilized construction roads, parking areas, exits, and truck washing areas will include and be full compensation for all labor, equipment, materials, supervision, and all incidental expenses for construction of these items, complete in place, including, but not limited to, embankment and excavation, protection of trees, maintenance requirements, repair and replacement of damaged sections, removal of sediment deposits, redressing of aggregates and stones, and removal of erosion and sedimentation control systems at the end of construction.

# STABILIZED CONSTRUCTION EXIT



**GENERAL NOTES:**

1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 8 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION EXIT, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A TRUCK WASHING AREA, WHEN SHOWN ON THE CONSTRUCTION DRAWING. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE TRUCK WASHING AREA.



**BMP 4.7.1.1**  
**STABILIZED CONSTRUCTION EXIT**

## 4.8 OTHER SOURCE CONTROLS ON CONSTRUCTION PROJECTS

### A. *Definition*

Other source controls include management techniques for non-point source pollution related to erosion and non-erosion sources on construction sites.

### B. *Purpose*

To reduce the availability of construction-related pollutants which can contaminate runoff water and, where runoff contamination cannot be avoided, to retain pollutants and polluted water on the site insofar as possible.

### C. *Conditions Where Practice Applies*

This practice applies to all construction projects. The size and complexity of the construction site determine the level of planning and management necessary to control pollution adequately.

### D. *Planning Considerations*

Construction activities, by their nature, create many sources of potential pollutants which can contaminate runoff and affect the quality of downstream receiving waters. Accelerated erosion and sedimentation caused by land-disturbing activities is one of the major pollution problems caused by construction. Sections 4.1 to 4.7 address specific best management practices (BMP) that address sediment problem areas on construction sites. This section will present general construction management practices that can also reduce the potential for erosion and sedimentation.

Non-erosion pollutants that may be associated with construction activities will contaminate runoff water when they are not properly managed. These include fertilizers, pesticides, gasoline, oils, grease, paints, cements, and solvents. Nontoxic solid wastes such as paper and cardboard can be potential pollutants when they are washed into streams and lakes in large quantities.

The best way to prevent non-point source pollution on construction sites is to use "good housekeeping" practices to keep the site in a neat and orderly condition. An overall plan should be outlined to include practices to retain runoff and to deal with toxic substances and materials.

## ***E. Requirements***

Specific elements for construction site housekeeping and good management are described below:

### ***4.8.1 Erosion and Sedimentation Control Plan***

Erosion and sedimentation controls are effective in controlling many other nonpoint source pollutants associated with construction activities. Development and implementation of a good erosion and sedimentation control plan is a key factor in controlling nonpoint source pollutants.

### ***4.8.2 Topsoiling***

When topsoiling, maintain erosion and sedimentation control systems, such as dikes, swales, grade stabilization structures, waterways, and sediment basins operational. Maintain grades which have been previously established on the areas to be topsoiled.

### ***4.8.3 Protection of Trees***

Protect trees designated to remain in construction areas. Heavy equipment, vehicular traffic, and stockpiles of construction materials, including topsoil, are not permitted within the dripline of any tree to be retained. Tree trunks, exposed roots, and limbs of trees designated to be retained which are damaged during construction operations should be cared for by a forester or licensed tree expert. Specimen trees should be boxed or fenced.

### ***4.8.4 Dust Control***

Control dust blowing and movement on construction sites and roads to prevent loss of soil surface, to reduce onsite and offsite damage, to prevent health hazards, and to improve traffic safety.

Control dust blowing by utilizing one or more of the following methods. Dust control methods shall be implemented immediately whenever dust can be observed blowing on the project site.

- a. Mulches bound with chemical binders such as Curasol, Terratack, or equal.
- b. Temporary vegetative cover.
- c. Spray-on adhesives on mineral soils when not used by traffic.
- d. Tillage to roughen surface and bring clods to the surface.

- e. Irrigation by water sprinkling.
- f. Barriers using solid board fences, snow fences burlap fences, crate walls, bales of hay, or similar materials.

#### ***4.8.5 Equipment Maintenance and Repair***

Maintenance and repair of construction machinery and equipment should be confined to areas specifically designated for that purpose. Such designated areas should be located and designed so that oils, gasoline, grease, solvents, and other potential pollutants cannot be washed directly into receiving streams or storm water conveyance systems. These areas should be provided with adequate waste disposal receptacles for liquid as well as solid waste. Maintenance areas should be inspected and cleaned daily.

On a construction site where designated equipment maintenance areas are not feasible, care should be taken during each individual repair or maintenance operation to prevent potential pollutants from becoming available to be washed into streams or conveyance systems. Temporary waste disposal receptacles should be provided.

#### ***4.8.6 Waste Collection and Disposal***

A plan should be formulated for the collection and disposal of waste materials on a construction site. Such a plan should designate locations for trash and waste receptacles and establish a special collection schedule. Methods for ultimate disposal of waste should be specified and carried out in accordance with applicable local, state and federal health and safety regulations. Special provisions should be made for the collection and disposal of liquid wastes and toxic or hazardous materials.

Receptacles and other waste collection areas should be kept neat and orderly to the extent possible. Waste should not be allowed to overflow its container or accumulate for excessively long periods of time. Trash collection points should be located where they will least likely be affected by concentrated storm water runoff.

#### ***4.8.7 Washing Areas***

Vehicles such as cement or dump trucks and other construction equipment should not be washed at locations where the runoff will flow directly into a watercourse or storm water conveyance system. Special areas should be designated for washing vehicles. These areas should be located where the wash water will spread out and evaporate or infiltrate directly into the ground, or where the runoff can be collected in a temporary holding or seepage basin. Wash areas should have gravel or rock bases to minimize mud generation.

#### ***4.8.8 Storage of Construction Materials, Chemicals, Etc.***

Sites where chemicals, cements, solvents, paints, or other potential water pollutants are to be stored, should be isolated in areas where they will not cause runoff pollution.

Toxic and/or hazardous chemicals and materials, such as pesticides, paints, and adds should be stored in accordance with manufacturers' guidelines. Groundwater resources should be protected from leaching by placing a plastic mat, packed clay, tar paper, or other impervious materials on any areas where toxic and/or hazardous liquids are to be opened and stored.

Spills of toxic and/or hazardous substances are to be cleaned and treated according to local, State and Federal regulations.

#### ***4.8.9 Demolition Areas***

Demolition projects usually generate large amounts of dust with significant concentrations of heavy metals and other toxic pollutants. Dust control techniques should be used to limit the transport of the airborne pollutants. However, water or slurry used to control dust should be retained on the site and not be allowed to run directly into watercourses or storm water conveyance systems.

#### ***4.8.10 Sanitary Facilities***

All construction sites should be provided with adequate sanitary facilities for workers in accordance with applicable health regulations.

#### ***4.8.11 Pesticides***

Pesticides used during construction should be stored and used in accordance with manufacturers' guidelines and with local, State and Federal regulations. Overuse should be avoided and great care should be taken to prevent accidental spillage. Pesticides containers should never be washed in or near flowing streams or storm water conveyance systems.

## **ITEM NO. 4.8.1.1- GENERAL SOURCE CONTROLS**

### **PART 1- GENERAL**

#### **1.01 Description**

This Item describes erosion and sedimentation control related practices which must be utilized during construction activities.

#### **1.02 Related Work**

Related work as called for on PLANS or specified elsewhere in this or other TECHNICAL SPECIFICATIONS .

### **PART 2 - PRODUCTS**

Provide materials as specified in PART 3.

### **PART 3 - EXECUTION**

#### **3.01 General**

- A. No clearing and grubbing or rough cutting, other than as specifically directed by the Owner to allow soil testing and surveying, shall be permitted until erosion and sedimentation control systems are in place.
- B. Equipment and vehicles shall be prohibited by the Contractor from maneuvering on areas outside of dedicated rights-of-way and easements for construction. Damages caused by construction traffic to erosion and sedimentation control systems shall be repaired immediately.
- C. Contractor shall employ protective measures described in this Item to avoid damage to existing trees to be retained on the project site.
- D. Conduct all construction operation under this Contract in conformance with the erosion control practices described in this Item.

#### **3.02 Topsoiling for Erosion and Sedimentation Control Systems**

- A. When topsoiling is called for as a component of another Item, conduct erosion control practices described in this Item during topsoiling operation.
  - 1. When topsoiling, maintain erosion and sedimentation control systems, such as

swales, grade stabilization structures, berms, dikes, waterways, and sediment basins.

2. Maintain grades which have been previously established on areas to be topsoiled.
3. After the areas to be topsoiled have been brought to grade, and immediately prior to dumping and spreading the topsoil, the subgrade shall be loosened by discing or by scarifying to a depth of at least 2 inches to permit bonding of the topsoil to the subsoil. Compact by passing a bulldozer up and down the slope, tracking over the entire surface area of the slope to create horizontal erosion control slots.
4. No sod or seed shall be placed on soil which has been treated with soil sterilants until sufficient time has elapsed to permit dissipation of toxic materials.

### **3.03 Protection of Trees in Construction Areas**

- A. Heavy equipment, vehicular traffic, and stockpiles of construction materials, including topsoil, are not permitted within the dripline of any tree to be retained. Contractor shall avoid all contact with trees to be retained unless otherwise directed by the Owner or retained by the work under this Contract.
- B. Specimen trees shown on the PLANS shall be boxed or fenced. When called for in the PLANS, tunnel under the root system for the installation of utility lines.
- C. Tree trunks, exposed roots, and limbs of the trees designated to be retained which are damaged during construction operations will be cared for as prescribed by a forester or licensed tree expert at the expense of the Contractor.

### **3.04 Dust Control**

- A. Control dust blowing and movement on construction sites and roads to prevent exposure of soil surfaces, to reduce on and offsite damage, to prevent health hazards, and to improve traffic safety.
- B. Control dust blowing by utilizing one or more of the following methods.
  1. Mulches bound with chemical binders such as Curasol, Terratacl, or equal.
  2. Temporary vegetative cover.
  3. Spray-on adhesives on mineral soils when not used by traffic.
  4. Tillage to roughen surface and bring clods to the surface.
  5. Irrigation by water sprinkling.
  6. Barriers using solid board fences, snow fences, burlap fences, crate walls, bales of hay, or similar materials.



C. Dust control methods shall be implemented immediately whenever dust can be observed blowing on the project site.

### **3.05 Equipment Maintenance and Repair**

Maintenance and repair of construction machinery and equipment must be confined to areas specifically designated for that purpose. Such designated areas must be located and designed so that oils, gasoline, grease, solvents, and other potential pollutants cannot be washed directly into receiving streams or storm water conveyance systems. These areas must be provided with adequate waste disposal receptacles for liquid as well as solid waste. Maintenance areas should be inspected and cleaned daily.

On a construction site where designated equipment maintenance areas are not feasible, care must be taken during each individual repair or maintenance operation to prevent potential pollutants from becoming available to be washed into streams or conveyance systems. Temporary waste disposal receptacles must be provided.

### **3.06 Waste Collection and Disposal**

A plan shall be formulated for the collection and disposal of waste materials on a construction site. Such a plan must designate locations for trash and waste receptacles and establish a special collection schedule. Methods for ultimate disposal of waste must be specified and carried out in accordance with applicable local, State and Federal health and safety regulations. Special provisions must be made for the collection and disposal of liquid wastes and toxic or hazardous materials.

Receptacles and other waste collection areas must be kept neat and orderly to the extent possible. Waste should not be allowed to overflow its container or accumulate for excessively long periods of time. Trash collection points must be located where they will least likely be affected by concentrated storm water runoff.

### **3.07 Washing Areas**

Vehicles such as cement or dump trucks and other construction equipment must not be washed at locations where the runoff will flow directly into a watercourse or storm water conveyance system. Special areas must be designated for washing vehicles. These areas should be located where the wash water will spread out and evaporate or infiltrate directly into the ground, or where the runoff can be collected in a temporary holding or seepage basin. Wash areas must have gravel or rock bases to minimize mud generation.

### **3.08 Storage of Construction Materials, Chemicals, Etc.**

Sites where chemicals, cements, solvents, paints, or other potential water pollutants are to be stored. must be isolated in areas where they will not cause runoff pollution.

Toxic chemicals and materials, such as pesticides, paints, and acids must be stored in accordance with manufacturers' guidelines. Groundwater resources must be protected from leaching by placing a plastic mat, packed clay, tar paper, or other impervious materials on any areas where toxic liquids are to be opened and stored.

### **3.09 Demolition Areas**

Demolition projects usually generate large amounts of dust with significant concentrations of heavy metals and other toxic pollutants. Dust control techniques shall be used to limit the transport of the airborne pollutants. However, water or slurry used to control dust must be retained on the site and not be allowed to run directly into watercourses or storm water conveyance systems.

### **3.10 Sanitary Facilities**

All construction sites must be provided with adequate sanitary facilities for workers in accordance with applicable health regulations.

### **3.11 Pesticides**

Pesticides used during construction should be stored and used in accordance with manufacturers' guidelines and with local, State and Federal regulations. Overuse should be avoided and great care should be taken to prevent accidental spillage. Pesticide containers must never be washed in or near flowing streams or storm water conveyance systems.

### **3.12 Measurement and Payment**

Unless indicated in the PROPOSAL FORMS as a pay item, no separate payment for work performed under this Item. Include cost of work performed under this Item in Contract prices bid for items of which this work is a component.

## **4.9 LONG-TERM MANAGEMENT CONTROLS**

Long-term management control BMPs are primarily management-based practices that are designed to prevent or reduce the potential of storm water runoff contact with pollution-causing activities. These practices occasionally require constructed facilities or vegetated practices that are generally designed to reduce pollutant levels in storm water runoff. Where applicable, these practices can be and are encouraged to be used by owners of individual residences, residential developments, commercial/institutional developments, and various industries.

Various applicable non-structural controls are described in the following sections:

- 4.9.1 Household Hazardous Materials Storage/Disposal
- 4.9.2 Litter Control
- 4.9.3 Landscaping Practices
- 4.9.4 Fertilizer and Pesticide Use
- 4.9.5 Fueling Station Practices
- 4.9.6 Vehicle Equipment Washing and Steam Cleaning Practices
- 4.9.7 Liquid Materials Loading and Unloading Practices
- 4.9.8 Liquids Storage in Aboveground Tanks Practices
- 4.9.9 Container Storage of Liquids, Food Wastes, Hazardous Wastes
- 4.9.10 Spill Prevention Containment and Countermeasure Plan (SPCC)
- 4.9.11 Outdoor Storage Practices
- 4.9.12 Street Sweeping
- 4.9.13 Inlet Stenciling
- 4.9.14 Oil/Grit Separator

#### 4.9.1 Household Hazardous Materials Storage/Disposal

##### A. *Definition*

Storage and disposal of household chemicals, cleaners, polishes, solvents, paints, etc. using alternative products where feasible.

##### B. *Purpose*

Eliminate hazardous substances by using nontoxic products where feasible, and to prevent storm water runoff contact with toxic or hazardous substances through proper storage and disposal.

##### C. *Planning Considerations and Guidelines*

The following are adapted from the Galveston Bay Area Resident's Handbook.

##### *Storage:*

General storage directions for household hazardous products:

- Keep products in their original containers with original labels
- Store in a cool, dry place
- Keep products out of reach of children and pets
- Regularly check containers; place a leaky container inside another container and label accordingly
- Store incompatible chemical products separately
- Secure lids tightly

##### *Alternatives and Disposal:*

Tables 4.9.1-1 and 4.9.1-2 provide guidelines for alternatives to various common household hazardous materials, and for their proper disposal.

**Table 4.9.1-1- Alternatives to Household Hazardous Materials**

| Products   | Alternatives   |
|--|--|
| <p><b>Paints:</b></p> <ul style="list-style-type: none"> <li>• Enamel and oil based paints (<i>flammable and toxic</i>)</li> <li>• Latex or water based paints (<i>toxic</i>)</li> <li>• Stains/finishes (<i>flammable and toxic</i>)</li> </ul>   | <p>Latex or water based paint</p> <p>Limestone-based whitewash casein-based paints</p> <p>Latex paint or natural earth pigment finishes</p>  |
| <p><b>Cleaning Products:</b></p> <ul style="list-style-type: none"> <li>• Oven Cleaners (<i>corrosive and toxic</i>)</li> <li>• Toilet cleaners (<i>corrosive, toxic, irritant</i>)</li> <li>• Disinfectants (<i>corrosive and toxic</i>)</li> <li>• Drain cleaner (<i>corrosive and toxic</i>)</li> <li>• Ammonia and all purpose cleaners (<i>corrosive, toxic, irritant</i>)</li> <li>• Rug and upholstery cleaners (<i>corrosive and toxic</i>)</li> <li>• Floor and furniture polish (<i>flammable and toxic</i>)</li> <li>• Laundry bleach (<i>corrosive and toxic</i>)</li> <li>• Mothballs (<i>toxic</i>)</li> </ul> | <p>Baking soda, water, and steel wool pads</p> <p>Toilet brush and baking soda mild detergent</p> <p>1/4 to 1/2 cup borax in one gallon hot water</p> <p>Plunger or snake; flush with boiling water, 1/4 cup baking soda, and 2 ounces vinegar</p> <p>For surfaces: vinegar, salt, and water mix;<br/>For bathroom: baking soda and water<br/>Also: 1/2 cup borax, 1/2 teaspoon liquid soap, 2 teaspoon TSP (a mineral available in hardware stores) in two gallons of water</p> <p>Sprinkle baking soda on rug, then vacuum</p> <p>One part lemon juice and two parts olive or vegetable oil</p> <p>1/2 cup white vinegar, baking soda, or borax</p> <p>Cedar chips, newspapers, lavender flowers</p> |

**Table 4.9.1-1 - Alternatives to Household Hazardous Materials**

| Products                          | Alternatives  |
|-----------------------------------|---|
| • Metal polishes ( <i>toxic</i> ) | For brass and copper: lemon and salt or lemon and baking soda<br>For chrome: apple cider vinegar<br>For silver: Paste of calcium carbonate (a powder available at drug stores) and olive oil - allow to dry before polishing with a soft, white cloth |





Adapted from Galveston Bay National Estuary Program (GBNEP)



































**TABLE 4.9.1-2 - DISPOSAL CHART**

- ↘ Products that could be poured down your drain when diluted with plenty of water. (\*Always check label first: Household hazardous wastes that are not designed for disposal into the sanitary system should be properly disposed by other means).
- Materials that can be safely dumped only in a sanitary landfill
- Hazardous wastes that should be properly disposed of by a licensed hazardous waste operator.
- ▲ Recyclable materials

| Type of Waste                                       | (Drain*) | (Landfill) | (Hazardous) | (Recycle) |
|---|----------|------------|-------------|-----------|
| <b>KITCHEN:</b>                                     |          |            |             |           |
| Aerosol cans (empty)                                |          | ■          |             |           |
| Aluminum cleaners                                   | ↘        |            |             |           |
| Ammonia based cleaners                              | ↘        |            |             |           |
| Bug sprays  |          |            | ●           |           |
| Drain cleaners                                      | ↘        |            |             |           |
| Floor care products                                 |          |            | ●           |           |
| Furniture polish                                    |          |            | ●           |           |
| Metal polish with solvent                           |          |            | ●           |           |
| Window cleaner                                      | ↘        |            |             |           |
| Oven cleaner (lye base)                             |          | ■          |             |           |
|   |          |            |             |           |
| <b>BATHROOM:</b>                                    |          |            |             |           |
| Alcohol based lotions (aftershaves, perfumes, etc.) | ↘        |            |             |           |
| Bathroom cleaners                                   | ↘        |            |             |           |
| Depilatories  | ↘        |            |             |           |
| Disinfectants                                       | ↘        |            |             |           |
| Permanent lotions                                   | ↘        |            |             |           |
| Hair relaxers                                       | ↘        |            |             |           |
| Medicine (expired)                                  | ↘        |            |             |           |
| Nail polish (solidified)                            |          | ■          |             |           |
| Toilet bowl cleaner                                 | ↘        |            |             |           |

Type of Waste

 (Drain\*)  
 (Landfill)  
 (Hazardous)  
 (Recycle)

| Type of Waste                    | (Drain*)  | (Landfill)  | (Hazardous)   | (Recycle)   |
|----------------------------------|---|---|---|---|
| Tub and tile cleaners            |    |   |   |   |
| <b>GARAGE:</b>                   |   |   |   |   |
| Antifreeze                       |   |   |    |    |
| Automatic transmission fluid     |   |   |    |   |
| Auto body repair products        |   |   |   |    |
| Battery acid (or battery)        |   |   |    |    |
| Brake fluid                      |   |   |    |   |
| Car wax with solvent             |   |   |    |   |
| Diesel fuel                      |   |   |    |    |
| Fuel oil                         |   |   |    |    |
| Gasoline                         |   |   |   |   |
| Kerosene                         |   |   |  |  |
| Metal polish with solvent        |   |   |  |   |
| Motor oil                        |   |   |  |  |
| Other oils                       |   |   |  |   |
| Windshield washer solution       |  |   |   |   |
| <b>WORKSHOP:</b>                 |   |   |   |   |
| Aerosol cans (empty)             |   |  |   |   |
| Glue (solvent based)             |   |   |  |   |
| Paint brush cleaner with solvent |   |   |  |  |
| Paint brush cleaner with TSP     |  |   |   |   |
| Paint-auto                       |   |   |  |   |
| Paint-latex (dried)              |   |  |   |   |
| Paint-model                      |   |   |  |   |
| Paint-oil based                  |   |   |  |   |
| Paint stripper                   |   |   |  |   |
| Paint thinner                    |   |   |  |  |



Type of Waste

(Drain\*) (Landfill) (Hazardous) (Recycle)

| Type of Waste                                       | (Drain*) | (Landfill) | (Hazardous) | (Recycle) |
|---|----------|------------|-------------|-----------|
| Primer  |          |            | ●           |           |
| Turpentine  |          |            | ●           | ▲         |
| Varnish   |          |            | ●           |           |
| Wood preservative                                   |          |            | ●           |           |
| <b>GARDEN LANDSCAPING:</b>                          |          |            |             |           |
| Fertilizer  |          | ■          |             |           |
| Fungicide   |          |            | ●           |           |
| Herbicide   |          |            | ●           |           |
| Insecticide   |          |            | ●           |           |
| Rat poison  |          |            | ●           |           |
| Weed killer   |          |            | ●           |           |
| <b>MISCELLANEOUS:</b>                               |          |            |             |           |
| Ammunition  |          |            | ●           |           |
| Artists' paints, mediums                            |          |            | ●           |           |
| Fiberglass epoxy                                    |          |            | ●           |           |
| Gun cleaning solvents                               |          |            | ●           |           |
| Lighter fluid                                       |          |            | ●           |           |
| Batteries   |          |            | ●           |           |
| Mothballs   |          |            | ●           |           |
| Photographic chemicals (unmixed)                    |          |            | ●           |           |
| Photographic chemicals (mixed and properly diluted) | ↘        |            |             |           |
| Shoe polish   |          | ■          |             |           |
| Swimming pool acid                                  |          |            | ●           |           |

Adapted from Galveston Bay Residents' Handbook, Galveston Bay National Estuary Program (1992).

## 4.9.2 Litter Control

### A. *Definition*

Removal of litter from developed areas before runoff or wind moves these materials to receiving waters.

### B. *Purpose*

To prevent litter from becoming storm water pollution primarily as floatables in receiving waters as well as improving the aesthetics of the development and receiving waters.

### C. *Planning Considerations and Guidelines*

Major sources of litter, which should be the target of an effective litter control program are listed below

1. *Household Waste*: Routine wastes in residential areas should be securely contained in garbage can, dumpster, bags, etc. Reduction of solid wastes through recycling should be promoted.
2. *Commercial and Industrial Wastes*: Wastes should be securely contained. Frequent inspection is recommended for day-to-day cleanliness of the immediate area around storage areas. Clean up material that may be spilled during pickups. Litter containers should be conveniently placed and dumped frequently to prevent overflow.
3. *Hauling Vehicles*: Haulers of any loose material should cover the load in transit. Trucks and other hauling equipment should have sealed bottoms to prevent leaks or seepage.
4. *Loading Docks*: Loading docks can generate large volumes of litter. Docks should be swept on a daily basis.
5. *Construction Site*: Construction activities yield large amounts of solid waste. Use the practices listed in the Storm Water Management Handbook for Construction Activities, and other sources.
6. *Motorists and Pedestrians*: Vacant lots and other vegetated areas should be made secure as feasible against illegal dumping. Litter bags or baskets can be provided for use in vehicles.

There are four major components of a good litter control program.

1. **Technology:** In addition to collection equipment and personnel, a secure and safe means must be provided for proper disposal including land filling the collected litter or transferring it to users who will recycle it.
2. **Periodic Cleanup Campaigns:** To ensure continuing results, clean up campaigns should be conducted periodically.
3. **Education:** If users remain apathetic or do not comply with the program, it is doomed to failure. Information programs should be developed to educate users of the importance of the program. Signs can be posted on curbside inlets to encourage litter prevention.
4. **Monitoring and Reinforcement:** Compliance with the program guidelines is basic to the success of any litter control program. Checkups and special recognition or rewards conducted promptly in the wake of special cleanup campaigns may be particularly effective for establishing a climate of acceptance.

Sources: Florida Department of Environmental Regulation, Minnesota Pollution Control Agency, Environmental Protection Agency 1992b, and Harris County, Harris County Flood Control District and City of Houston

### 4.9.3 Landscaping Practices

#### A. *Definition*

Lawn care and landscaping practices using native species, where feasible.

#### B. *Purpose*

Reduce maintenance requirements such as fertilizer, pesticide and water by using native or low maintenance species resulting in a reduction of exports of nutrients and toxics.

#### C. *Planning Considerations and Guidelines*

If possible for new developments, plan for retention of existing vegetation and use of native species in the site design stage. This can be initiated with the construction site erosion and sediment control plan.

**Watering and Mowing Guidelines:** The most effective, cost-saving approach is to water deeply, yet not more than every five or six days. This allows lawns and plants to develop deep roots which provide greater resistance to disease, periods of drought, and freezing weather. Lawns should be watered until the soil is damp five to six inches below the surface. Generally this requires about an inch of water. An inch of water takes the average sprinkler about three hours to produce.

Morning hours before 10:00 are ideal for watering. Less evaporation occurs because the air temperature and ground are cool and sunlight is not intense. Avoid midday or late afternoon watering as up to a third of water is lost to evaporation. Avoid evening watering as lawns and plants become more disease prone when left wet at night.

For the first mowing in the spring, cut the grass fairly short. This will clear out old thatch which can prevent new growth from emerging. Don't bag clippings if possible. Leave them on the lawn to provide nutrients, use a mulching blade or mulching mower if possible.

For later mows, mow grasses so they remain relatively high (two to four inches). Taller grass helps the soil retain moisture. Lawns that are cut short require more water because they do more growing than mature grass left taller. Once a "taller" lawn is established, mowing time is reduced by about one-third.

Maintain lawn equipment in good condition. A dull mower blade will tear rather than cut grass, leaving it ragged and stressed.

Suggested plants: The following is a partial list of native or low maintenance plants. The list is illustrative and not exclusive or exhaustive. Other species may be available from the local nursery.

*Grass:* Buffalo grass is native to Texas and is the toughest, most drought resistant grass available, requiring watering every 21 to 45 days, and flourishing on natural rainfall over most of Texas. It can tolerate a wide temperature range. Buffalo does not perform well in shaded areas.

St. Augustine is a robust yet low maintenance grass widely used in Texas. St. Augustine grows quickly from runners or sod, requiring water every 5 days.

Common Bermuda is another tough grass that performs well in Texas weather and soils. Bermuda reproduces quickly and full lawns can be developed from seed over a single summer. Common Bermuda requires watering every 7 to 10 days. Temperatures below ten degrees may kill a Bermuda lawn. Like Buffalo, this grass will not perform well in shaded areas.

*Vines and Groundcover:*

Carolina Jessamine  
Coral Honeysuckle  
Trumpet Vine  
Virginia Creeper

*Perennials:*

Yellow Columbine  
Indian Blanket  
Lantana  
Purple Coneflower  
Mealy Blue Sage  
Perennial Verbena  
Texas Bluebell  
Gayfeather

*Shrubs:*

Yaupon Holly  
Cherry Laurel  
Possumhaw  
Whitebrush

*Trees:*

Texas Red Oak  
Cedar Elm  
Texas Palmetto  
Mexican Plum  
Redbud  
Bald Cypress  
Pecan  
Bur Oak

Sources: Galveston Bay National Estuary Program, Lower Colorado River Authority,  
Metropolitan Washington Council of Governments 1987

#### 4.9.4 Fertilizer and Pesticide Use

##### A. *Definition*

Proper application of fertilizers and pesticides so as to minimize the potential of storm water pollution.

##### B. *Purpose*

Fertilizer Practice: Reduce the loadings of phosphorus and nitrogen into receiving waters.

Pesticide Practice: Reduce the loadings of toxics into receiving waters.

##### C. *Planning Consideration and Guidelines*

###### *Fertilizer:*

###### General Guides:

1. *Landscaping:* Native or low maintenance landscaping of new developments will minimize the needs for fertilizer.
2. *Testing:* A soil test is recommended, especially for new lawns, to assure the use of optimum fertilizer application rates.
3. *Season for Application:* The kind of turf being maintained should determine the time for fertilizing. Cool season turf (ryegrass) should be fertilized in the fall and early winter. Warm season grasses (Bermudas, St. Augustine) should be fertilized in the spring and summer. A supplemental application of low nitrogen is also usually recommended in the fall. Once again, the rate of application should be determined according to a soil test whenever possible. When possible, use the minimal amount of fertilizer needed and apply small, frequent applications. For example, apply two pounds of fertilizer five times a year, rather than five pounds two times a year.
4. *Timing the Application:* In fertilizing lawns with chemicals, the habit of many is to "wait until the storm clouds gather" and then spread the material just ahead of the rain. The effect can be precisely the reverse of what is desired, and the worst result for water quality. However, applying fertilizer under dry weather conditions is dangerous as salt injury to the vegetation could result. Make the application when there is

already adequate soil moisture and little likelihood of immediate heavy rainfall, then sprinkle the lawn. Thus, the material will have been incorporated into the soil before the next rain can take it away.

5. *Spill Prevention:* When watering after fertilizing, do not allow water to runoff from grassed areas. Any fertilizer spilled on impervious areas should be promptly cleaned up.
6. Specific suggestions from Texas Agricultural Extension Service (TAEX) are given below for nitrogen (N), phosphorus (P2O5) and potassium (K2O) for bermuda and other perennial grasses. Existing soil nutrient levels should be obtained from a reliable soil test or from some other available soil data (e.g. soil type).

**Table 4.9.4-1- Fertilizer Suggestions**

| Minimum rates of N, P <sub>2</sub> O <sub>5</sub> and K <sub>2</sub> O for Bermuda grasses, St. Augustine, and other summer perennial grasses. |                 |                               |                  |
|--|-----------------|-------------------------------|------------------|
| Soil level*  | Pounds per acre |                               |                  |
|  | N**             | P <sub>2</sub> O <sub>5</sub> | K <sub>2</sub> O |
| VL,L   | 40              | 40                            | 40               |
| M  | 0               | 20                            | 20               |
| H,VH   | 0               | 0                             | 0                |

\*VL = very low; L = ;M = Medium; H = high; VH = very high;  
 \*\*Very few soils are medium or above in available Nitrogen.  
 Source: Texas Agricultural Extension Service (TAEX)

Soil should be aerated with a coring machine before fertilizer is applied.

*Pesticides:*

General Guides:

1. Choose vegetation that is resistant to pests.
2. Weak plants are susceptible to pests. Reduce the temporary stress to



grass caused by mowing by keeping the mower blade sharp and adjusted to a high setting.

3. Avoid using pesticides on a “prevention” schedule basis. Learn to identify insects and monitor them, detect pest problems early by inspecting regularly. Small numbers of pests are tolerable and indeed unavoidable. Often natural predators will limit pest populations.
4. If pests are present in large numbers, use mechanical, biological, or cultural controls. For example, some bugs can be dislodged merely by forcefully spraying them with a stream of water.
5. Other factors being equal, use the least toxic chemical that will accomplish the purpose. For example, safer soap used with monitoring can be highly effective for spot and small area treatment.
6. Pesticides that degrade rapidly are less apt than others to become storm water pollutants. Effective pesticides are available that have little adverse water quality effect once it reaches the ground.
7. Pesticides with low solubility in water are less apt than others to cause water pollution through drainage and runoff.
8. Some pesticide formulations have a broad spectrum of activity. These should be used when there are multiple pests instead of serial applications of highly specific materials. Even then, they should be used only when other less toxic alternatives are infeasible.
9. Follow the instructions on the pesticide label. “The label is the law.”
10. Apply pesticides only on affected areas and under windless conditions.
11. Store pesticides safely and properly dispose of empty containers.
12. Never dispose pesticides into the storm or sanitary sewer system.
13. Do not rinse equipment or used containers on impervious areas.

#### Household Alternatives to Toxic Pesticides:\*

| Product      | Alternatives                                |
|--------------|---|
| ● Fungicides | Do not over-water, keep areas clean and dry |

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>● Synthetic products<br/><i>(toxic)</i></li> </ul>  | Botanical (naturally derived) pesticides such as pyrethun, rotenone, sabadilla, nicotine  |
| <ul style="list-style-type: none"> <li>● House plant insecticide <i>(toxic)</i></li> </ul> | Mixture of bar soap and water, spray on leaves then rinse   |
| <ul style="list-style-type: none"> <li>● Flea collars and sprays <i>(toxic)</i></li> </ul> | Herbal collar/ointment (eucalyptus or rosemary) or brewer's yeast in pets' diet   |
| <ul style="list-style-type: none"> <li>● Roach and Ant killers <i>(toxic)</i></li> </ul>   | For roaches: Traps or baking soda and powdered sugar mix<br>For ants: chili powder to hinder entrance; boiling water on mounds; logic for fire ants |
| <ul style="list-style-type: none"> <li>● Rat and mouse poison <i>(toxic)</i></li> </ul>    | Live traps, remove food supply  |

#### D. *Disposal*

Follow the label! Excess pesticides should never be disposed of:

- In a manner inconsistent with the product label or labeling directions.
- So as to cause or allow open dumping of a pesticide
- So as to cause or allow open burning of a pesticide
- So as to cause or allow water dumping or ocean dumping except in accordance with established regulations

Contact the Texas Department of Agriculture for information on proper disposal of used containers for bulk pesticides.

#### E. *Integrated Pest Management (IPM)*

Integrated pest management or IPM is an approach that seeks to combine the best features of biological, chemical, cultural, and mechanical control. The objective is acceptable pest control with minimum use of chemical pesticides.

*The major components of IPM are:*

- Selection of landscape species based on soil type, function and minimum application of chemicals and fertilizers. Only EPA approved chemicals are allowed.
- Identification of potential pests

- **Monitoring and record keeping system for observation of pests**
- **Cultural maintenance practices such as irrigation, drainage, mowing, pruning, etc.**
- **Record and monitor treatments for pests and fertilizer schedule including amounts, locations, chemicals used and application rates**

**Sources: Florida Department of Environmental Regulation, Clean Texas 2000, Minnesota Pollution Control Agency, Washington State Department of Ecology, Galveston Bay National Estuary Program, Lower Colorado River Authority, Texas Dept. of Agriculture 1989, Texas Dept. of Agriculture 1990, Texas Dept of Agriculture 1991, Texas Structural Pest Control Board**

#### 4.9.5 Fueling Station Practices

##### A. *Definition*

Practices to improve storm water runoff water quality from fueling stations.

##### B. *Purpose*

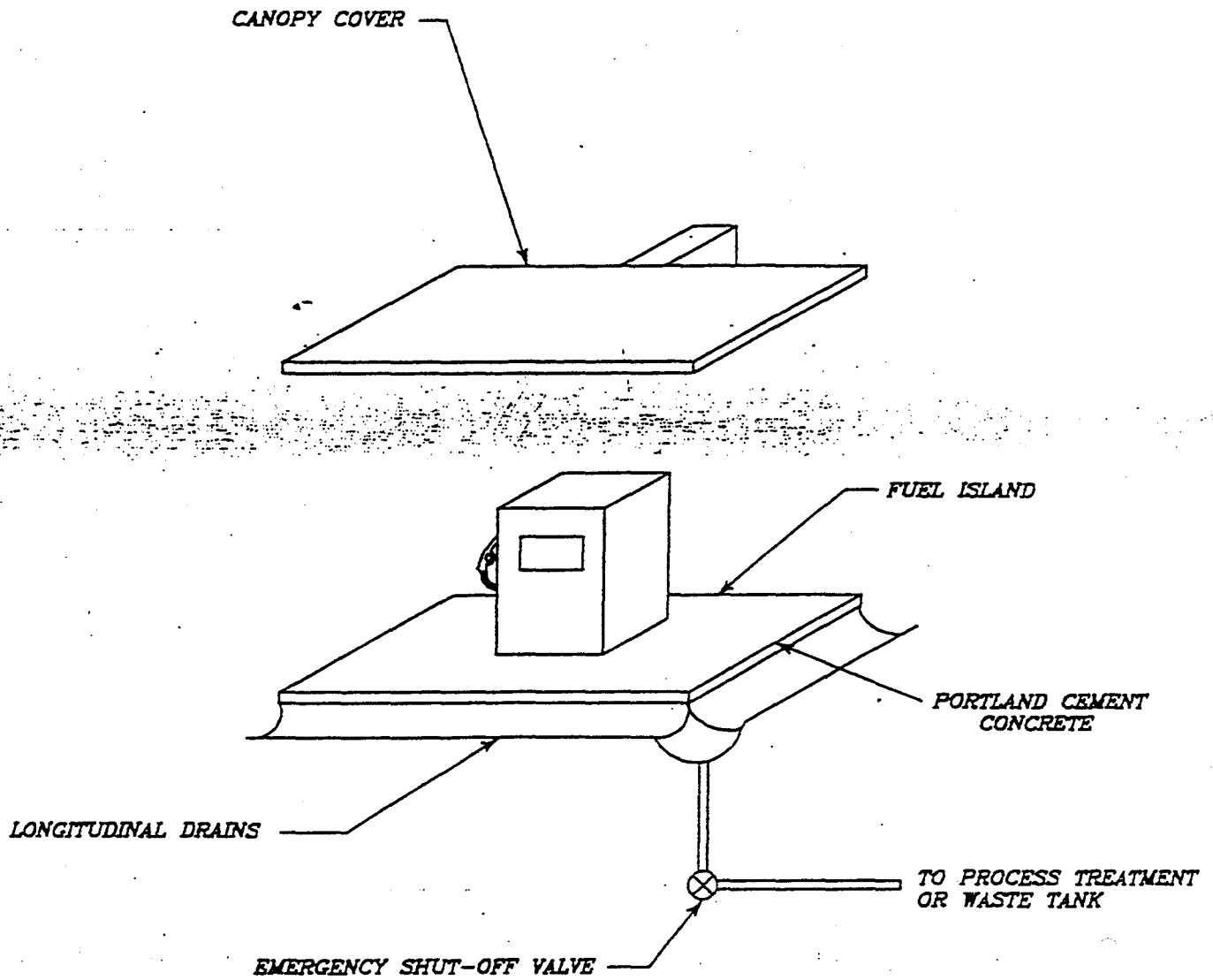
Prevent storm water runoff contact with contaminated surfaces and capture runoff that is contaminated.

##### C. *Planning Considerations and Guidelines*

The following recommendations and guidelines are consistent with EPA guidance in *Storm Water Management for Industrial Activities* (USEPA 1992c), pp. 3-2 to 3-5. The owner and/or responsible parties must also comply with applicable Federal, State or local regulations.

1. The fuel island should be covered with a canopy to prevent direct contact with precipitation.
2. Longitudinal drains should be located at the perimeter along the "downhill" side of the island. This drain should be connected to the process treatment or a waste tank. The drain must have a valve to allow shutoff in the event of a large fuel spill.
3. The island must be paved using portland cement concrete, not asphalt.
4. Spills should be prevented whenever possible. Keep suitable cleanup materials onsite to allow prompt cleanup should a spill occur.
5. Educate employees and customers by posting signs. "Topping off" gas tanks causes spillage and vents gas fumes to the air. Make sure that the automatic shutoff on the gas nozzle works.
6. Temporary fuel tanks used to fuel vehicles in the field should be placed in a bermed, impervious (using heavy mil plastic or portland cement) area. The bermed area should be large enough to contain 110 percent of the tank's total volume.
7. In industrial complexes where very large mobile equipment is used, the fuel island need not be covered. However, the pad should be designed in manner that prevents the run-on of storm water from adjacent areas. The pad should also be designed in a manner that allows the collection of all rain that falls on the pad.

Sources: Environmental Protection Agency 1992c, Washington State Department Of Ecology.



ADAPTED FROM WSDOE

FIGURE 4.9.5-1  
DETAILS OF FUEL ISLAND.

#### **4.9.6 Vehicle/Equipment Washing and Steam Cleaning Practices**

##### **A. *Definition***

Practices to improve storm water runoff water quality from equipment washing and steam cleaning activities.

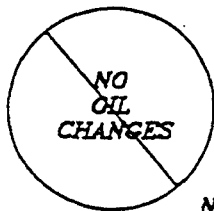
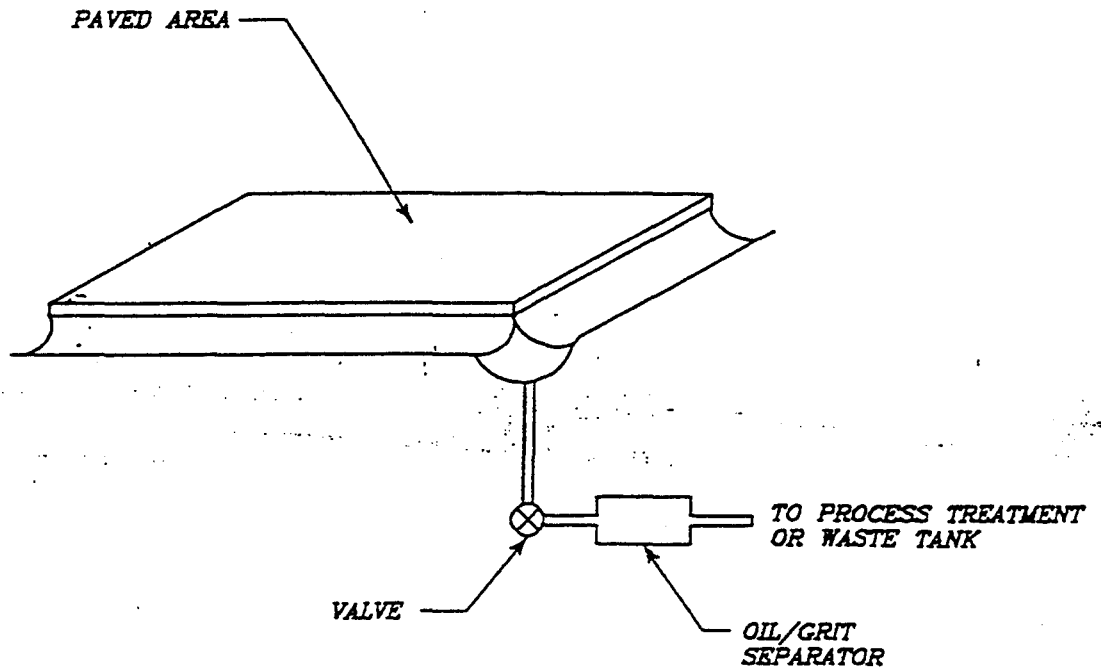
##### **B. *Purpose***

Reduce pollutants (oil and grease, suspended solids, heavy metals, organics and nutrients) in wash water and to restrict wash water entry into the storm water system.

##### **C. *Planning Considerations and Guidelines***

1. Washing of highway vehicles, equipment, and parts such as construction equipment should occur in a building or in a designated area that does not drain into the storm water system. This requirement refers to all methods of washing used, including low-pressure water, high-pressure water and steam.
2. Wash water from washing facilities should be contained and discharged to a treatment facility or be discharged into and treated by a closed-loop recycling system.
3. Uncovered wash areas must be paved, protected from storm water run-on from adjacent areas, and drain into a process treatment or a waste tank.
4. To protect against deliberate dumping, discharge should pass through a well-maintained oil-grit separator. For uncovered wash areas, the discharge pipe should have a positive control valve that is shut when washing is not occurring, to prevent storm water entry.
5. The uncovered wash area should be well marked. Included in the posting should be a statement forbidding the changing of oil in the wash area. The location of the nearest oil recycling facility should be posted.
6. Car washing should, if possible, use water only. If soap must be used, use only a mild biodegradable, low phosphate soap in the least amounts necessary. Use a bucket of water or a hose with a shutoff nozzle, rather than a constant stream of water.

Source: Environmental Protection Agency 1992c, Washington State Department of Ecology



NO OIL CHANGE SIGN

ADAPTED FROM WSDOE

FIGURE 4.9.6-1  
REQUIREMENTS FOR AN  
UNCOVERED WASH AREA

#### **4.9.7 Liquid Materials Loading and Unloading Practices**

##### **A. Definition**

Practices for outside loading and unloading of liquid materials.

##### **B. Purpose**

To prevent spills and contact between liquid materials and storm water runoff.

##### **C. Planning Considerations and Guidelines**

To the extent possible, unloading or loading of liquid materials should occur in the manufacturing building so that any spills not completely retained can be discharged to the sanitary sewer, treatment process or a waste tank in accordance with sanitary sewer or other permit requirements.

For outdoor unloading and loading of liquid materials, the following practices can reduce or prevent storm water runoff contact with liquid materials.

##### ***Guidelines for Loading and Unloading Docks***

1. Loading/unloading docks should be covered or protected, such as with overhangs or door skirts that enclose the trailer end (Figure 4.9.7-1).
2. The loading/unloading area should be designed to prevent run-on of storm water.
3. The owner should retain onsite, the necessary materials for rapid cleanup of spills.

##### ***Guidelines for Bulk Loading and Unloading***

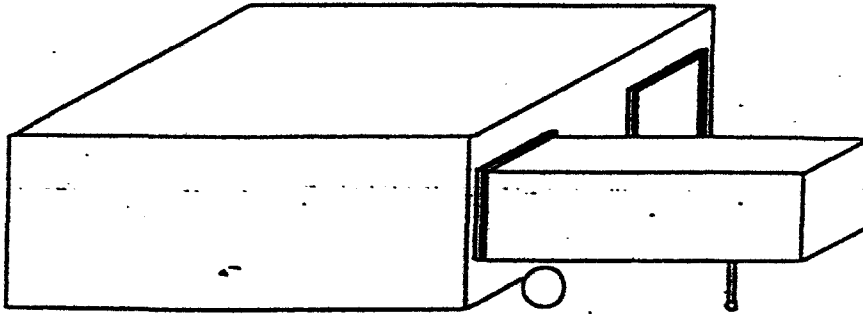
1. To minimize the risk of accidental spillage, the owner should have a written "operations plan" that describes procedures for loading and/or unloading. Employees should be trained in its execution and it should be posted or otherwise made easily available to employees.
2. As a part of the operations plan, or as a separate document, the owner should have an SPCC (see Section 4.9.10).
3. Drip plans should be placed at locations where spillage may occur such as hose connections, hose reels and filler nozzles. Drip pans should always be used when making and breaking connections.



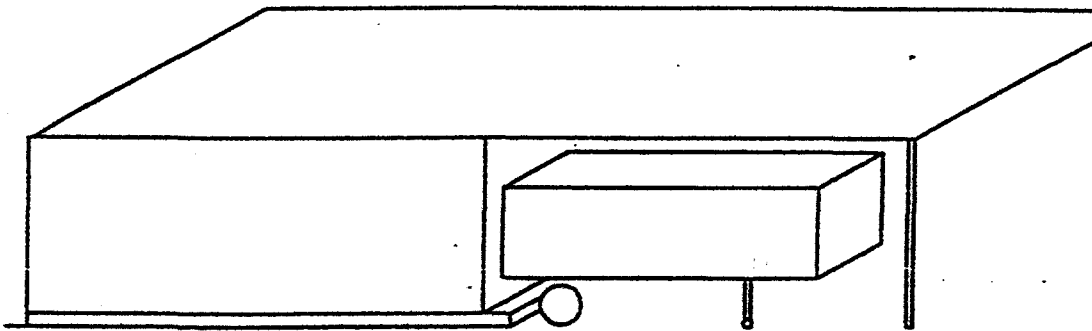
4. The area on which the transfer takes place should be paved, where practicable. If the liquid is reactive with asphalt (for example, gasoline) portland cement concrete should be used.
5. The transfer area should be designed to prevent the run-on of storm water from adjacent areas.
6. The transfer area should be designed to prevent the runoff of any spilled liquids from the area. This can be accomplished by sloping the area to a drain. The drain should be connected to a waste tank or to the process treatment system. A positive control valve should be installed to prevent accidental spillage of large amounts of liquids into the system.
7. An employee trained in spill control and cleanup should be present during loading/unloading.

Source: Washington State Department of Ecology, Environmental Protection Agency 1992c.

*A. DOCK WITH DOOR SKIRT*



*B. DOCK WITH OVERHANG*



*ADAPTED FROM WSDOE*

*FIGURE 4.9.7-1*  
*(HARMFUL) LIQUID MATERIALS LOADING*  
*AND UNLOADING PRACTICES*

#### 4.9.8 Liquids Storage in Aboveground Tank Practices

##### A. *Definition*

Practices for storing liquids in aboveground tanks.

##### B. *Purpose*

To reduce, contain, and cleanup spills from aboveground tanks, thereby reducing or preventing storm water run-off contact with spilled liquids.

##### C. *Planning Considerations and Guidelines*

Storage of oil and hazardous materials must meet specific standards set by Federal and State laws. These standards include SPCC plans, secondary containment, installation, integrity and leak detection monitoring, and emergency preparedness plans. Federal regulations set specific standards for preventing runoff and collecting runoff from hazardous waste storage, disposal, or treatment areas. These standards apply to container storage areas and other areas used to store, treat, or dispose of hazardous waste.

Storage of reactive, ignitable, or flammable liquids must comply with the fire code. The following practices are to complement, not conflict with the fire code.

##### *Guidelines for Permanent Tank Storage*

1. The tank should include an overflow protection system to minimize the risk of spillage during loading.
2. Permanently installed tanks should be surrounded by dikes. The dike should be of sufficient height to provide a volume in the diked area equal to 10 percent of the total tank storage or 110 percent of the largest tank, whichever is greater.
3. The dikes and the surface within the dike area should be sufficiently impervious to prevent loss of the stored material in the event of spillage.
4. Outlets from the tank area should have positive control to prevent uncontrolled discharge from the tank area of spilled chemicals or petroleum products.
5. The outlet should have a dead-end sump for the collection of small spills. It should be cleaned as required to minimize the potential for

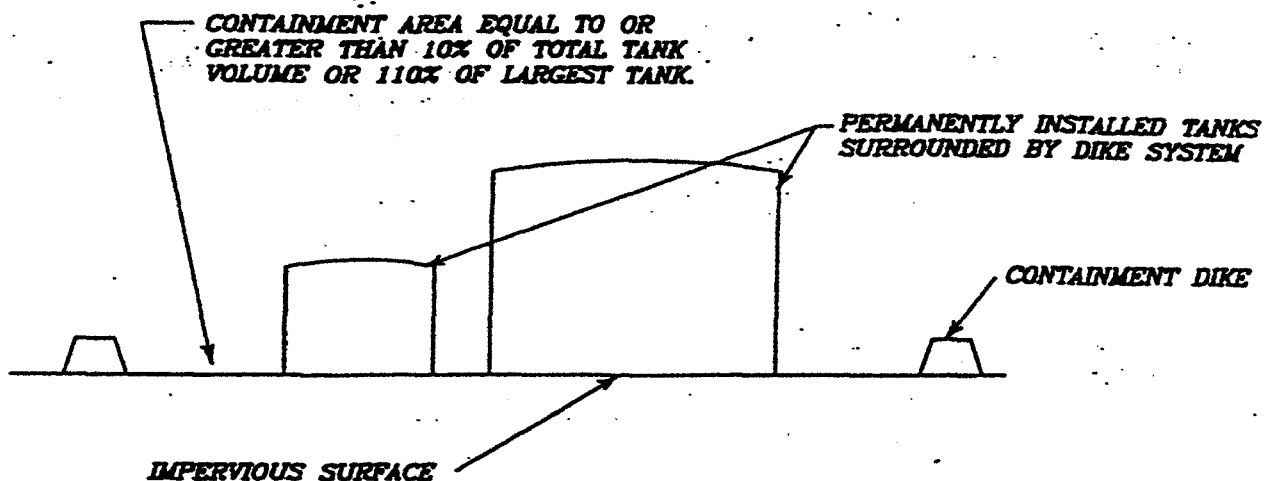
contamination of storm water.

6. During rainy periods, accumulated storm water from within the dike area should be released frequently if not exposed to the stored liquids.
7. For petroleum tank farms or other heavy use area the storm water should pass through an oil/grit separator prior to discharge to the storm sewer system.

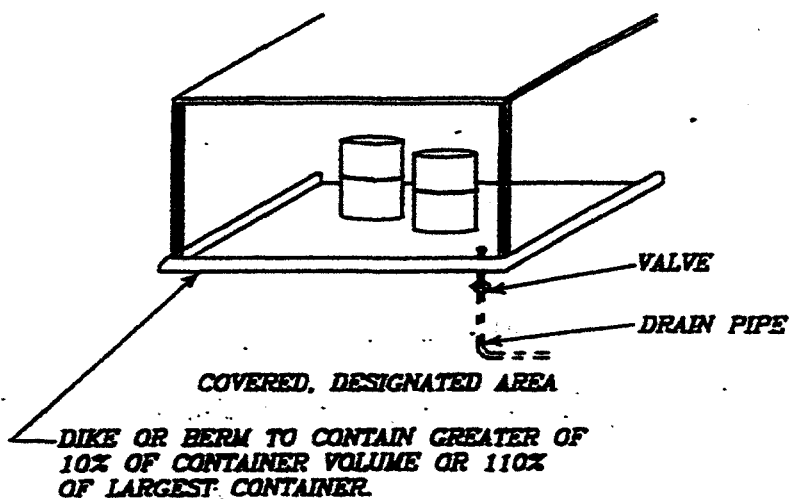
*Guidelines for Small Portable Tank Storage*

Temporary fuel tanks used to fuel vehicles in the field should be placed in a bermed, impervious (using heavy mil plastic or portland cement) area. The bermed area should be large enough to contain 110% of the tank's total volume.

Source: Environmental Protection Agency 1992c, Washington State Department of Ecology



**A. CONTAINMENT DIKING FOR LARGE STORAGE AREAS**



**B. SMALL STORAGE AREA WITH DIKE/BERM AND COVER**

ADAPTED FROM USEPA 1992C

**FIGURE 4.9.8-1**  
**(HARMFUL) LIQUIDS STORAGE IN ABOVEGROUND TANK PRACTICES**

#### **4.9.9 Container Storage of Liquids, Food Wastes, Hazardous Wastes**

##### **A. *Definition***

Practices for temporary container storage of liquids, food wastes, or hazardous wastes.

##### **B. *Purpose***

Prevent storm water runoff contact with contaminated materials and capture of storm water that is contaminated.

##### **C. *Planning Considerations and Guidelines***

These guidelines address only storm water quality aspects of container storage. The owner and/or responsible parties is ultimately responsible for compliance with RCRA and SARA. The following guidelines are the minimum necessary for storm water quality management.

Containers used to store liquid, food waste, or hazardous waste should be kept inside a building where practicable.

If outdoor storage is necessary, steps should be taken to protect and secure the storage area and containers against the potential of storm water runoff.

Reactive, ignitable, or flammable liquids are subject to further regulation under the fire code.

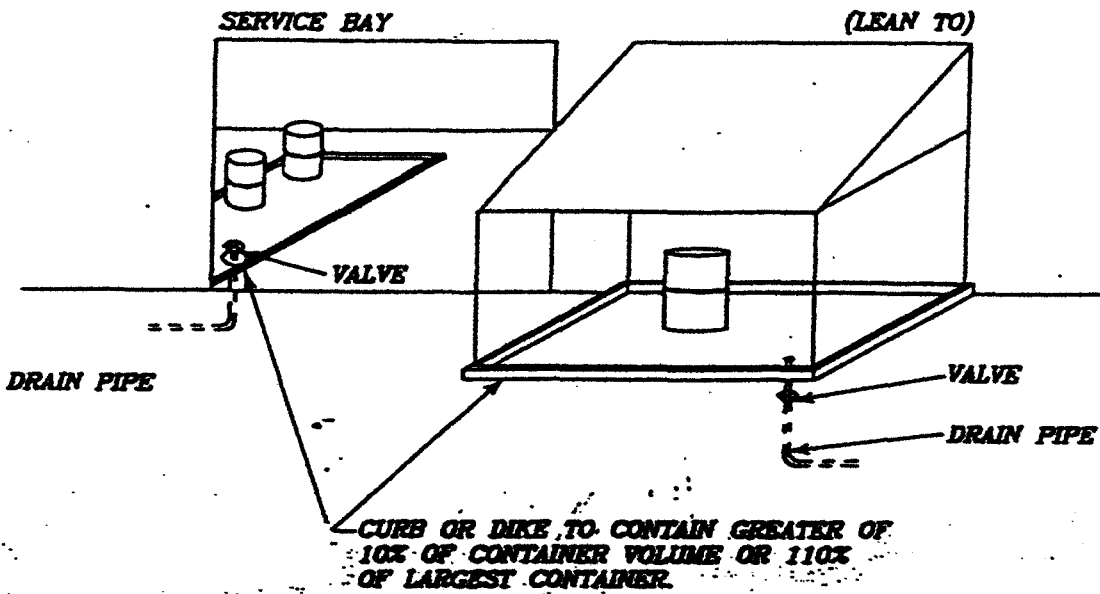
##### ***Guidelines***

1. Dumpsters used to store food waste awaiting transfer to a landfill should be placed in a lean-to structure. A lean-to is not necessary if the dumpsters have tight covers, that are sloped to drain water off the dumpster. Dumpsters should be in good condition without corrosion or leaky seams.
2. If waste container drums are stored aboveground, they should be kept in an area such as a service bay where practicable. If drums are kept outside, they should be stored in a lean-to type structure to reduce the potential of storm water runoff contact.
3. Containers with liquid wastes should be stored in a covered designated area with an impervious pad or flooring, surrounded by a curb or dike. The curb or dike should have a storage volume of 10 percent of all the

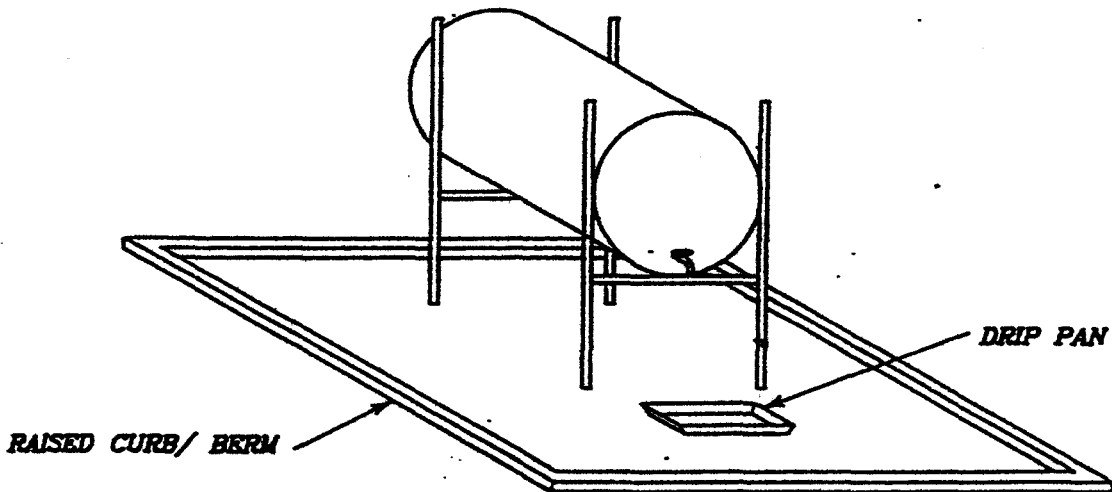
containers or 110 percent of the largest container, whichever is greater. Filets may be used to facilitate movement of roll-containers (e.g., dumpsters).

4. Drainage in the storage area should be directed to a process treatment, or well maintained dead-end sump. A dead-end sump is required for hazardous waste, used oil, or other fire code regulated materials. The drain must have positive control (locked drainage valve or plug) to prevent release of contaminated liquids.
5. A drip pan should be used for containers with valves or spigots for direct removal of liquids.
6. When loading or unloading dangerous wastes, liquid chemicals, or other wastes, an employee trained in emergency spill cleanup should be present. Spill cleanup equipment should be maintained at a readily accessible location. Any spills or leaks should be handled in accordance with all local, State or Federal regulations (See Sections 4.9.7, 4.9.10).

Source: Washington State Department of Ecology, Environmental Protection Agency 1992c.



A. COVERED AND BERMED CONTAINMENT AREA



B. MOUNTED CONTAINER WITH  
DRIP PAN

ADAPTED FROM WSDOE

FIGURE 4.9.9-1  
CONTAINER STORAGE OF LIQUIDS,  
FOOD WASTES, HAZARDOUS WASTES



#### **4.9.10 Spill Prevention, Containment and Countermeasure Plan (SPCC)**

##### **A. *Definition***

Spill prevention and response plan.

##### **B. *Purpose***

To prevent, contain, and cleanup accidental spills to reduce the potential of storm water runoff contact with spoiled material.

##### **C. *Planning Considerations and Guidelines***

Facilities used for storing, processing, or refining oil and/or oil products with 1,320 gallons of above ground storage or 42,000 gallons of underground storage are required by federal law to have a Spill Prevention Control Plan and Countermeasure (SPCC) plan. Facilities similarly used for processing or distribution of chemicals or other hazardous liquids should also provide for spill prevention and emergency spill response.

##### ***Guidelines***

1. The SPCC plan should be prepared as a document submitted for review and approval by the fire department, health department, EPA and/or other agencies with jurisdiction.
2. The plan should contain a description of the facility, owner's name and address, description of the activity, and types of chemicals or hazardous liquids used.
3. The plan should have a site plan showing storage areas, shut-off and containment features, storm drain location, and direction of slopes.
4. The plan should describe notification procedures to be used in the event of a spill, such as key personnel, and agencies. Immediate notification should be provided if the spill may reach sanitary or storm sewers, or surface water.
5. The plan should provide instructions regarding cleanup procedures.
6. The owner should have an identified spill response team with spill response cleanup responsibility.
7. Key personnel should be trained in the use of this plan. All employees should have basic knowledge of spill control procedures.

8. A summary of the plan should be written and posted at appropriate points in the building, identifying the spill cleanup coordinators, location of cleanup kits, and phone numbers of regulatory agencies to be contacted in the event of a spill.
9. Cleanup of spills should begin immediately. No emulsifier or dispersant should be used.
10. Emergency spill and cleanup kit(s) should be located at the facility site. The contents of the kit should be appropriate to the type and quantities of chemical liquids stored at the facility. The kit might contain appropriately lined drums, absorbent pads, and granular or powdered materials for neutralizing acids or alkaline liquids. Kits should be deployed in a manner that allows rapid access and use by employees. The kits should be maintained in good condition. This plan should be updated regularly. Following any spills, the SPCC plan should be evaluated for effectiveness and how it can be improved.

Source: Environmental Protection Agency 1992c, Washington State Department of Ecology

#### 4.9.11 Outdoor Storage Practices

##### *A. Definition*

Outdoor storage practices for solid materials.

##### *B. Purpose*

To prevent leaching of chemicals, suspended solids, erosion, and sedimentation.

##### *C. Planning Considerations and Guidelines*

The following types of materials are considered.

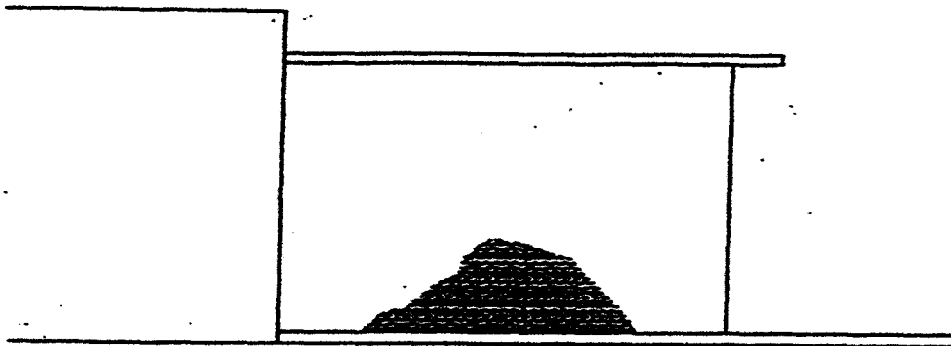
1. Raw materials such as gravel, sand, topsoil, compost, sawdust, wood chips, which are subject to leaching and transport by erosion and sedimentation.
2. Building materials, including lumber, piling, which are subject to leaching.
3. Concrete and metal products which are subject to chemical, erosion, corrosion, and leaching.

##### *Guidelines*

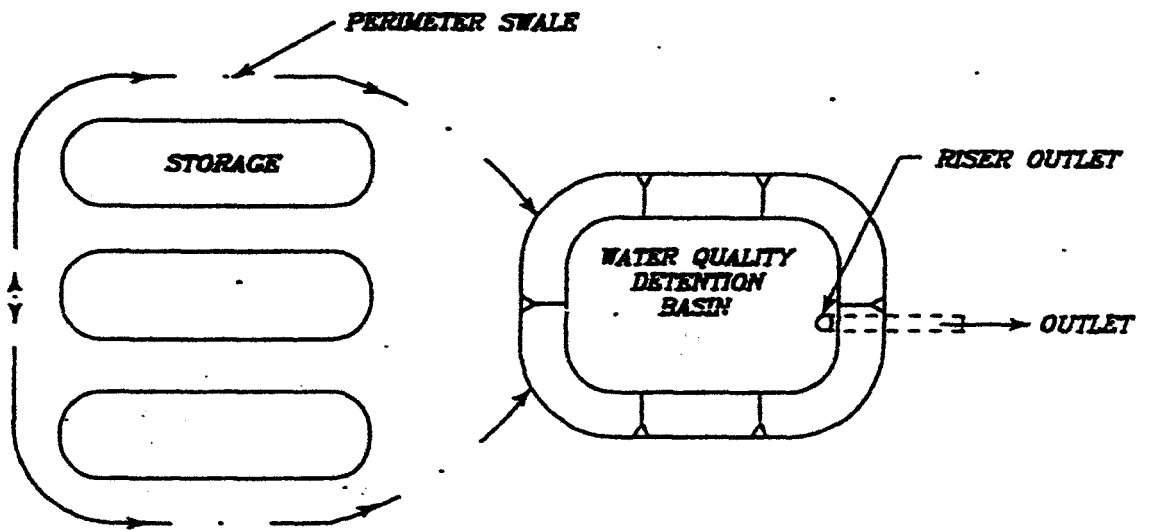
One or more of the following practices should be used, as appropriate, for the type of material and protection leaching.

1. Where practicable, store materials under a covered area on paved surface.
2. Place a tarpaulin or temporary plastic sheeting over the material.
3. Where covering outdoor storage areas is not practicable, install a drainage system that directs storm water runoff from the area to one or more of the systems presented in Sections 4.2 (detention facilities), 4.3 (infiltration filtration facilities), 4.4 (catchment facilities), or 4.5 (vegetative practices).

Source: Washington State Department of Ecology, Environmental Protection Agency 1992c



**A. COVERED STORAGE AREA FOR RAW MATERIALS**



**B. OUTDOOR STORAGE DRAINAGE SYSTEM**

**FIGURE 4.9.11-1**  
**OUTDOOR STORAGE**  
**PRACTICES**

#### 4.9.12 Street Sweeping

##### A. *Definition*

Street sweeping and/or vacuuming including surface parking.

##### B. *Purpose*

Remove solids, trash, and floatables from paved areas.

##### C. *Planning Considerations and Guidelines*

Street sweeping is traditionally done with broom sweepers for aesthetic reasons, to remove leaves, trash, coarse particles and similar wastes. Street sweeping by broom sweepers can actually worsen street runoff quality by dislodging or breaking up sediment clumps, making them easier to wash away. To counter this negative effect requires vacuum-type or regenerative (blower/vacuum) type sweeper. The effectiveness of street sweeping is affected by frequency of sweeping, and interval between storms that flush pollutants.

The following are the recommended street sweeping practices:

- Use of vacuum-type or regenerative sweepers.
- Sweeping frequency of at least bi-weekly (once every two weeks)
- At least two sweeping passes should be made
- Sweeping are disposed at an approved landfill site

For facilities such as shopping centers and similar activity centers, street-sweeping should be done during non-operating hours and dry conditions.

Sources: Lower Colorado River Authority, Environmental Protection Agency (Pitt), Minnesota Pollution Control Agency, Florida Department of Environmental Regulation.

### **4.9.13 Inlet Stenciling**

#### **A. *Definition***

Marking storm sewer inlets with a painted or inset message to discourage illicit dumping of wastes into storm sewers.

#### **B. *Purpose***

Prevent oil, grease, wash water, solids, trash and floatables from entering the storm sewer system.

#### **C. *Planning Considerations and Guidelines***

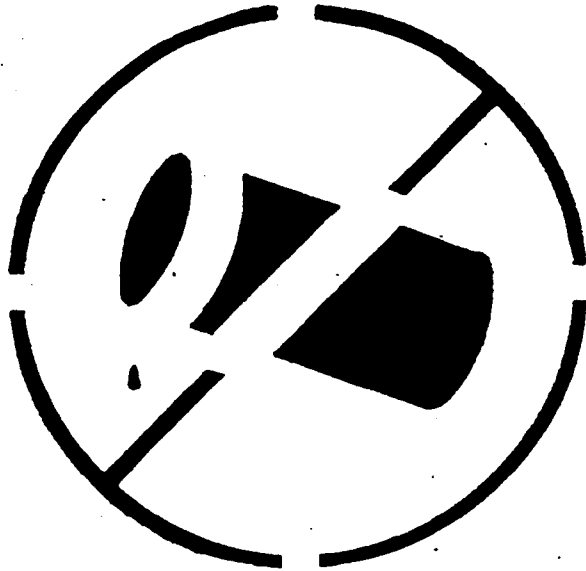
The following should be considered:

1. Permission should be obtained, and coordination should be effected with the appropriate county or city agency having jurisdiction over the storm sewer system (MS4 operator).
2. Inlet stenciling is most effective when:
  - a. The stenciling is conducted over a large area.
  - b. The stenciling is done in connection with an information campaign and/or volunteer effort to do the stenciling.
  - c. The message being stenciled is on or next to the storm sewer inlet.
  - d. The message is simple and clear.
  - e. The message is not obscured or worn away over time. This can be accomplished through either a stenciling maintenance program for painted stencils, or through a permanent method of stenciling (cast concrete blocks, cast-iron plates, inset lettering using a contrasting color, etc.).
3. Two example stencils are given in Figures 4.9.13-1 and 4.9.13-2. Figure 4.9.13-1 shows a text and graphic stencil, with a message in the form of a directive. Figure 4.9.13-2 shows a text-only stencil, with a message in the form of a request. The recommended method of stenciling in either case would be cast concrete blocks or cast-iron plates. Other methods could also be used (painting, inset lettering, etc.).

Sources: Storm Water Management Joint Task Force Technical Advisory Committee. Houston Audubon Society.

2 feet

**NO DUMPING**



**DRAINS TO BAY**

2 feet

Figure 4.9.13-1  
INLET STENCILING  
(TEXT AND GRAPHIC)

2 feet

**NO DUMPING**

**DRAINS TO BAY**

2 feet

Figure 4.9.13-2  
INLET STENCILING  
(TEXT ONLY)



#### 4.9.14 Oil/Grit Separators

##### *A. Definition*

Oil/grit separators (also called water quality inlets) are inlet devices for separating oil and sediments from water.

##### *B. Purpose*

Oil/grit separators have chambers designed to remove sediment and hydrocarbons from urban runoff. They are normally used close to the source before pollutants are conveyed to storm sewers or other BMPs such as infiltration trenches. Oil/grit separators are typically used in areas with heavy traffic or high potential for petroleum spills such as parking lots, gas stations, roads, and loading areas.

There are three general types of separators. The simple spill control (SC) separator, typically required with storm water quantity detention facilities, is effective at retaining only small spills. It will not remove diluted oil droplets spread through the storm water from oil contaminated pavement.

More sophisticated designs used for high load situations such as fueling stations, parking lots, and industrial plants include the American Petroleum Institute (API), Coalescing Plate Interceptor (CPI), and Municipality of Metropolitan Seattle designs. The API design uses a basin with baffles to improve hydraulic conditions for settling solids and floating oil. The CPI design improves coalescing and settling by directing the runoff through closely positioned parallel plates set at an angle. Removal efficiencies of the CPI separator are similar to those of the API separator, but the CPI separator uses 50% to 80% less space. However, both the API and CPI type separators have limited ability to handle storm water flows and hydrocarbon concentration which are much lower than refinery wastewater. The design used by Municipality of Metropolitan Seattle uses layer of corrugated coalescing plates oriented at 90 degrees to each other.

Performance of oil/grit separators can be enhanced using adsorbent pillows or similar material. Used adsorbent pillows must be properly disposed.

##### *C. Planning Considerations*

Oil/grit separators are restricted to small, highly impervious drainage area of two acres or less, and must connect to the storm drain pipe. Suitable locations include gas stations, convenience stores, parking lots, fast food restaurants, industrial loading facilities, and sections of industrial plants.

Separators show some capability to remove coarse sediments (trash, debris, and floatables),

and oil and grease. However, the overall removal capability is low. Oil/grit separators should only be considered as a primary BMP when properly sized and combined with a program of frequent inspection and maintenance.

While they are highly adaptable, oil/grit separators are relatively expensive to install and potentially expensive to maintain. The greatest concern is the pollutant toxicity of trapped residuals and oily waters, and their disposal. A secondary concern is the possibility of flushing of trapped residuals during longer or larger storms. A well implemented inspection and maintenance program will ameliorate these potential concerns.

#### *D. Design Criteria*

1. In order to provide at least moderate sediment, oil and grease pollutant removal, oil/grit separators should be of the API-type or CPS-type sized to capture 90-micron particles, or an equivalent.
2. The oil/grit separator should be an off-line design, capturing only the first flush of runoff. (With the Municipality of Metropolitan Seattle design, the first flush is based in part on a discharge rate for the design storm of about 1,000 gpm (2.23 cfs) for a 1,500 cf capacity oil/grit separator, giving a hydraulic residence time of 11 minutes).
3. The API-type separator will typically have three chambers. Runoff enters the first chamber, which contains a permanent pool of water. Coarse sediment is trapped in this chamber by settling. The first chamber can also trap floating trash and debris such as leaves.

Runoff then passes through an orifice to the second chamber which also contains a permanent pool of water. An inverted pipe elbow which draws water from the lower part of the pool discharges to the third chamber. By drawing water from below the surface, floating oil and grease are trapped until they are adsorbed to sediment particles which then settle out.

The third chamber discharges water to a storm sewer or other outlet. If the storm drain invert is above the floor of the structure, a permanent pool of water will be formed which will allow some additional settling. If the storm drain invert is at the floor of the oil/grit separator, the third chamber would have no value in pollutant removal.

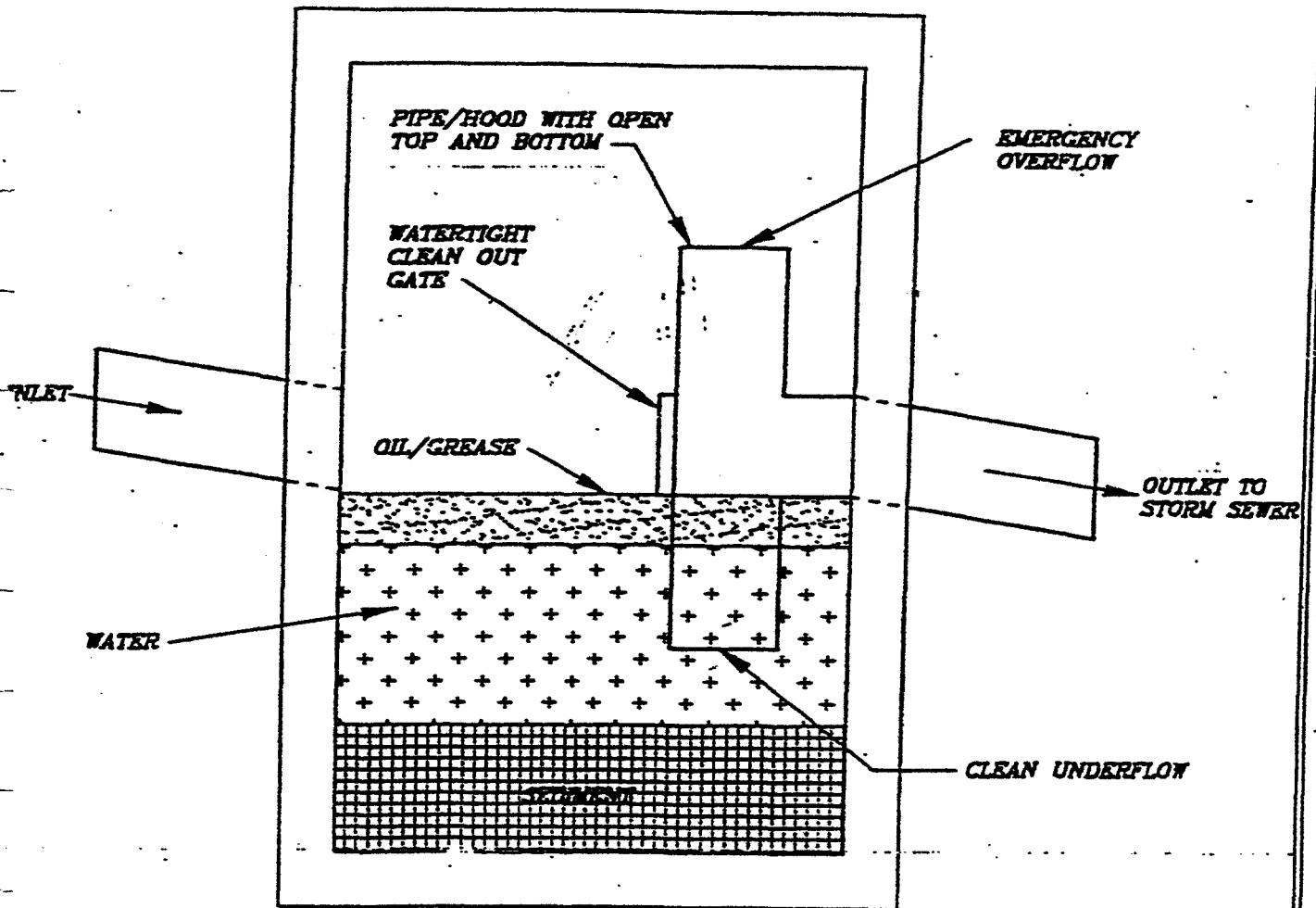
In order for the structure to provide even moderate pollutant removal benefits, at least 400 cubic feet of permanent pool storage should be provided per acre of drainage area. Also, the pool should be at least four feet deep.

4. Manholes should be provided to each chamber to provide access for cleaning. Manholes should be accessible to cleaning equipment.

*E. Maintenance*

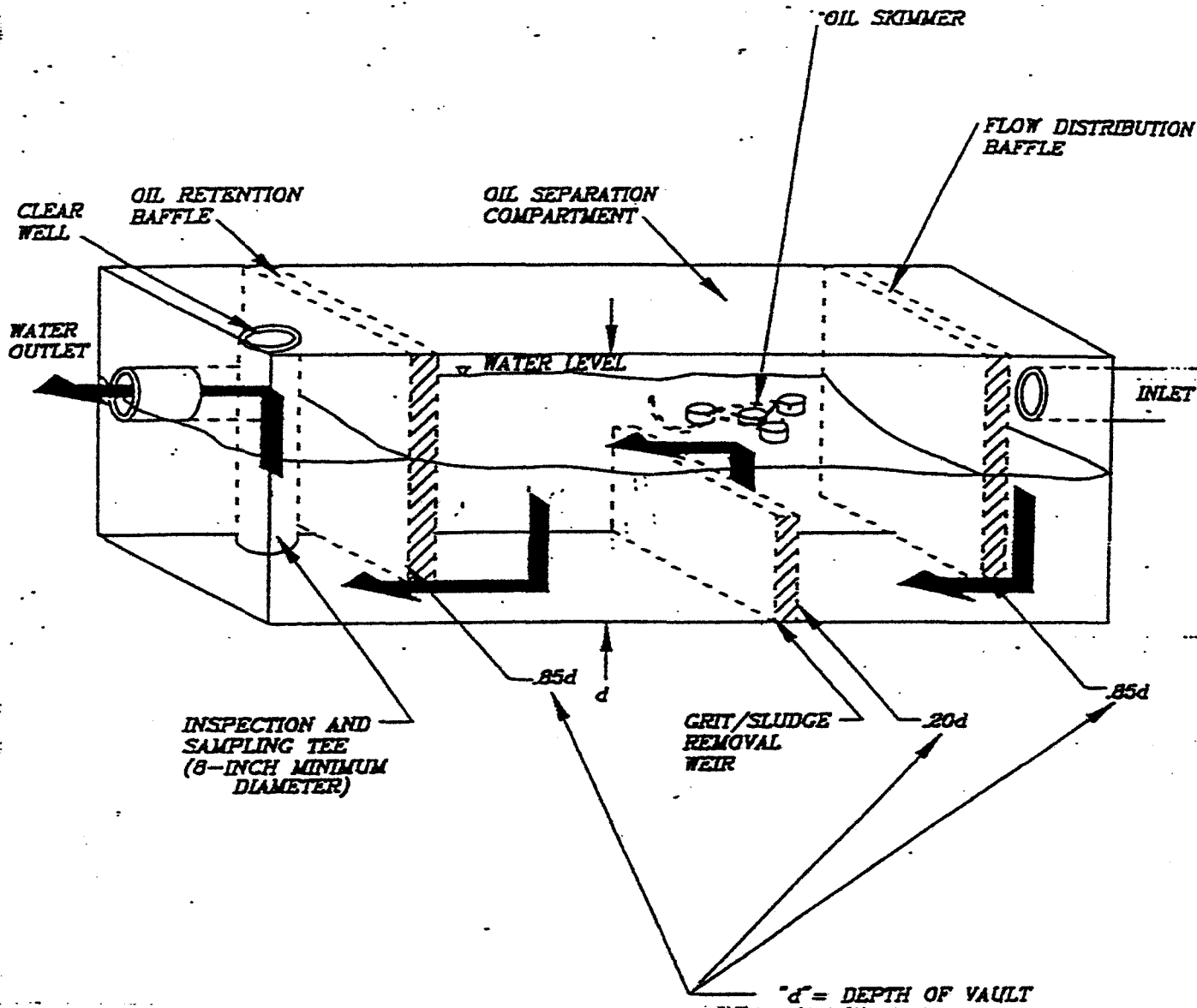
1. The facility should be checked weekly by the owner.
2. The facility should be completely inspected and cleaned out at least twice a year to maintain the pollutant removal capabilities.
3. Sediment should be cleaned out with a vacuum truck.
4. Oil adsorbent pads, if used, are to be replaced as needed but should always be replaced after cleaning.
5. The effluent shutoff valve is to be closed during cleaning operations.
6. Waste oil and residuals must be disposed in accordance with current TWC and/or Health Department requirements.
7. Any standing water removed should be replaced with clean water to prevent oil carry-over through the outlet weir or orifice.

Sources: Metropolitan Washington Council of Governments 1987,  
Metropolitan Washington Council of Governments 1992,  
Minnesota Pollution Control Agency, Washington State Dept. Of  
Ecology, personal communications with Metro staff: B. Burrow, P.  
Eng, C. Kircher



PLAN VIEW

FIGURE 4.9.14-1  
OIL/GRIT SEPARATOR  
SC - TYPE SEPARATOR



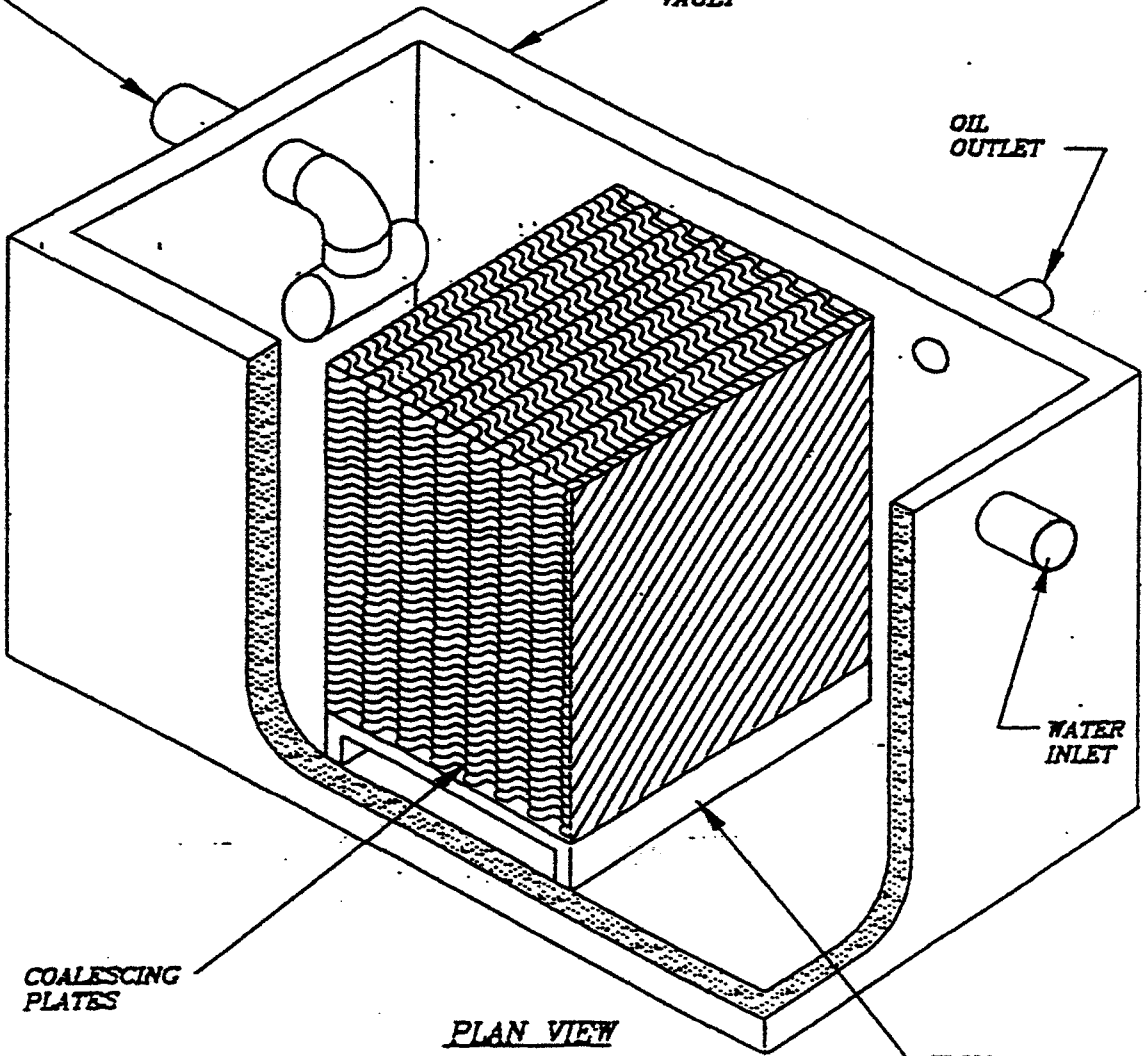
ADAPTED FROM WSDOE

FIGURE 4.9.14-2  
OIL/GRIT SEPARATOR  
API - SEPARATOR

WATER  
OUTLET

SEPARATOR  
VAULT

OIL  
OUTLET



COALESCING  
PLATES

PLAN VIEW

FLOW  
BAFFLE

WATER  
INLET

FIGURE 4.9.14-3  
OIL/GRIT SEPARATOR  
CPS - SEPARATOR

# 5.0 POLLUTION PREVENTION PLANS



City of  
Corpus  
Christi

## **5.0 STORM WATER POLLUTION PREVENTION PLANS**

This section describes general planning and implementation procedures for storm water pollution prevention plans (SW3P) for construction site activities. The SW3P requirements in Section 3.1 are a partial summary of the final EPA general permit requirements. The EPA general permits included in Section 6.0 of the handbook should be consulted to assure a thorough understanding of the requirements.

The SW3P should be fully developed and implemented upon submitting the NOI to be covered by the general permit. This requirement applies to existing construction activities submitting NOIs by October 1, 1992, as well as new activities submitting NOIs after this date.



## **5.1 CONSTRUCTION SITE STORM WATER POLLUTION PREVENTION PLAN REQUIREMENTS**

### **5.1.1 *Site Description***

- A. Nature of construction activity**
- B. Intended sequence of major construction activities**
- C. Estimates of total area of the site and of the total area of the site expected to be disturbed by construction activities**
- D. Runoff factors**
  - 1. Estimate of runoff coefficient of the site after construction activities are completed.**
  - 2. Existing data describing the soil.**
  - 3. Quality of any discharge from the site.**
- E. Site map(s)**
  - 1. Vicinity map.**
  - 2. Drainage patterns and approximate slopes anticipated after major grading activities.**
  - 3. Areas of soil disturbance.**
  - 4. Areas not to be disturbed.**
  - 5. Location of major structural and non-structural controls identified in the plan.**
  - 6. Areas where stabilization practices are expected to occur.**
  - 7. Surface water, including wetlands.**
  - 8. Locations where storm water is discharged to a surface water.**
- F. Name of receiving water(s) and aerial extent of wetlands acreage at the site.**

### **5.1.2 Controls**

#### **A. Erosion and sedimentation controls**

##### **1. Stabilization practices**

Describe interim and permanent stabilization practices, including site specific scheduling of the implementation of the practices.

##### **2. Structural practices**

Describe structural practices to direct flows from exposed soils; store flows or otherwise limit runoff and discharge of pollutants from exposed areas of the site to the degree attainable.

#### **B. Storm water management**

Describe measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed.

#### **C. Other controls**

##### **1. Waste disposal.**

2. Off-site vehicle tracking of sediment and control of dust generation.

3. Demonstrate compliance with applicable state and/or local waste disposal, sanitary sewer or septic system regulations.

**D. Provide certification that the SW3P reflects requirements applicable to protecting surface water resources in sediment and erosion site plans or site permits or storm water management site permits approved by state or local officials.**

### **5.1.3 Maintenance**

Describe procedures to assure the timely maintenance of control measures.

### **5.1.4 Inspections**

Describe inspection reporting and procedures.

### **5.1.5 *Non-Storm Water Discharges***

Identify and assure the implementation of appropriate pollution-prevention measures for the non-storm water components of the discharge.

The plan should be prepared in accordance with good engineering practice. Text and drawings should be clear, to scale, and in a readily reviewable format, using standard symbols where applicable.

## **5.2 PREPARATION OF CONSTRUCTION SITE EROSION AND SEDIMENTATION CONTROL PLAN**

### **5.2.1 *Collect Site Information***

The first phase in preparing a SW3P is to collect information on the site which will be developed. The following items are suggested.

#### **A. Site Map**

A map of existing conditions at the site should be obtained. This map will be the starting point for the site map required by the SW3P. The map should be to scale and preferably topographic. The map should indicate the existing land use for the site as well as the location of surface waters which are located on or next to the site. The scale of the map should allow important features such as drainage swales and control measures to be distinguished easily.

#### **B. Soils Information**

The type of soils present on the site should be determined based on information from the specific project site and not regional characteristics. The most accurate site soils information is obtained by performing soil borings at the site. If soil borings data are unavailable, the Soil Conservation Service's (SCS) soils map can be used to determine types of soil on the project site. The SCS soil surveys are excellent sources of information for surface soils and typically will indicate if a soil is erodible.

#### **C. Runoff Water Quality**

Data which may be available should be collected for information on the quality of the runoff from the site. In many cases, there will be little water quality data from runoff collected specifically from a site. However, sites located on, or next to, an existing industrial facility, or draining to a municipal separate storm sewer in a city or county with a population greater than 100,000, may have water quality data collected which indicates the quality of runoff from the site. It also may be possible to obtain runoff water quality information from the U.S. Geological Survey (USGS), SCS, and state and local watershed protection agencies.

#### **D. Name of Receiving Water**

The body of water which will receive runoff from the construction site should be identified. If the receiving water is a tributary, the name of the ultimate body of water should be identified, if possible. Receiving waters could include rivers, lakes, streams, creeks, runs, estuaries, bayous, wetlands, bays, etc. If the site drains into a

Municipal Separate Storm Sewer System, identify the system and indicate receiving water to which the system discharges. This information usually is available from county, State, or USGS maps.

E. Rainfall Data

It is useful to determine the amount of rainfall anticipated in the design of storm water management measures. These rainfall amounts are often referred to as design storms. Design storms typically are described in terms of the average amount of time that elapses before that amount of rain falls again and by the duration of the rain (e.g., the 3-year, 24-hour storm).

5.2.2 *Develop the Site Plan*

The next step in the process is to develop a preliminary site plan for the facility which is to be constructed. The site plan should be developed primarily upon the goals and objectives of the proposed facility. However, there are several pollution prevention principals which should be considered when developing the site plan for the project. They include the following:

- Disturb the smallest vegetated area possible.
- Keep the amount of cut and fill to a minimum.
- Avoid disturbing sensitive areas such as
  - \* Steep and/or unstable slopes
  - \* Wetlands
  - \* Areas with erodible soils.

In addition to reducing pollution in storm water runoff from the site, incorporating the objectives listed above into the site plan can reduce construction costs for grading and landscaping, can reduce the amount of sediment and storm water management controls; and can improve aesthetics of the completed project.

Once preliminary design is developed, a narrative description of the nature of the construction activity should be prepared to include in the SW3P. The narrative should provide a brief description of the project, including its purpose, the major soil-disturbing activities that will be necessary to complete the project, and the approximate length of time required to complete the project.

### 5.2.3 *Prepare the Site Map*

When the site plan is complete for the construction project, the information should be transferred onto the pollution prevention plan site map. The construction site plan and the SW3P site map can be the same map. At this phase in the SW3P development, three things can be indicated on the site map: the approximate slopes after grading, the drainage pattern, and the areas of disturbance.

#### A. Approximate Slopes after Grading

Revised grades should be indicated on the same topographic map as existing grades. Separate symbols should be used for existing and proposed contours. Topographic maps indicating existing and proposed contours for a site will facilitate a determination of the areas which will be disturbed for regrading. If it is not practical to prepare a topographic map of the site, then the approximate location, direction, and steepness of slopes should be indicated on the site map.

#### B. Areas of Soil Disturbance

After indicating the proposed grading on the site map, the next phase is to indicate the entire area which will be disturbed by the construction activity. This may be represented by a limit of disturbance line on the site plan. The limit of disturbance should include the areas of activities such as clearing, excavation, backfill, stock piling, paving, etc. The limit of disturbance should be a closed boundary line around the entire disturbed area. There can be islands of undisturbed area inside the limit of disturbance. If all of the area within the project site is to be disturbed, this should be indicated with a note on the site map.

#### C. Drainage Patterns

In addition to the slopes anticipated after grading, and the areas of soil disturbance, the SW3P site map also should indicate drainage patterns of the site after major grading activities.

It is suggested that drainage patterns be shown on a topographic map of the site. Indicate drainage basin boundaries and drainage channels or pipes. A drainage basin for the purposes of the SW3P is an area of the site in which water, sediments, and dissolved materials drain to a common outlet from the site. There can be one or more drainage basins on a site. Drainage boundaries can be changed by grading and structural controls. The site map should indicate the drainage boundaries after major grading has occurred and structural controls have been installed. If the site plan does not include contour lines, arrows should be used to indicate the direction of water flow. Show the location of sheet flow and of concentrated flow in channels and

swales. Proposed storm sewer systems should be indicated on the SW3P site map with the pipe diameter and slope.

The SW3P site map is not complete until the locations of major control structures and the areas anticipated to be stabilized are shown. These are discussed in Section 3.2.7.

#### 5.2.4 *Measure the Site Area*

The SW3P should include estimates of the total site area and the area which will be disturbed. A site map which clearly indicates the site boundary and the limits of disturbance can be used to make this determination.

The total area of the site should include the area inside the project's property boundaries, easements, and rights-of-way. The total area includes both the disturbed and undisturbed areas. The area to be disturbed should be based on the area(s) enclosed by the limits of disturbance drawn on the site map.

#### 5.2.5 *Determine the Drainage Areas*

The size of the drainage basin for each point where concentrated flow will leave the site should be determined. This information does not need to be included in the SW3P but will be useful to select and design the erosion and sedimentation controls and the storm water management measures for the project.

For the design of erosion and sedimentation control measures, it is necessary to know the area or the portion of each drainage basin which will be disturbed. For the design of storm water management controls, and for the calculation of the runoff coefficient, it is necessary to determine the total area of each drainage basin and the areas of each land use which will occur in the basin after the construction is complete.

#### 5.2.6 *Calculate the Runoff Coefficient*

The runoff coefficient ( $c$ ) is the partial amount of the total rainfall which will become runoff. The less rainfall that infiltrates into the ground, evaporates, or is otherwise absorbed into the site, the higher the  $c$  value.

### 5.2.7 *Select Erosion and Sedimentation Controls*

Erosion and sedimentation controls are implemented during the construction period to prevent and/or control the loss of soil from the construction site into the receiving waters.

Selection of the most appropriate erosion and sedimentation controls for a construction project depends on a number of factors, but is most dependent on site conditions. Information collected in the site evaluation, design, and assessment steps is used to select the controls. There is a detailed description of the more commonly used erosion and sedimentation control measures in Section 4.0 BEST MANAGEMENT PRACTICES.

Section 4.0 identifies where these practices apply and provides minimum standards and criteria for designing and using the best management practices. Practices other than those given may be proposed, subject to the review and approval of the permitting agency.

A. **Stabilization practices** assure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized.

- Seeding
- Mulching
- Sod stabilization
- Vegetative buffer strips
- Protection of trees

B. **Structural practices** are used to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site.

1. *Erosion control*

Flow diversion protects disturbed areas from external flow. Appropriate practices include:

- *Temporary diversion dikes and channels* during construction.
- *Downspouts and discharge* outlets extended to stabilized inlets or detention facilities.



## 2. *Sediment Control*

Sediment trapping in overland and channelized flow removes sediment from discharge. Sediment controls operate by filtration or settling and should not be placed in natural channels or drainways. Appropriate practices include:

- *Filter fabric fences and barriers*
- *Straw bale fences*
- *Sediment traps*
- *Sediment basins*
- *Vegetative buffer strips*
- *Sand bags*

Pumping of water to permit underground construction transports sediments through high-velocity discharge. Dewatering settling basins provide reduced velocities and allow adequate settling time. Appropriate practices include:

- *Sediment tanks*
- *Sediment sump pits*

Vehicles departing construction sites transport sediments offsite on equipment tires and treads. Appropriate practices include:

- *Temporary stabilized access roads and parking areas* to reduce equipment/soil contact.
- *Hosing tires and treads* at designated wash areas before exiting a site. Collect discharge into sedimentation basins.
- *Street sweeping and vacuuming* to remove remaining soil tracked offsite.

## 3. *Runoff Conveyance*

Storm water conveyances can be improved or provided to reduce channel erosion during construction activities. Appropriate practices include:

- *Permanent drainways*

- *Sodding*
- *Grassed waterways*
- *Reinforced grassed waterways*
- *Ripraps*
- *Lined waterways*

Inlets and other existing drainage facilities should be temporarily reinforced or augmented to handle concentrated discharges and increased silt. Appropriate practices include:

- *Inlet protection barriers*
- *Inlet insert baskets*

#### 5.2.8 Select Storm Water Management Controls

Storm water management controls are constructed to prevent or control pollution of storm water after the construction is complete.

Selection of these controls is beyond the scope of this handbook. However, the storm water management controls are required under provisions of the final general permits. For this reason, Section 4.0 provides information on the following BMPs for storm water management:

- *Extended detention ponds*
- *Wet ponds*
- *Grassed swales*

As with erosion and sedimentation controls, the selection of the most appropriate storm water management measures is dependent upon a number of factors, but is most dependent on site conditions. Information collected in the site evaluation, design, and assessment steps is used to select controls.

#### 5.2.9 Select Other Controls

There are several other controls which should be addressed in the SW3P. These include

proper waste disposal, control of offsite vehicle tracking, compliance with applicable state and local waste disposal, sanitary sewer, or septic system regulations, and control of allowable non-storm discharges.

The following source controls are addressed in Section 4.8 of this handbook.

1. *General construction management*

- Topsoiling
- Protection of trees
- Dust control
- Vehicle washing areas
- Demolition areas

2. *Non-erosion controls*

- Equipment maintenance and repairs
- Waste collection and disposal
- Storage of construction materials and chemicals
- Sanitary facilities
- Pesticides

***5.2.10 Indicate Location of Controls on the Site Map***

Pollution controls should be indicated on the site map once they have been selected. Provide the location of each measure used for erosion and sedimentation control, storm water management, and other controls. It may not be feasible to indicate some controls on the site map. For example, it would be very difficult to indicate appropriate waste control or the exact location of temporary seeding and mulching on the site map.

Once controls are indicated on the site map, it may be necessary to revise the limit of disturbance and/or the drainage boundaries. The limit of disturbance should be indicated outside of any perimeter control because the construction of most controls does require some soil disturbance. Drainage boundaries often are impacted by diversion structures. This is because the intent of a diversion device typically is to divert runoff from one drainage area

to another. The drainage patterns on the site map should reflect the drainage patterns on the site while the controls are in place.

After the location of the controls are indicated, the site map is ready to be included in the SW3P.

#### ***5.2.11 Prepare the Inspection and Maintenance Plan***

Once the SWPPP is put into effect, the discharger will be responsible for inspecting and maintaining the controls that have been proposed to prevent and control pollution of storm water on the construction site. Qualified personnel should inspect disturbed areas of the facility at least once every seven (7) calendar days and within 24 hours of the end of a storm that is 0.5 inch or greater. Where sites have received final stabilization, such inspections should be conducted at least once every month.

It is important to plan for the inspection and maintenance of vegetation, erosion, and sedimentation control measures and other protective measures which are a part of the plan. These controls must be in good working condition until the area they protect has been completely stabilized or until the construction project is complete.

It is recommended that an inspection and maintenance checklist which addresses each of the control measures proposed for the project be developed. A blank checklist for the project could be included in prior to starting construction. The inspector could complete a copy of the blank checklist during each inspection. The inspection and maintenance checklist should be prepared based on requirements for each individual measure. For example, sediment should be removed from a silt trap when it has filled to one-third of its depth. Consult Section 4.0 for maintenance requirements for control measures. Consult the general permit requirements for specific inspection reporting and other requirements.

#### ***5.2.12 Prepare Plan To Address Non-Storm Water Discharges***

Except for flows from fire-fighting activities, sources of non-storm water listed in Part III.A.1 of the general permit that are combined with storm water discharges, must be appropriate pollution prevention measures for the non-storm water components of the discharge.

#### ***5.2.13 Coordinate Controls with Construction Activity***

Once the planning of construction activities has been completed and the controls have been selected, a list should be made of each type of control to be used on the site. This list should include a description of each control, its purpose, and why it is appropriate for this location.

Prepare a sequence of major activities. List all tasks required for construction of control measures, earth disturbing construction activities, and maintenance activities for control measures in the order in which they occur. Specific timing requirements for installation and maintenance of control measures are dependent upon the measures and/or the controls. There are, however, several general principles to be followed when developing the sequence of major activities. These principles include the following:

- Downstream and sideslope perimeter controls should be installed before the land-disturbing activity occurs.
- Do not disturb an area until it is necessary for construction to proceed.
- Construction of infiltration measures should be delayed until the end of the construction project when upstream drainage areas have been stabilized.
- Do not remove temporary perimeter controls until after all upstream areas are stabilized.

#### *5.2.14 Obtain Local Approval*

Construction operations will be subjected to local storm water management requirements in addition to any requirements in the site's NPDES storm water permit. The SW3P should include a certification that reflects requirements applicable to protecting surface water resources in erosion and sedimentation control site plans or site permits, storm water management site plans or site permits approved by local officials.

#### *5.2.15 Certification*

The SW3P should be reviewed by the operators (both owners and contractors are defined as operators by EPA) so that they understand what is being proposed. The SW3P should be included with, or referenced by, the project bid documents so that the contractor understands what is being proposed. A preconstruction conference with the owner and the contractor is recommended to coordinate implementation of the SW3P.

In order to assure that the site SW3P is developed completely and implemented adequately, the general permits require that an authorized representative of the owner and contractors/subcontractors must sign the required certifications. In signing the certifications, the authorized representative certifies that the information is true and assumes liability for the plan and permit requirements.

Official signatures provide a basis for an enforcement action to be taken against the person signing the document. The permittee should be aware that Section 309 of the Clean Water

Act provides for significant penalties where information is false or the permittee violates its permit requirements either knowingly or negligently. Specific signatory requirements for the SW3P and other reports are listed in the general permit requirements issued by the EPA.

### **5.3 NOTICE OF INTENT**

If a project is to be covered under a General Permit for Storm Water Discharges Associated With Industrial Activity from Construction Activities, an NOI must be submitted at least two (2) days prior to commencement of construction (postmarked). However, it should be noted that the NOI cannot be submitted until the SW3P has been prepared. The sample SW3Ps, included in Section 6.0 Regulations, include NOIs for illustrative purposes.

The NOI must be submitted by the operator of the project site. The operator is the legal entity with day-to-day operational control at the time of the NOI submittal. When there are multiple operators at the time of the initial NOI submittal, a NOI must be submitted for each operator. Multiple NOIs must be attached and submitted in the same envelope. As mentioned above, an owner and a contractor may both be operators of a construction site at the same time. In that case, each should submit a NOI. A new NOI must be submitted if a new operator is selected after submittal of the original NOI(s).

## **5.4 PLAN LOCATION AND PUBLIC ACCESS**

### **5.4.1 *Submittal Requirements/Plan Location***

NPDES storm water permits for construction sites do not require that the SW3P be submitted for review. Upon implementation of local regulations requiring review of the SW3P, applicants may need to submit their plan to local erosion and sedimentation or storm water management agencies, or to a municipal operator where the site discharges through an NPDES storm water-permitted municipal separate storm sewer system.

The permittee is required to keep the SW3P at the construction site from the date of project initiation to the date of final stabilization. The permittee also is required to retain copies of the SW3P and all reports required by the permit for a period of at least three years from the date the site is finally stabilized.

### **5.4.2 *Public Access***

Despite the fact that the SW3P and associated reports are not necessarily required to be submitted with the NOI, these documents are considered to be reported according to Section 308(b) of the Clean Water Act, and therefore are available to the public. The permittee; however, may claim certain parts of its SW3P as confidential according to regulations at 40 CFR Part 2. These regulations state that records which contain trade secrets may be claimed as confidential.



## **5.5 IMPLEMENTATION OF THE STORM WATER MANAGEMENT POLLUTION PREVENTION PLAN**

### **5.5.1 *Implement Controls***

The first step is to construct or perform the controls which were selected for the SW3P. The controls should be constructed or applied in general accordance with the standard specifications included in Section 4.0. The controls should be constructed, and stabilization measures applied, in the order indicated in the sequence of major activities.

### **5.5.2 *Inspect and Maintain Controls***

Inspection and maintenance of the control measures are as important to pollution prevention as are proper planning and design. Inspection should be performed at the frequency specified in the SW3P. The inspector should note in an inspection report any damage or deficiencies in the control measures. The operator should correct damage or deficiencies as soon as practicable after the inspection, and any changes that may be required to correct deficiencies in the SW3P should be made as soon as practicable after the inspection.

### **5.5.3 *Changing the Plan***

In order for a construction activity to be in full compliance with its NPDES storm water permit, and in order for the SW3P to be effective, the plan must be consistent with permit conditions, and the plan must reflect site features and operations accurately. Should either of these conditions not be satisfied by the plan, the plan should be changed.

The SW3P is developed based on site-specific features and functions. Where there are changes in design, construction, operation, or maintenance, and those changes will have a significant effect on the potential for discharging pollutants in storm water at a site, the SW3P should be modified by the permittee to reflect the changes and new conditions. For example, a change in the construction schedule or design specifications should be incorporated in the SW3P. Another situation in which the plan should be modified is where the plan proves to be ineffective in controlling pollutants. This determination could be made based on results of regular visual inspections.

### **5.5.4 *Releases of Reportable Quantities***

Because construction activities may involve certain hazardous substances over the course of the project, spills of these substances in amounts that equal or exceed reportable quantity (RQ) levels are a possibility. Spill events can be avoided if the site's SW3P addresses this

possibility. The SW3P may need to include a description of potential spill areas in your site description and specific procedures to respond to and clean up a spill.

## **5.6 NOTICE OF TERMINATION**

The Notice of Termination (NOT) typically is the final task of an NPDES storm water permit for a construction activity. The (NOT) communicates to the permit enforcement agency that the construction activity has ceased, and the area is stabilized. It should be noted that submittal of an (NOT) is optional and not a general permit requirement.

## **5.7 PERFORMANCE REQUIREMENT**

The regulatory agency may require a performance bond or similar guarantee to assure implementation of erosion and sedimentation controls in accordance with the approved plan. If required, the performance guarantee should be released only upon satisfactory final inspection.

# 6.0 REGULATIONS



City of  
Corpus  
Christi

## **6.0 REGULATIONS**

This section includes NPDES permit regulation for storm water including instructions for Notice Of Intent and Notice Of Termination forms.

### **6.1 EPA STORM WATER NPDES PERMIT REGULATION**

- (1) 40 CFR 122.21 Application for an NPDES Permit
  - (a) Duty to apply
  - (b) Who applies
  - (c) Time to apply
- (2) 40 CFR 122.26 Storm Water Discharges  
[55 FR 48062, November 16, 1990, as amended at 56 FR 12100, March 21, 1991]
- (3) Federal register Vol. 57 No.175 September 9, 1992 final NPDES general permits for storm water discharges from construction sites.

**Subpart B—Permit Application and Special NPDES Program Requirements**

**§ 122.21 Application for a permit (applicable to State programs, see § 122.25).**

(a) *Duty to apply.* Any person who discharges or proposes to discharge pollutants or who owns or operates a "sludge-only facility" and who does not have an effective permit, except persons covered by general permits under § 122.28, excluded under § 122.3, or a user of a privately owned treatment works unless the Director requires otherwise under § 122.44(m), shall submit a complete application (which shall include a BMP program if necessary under 40 CFR 125.102) to the Director in accordance with this section and part 124.

(b) *Who applies?* When a facility or activity is owned by one person but is operated by another person, it is the operator's duty to obtain a permit.

(c) *Time to apply.* (1) Any person proposing a new discharge, shall submit an application at least 180 days before the date on which the discharge is to commence, unless permission for a later date has been granted by the Director. Facilities proposing a new discharge of storm water associated with industrial activity shall submit an application 180 days before that facility commences industrial activity which may result in a discharge of storm water associated with that industrial activity. Facilities described under § 122.26(b)(14)(x) shall submit applications at least 90 days before the date on which construction is to commence. Different submittal dates may be required under the terms of applicable general permits. Persons proposing a new discharge are encouraged to submit their applications well in advance of the 90 or 180 day requirements to avoid delay. See also paragraph (k) of this section and § 122.26 (c)(1)(i)(C) and (c)(1)(ii).

**§ 122.24 Storm water discharges (applicable to State NPDES programs, see § 122.25).**

(a) *Permit requirement.* (1) Prior to October 1, 1992, discharges composed entirely of storm water shall not be required to obtain a NPDES permit except:

(i) A discharge with respect to which a permit has been issued prior to February 4, 1987;

(ii) A discharge associated with industrial activity (see § 122.26(a)(4));

(iii) A discharge from a large municipal separate storm sewer system;

(iv) A discharge from a medium municipal separate storm sewer system;

(v) A discharge which the Director, or in States with approved NPDES programs, either the Director or the EPA Regional Administrator, determines to contribute to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States. This designation may include a discharge from any conveyance or system of conveyances used for collecting and conveying storm water runoff or a system of discharges from municipal separate storm sewers, except for those discharges from conveyances which do not require a permit under paragraph (a)(2) of this section or agricultural storm water runoff which is exempted from the definition of point source at § 122.2.

The Director may designate discharges from municipal separate storm sewers on a system-wide or jurisdiction-wide basis. In making this

determination the Director may consider the following factors:

(A) The location of the discharge with respect to waters of the United States as defined at 40 CFR 122.2.

(B) The size of the discharge;

(C) The quantity and nature of the pollutants discharged to waters of the United States; and

(D) Other relevant factors.

(2) The Director may not require a permit for discharges of storm water runoff from mining operations or oil and gas exploration, production, processing or treatment operations or transmission facilities, composed entirely of flows which are from conveyances or systems of conveyances (including but not limited to pipes, conduits, ditches, and channels) used for collecting and conveying precipitation runoff and which are not contaminated by contact with or that has not come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products located on the site of such operations.

(3) *Large and medium municipal separate storm sewer systems.* (i) Permits must be obtained for all discharges from large and medium municipal separate storm sewer systems.

(ii) The Director may either issue one system-wide permit covering all discharges from municipal separate storm sewers within a large or medium municipal storm sewer system or issue distinct permits for appropriate categories of discharges within a large or medium municipal separate storm sewer system including, but not limited to: all discharges owned or operated by the same municipality; located within the same jurisdiction; all discharges within a system that discharge to the same watershed; discharges within a system that are similar in nature; or for individual discharges from municipal separate storm sewers within the system.

(iii) The operator of a discharge from a municipal separate storm sewer which is part of a large or medium municipal separate storm sewer system must either:

(A) Participate in a permit application (to be a permittee or a co-permittee) with one or more other operators

of discharges from the large or medium municipal storm sewer system which covers all, or a portion of all, discharges from the municipal separate storm sewer system;

(B) Submit a distinct permit application which only covers discharges from the municipal separate storm sewers for which the operator is responsible; or

(C) A regional authority may be responsible for submitting a permit application under the following guidelines:

(1) The regional authority together with co-applicants shall have authority over a storm water management program that is in existence, or shall be in existence at the time part 1 of the application is due;

(2) The permit applicant or co-applicants shall establish their ability to make a timely submission of part 1 and part 2 of the municipal application;

(3) Each of the operators of municipal separate storm sewers within the systems described in paragraphs (b)(4) (i), (ii), and (iii) or (b)(7) (i), (ii), and (iii) of this section, that are under the purview of the designated regional authority, shall comply with the application requirements of paragraph (d) of this section.

(iv) One permit application may be submitted for all or a portion of all municipal separate storm sewers within adjacent or interconnected large or medium municipal separate storm sewer systems. The Director may issue one system-wide permit covering all, or a portion of all municipal separate storm sewers in adjacent or interconnected large or medium municipal separate storm sewer systems.

(v) Permits for all or a portion of all discharges from large or medium municipal separate storm sewer systems that are issued on a system-wide, jurisdiction-wide, watershed or other basis may specify different conditions relating to different discharges covered by the permit, including different management programs for different drainage areas which contribute storm water to the system.

(vi) Co-permittees need only comply with permit conditions relating to discharges from the municipal separate

storm sewers for which they are operators.

(4) *Discharges through large and medium municipal separate storm sewer systems.* In addition to meeting the requirements of paragraph (c) of this section, an operator of a storm water discharge associated with industrial activity which discharges through a large or medium municipal separate storm sewer system shall submit, to the operator of the municipal separate storm sewer system receiving the discharge no later than May 15, 1991, or 180 days prior to commencing such discharge: the name of the facility; a contact person and phone number; the location of the discharge; a description, including Standard Industrial Classification, which best reflects the principal products or services provided by each facility; and any existing NPDES permit number.

(5) *Other municipal separate storm sewers.* The Director may issue permits for municipal separate storm sewers that are designated under paragraph (a)(1)(v) of this section on a system-wide basis, jurisdiction-wide basis, watershed basis or other appropriate basis, or may issue permits for individual discharges.

(6) *Non-municipal separate storm sewers.* For storm water discharges associated with industrial activity from point sources which discharge through a non-municipal or non-publicly owned separate storm sewer system, the Director, in his discretion, may issue: a single NPDES permit, with each discharger a co-permittee to a permit issued to the operator of the portion of the system that discharges into waters of the United States; or, individual permits to each discharger of storm water associated with industrial activity through the non-municipal conveyance system.

(i) All storm water discharges associated with industrial activity that discharge through a storm water discharge system that is not a municipal separate storm sewer must be covered by an individual permit, or a permit issued to the operator of the portion of the system that discharges to waters of the United States, with each discharger to the non-municipal conveyance a co-permittee to that permit.

(ii) Where there is more than one operator of a single system of such conveyances, all operators of storm water discharges associated with industrial activity must submit applications.

(iii) Any permit covering more than one operator shall identify the effluent limitations, or other permit conditions, if any, that apply to each operator.

(7) *Combined sewer systems.* Conveyances that discharge storm water runoff combined with municipal sewage are point sources that must obtain NPDES permits in accordance with the procedures of § 122.21 and are not subject to the provisions of this section.

(8) Whether a discharge from a municipal separate storm sewer is or is not subject to regulation under this section shall have no bearing on whether the owner or operator of the discharge is eligible for funding under title II, title III or title VI of the Clean Water Act. See 40 CFR part 35, subpart I, appendix A(b)(1).2.j.

(b) *Definitions.* (1) *Co-permittee* means a permittee to a NPDES permit that is only responsible for permit conditions relating to the discharge for which it is operator.

(2) *Illicit discharge* means any discharge to a municipal separate storm sewer that is not composed entirely of storm water except discharges pursuant to a NPDES permit (other than the NPDES permit for discharges from the municipal separate storm sewer) and discharges resulting from fire fighting activities.

(3) *Incorporated place* means the District of Columbia, or a city, town, township, or village that is incorporated under the laws of the State in which it is located.

(4) *Large municipal separate storm sewer system* means all municipal separate storm sewers that are either:

(i) Located in an incorporated place with a population of 250,000 or more as determined by the latest Decennial Census by the Bureau of Census (appendix F); or

(ii) Located in the counties listed in appendix H, except municipal separate storm sewers that are located in the

incorporated places, townships or towns within such counties; or

(iii) Owned or operated by a municipality other than those described in paragraph (b)(4) (i) or (ii) of this section and that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from municipal separate storm sewers described under paragraph (b)(4) (i) or (ii) of this section. In making this determination the Director may consider the following factors:

(A) Physical interconnections between the municipal separate storm sewers;

(B) The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in paragraph (b)(4)(i) of this section;

(C) The quantity and nature of pollutants discharged to waters of the United States;

(D) The nature of the receiving waters; and

(E) Other relevant factors; or

(iv) The Director may, upon petition, designate as a large municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraph (b)(4) (i), (ii), (iii) of this section.

(5) *Major municipal separate storm sewer outfall* (or "major outfall") means a municipal separate storm sewer outfall that discharges from a single pipe with an inside diameter of 36 inches or more or its equivalent (discharge from a single conveyance other than circular pipe which is associated with a drainage area of more than 50 acres); or for municipal separate storm sewers that receive storm water from lands zoned for industrial activity (based on comprehensive zoning plans or the equivalent), an outfall that discharges from a single pipe with an inside diameter of 12 inches or more or from its equivalent

(discharge from other than a circular pipe associated with a drainage area of 2 acres or more).

(6) *Major outfall* means a major municipal separate storm sewer outfall.

(7) *Medium municipal separate storm sewer system* means all municipal separate storm sewers that are either:

(i) Located in an incorporated place with a population of 100,000 or more but less than 250,000, as determined by the latest Decennial Census by the Bureau of Census (appendix G); or

(ii) Located in the counties listed in appendix I, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties; or

(iii) Owned or operated by a municipality other than those described in paragraph (b)(4) (i) or (ii) of this section and that are designated by the Director as part of the large or medium municipal separate storm sewer system due to the interrelationship between the discharges of the designated storm sewer and the discharges from municipal separate storm sewers described under paragraph (b)(4) (i) or (ii) of this section. In making this determination the Director may consider the following factors:

(A) Physical interconnections between the municipal separate storm sewers;

(B) The location of discharges from the designated municipal separate storm sewer relative to discharges from municipal separate storm sewers described in paragraph (b)(7)(i) of this section;

(C) The quantity and nature of pollutants discharged to waters of the United States;

(D) The nature of the receiving waters; or

(E) Other relevant factors; or

(iv) The Director may, upon petition, designate as a medium municipal separate storm sewer system, municipal separate storm sewers located within the boundaries of a region defined by a storm water management regional authority based on a jurisdictional, watershed, or other appropriate basis that includes one or more of the systems described in paragraphs (b)(7) (i), (ii), (iii) of this section.



(8) *Municipal separate storm sewer* means a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains):

(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States;

(ii) Designed or used for collecting or conveying storm water;

(iii) Which is not a combined sewer; and

(iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

(9) *Outfall* means a point source as defined by 40 CFR 122.2 at the point where a municipal separate storm sewer discharges to waters of the United States and does not include open conveyances connecting two municipal separate storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other waters of the United States and are used to convey waters of the United States.

(10) *Overburden* means any material of any nature, consolidated or unconsolidated, that overlies a mineral deposit, excluding topsoil or similar naturally-occurring surface materials that are not disturbed by mining operations.

(11) *Runoff coefficient* means the fraction of total rainfall that will appear at a conveyance as runoff.

(12) *Significant materials* includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of

CERCLA; any chemical the facility is required to report pursuant to section 313 of title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with storm water discharges.

(13) *Storm water* means storm water runoff, snow melt runoff, and surface runoff and drainage.

(14) *Storm water discharge associated with industrial activity* means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program under 40 CFR part 122. For the categories of industries identified in paragraphs (b)(14) (i) through (x) of this section, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR part 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials; and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in paragraph (b)(14)(xi) of this section, the term includes only storm water discharges from all the areas (except access roads and rail lines) that are listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, trans-

portation, or conveyance of any raw material, intermediate product, finished product, by-product or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State, or municipally owned or operated that meet the description of the facilities listed in this paragraph (b)(14)(i)-(xi) of this section) include those facilities designated under the provisions of paragraph (a)(1)(v) of this section. The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

(i) Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (xi) in paragraph (b)(14) of this section);

(ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 31, 32 (except 323), 33, 344, 373;

(iii) Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 CFR 434.11(i) because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of

such operations; (inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator; inactive mining sites do not include sites where mining claims are being maintained prior to disturbances associated with the extraction, beneficiation, or processing of mined materials, nor sites where minimal activities are undertaken for the sole purpose of maintaining a mining claim);

(iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under subtitle C of RCRA;

(v) Landfills, land application sites, and open dumps that receive or have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under subtitle D of RCRA;

(vi) Facilities involved in the recycling of materials, including metal scrapyards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;

(vii) Steam electric power generating facilities, including coal handling sites;

(viii) Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45, and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under paragraphs (b)(14) (i)-(vii) or (ix)-(xi) of this section are associated with industrial activity;

(ix) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or re-

quired to have an approved pretreatment program under 40 CFR part 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with section 405 of the CWA;

(x) Construction activity including clearing, grading and excavation activities except: operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale;

(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3411), 35, 36, 37 (except 373), 38, 39, 4221-25, (and which are not otherwise included within categories (ii)-(x));

(c) *Application requirements for storm water discharges associated with industrial activity*—(1) Individual application. Dischargers of storm water associated with industrial activity are required to apply for an individual permit, apply for a permit through a group application, or seek coverage under a promulgated storm water general permit. Facilities that are required to obtain an individual permit, or any discharge of storm water which the Director is evaluating for designation (see 40 CFR 124.52(c)) under paragraph (a)(1)(v) of this section and is not a municipal separate storm sewer, and which is not part of a group application described under paragraph (c)(2) of this section, shall submit an NPDES application in accordance with the requirements of § 122.21 as modified and supplemented by the provisions of the remainder of this paragraph. Applicants for discharges composed entirely of storm water shall submit Form 1 and Form 2F. Applicants for discharges composed of storm water and non-storm water shall submit Form 1, Form 2C, and Form 2F. Applicants for new sources or new discharges (as defined in § 122.2 of this part) composed of storm water and non-storm water shall submit Form 1, Form 2D, and Form 2F.

(1) Except as provided in § 122.26(c)(1) (ii)-(iv), the operator of

a storm water discharge associated with industrial activity subject to this section shall provide:

(A) A site map showing topography (or indicating the outline of drainage areas served by the outfall(s) covered in the application if a topographic map is unavailable) of the facility including: each of its drainage and discharge structures; the drainage area of each storm water outfall; paved areas and buildings within the drainage area of each storm water outfall, each past or present area used for outdoor storage or disposal of significant materials, each existing structural control measure to reduce pollutants in storm water runoff, materials loading and access areas, areas where pesticides, herbicides, soil conditioners and fertilizers are applied, each of its hazardous waste treatment, storage or disposal facilities (including each area not required to have a RCRA permit which is used for accumulating hazardous waste under 40 CFR 262.34); each well where fluids from the facility are injected underground; springs, and other surface water bodies which receive storm water discharges from the facility;

(B) An estimate of the area of impervious surfaces (including paved areas and building roofs) and the total area drained by each outfall (within a mile radius of the facility) and a narrative description of the following: Significant materials that in the three years prior to the submittal of this application have been treated, stored or disposed in a manner to allow exposure to storm water; method of treatment, storage or disposal of such materials; materials management practices employed, in the three years prior to the submittal of this application, to minimize contact by these materials with storm water runoff; materials loading and access areas; the location, manner and frequency in which pesticides, herbicides, soil conditioners and fertilizers are applied; the location and a description of existing structural and non-structural control measures to reduce pollutants in storm water runoff; and a description of the treatment the storm water receives, including the ultimate disposal of any solid

or fluid wastes other than by discharge;

(C) A certification that all outfalls that should contain storm water discharges associated with industrial activity have been tested or evaluated for the presence of non-storm water discharges which are not covered by a NPDES permit; tests for such non-storm water discharges may include smoke tests, fluorometric dye tests, analysis of accurate schematics, as well as other appropriate tests. The certification shall include a description of the method used, the date of any testing, and the on-site drainage points that were directly observed during a test;

(D) Existing information regarding significant leaks or spills of toxic or hazardous pollutants at the facility that have taken place within the three years prior to the submittal of this application;

(E) Quantitative data based on samples collected during storm events and collected in accordance with § 122.21 of this part from all outfalls containing a storm water discharge associated with industrial activity for the following parameters:

(1) Any pollutant limited in an effluent guideline to which the facility is subject;

(2) Any pollutant listed in the facility's NPDES permit for its process wastewater (if the facility is operating under an existing NPDES permit);

(3) Oil and grease, pH, BOD<sub>5</sub>, COD, TSS, total phosphorus, total Kjeldahl nitrogen, and nitrate plus nitrite nitrogen;

(4) Any information on the discharge required under paragraph § 122.21(g)(7) (iii) and (iv) of this part;

(5) Flow measurements or estimates of the flow rate, and the total amount of discharge for the storm event(s) sampled, and the method of flow measurement or estimation; and

(6) The date and duration (in hours) of the storm event(s) sampled, rainfall measurements or estimates of the storm event (in inches) which generated the sampled runoff and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event (in hours);

(F) Operators of a discharge which is composed entirely of storm water are exempt from the requirements of § 122.21 (g)(2), (g)(3), (g)(4), (g)(5), (g)(7)(i), (g)(7)(ii), and (g)(7)(v); and

(G) Operators of new sources or new discharges (as defined in § 122.2 of this part) which are composed in part or entirely of storm water must include estimates for the pollutants or parameters listed in paragraph (c)(1)(i)(E) of this section instead of actual sampling data, along with the source of each estimate. Operators of new sources or new discharges composed in part or entirely of storm water must provide quantitative data for the parameters listed in paragraph (c)(1)(i)(E) of this section within two years after commencement of discharge, unless such data has already been reported under the monitoring requirements of the NPDES permit for the discharge. Operators of a new source or new discharge which is composed entirely of storm water are exempt from the requirements of § 122.21 (k)(3)(ii), (k)(3)(iii), and (k)(5).

(ii) The operator of an existing or new storm water discharge that is associated with industrial activity solely under paragraph (b)(14)(x) of this section, is exempt from the requirements of § 122.21(g) and paragraph (c)(1)(i) of this section. Such operator shall provide a narrative description of:

(A) The location (including a map) and the nature of the construction activity;

(B) The total area of the site and the area of the site that is expected to undergo excavation during the life of the permit;

(C) Proposed measures, including best management practices, to control pollutants in storm water discharges during construction, including a brief description of applicable State and local erosion and sediment control requirements;

(D) Proposed measures to control pollutants in storm water discharges that will occur after construction operations have been completed, including a brief description of applicable State or local erosion and sediment control requirements;

(E) An estimate of the runoff coefficient of the site and the increase in

impervious area after the construction addressed in the permit application is completed, the nature of fill material and existing data describing the soil or the quality of the discharge; and

(F) The name of the receiving water.

(iii) The operator of an existing or new discharge composed entirely of storm water from an oil or gas exploration, production, processing, or treatment operation, or transmission facility is not required to submit a permit application in accordance with paragraph (c)(1)(i) of this section, unless the facility:

(A) Has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 117.21 or 40 CFR 302.6 at any time since November 16, 1987; or

(B) Has had a discharge of storm water resulting in the discharge of a reportable quantity for which notification is or was required pursuant to 40 CFR 110.6 at any time since November 16, 1987; or

(C) Contributes to a violation of a water quality standard.

(iv) The operator of an existing or new discharge composed entirely of storm water from a mining operation is not required to submit a permit application unless the discharge has come into contact with, any overburden, raw material, intermediate products, finished product, byproduct or waste products located on the site of such operations.

(v) Applicants shall provide such other information the Director may reasonably require under § 122.21(g)(13) of this part to determine whether to issue a permit and may require any facility subject to paragraph (c)(1)(ii) of this section to comply with paragraph (c)(1)(i) of this section.

(2) *Group application for discharges associated with industrial activity.* In lieu of individual applications or notice of intent to be covered by a general permit for storm water discharges associated with industrial activity, a group application may be filed by an entity representing a group of applicants (except facilities that have existing individual NPDES permits for storm water) that are part of the same

subcategory (see 40 CFR subchapter N, part 405 to 471) or, where such grouping is inapplicable, are sufficiently similar as to be appropriate for general permit coverage under § 122.28 of this part. The part 1 application shall be submitted to the Office of Water Enforcement and Permits, U.S. EPA, 401 M Street, SW., Washington, DC 20460 (EN-336) for approval. Once a part 1 application is approved, group applicants are to submit Part 2 of the group application to the Office of Water Enforcement and Permits. A group application shall consist of:

(i) *Part 1.* Part 1 of a group application shall:

(A) Identify the participants in the group application by name and location. Facilities participating in the group application shall be listed in nine subdivisions, based on the facility location relative to the nine precipitation zones indicated in appendix E to this part.

(B) Include a narrative description summarizing the industrial activities of participants of the group application and explaining why the participants, as a whole, are sufficiently similar to be covered by a general permit;

(C) Include a list of significant materials stored exposed to precipitation by participants in the group application and materials management practices employed to diminish contact by these materials with precipitation and storm water runoff;

(D) Identify ten percent of the dischargers participating in the group application (with a minimum of 10 dischargers, and either a minimum of two dischargers from each precipitation zone indicated in appendix E of this part in which ten or more members of the group are located, or one discharger from each precipitation zone indicated in appendix E of this part in which nine or fewer members of the group are located) from which quantitative data will be submitted in part 2. If more than 1,000 facilities are identified in a group application, no more than 100 dischargers must submit quantitative data in Part 2. Groups of between four and ten dischargers may be formed. However, in groups of between four and ten, at least half the

facilities must submit quantitative data, and at least one facility in each precipitation zone in which members of the group are located must submit data. A description of why the facilities selected to perform sampling and analysis are representative of the group as a whole in terms of the information provided in paragraph (c)(1)(i)(B) and (i)(C) of this section, shall accompany this section. Different factors impacting the nature of the storm water discharges, such as processes used and material management, shall be represented, to the extent feasible, in a manner roughly equivalent to their proportion in the group.

(ii) *Part 2.* Part 2 of a group application shall contain quantitative data (NPDES Form 2F), as modified by paragraph (c)(1) of this section, so that when part 1 and part 2 of the group application are taken together, a complete NPDES application (Form 1, Form 2C, and Form 2F) can be evaluated for each discharger identified in paragraph (c)(2)(i)(D) of this section.

(d) *Application requirements for large and medium municipal separate storm sewer discharges.* The operator of a discharge from a large or medium municipal separate storm sewer or a municipal separate storm sewer that is designated by the Director under paragraph (a)(1)(v) of this section, may submit a jurisdiction-wide or system-wide permit application. Where more than one public entity owns or operates a municipal separate storm sewer within a geographic area (including adjacent or interconnected municipal separate storm sewer systems), such operators may be a coapplicant to the same application. Permit applications for discharges from large and medium municipal storm sewers or municipal storm sewers designated under paragraph (a)(1)(v) of this section shall include:

(1) *Part 1.* Part 1 of the application shall consist of:

(i) *General information.* The applicants' name, address, telephone number of contact person, ownership status and status as a State or local government entity.

(ii) *Legal authority.* A description of existing legal authority to control discharges to the municipal separate

storm sewer system. When existing legal authority is not sufficient to meet the criteria provided in paragraph (d)(2)(i) of this section, the description shall list additional authorities as will be necessary to meet the criteria and shall include a schedule and commitment to seek such additional authority that will be needed to meet the criteria.

(iii) *Source identification.* (A) A description of the historic use of ordinances, guidance or other controls which limited the discharge of non-storm water discharges to any Publicly Owned Treatment Works serving the same area as the municipal separate storm sewer system.

(B) A USGS 7.5 minute topographic map (or equivalent topographic map with a scale between 1:10,000 and 1:24,000 if cost effective) extending one mile beyond the service boundaries of the municipal storm sewer system covered by the permit application. The following information shall be provided:

(1) The location of known municipal storm sewer system outfalls discharging to waters of the United States;

(2) A description of the land use activities (e.g. divisions indicating undeveloped, residential, commercial, agricultural and industrial uses) accompanied with estimates of population densities and projected growth for a ten year period within the drainage area served by the separate storm sewer. For each land use type, an estimate of an average runoff coefficient shall be provided;

(3) The location and a description of the activities of the facility of each currently operating or closed municipal landfill or other treatment, storage or disposal facility for municipal waste;

(4) The location and the permit number of any known discharge to the municipal storm sewer that has been issued a NPDES permit;

(5) The location of major structural controls for storm water discharge (retention basins, detention basins, major infiltration devices, etc.); and

(6) The identification of publicly owned parks, recreational areas, and other open lands.

(iv) *Discharge characterization.* (A) Monthly mean rain and snow fall estimates (or summary of weather bureau data) and the monthly average number of storm events.

(B) Existing quantitative data describing the volume and quality of discharges from the municipal storm sewer, including a description of the outfalls sampled, sampling procedures and analytical methods used.

(C) A list of water bodies that receive discharges from the municipal separate storm sewer system, including downstream segments, lakes and estuaries, where pollutants from the system discharges may accumulate and cause water degradation and a brief description of known water quality impacts. At a minimum, the description of impacts shall include a description of whether the water bodies receiving such discharges have been:

(1) Assessed and reported in section 305(b) reports submitted by the State, the basis for the assessment (evaluated or monitored), a summary of designated use support and attainment of Clean Water Act (CWA) goals (fishable and swimmable waters), and causes of non-support of designated uses;

(2) Listed under section 304(i)(1)(A)(i), section 304(i)(1)(A)(ii), or section 304(i)(1)(B) of the CWA that is not expected to meet water quality standards or water quality goals;

(3) Listed in State Nonpoint Source Assessments required by section 319(a) of the CWA that, without additional action to control nonpoint sources of pollution, cannot reasonably be expected to attain or maintain water quality standards due to storm sewers, construction, highway maintenance and runoff from municipal landfills and municipal sludge adding significant pollution (or contributing to a violation of water quality standards);

(4) Identified and classified according to eutrophic condition of publicly owned lakes listed in State reports required under section 314(a) of the CWA (include the following: A description of those publicly owned lakes for which uses are known to be impaired; a description of procedures, processes and methods to control the discharge

of pollutants from municipal separate storm sewers into such lakes; and a description of methods and procedures to restore the quality of such lakes);

(5) Areas of concern of the Great Lakes identified by the International Joint Commission;

(6) Designated estuaries under the National Estuary Program under section 320 of the CWA;

(7) Recognized by the applicant as highly valued or sensitive waters;

(8) Defined by the State or U.S. Fish and Wildlife Services's National Wetlands Inventory as wetlands; and

(9) Found to have pollutants in bottom sediments, fish tissue or bio-survey data.

(D) *Field screening.* Results of a field screening analysis for illicit connections and illegal dumping for either selected field screening points or major outfalls covered in the permit application. At a minimum, a screening analysis shall include a narrative description, for either each field screening point or major outfall, of visual observations made during dry weather periods; if any flow is observed, two grab samples shall be collected during a 24 hour period with a minimum period of four hours between samples. For all such samples, a narrative description of the color, odor, turbidity, the presence of an oil sheen or surface scum as well as any other relevant observations regarding the potential presence of non-storm water discharges or illegal dumping shall be provided. In addition, a narrative description of the results of a field analysis using suitable methods to estimate pH, total chlorine, total copper, total phenol, and detergents (or surfactants) shall be provided along with a description of the flow rate. Where the field analysis does not involve analytical methods, approved under 40 CFR part 136, the applicant shall provide a description of the method used including the name of the manufacturer of the test method along with the range and accuracy of the test. Field screening points shall be either major outfalls or other outfall points (or any other point of access such as manholes) randomly located throughout the storm sewer system by placing a grid over a drainage system map and

identifying those cells of the grid which contain a segment of the storm sewer system or major outfall. The field screening points shall be established using the following guidelines and criteria:

(1) A grid system consisting of perpendicular north-south and east-west lines spaced ¼ mile apart shall be overlaid on a map of the municipal storm sewer system, creating a series of cells;

(2) All cells that contain a segment of the storm sewer system shall be identified; one field screening point shall be selected in each cell; major outfalls may be used as field screening points;

(3) Field screening points should be located downstream of any sources of suspected illegal or illicit activity;

(4) Field screening points shall be located to the degree practicable at the farthest manhole or other accessible location downstream in the system, within each cell; however, safety of personnel and accessibility of the location should be considered in making this determination;

(5) Hydrological conditions; total drainage area of the site; population density of the site; traffic density; age of the structures or buildings in the area; history of the area; and land use types;

(6) For medium municipal separate storm sewer systems, no more than 250 cells need to have identified field screening points; in large municipal separate storm sewer systems, no more than 500 cells need to have identified field screening points; cells established by the grid that contain no storm sewer segments will be eliminated from consideration; if fewer than 250 cells in medium municipal sewers are created, and fewer than 500 in large systems are created by the overlay on the municipal sewer map, then all those cells which contain a segment of the sewer system shall be subject to field screening (unless access to the separate storm sewer system is impossible); and

(7) Large or medium municipal separate storm sewer systems which are unable to utilize the procedures described in paragraphs (d)(1)(iv)(D) (1) through (6) of this section, because a

sufficiently detailed map of the separate storm sewer systems is unavailable, shall field screen no more than 500 or 250 major outfalls respectively (or all major outfalls in the system, if less); in such circumstances, the applicant shall establish a grid system consisting of north-south and east-west lines spaced ¼ mile apart as an overlay to the boundaries of the municipal storm sewer system, thereby creating a series of cells; the applicant will then select major outfalls in as many cells as possible until at least 500 major outfalls (large municipalities) or 250 major outfalls (medium municipalities) are selected; a field screening analysis shall be undertaken at these major outfalls.

(E) *Characterization plan.* Information and a proposed program to meet the requirements of paragraph (d)(2)(iii) of this section. Such description shall include: the location of outfalls or field screening points appropriate for representative data collection under paragraph (d)(2)(iii)(A) of this section, a description of why the outfall or field screening point is representative, the seasons during which sampling is intended, a description of the sampling equipment. The proposed location of outfalls or field screening points for such sampling should reflect water quality concerns (see paragraph (d)(1)(iv)(C) of this section) to the extent practicable.

(v) *Management programs.* (A) A description of the existing management programs to control pollutants from the municipal separate storm sewer system. The description shall provide information on existing structural and source controls, including operation and maintenance measures for structural controls, that are currently being implemented. Such controls may include, but are not limited to: Procedures to control pollution resulting from construction activities; floodplain management controls; wetland protection measures; best management practices for new subdivisions; and emergency spill response programs. The description may address controls established under State law as well as local requirements.

(B) A description of the existing program to identify illicit connections to

the municipal storm sewer system. The description should include inspection procedures and methods for detecting and preventing illicit discharges, and describe areas where this program has been implemented.

(vi) *Fiscal resources.* (A) A description of the financial resources currently available to the municipality to complete part 2 of the permit application. A description of the municipality's budget for existing storm water programs, including an overview of the municipality's financial resources and budget, including overall indebtedness and assets, and sources of funds for storm water programs.

(2) *Part 2.* Part 2 of the application shall consist of:

(i) *Adequate legal authority.* A demonstration that the applicant can operate pursuant to legal authority established by statute, ordinance or series of contracts which authorizes or enables the applicant at a minimum to:

(A) Control through ordinance, permit, contract, order or similar means, the contribution of pollutants to the municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharged from sites of industrial activity;

(B) Prohibit through ordinance, order or similar means, illicit discharges to the municipal separate storm sewer;

(C) Control through ordinance, order or similar means the discharge to a municipal separate storm sewer of spills, dumping or disposal of materials other than storm water;

(D) Control through interagency agreements among coapplicants the contribution of pollutants from one portion of the municipal system to another portion of the municipal system;

(E) Require compliance with conditions in ordinances, permits, contracts or orders; and

(F) Carry out all inspection, surveillance and monitoring procedures necessary to determine compliance and noncompliance with permit conditions including the prohibition on illicit discharges to the municipal separate storm sewer.

(ii) *Source identification.* The location of any major outfall that discharges to waters of the United States that was not reported under paragraph (d)(1)(iii)(B)(1) of this section. Provide an inventory, organized by watershed of the name and address, and a description (such as SIC codes) which best reflects the principal products or services provided by each facility which may discharge, to the municipal separate storm sewer, storm water associated with industrial activity;

(iii) *Characterization data.* When "quantitative data" for a pollutant are required under paragraph (d)(a)(iii)(A)(3) of this paragraph, the applicant must collect a sample of effluent in accordance with 40 CFR 122.21(g)(7) and analyze it for the pollutant in accordance with analytical methods approved under 40 CFR part 136. When no analytical method is approved the applicant may use any suitable method but must provide a description of the method. The applicant must provide information characterizing the quality and quantity of discharges covered in the permit application, including:

(A) Quantitative data from representative outfalls designated by the Director (based on information received in part 1 of the application, the Director shall designate between five and ten outfalls or field screening points as representative of the commercial, residential and industrial land use activities of the drainage area contributing to the system or, where there are less than five outfalls covered in the application, the Director shall designate all outfalls) developed as follows:

(1) For each outfall or field screening point designated under this subparagraph, samples shall be collected of storm water discharges from three storm events occurring at least one month apart in accordance with the requirements at § 122.21(g)(7) (the Director may allow exemptions to sampling three storm events when climatic conditions create good cause for such exemptions);

(2) A narrative description shall be provided of the date and duration of the storm event(s) sampled, rainfall estimates of the storm event which

generated the sampled discharge and the duration between the storm event sampled and the end of the previous measurable (greater than 0.1 inch rainfall) storm event;

(3) For samples collected and described under paragraphs (d)(2)(iii)(A)(1) and (A)(2) of this section, quantitative data shall be provided for: the organic pollutants listed in Table II; the pollutants listed in Table III (toxic metals, cyanide, and total phenols) of appendix D of 40 CFR part 122, and for the following pollutants:

Total suspended solids (TSS)  
Total dissolved solids (TDS)  
COD  
BOD<sub>5</sub>  
Oil and grease  
Fecal coliform  
Fecal streptococcus  
pH  
Total Kjeldahl nitrogen  
Nitrate plus nitrite  
Dissolved phosphorus  
Total ammonia plus organic nitrogen  
Total phosphorus

(4) Additional limited quantitative data required by the Director for determining permit conditions (the Director may require that quantitative data shall be provided for additional parameters, and may establish sampling conditions such as the location, season of sample collection, form of precipitation (snow melt, rainfall) and other parameters necessary to insure representativeness);

(B) Estimates of the annual pollutant load of the cumulative discharges to waters of the United States from all identified municipal outfalls and the event mean concentration of the cumulative discharges to waters of the United States from all identified municipal outfalls during a storm event (as described under § 122.21(c)(7)) for BOD<sub>5</sub>, COD, TSS, dissolved solids, total nitrogen, total ammonia plus organic nitrogen, total phosphorus, dissolved phosphorus, cadmium, copper, lead, and zinc. Estimates shall be accompanied by a description of the procedures for estimating constituent loads and concentrations, including any modelling, data analysis, and calculation methods;

(C) A proposed schedule to provide estimates for each major outfall identified in either paragraph (d)(2)(ii) or

(d)(1)(iii)(B)(1) of this section of the seasonal pollutant load and of the event mean concentration of a representative storm for any constituent detected in any sample required under paragraph (d)(2)(iii)(A) of this section; and

(D) A proposed monitoring program for representative data collection for the term of the permit that describes the location of outfalls or field screening points to be sampled (or the location of instream stations), why the location is representative, the frequency of sampling, parameters to be sampled, and a description of sampling equipment.

(iv) *Proposed management program.* A proposed management program covers the duration of the permit. It shall include a comprehensive planning process which involves public participation and where necessary intergovernmental coordination, to reduce the discharge of pollutants to the maximum extent practicable using management practices, control techniques and system, design and engineering methods, and such other provisions which are appropriate. The program shall also include a description of staff and equipment available to implement the program. Separate proposed programs may be submitted by each coapplicant. Proposed programs may impose controls on a systemwide basis, a watershed basis, a jurisdiction basis, or on individual outfalls. Proposed programs will be considered by the Director when developing permit conditions to reduce pollutants in discharges to the maximum extent practicable. Proposed management programs shall describe priorities for implementing controls. Such programs shall be based on:

(A) A description of structural and source control measures to reduce pollutants from runoff from commercial and residential areas that are discharged from the municipal storm sewer system that are to be implemented during the life of the permit, accompanied with an estimate of the expected reduction of pollutant loads and a proposed schedule for implementing such controls. At a minimum, the description shall include:

(1) A description of maintenance activities and a maintenance schedule for structural controls to reduce pollutants (including floatables) in discharges from municipal separate storm sewers;

(2) A description of planning procedures including a comprehensive master plan to develop, implement and enforce controls to reduce the discharge of pollutants from municipal separate storm sewers which receive discharges from areas of new development and significant redevelopment. Such plan shall address controls to reduce pollutants in discharges from municipal separate storm sewers after construction is completed. (Controls to reduce pollutants in discharges from municipal separate storm sewers containing construction site runoff are addressed in paragraph (d)(2)(iv)(D) of this section;

(3) A description of practices for operating and maintaining public streets, roads and highways and procedures for reducing the impact on receiving waters of discharges from municipal storm sewer systems, including pollutants discharged as a result of deicing activities;

(4) A description of procedures to assure that flood management projects assess the impacts on the water quality of receiving water bodies and that existing structural flood control devices have been evaluated to determine if retrofitting the device to provide additional pollutant removal from storm water is feasible;

(5) A description of a program to monitor pollutants in runoff from operating or closed municipal landfills or other treatment, storage or disposal facilities for municipal waste, which shall identify priorities and procedures for inspections and establishing and implementing control measures for such discharges (this program can be coordinated with the program developed under paragraph (d)(2)(iv)(C) of this section); and

(6) A description of a program to reduce to the maximum extent practicable, pollutants in discharges from municipal separate storm sewers associated with the application of pesticides, herbicides and fertilizer which will include, as appropriate, controls

such as educational activities, permits, certifications and other measures for commercial applicators and distributors, and controls for application in public right-of-ways and at municipal facilities.

(B) A description of a program, including a schedule, to detect and remove (or require the discharger to the municipal separate storm sewer to obtain a separate NPDES permit for) illicit discharges and improper disposal into the storm sewer. The proposed program shall include:

(1) A description of a program, including inspections, to implement and enforce an ordinance, orders or similar means to prevent illicit discharges to the municipal separate storm sewer system; this program description shall address all types of illicit discharges, however the following category of non-storm water discharges or flows shall be addressed where such discharges are identified by the municipality as sources of pollutants to waters of the United States: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20)) to separate storm sewers, uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, and street wash water (program descriptions shall address discharges or flows from fire fighting only where such discharges or flows are identified as significant sources of pollutants to waters of the United States);

(2) A description of procedures to conduct on-going field screening activities during the life of the permit, including areas or locations that will be evaluated by such field screens;

(3) A description of procedures to be followed to investigate portions of the separate storm sewer system that, based on the results of the field screen, or other appropriate information, indicate a reasonable potential of containing illicit discharges or other

sources of non-storm water (such procedures may include: sampling procedures for constituents such as fecal coliform, fecal streptococcus, surfactants (MBAS), residual chlorine, fluorides and potassium; testing with fluorometric dyes; or conducting in storm sewer inspections where safety and other considerations allow. Such description shall include the location of storm sewers that have been identified for such evaluation);

(4) A description of procedures to prevent, contain, and respond to spills that may discharge into the municipal separate storm sewer;

(5) A description of a program to promote, publicize, and facilitate public reporting of the presence of illicit discharges or water quality impacts associated with discharges from municipal separate storm sewers;

(6) A description of educational activities, public information activities, and other appropriate activities to facilitate the proper management and disposal of used oil and toxic materials; and

(7) A description of controls to limit infiltration of seepage from municipal sanitary sewers to municipal separate storm sewer systems where necessary;

(C) A description of a program to monitor and control pollutants in storm water discharges to municipal landfills, hazardous waste treatment, disposal and recovery facilities, industrial facilities that are subject to section 313 of title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), and industrial facilities that the municipal permit applicant determines are contributing a substantial pollutant loading to the municipal storm sewer system. The program shall:

(1) Identify priorities and procedures for inspections and establishing and implementing control measures for such discharges;

(2) Describe a monitoring program for storm water discharges associated with the industrial facilities identified in paragraph (d)(2)(iv)(C) of this section, to be implemented during the term of the permit, including the submission of quantitative data on the following constituents: any pollutants limited in effluent guidelines subcate-

gories, where applicable; any pollutant listed in an existing NPDES permit for a facility; oil and grease, COD, pH, BOD, TSS, total phosphorus, total Kjeldahl nitrogen, nitrate plus nitrite nitrogen, and any information on discharges required under 40 CFR 122.21(g)(7) (iii) and (iv).

(D) A description of a program to implement and maintain structural and non-structural best management practices to reduce pollutants in storm water runoff from construction sites to the municipal storm sewer system, which shall include:

(1) A description of procedures for site planning which incorporate consideration of potential water quality impacts;

(2) A description of requirements for nonstructural and structural best management practices;

(3) A description of procedures for identifying priorities for inspecting sites and enforcing control measures which consider the nature of the construction activity, topography, and the characteristics of soils and receiving water quality; and

(4) A description of appropriate educational and training measures for construction site operators.

(v) *Assessment of controls.* Estimated reductions in loadings of pollutants from discharges of municipal storm sewer constituents from municipal storm sewer systems expected as the result of the municipal storm water quality management program. The assessment shall also identify known impacts of storm water controls on ground water.

(vi) *Fiscal analysis.* For each fiscal year to be covered by the permit, a fiscal analysis of the necessary capital and operation and maintenance expenditures necessary to accomplish the activities of the programs under paragraphs (d)(2) (iii) and (iv) of this section. Such analysis shall include a description of the source of funds that are proposed to meet the necessary expenditures, including legal restrictions on the use of such funds.

(vii) Where more than one legal entity submits an application, the application shall contain a description of the roles and responsibilities of each

legal entity and procedures to ensure effective coordination.

(viii) Where requirements under paragraph (d)(1)(iv)(E), (d)(2)(ii), (d)(2)(iii)(B) and (d)(2)(iv) of this section are not practicable or are not applicable, the Director may exclude any operator of a discharge from a municipal separate storm sewer which is designated under paragraph (a)(1)(v), (b)(4)(ii) or (b)(7)(ii) of this section from such requirements. The Director shall not exclude the operator of a discharge from a municipal separate storm sewer identified in appendix F, G, H or I of part 122, from any of the permit application requirements under this paragraph except where authorized under this section.

(e) *Application deadlines.* Any operator of a point source required to obtain a permit under paragraph (a)(1) of this section that does not have an effective NPDES permit covering its storm water outfalls shall submit an application in accordance with the following deadlines:

(1) For any storm water discharge associated with industrial activity identified in paragraph (b)(14) (i)-(xi) of this section, that is not part of a group application as described in paragraph (c)(2) of this section or which is not covered under a promulgated storm water general permit, a permit application made pursuant to paragraph (c) of this section shall be submitted to the Director by November 18, 1991;

(2) For any group application submitted in accordance with paragraph (c)(2) of this section:

(i) Part 1 of the application shall be submitted to the Director, Office of Water Enforcement and Permits by September 30, 1991;

(ii) Based on information in the part 1 application, the Director will approve or deny the members in the group application within 60 days after receiving part 1 of the group application.

(iii) Part 2 of the application shall be submitted to the Director, Office of Water Enforcement and Permits no later than 12 months after the date of approval of the part 1 application or May 18, 1992, whichever comes first.

(iv) Facilities that are rejected as members of a group by the permitting authority shall have 12 months to file an individual permit application from the date they receive notification of their rejection.

(v) A facility listed under paragraph (b)(14) (i)-(xi) of this section may add on to a group application submitted in accordance with paragraph (c)(2)(i) of this section at the discretion of the Office of Water Enforcement and Permits, and only upon a showing of good cause by the facility and the group applicant; the request for the addition of the facility shall be made no later than February 18, 1992; the addition of the facility shall not cause the percentage of the facilities that are required to submit quantitative data to be less than 10%, unless there are over 100 facilities in the group that are submitting quantitative data; approval to become part of group application must be obtained from the group or the trade association representing the individual facilities.

(3) For any discharge from a large municipal separate storm sewer system;

(i) Part 1 of the application shall be submitted to the Director by November 18, 1991;

(ii) Based on information received in the part 1 application the Director will approve or deny a sampling plan under paragraph (d)(1)(iv)(E) of this section within 90 days after receiving the part 1 application;

(iii) Part 2 of the application shall be submitted to the Director by November 16, 1992.

(4) For any discharge from a medium municipal separate storm sewer system;

(i) Part 1 of the application shall be submitted to the Director by May 18, 1992.

(ii) Based on information received in the part 1 application the Director will approve or deny a sampling plan under paragraph (d)(1)(iv)(E) of this section within 90 days after receiving the part 1 application.

(iii) Part 2 of the application shall be submitted to the Director by May 17, 1993.

(5) A permit application shall be submitted to the Director within 60 days

of notice, unless permission for a later date is granted by the Director (see 40 CFR 124.52(c)), for:

(i) A storm water discharge which the Director, or in States with approved NPDES programs, either the Director or the EPA Regional Administrator, determines that the discharge contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States (see paragraph (a)(1)(v) of this section);

(ii) A storm water discharge subject to paragraph (c)(1)(v) of this section.

(6) Facilities with existing NPDES permits for storm water discharges associated with industrial activity shall maintain existing permits. New applications shall be submitted in accordance with the requirements of 40 CFR 122.21 and 40 CFR 122.26(c) 180 days before the expiration of such permits. Facilities with expired permits or permits due to expire before May 18, 1992, shall submit applications in accordance with the deadline set forth under paragraph (e)(1) of this section.

(f) *Petitions.* (1) Any operator of a municipal separate storm sewer system may petition the Director to require a separate NPDES permit (or a permit issued under an approved NPDES State program) for any discharge into the municipal separate storm sewer system.

(2) Any person may petition the Director to require a NPDES permit for a discharge which is composed entirely of storm water which contributes to a violation of a water quality standard or is a significant contributor of pollutants to waters of the United States.

(3) The owner or operator of a municipal separate storm sewer system may petition the Director to reduce the Census estimates of the population served by such separate system to account for storm water discharged to combined sewers as defined by 40 CFR 35.2005(b)(11) that is treated in a publicly owned treatment works. In municipalities in which combined sewers are operated, the Census estimates of population may be reduced proportional to the fraction, based on estimated lengths, of the length of combined sewers over the sum of the length of combined sewers and municipal

separate storm sewers where an applicant has submitted the NPDES permit number associated with each discharge point and a map indicating areas served by combined sewers and the location of any combined sewer overflow discharge point.

(4) Any person may petition the Director for the designation of a large or medium municipal separate storm sewer system as defined by paragraphs (b)(4)(iv) or (b)(7)(iv) of this section.

(5) The Director shall make a final determination on any petition received under this section within 90 days after receiving the petition.

155 FR 48063, Nov. 16, 1990, as amended at 56 FR 12100, Mar. 21, 1991]

**United States  
Federal Reserve**

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Wednesday  
September 9, 1992

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**Part II**

**Environmental  
Protection Agency**

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**Final NPDES General Permits for Storm  
Water Discharges From Construction  
Sites; Notice**



**NPDES General Permits for Storm Water Discharges From Construction Activities That are Classified as "Associated With Industrial Activity"**

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**Preface**

The Clean Water Act (CWA) provides that storm water discharges associated with industrial activity from a point source (including discharges through a municipal separate storm sewer system) to waters of the United States are unlawful, unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit. The terms "storm water discharge associated with industrial activity", "point source" and "waters of the United States" are critical to determining whether a facility is subject to this requirement. Complete definitions of these terms are found in the definition section (Part IX) of this permit.

The United States Environmental Protection Agency (EPA) has established the Storm Water Hotline at (703) 821-4823 to assist the Regional Offices in distributing notice of intent forms and storm water pollution prevention plan guidance, and to provide information pertaining to the storm water regulations.

**Part I. Coverage Under This Permit**

**A. Permit Area**

The permit covers all areas of:  
 Region I—for the States of Maine and New Hampshire; for Indian lands located in Massachusetts, New Hampshire, and Maine.

Region II—for the Commonwealth of Puerto Rico.

Region IV—for Indian lands located in Florida (two tribes), Mississippi, and North Carolina.

Region VI—for the States of Louisiana, New Mexico, Oklahoma, and Texas; and for Indian lands located in Louisiana, New Mexico (except Navajo lands and Ute Mountain Reservation lands), Oklahoma, and Texas.

Region VIII—for the State of South Dakota; for Indian lands located in

Colorado (including the Ute Mountain Reservation in Colorado), Montana, North Dakota, Utah (except Goshute Reservation and Navajo Reservation lands), and Wyoming; for Federal facilities in Colorado; and for the Ute Mountain Reservation New Mexico.

Region IX—for the State of Arizona; for the Territories of Johnston Atoll, and Midway and Wake Island; and for Indian lands located in California, and Nevada; and for the Goshute Reservation in Utah and Nevada, the Navajo Reservation in Utah, New Mexico, and Arizona, the Duck Valley Reservation in Nevada and Idaho.

Region X—for the State of Alaska, and Idaho; for Indian lands located in Alaska, Idaho (except Duck Valley Reservation lands), and Washington; and for Federal facilities in Washington.

**B. Eligibility**

1. This permit may authorize all discharges of storm water associated with industrial activity from construction sites, (those sites or common plans of development or sale that will result in the disturbance of five or more acres total land area<sup>1</sup>), (henceforth referred to as storm water discharges from construction activities) occurring after the effective date of this permit (including discharges occurring after the effective date of this permit where the construction activity was initiated before the effective date of this permit), except for discharges identified under paragraph I.B.3.

2. This permit may only authorize a storm water discharge associated with industrial activity from a construction site that is mixed with a storm water discharge from an industrial source other than construction, where:

A. the industrial source other than construction is located on the same site as the construction activity;

b. storm water discharges associated with industrial activity from the areas of the site where construction activities are occurring are in compliance with the terms of this permit; and

c. storm water discharges associated with industrial activity from the areas of the site where industrial activity other than construction are occurring (including storm water discharges from dedicated asphalt plants and dedicated concrete plants) are covered by a different NPDES general permit or

<sup>1</sup> On June 4, 1992, the United States Court of Appeals for the Ninth Circuit remanded the exemption for construction sites of less than five acres to the EPA for further rulemaking. (Nos. 90-70671 and 91-70200).

individual permit authorizing such discharges.

### 3. Limitations on Coverage

The following storm water discharges from construction sites are not authorized by this permit:

- a. storm water discharges associated with industrial activity that originate from the site after construction activities have been completed and the site has undergone final stabilization.
- b. discharges that are mixed with sources of non-storm water other than discharges which are identified in Part III.A of this permit and which are in compliance with Part IV.D.5 (non-storm water discharges) of this permit.
- c. storm water discharges associated with industrial activity that are subject to an existing NPDES individual or general permit or which are issued a permit in accordance with paragraph V.LL (requiring an individual permit or an alternative general permit) of this permit. Such discharges may be authorized under this permit after an existing permit expires provided the existing permit did not establish numeric limitations for such discharges.
- d. storm water discharges from construction sites that the Director (EPA) has determined to be or may reasonably be expected to be contributing to a violation of a water quality standard; and
- e. storm water discharges from construction sites if the discharges may adversely affect a listed or proposed to be listed endangered or threatened species or its critical habitat.

### C. Authorization

1. A discharger must submit a Notice of Intent (NOI) in accordance with the requirements of Part II of this permit, using a NOI form provided by the Director (or a photocopy thereof), in order for storm water discharges from construction sites to be authorized to discharge under this general permit.<sup>2</sup>

2. Where a new operator is selected after the submittal of an NOI under Part II, a new Notice of Intent (NOI) must be submitted by the operator in accordance with Part II, using a NOI form provided by the Director (or a photocopy thereof).

3. Unless notified by the Director to the contrary, dischargers who submit an NOI in accordance with the requirements of this permit are authorized to discharge storm water from construction sites under the terms and conditions of this permit 2 days after the date that the NOI is postmarked. The Director may deny

coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI or other information (see Part V.LL of this permit).

### Part II. Notice of Intent Requirements

#### A. Deadlines for Notification

1. Except as provided in paragraphs II.A.2, II.A.3, and II.A.4, individuals who intend to obtain coverage for storm water discharges from a construction site (where disturbances associated with the construction project commence before October 1, 1992), under this general permit shall submit a Notice of Intent (NOI) in accordance with the requirements of this Part on or before October 1, 1992:

2. Individuals who intend to obtain coverage under this general permit for storm water discharges from a construction site where disturbances associated with the construction project commence after October 1, 1992, shall submit a Notice of Intent (NOI) in accordance with the requirements of this Part at least 2 days prior to the commencement of construction activities (e.g. the initial disturbance of soils associated with clearing, grading, excavation activities, or other construction activities);

3. For storm water discharges from construction sites where the operator changes, (including projects where an operator is selected after a NOI has been submitted under Parts II.A.1 or II.A.2) a NOI in accordance with the requirements of this Part shall be submitted at least 2 days prior to when the operator commences work at the site; and

4. EPA will accept an NOI in accordance with the requirements of this part after the dates provided in Parts II.A.1, 2 or 3 of this permit. In such instances, EPA may bring appropriate enforcement actions.

#### B. Contents of Notice of Intent

The Notice(s) of Intent shall be signed in accordance with Part VI.G of this permit by all of the entities identified in Part II.B.2 and shall include the following information:

1. The mailing address of the construction site for which the notification is submitted. Where a mailing address for the site is not available, the location of the approximate center of the site must be described in terms of the latitude and longitude to the nearest 15 seconds, or the section, township and range to the nearest quarter section;

2. The name, address and telephone number of the operator(s) with day to

day operational control that have been identified at the time of the NOI submittal, and operator status as a Federal, State, private, public or other entity. Where multiple operators have been selected at the time of the initial NOI submittal, NOIs must be attached and submitted in the same envelope. When an additional operator submits an NOI for a site with a preexisting NPDES permit, the NOI for the additional operator must indicate the number for the preexisting NPDES permit:

3. The name of the receiving water(s), or if the discharge is through a municipal separate storm sewer, the name of the municipal operator of the storm sewer and the ultimate receiving water(s);

4. The permit number of any NPDES permit(s) for any discharge(s) (including any storm water discharges or any non-storm water discharges) from the site;

5. An indication of whether the operator has existing quantitative data which describes the concentration of pollutants in storm water discharges (existing data should not be included as part of the NOI); and

6. An estimate of project start date and completion dates, estimates of the number of acres of the site on which soil will be disturbed, and a certification that a storm water pollution prevention plan has been prepared for the site in accordance with Part IV of this permit, and such plan provides compliance with approved State and/or local sediment and erosion plans or permits and/or storm water management plans or permits in accordance with Part IV.D.2.d of this permit. (A copy of the plans or permits should not be included with the NOI submission).

#### C. Where to Submit

1. Facilities which discharge storm water associated with industrial activity must use a NOI form provided by the Director (or photocopy thereof). The form in the Federal Register notice in which this permit was published may be photocopied and used. Forms are also available by calling (703) 821-4823. NOIs must be signed in accordance with Part VI.G of this permit. NOIs are to be submitted to the Director of the NPDES program in care of the following address: Storm Water Notice of Intent, PO Box 1215, Newington, VA 22122.

2. A copy of the NOI or other indication that storm water discharges from the site are covered under an NPDES permit, and a brief description of the project shall be posted at the construction site in a prominent place for public viewing (such as alongside a building permit).

<sup>2</sup> A copy of the approved NOI form is provided in Appendix C of this notice.

**D. Additional Notification**

Facilities which are operating under approved State or local sediment and erosion plans, grading plans, or storm water management plans shall submit signed copies of the Notice of Intent to the State or local agency approving such plans in accordance with the deadlines in Part II.A of this permit (or sooner where required by State or local rules), in addition to submitting the Notice of Intent to EPA in accordance with paragraph II.C.

**E. Renotification**

Upon issuance of a new general permit, the permittee is required to notify the Director of his intent to be covered by the new general permit.

**Part III. Special Conditions, Management Practices, and Other Non-Numeric Limitations****A. Prohibition on Non-Storm Water Discharges**

1. Except as provided in paragraph I.B.2 and III.A.2, all discharges covered by this permit shall be composed entirely of storm water.

2. a. Except as provided in paragraph III.A.2.(b), discharges of material other than storm water must be in compliance with a NPDES permit (other than this permit) issued for the discharge.

b. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharge is in compliance with paragraph IV.D.5: discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles or control dust in accordance with Part IV.D.2.c.(2); potable water sources including waterline flushings; irrigation drainage; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

**B. Releases in Excess of Reportable Quantities**

1. The discharge of hazardous substances or oil in the storm water discharge(s) from a facility shall be prevented or minimized in accordance with the applicable storm water pollution prevention plan for the facility. This permit does not relieve the permittee of the reporting requirements

of 40 CFR part 117 and 40 CFR part 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302, occurs during a 24-hour period:

a. The permittee is required to notify the National Response Center (NRC) (800-424-8802; in the Washington, DC metropolitan area 202-426-2875) in accordance with the requirements of 40 CFR 117 and 40 CFR 302 as soon as he or she has knowledge of the discharge:

b. The permittee shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and steps to be taken in accordance with Part III.B.3 of this permit to the appropriate EPA Regional office at the address provided in Part V.C (addresses) of this permit; and

c. The storm water pollution prevention plan required under Part IV of this permit must be modified within 14 calendar days of knowledge of the release to: Provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

2. *Spills.* This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

**Part IV. Storm Water Pollution Prevention Plans**

A storm water pollution prevention plan shall be developed for each construction site covered by this permit. Storm water pollution prevention plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site. In addition, the plan shall describe and ensure the implementation of practices which will be used to reduce the pollutants in storm water discharges associated with industrial activity at the construction site and to assure compliance with the terms and conditions of this permit. Facilities must implement the provisions of the storm water pollution prevention plan required under this part as a condition of this permit.

**A. Deadlines for Plan Preparation and Compliance**

The plan shall:

1. Be completed (including certifications required under Part IV.E) prior to the submittal of an NOI to be covered under this permit and updated as appropriate;

2. For construction activities that have begun on or before October 1, 1992, except for sediment basins required under Part IV.D.2.a.(2) (structural practices) of this permit, the plan shall provide for compliance with the terms and schedule of the plan beginning on October 1, 1992. The plan shall provide for compliance with sediment basins required under Part IV.D.2.a.(a) of this permit by no later than December 1, 1992;

3. For construction activities that have begun after October 1, 1992, the plan shall provide for compliance with the terms and schedule of the plan beginning with the initiation of construction activities.

**B. Signature and Plan Review**

1. The plan shall be signed in accordance with Part VI.C, and be retained on-site at the facility which generates the storm water discharge in accordance with Part V (retention of records) of this permit.

2. The permittee shall make plans available upon request to the Director, a State or local agency approving sediment and erosion plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system.

3. The Director, or authorized representative, may notify the permittee at any time that the plan does not meet one or more of the minimum requirements of this part. Such notification shall identify those provisions of the permit which are not being met by the plan, and identify which provisions of the plan requires modifications in order to meet the minimum requirements of this part. Within 7 days of such notification from the Director, (or as otherwise provided by the Director), or authorized representative, the permittee shall make the required changes to the plan and shall submit to the Director a written certification that the requested changes have been made.

**C. Keeping Plans Current**

The permittee shall amend the plan whenever there is a change in design.

construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the plan or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part IV.D.2 of this permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity. In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the storm water pollution prevention plan (see Part IV.E). Amendments to the plan may be reviewed by EPA in the same manner as Part IV.B above.

#### D. Contents of Plan

The storm water pollution prevention plan shall include the following items:

1. *Site description.* Each plan shall provide a description of pollutant sources and other information as indicated:

a. A description of the nature of the construction activity;

b. A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g. grubbing, excavation, grading);

c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities;

d. An estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;

e. A site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which not be disturbed, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water; and

f. The name of the receiving water(s), and areal extent of wetland acreage at the site.

2. *Controls.* Each plan shall include a description of appropriate controls and measures that will be implemented at the construction site. The plan will clearly describe for each major activity identified in Part IV.D.1.b appropriate control measures and the timing during the construction process that the

measures will be implemented. (For example, perimeter controls for one portion of the site will be installed after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed after final stabilization). The description and implementation of controls shall address the following minimum components:

a. *Erosion and sediment controls—(1). stabilization practices.* A description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the plan. Except as provided in paragraphs IV.D.2.(a)-(1).(a), (b), and (c) below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

(a). Where the initiation of stabilization measures by the 14th day after construction activity temporarily or permanently cease is precluded by snow cover, stabilization measures shall be initiated as soon as practicable.

(b). Where construction activity will resume on a portion of the site within 21 days from when activities ceased, (e.g. the total time period that construction activity is temporarily ceased is less than 21 days) then stabilization measures do not have to be initiated on that portion of site by the 14th day after construction activity temporarily ceased.

(c). In arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches), where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is

precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

(2). *Structural practices.* A description of structural practices to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural practices should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA.

(a) For common drainage locations that serve an area with 10 or more disturbed acres at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage locations which serve 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, smaller sediment basins and/or sediment traps should be used. At a minimum, silt fences, or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area.

(b) For drainage locations serving less than 10 acres, sediment basins and/or sediment traps should be used. At a minimum, silt fences or equivalent sediment controls are required for all sideslope and downslope boundaries of the construction area unless a sediment basin providing storage for 3,600 cubic feet of storage per acre drained is provided.

b. *Storm water management.* A description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may be subject to Section 404 of the CWA. This permit only addresses

the installation of storm water management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site, and are not responsible for maintenance after storm water discharges associated with industrial activity have been eliminated from the site.

(1) Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite, and sequential systems (which combine several practices). The pollution prevention plan shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels.

(2) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel for the purpose of providing a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).

c. *Other controls*—(1) *waste disposal*. No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a Section 404 permit.

(2) Off-site vehicle tracking of sediments and the generation of dust shall be minimized.

(3) The plan shall ensure and demonstrate compliance with applicable State and/or local waste disposal, sanitary sewer or septic system regulations.

d. *Approved State or local plans*. (1) Permittees which discharge storm water associated with industrial activity from construction activities must include in their storm water pollution prevention plan procedures and requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State or local officials. Permittees shall provide a certification in their storm water pollution prevention plan that their storm water pollution prevention plan reflects requirements applicable to protecting surface water resources in sediment and erosion site plans or site permits, or storm water management

site plans or site permits approved by State or local officials. Permittees shall comply with any such requirements during the term of the permit. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for the construction site.

(2) Storm water pollution prevention plans must be amended to reflect any change applicable to protecting surface water resources in sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State or local officials for which the permittee receives written notice. Where the permittee receives such written notice of a change, the permittee shall provide a recertification in the storm water pollution plan that the storm water pollution prevention plan has been modified to address such changes.

(3) Dischargers seeking alternative permit requirements shall submit an individual permit application in accordance with Part VII of the permit at the address indicated in Part V.C of this permit for the appropriate Regional Office, along with a description of why requirements in approved State or local plans or permits, or changes to such plans or permits, should not be applicable as a condition of an NPDES permit.

3. *Maintenance*. A description of procedures to ensure the timely maintenance of vegetation, erosion and sediment control measures and other protective measures identified in the site plan in good and effective operating condition.

4. *Inspections*. Qualified personnel (provided by the discharger) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater. Where sites have been finally stabilized, or during seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches) such inspection shall be conducted at least once every month.

a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures

identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

b. Based on the results of the inspection, the site description identified in the plan in accordance with paragraph IV.D.1 of this permit and pollution prevention measures identified in the plan in accordance with paragraph IV.D.2 of this permit shall be revised as appropriate, but in no case later than 7 calendar days following the inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.

c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken in accordance with paragraph IV.D.4.b of the permit shall be made and retained as part of the storm water pollution prevention plan for at least three years from the date that the site is finally stabilized. Such reports shall identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with Part VI.G of this permit.

5. *Non-Storm Water Discharges*. Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2 of this permit that are combined with storm water discharges associated with industrial activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

#### E. Contractors

1. The storm water pollution prevention plan must clearly identify for each measure identified in the plan, the contractor(s) and/or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement in Part IV.E.2

of this permit in accordance with Part VI.G of this permit. All certifications must be included in the storm water pollution prevention plan.

2. *Certification Statement.* All contractors and subcontractors identified in a storm water pollution prevention plan in accordance with Part IV.E.1 of this permit shall sign a copy of the following certification statement before conducting any professional service identified in the storm water pollution prevention plan:

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with industrial activity from the construction site identified as part of this certification.

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

#### Part V. Retention of Records

A. The permittee shall retain copies of storm water pollution prevention plans and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by request of the Director at any time.

B. The permittee shall retain a copy of the storm water pollution prevention required by this permit at the construction site from the date of project initiation to the date of final stabilization.

C. *Addresses.* Except for the submittal of NOIs (see Part II.C of this permit), all written correspondence concerning discharges in any State, Indian land or from any Federal Facility covered under this permit and directed to the U.S. Environmental Protection Agency, including the submittal of individual permit applications, shall be sent to the address of the appropriate Regional Office listed below:

#### 1. CT, MA, ME, NH, RI, VT

United States EPA, Region I, Water Management Division (WCP-2109), Storm Water Staff, John F. Kennedy Federal Building, Room 2209, Boston, MA 02203.

#### 2. NJ, NY, PR, VI

United States EPA, Region II, Water Management Division (2WM-WPC),

Storm Water Staff, 28 Federal Plaza, New York, NY 10278.

#### 3. DE, DC, MD, PA, VA, WV

United States EPA, Region III, Water Management Division (3WM55), Storm Water Staff, 841 Chestnut Building, Philadelphia, PA 19107.

#### 4. AL, FL, GA, KY, MS, NC, SC, TN

United States EPA, Region IV, Water Management Division (FPB-3), Storm Water Staff, 345 Courtland Street, N.E., Atlanta, GA 30385.

#### 5. IL, IN, MI, MN, OH, WI

United States EPA, Region V, Water Quality Branch (5WQP), Storm Water Staff, 77 West Jackson Boulevard, Chicago, IL 60604.

6. AR, LA, NM (Except See Region IX for Navajo Lands, and See Region VIII for Ute Mountain Reservation Lands), OK, TX

United States EPA, Region VI, Water Management Division (6W-EA), Storm Water Staff, First Interstate Bank Tower at Fountain Place, 1445 Ross Avenue, 12th Floor, Suite 1200, Dallas, TX 75202.

#### 7. IA, KS, MO, NE

United States EPA, Region VII, Water Management Division, Compliance Branch, Storm Water Staff, 728 Minnesota Avenue, Kansas City, KS 66101.

8. CO, MT, ND, SD, WY, UT (Except See Region IX for Goshute Reservation and Navajo Reservation Lands)

United States EPA, Region VIII, Water Management Division, NPDES Branch (8WM-C), Storm Water Staff, 999 18th Street, Denver, CO 80202-2466.

Note—For Montana Indian Lands, please use the following address: United States EPA, Region VIII, Montana Operations Office, Federal Office Building, Drawer 10096, 301 South Park, Helena, MT 59620-0026.

9. AZ, CA, HI, NV, Guam, American Samoa, the Goshute Reservation in UT and NV, the Navajo Reservation in UT, NM, and AZ, the Duck Valley Reservation in NV and ID

United States EPA, Region IX, Water Management Division (W-5-1), Storm Water Staff, 75 Hawthorne Street, San Francisco, CA 94105.

10. AK, ID (Except See Region IX for Duck Valley Reservation Lands), OR, WA

United States EPA, Region X, Water Management Division (WD-134), Storm Water Staff, 1200 Sixth Street, Seattle WA 98105.

#### Part VI. Standard Permit Conditions

##### A. Duty to Comply

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of CWA and is grounds for enforcement action for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

##### 2. Penalties for Violations of Permit Conditions

###### a. Criminal

(1). *Negligent Violations* The CWA provides that any person who negligently violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or both.

(2). *Knowing Violations* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

(3). *Knowing Endangerment* The CWA provides that any person who knowingly violates permit conditions implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject to a fine of not more than \$250,000, or by imprisonment for not more than 15 years, or both.

(4). *False Statement* The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than 2 years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than 4 years, or by both. (See Section 309.c.4 of the Clean Water Act).

b. *Civil Penalties*—The CWA provides that any person who violates a

permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$25,000 per day for each violation.

*c. Administrative Penalties.* The CWA provides that any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

(1) *Class I penalty* Not to exceed \$10,000 per violation nor shall the maximum amount exceed \$25,000.

(2) *Class II penalty* Not to exceed \$10,000 per day for each day during which the violation continues nor shall the maximum amount exceed \$125,000.

*B. Continuation of the Expired General Permit*

This permit expires on October 1, 1997. However, an expired general permit continues in force and effect until a new general permit is issued. Permittees must submit a new NOI in accordance with the requirements of Part II of this permit, using a NOI form provided by the Director (or photocopy thereof) between August 1, 1997 and September 29, 1997 to remain covered under the continued permit after October 1, 1997. Facilities that had not obtained coverage under the permit by October 1, 1997 cannot become authorized to discharge under the continued permit.

*C. Need to Halt or Reduce Activity Not a Defense*

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

*D. Duty to Mitigate*

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

*E. Duty to Provide Information*

The permittee shall furnish to the Director: an authorized representative of the Director; a State or local agency approving sediment and erosion plans, grading plans, or storm water management plans; or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system with an NPDES permit, to the municipal operator of the system, any information which is requested to

determine compliance with this permit or other information.

*F. Other Information*

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Director, he or she shall promptly submit such facts or information.

*G. Signatory Requirements*

All Notices of Intent, storm water pollution prevention plans, reports, certifications or information either submitted to the Director or the operator of a large or medium municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed as follows:

1. All Notices of Intent shall be signed as follows:

a. For a corporation: By a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: (1) A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or (2) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by the permit and other information requested by the Director or authorized representative of the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Director.

b. The authorization specifies either an individual or a position having

responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.)

*c. Changes to authorization.* If an authorization under paragraph II.B.3. is no longer accurate because a different operator has responsibility for the overall operation of the construction site, a new notice of intent satisfying the requirements of paragraph II.B must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

*d. Certification.* Any person signing documents under paragraph VI.G shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

*H. Penalties for Falsification of Reports*

Section 309(c)(4) of the Clean Water Act provides that any person who knowingly makes any false material statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than 2 years, or by both.

*I. Oil and Hazardous Substance Liability*

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the CWA or section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

*J. Property Rights*

The issuance of this permit does not convey any property rights of any sort.

nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

#### *K. Severability*

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

#### *L. Requiring an Individual Permit or an Alternative General Permit*

1. The Director may require any person authorized by this permit to apply for and/or obtain either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition the Director to take action under this paragraph. Where the Director requires a discharger authorized to discharge under this permit to apply for an individual NPDES permit, the Director shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of issuance or denial of the individual NPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the appropriate Regional Office indicated in Part V.C of this permit. The Director may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual NPDES permit application as required by the Director under this paragraph, then the applicability of this permit to the individual NPDES permittee is automatically terminated at the end of the day specified by the Director for application submittal.

2. Any discharger authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.28(c)(1)(ii), with reasons supporting the request, to the Director at the address for the appropriate Regional Office indicated in part V.C of this permit. The request may be granted by issuance of any individual permit or an alternative general if the

reasons cited by the permittee are adequate to support the request.

3. When an individual NPDES permit is issued to a discharger otherwise subject to this permit, or the discharger is authorized to discharge under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to an owner or operator otherwise subject to this permit, or the owner or operator is denied for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Director.

#### *M. State/Environmental Laws*

1. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State law or regulation under authority preserved by section 510 of the Act.

2. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

#### *N. Proper Operation and Maintenance*

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

#### *O. Inspection and Entry*

The permittee shall allow the Director or an authorized representative of EPA, the State, or, in the case of a construction site which discharges through a municipal separate storm sewer, an authorized representative of the municipal operator or the separate storm sewer receiving the discharge, upon the presentation of credentials and

other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;

2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and

3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

#### *P. Permit Actions*

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

#### *Part VII. Reopener Clause*

A. If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with industrial activity covered by this permit, the discharger may be required to obtain individual permit or an alternative general permit in accordance with Part I.C of this permit or the permit may be modified to include different limitations and/or requirements.

B. Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5.

#### *Part VIII. Termination of Coverage*

##### *A. Notice of Termination*

Where a site has been finally stabilized and all storm water discharges from construction activities that are authorized by this permit are eliminated, or where the operator of all storm water discharges at a facility changes, the operator of the facility may submit a Notice of Termination that is signed in accordance with Part VI.G of this permit. The Notice of Termination shall include the following information:

1. The mailing address of the construction site for which the notification is submitted. Where a mailing address for the site is not available, the location of the approximate center of the site must be described in terms of the latitude and longitude to the nearest 15 seconds, or the section, township and range to the nearest quarter section;

2. The name, address and telephone number of the operator addressed by the Notice of Termination;



3. The NPDES permit number for the storm water discharge identified by the Notice of Termination;

4. An indication of whether the storm water discharges associated with industrial activity have been eliminated or the operator of the discharges has changed; and

5. The following certification signed in accordance with Part VI G (signatory requirements) of this permit

I certify under penalty of law that all storm water discharges associated with industrial activity from the identified facility that are authorized by an NPDES general permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this notice of termination, I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submission of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

For the purposes of this certification, elimination of storm water discharges associated with industrial activity means that all disturbed soils at the identified facility have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with construction activities from the identified site that are authorized by a NPDES general permit have otherwise been eliminated.

#### B. Addresses

All Notices of Termination are to be sent, using the form provided by the Director (or a photocopy thereof),<sup>3</sup> to the following address: Storm Water Notice of Termination, PO Box 1185, Newington, VA 22122.

#### Part IX. Definitions

**Best Management Practices ("BMPs")** means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**Commencement of Construction**—The initial disturbance of soils associated

with clearing, grading, or excavating activities or other construction activities.

**CWA** means the Clean Water Act or the Federal Water Pollution Control Act.

**Dedicated portable asphalt plant**—A portable asphalt plant that is located on or contiguous to a construction site and that provides asphalt only to the construction site that the plant is located on or adjacent to. The term dedicated portable asphalt plant does not include facilities that are subject to the asphalt emulsion effluent limitation guideline at 40 CFR 443.

**Dedicated portable concrete plant**—A portable concrete plant that is located on or contiguous to a construction site and that provides concrete only to the construction site that the plant is located on or adjacent to.

**Director** means the Regional Administrator of the Environmental Protection Agency or an authorized representative.

**Final Stabilization** means that all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

**Flow-weighted composite sample** means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

**Large and Medium municipal separate storm sewer system** means all municipal separate storm sewers that are either: (i) located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR part 122); or (ii) located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in appendices H and I of 40 CFR part 122); or (iii) owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

**NOI** means notice of intent to be covered by this permit (see Part II of this permit.)

**NOT** means notice of termination (see Part VIII of this permit).

**Point Source** means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharges. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

**Runoff coefficient** means the fraction of total rainfall that will appear at the conveyance as runoff.

**Storm Water** means storm water runoff, snow melt runoff, and surface runoff and drainage.

**Storm Water Associated with Industrial Activity** means the discharge from any conveyance which is used for collecting and conveying storm water and which is directly related to manufacturing, processing or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NPDES program. For the categories of industries identified in paragraphs (i) through (x) of this definition, the term includes, but is not limited to, storm water discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or by-products used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to storm water. For the categories of industries identified in paragraph (xi) of this definition, the term includes only storm water discharges from all areas (except access roads and rail lines) listed in the previous sentence where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, by-products, or industrial machinery are exposed to storm water. For the purposes of this paragraph, material handling activities include the storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, by-product or waste

<sup>3</sup> A copy of the approved NOT form is provided in Appendix D of this notice.

product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots as long as the drainage from the excluded areas is not mixed with storm water drained from the above described areas. Industrial facilities (including industrial facilities that are Federally, State or municipally owned or operated that meet the description of the facilities listed in this paragraph (i)-(xi) of this definition) include those facilities designated under 122.26(a)(1)(v). The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

(i) Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (xi) of this definition);

(ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 28 (except 265 and 267), 28 (except 283), 29, 311, 32 (except 323), 33, 3441, 373;

(iii) Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry) including active or inactive mining operations (except for areas of coal mining operations no longer meeting the definition of a reclamation area under 40 CFR 434.11(1) because the performance bond issued to the facility by the appropriate SMCRA authority has been released, or except for areas of non-coal mining operations which have been released from applicable State or Federal reclamation requirements after December 17, 1990) and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator;

(iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;

(v) Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection) including those that are subject to regulation under Subtitle D of RCRA;

(vi) Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;

(vii) Steam electric power generating facilities, including coal handling sites;

(viii) Transportation facilities classified as Standard Industrial Classifications 40, 41, 42 (except 4221-25), 43, 44, 45 and 5171 which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under paragraphs (i)-(vii) or (ix)-(xi) of this subsection are associated with industrial activity;

(ix) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system, used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR 403. Not included are farm lands, domestic gardens or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with 40 CFR 503;

(x) Construction activity including clearing, grading and excavation activities except operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale;

(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 285, 30, 31 (except 311), 323, 34 (except 3441), 35, 38, 37 (except 373), 38, 39, 4221-25, (and which are not otherwise included within categories (i)-(x)).<sup>4</sup>

*Waters of the United States* means: (a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which

are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA are not waters of the United States.

#### Part X. State Specific Conditions

The provisions of this Part provide modifications or additions to the applicable conditions of Parts I through IX of this permit to reflect specific additional conditions identified as part of the State section 401 certification process. The additional revisions and requirements listed below are set forth in connection with particular State, Indian lands and Federal facilities and only apply to the States, Indian lands and Federal facilities specifically referenced.

#### Region II

A. *Puerto Rico*. Puerto Rico 401 certification special permit conditions revise the permit as follows:

1. Part LA of the permit is revised to read as follows:

#### Part I. Coverage Under This Permit

A. *Permit Area*. The permit covers all areas administered by EPA Region 2 in the Commonwealth of Puerto Rico.

2. Part III of the permit are revised to read as follows:

<sup>4</sup> On June 4, 1992, the United States Court of Appeals for the Ninth Circuit remanded the exclusion for manufacturing facilities in category (xi) which do not have materials or activities exposed to storm water to the EPA for further rulemaking. (Nos. 90-70271 and 91-70200).

**Part III. Special Conditions, Management Practices, Commonwealth Special Conditions, and Narrative Effluent Limitations.**

**C. Commonwealth Special Conditions**

1. Prior to the construction of any treatment system of waters compose entirely of storm water, the permittee shall obtain the approval of the engineering report, plans and specifications from the Environmental Quality Board (EQB) of Puerto Rico.

2. The permittee shall submit to EQB with copy to the Regional Office the following information regarding its storm water discharge(s) associated with industrial activity: The number of storm water discharges associated with industrial activity covered by this permit and a drawing indicating the drainage area of each storm water outfalls:

a. For construction activities that have begun on or before October 1, 1992, the permittee is required to submit the information listed above no later than November 15, 1992.

b. For construction activities that have begun after October 1, 1992, the permittee is required to submit the information listed above within forty five (45) days of submission of the NOI.

**D. Narrative Effluent Limitations**

1. All discharges covered by this Permit shall be free of oil sheen at all times.

2. The storm water discharges associated with industrial activity from construction activities covered by this permit will not cause violation to the applicable water quality standards.

3. Part IV of the permit is revised to read as follows:

**Part IV. Storm Water Pollution Prevention Plans**

**A. Deadlines for Plan Preparation and Compliance**

The plan shall: 1. Be completed prior to the submittal of an NOI to be covered under this permit and updated as appropriate:

2. For construction activities that have begun on or before October 1, 1992, the plan shall provide for compliance with the terms and schedule of the plan beginning on October 1, 1992. On or before November 1, 1992, the permittee shall submit to EQB with copy to the Regional Office, a certification stating that the Plan has been developed and implemented in accordance with the requirements established in this permit.

The certification should be signed by the person who fulfills the signatory requirements in accordance with Part VI.G of this permit.

3. For construction activities that have begun after October 1, 1992, the plan shall provide for compliance with the terms and schedule of the plan beginning with the initiation of construction activities. Within thirty (30) days of submission of the NOI, the permittee shall submit to EQB with copy to the Regional Office, a certification stating that the Plan has been developed and implemented in accordance with the requirements established in this permit. This certification should be signed by the person who fulfills the signatory requirements in accordance with Part VI.G of this permit.

**C. Keeping Plans Current.** The permittee shall amend the plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the plan or if the storm water pollution prevention plan proves to be ineffective in eliminating or significantly minimizing pollutants from sources identified under Part IV.D.2 of this permit, or in otherwise achieving the general objectives of controlling pollutants in storm water discharges associated with industrial activity.

Amendments to the plan may be reviewed by EPA in the same manner as Part IV.B above. If events have occurred which require the modification of the Plan, the engineer who performs the corresponding revision must submit to EQB with copy to the Regional Office, a certification stating the modifications performed to the plan. As soon as the modifications performed to the Plan are implemented, the person who fulfills the signatory requirements in accordance with Part VI.G of this permit shall submit to EQB with copy to the Regional Office, a certification stating that the modifications of the Plan have been implemented.

**D. Contents of Plan**

**2. Controls.**

**d. Approved State or Local Plans**

(4) Compliance with the Plan requirements does not relieve the permittee of his responsibility to comply with the provisions of the Sediment and

Erosion Control Plan (Plan CEST, as referred to in Spanish) required by EQB.

4. Part VI.N of the permit is revised to read as follows:

**Part VI. Standard Permit Conditions**

**N. Proper Operation and Maintenance.** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit. Also, proper operation and maintenance includes, but is not limited to, the effective performance based on designed facility removals, adequate funding, effective management, qualified operator staffing, adequate training, adequate laboratory and process controls including appropriate quality assurance procedures.

**Region VIII**

**B. Colorado (Federal facilities and Indian lands).** There are no special conditions pursuant to Colorado 401 certification in this permit for storm water discharges associated with industrial activity from construction activities located on Indian lands in Colorado. Colorado 401 certification special permit conditions for storm water discharges associated with industrial activity from construction activities from Federal facilities is revised as follows:

1. Part LA of the permit is revised to read as follows:

**Part I. Coverage Under This Permit**

**A. Permit Area.** The permit covers all Federal Facilities and Indian Lands administered by EPA Region 8 in the State of Colorado.

2. Part III of the permit is revised to read as follows:

**Part III. Special Conditions**

**A. Prohibition on non-storm water discharges.**

2

b. The following non-storm water discharges may be authorized by this permit provided the non-storm water component of the discharge is in compliance with paragraph IV.D.5: Discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles or control dust in accordance with Part IV.D.2.c.(2); potable water sources including waterline flushings; irrigation drainage; routine external building washdown which does not use detergents or other compounds; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate that has not been contaminated by industrial activity and no chemicals have been added to it; naturally occurring springs which have not been altered by the industrial activity; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

**B. Releases in Excess of Reportable Quantities**

1.

b. The permittee shall submit within 14 calendar days of knowledge of the release a written description of the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and steps to be taken in accordance with paragraph III.B.3 of this permit to the appropriate EPA Regional Office at the address provided in Part V.C (addresses) of this permit and to the Colorado Water Quality Control Division at the following address: Colorado Department of Health, Water Quality Control Division, 4300 Cherry Creek Drive South, Denver, Colorado 80222-1530, Attention: Permits and Enforcement.

3. Part IV.B.2 of the permit is revised to read as follows:

**Part IV. Storm Water Pollution Prevention Plans**

**B. Signature and Plan Review**

2. The permittee shall make plans available upon request to the Director,

or authorized representative, or in the case of a storm water discharge associated with industrial activity which discharges through a municipal separate storm sewer system, to the operator of the municipal system. Federal Facilities located on non-Indian lands in Colorado shall make plans available upon request to the Colorado Water Quality Control Division.

4. Part VII.A of the permit is revised to read as follows:

**Part VII. Reopener Clause**

A. If there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with industrial activity covered by this permit, the discharger may be required to obtain individual permit or an alternative general permit in accordance with Part I.C of this permit or the permit may be modified to include different limitations and/or requirements. If EPA develops new regulations which specifically impact storm water permit requirements or there is a change in statute which imposes additional requirements, this permit may be reopened and modified (following administrative procedures) to include the appropriate requirements.

**Region IX**

C. Arizona. Arizona 401 certification special permit conditions revise the permit as follows:

1. Part LA of the permit is revised to read as follows:

**Part I. Coverage Under This Permit**

A. *Permit Area.* The permit covers all areas administered by EPA Region 9 in the State of Arizona, excluding all Indian lands.

2. Part II of the permit is revised to read as follows:

**Part II. Notice of Intent Requirements**

F. *Special NOI Requirements for the State of Arizona.* NOIs shall also be submitted to the State of Arizona Department of Environmental Quality at the following address: Storm Water Coordinator, Arizona Department of Environmental Quality P.O. Box 600, Phoenix, Arizona 85001-0600.

NOIs submitted to the State of Arizona shall include the well registration number if storm water associated with industrial activity is

discharged to a dry well or an injection well.

3. Part III of the permit is revised to read as follows:

**Part III. Special Conditions**

C. *Compliance with Water Quality Standards of the State of Arizona.* Discharges authorized by this permit shall not cause or contribute to a violation of any applicable water quality standards of the State of Arizona (A.G. Rule No. R92-008).

4. Part VIII of the permit is revised to read as follows:

**Part VIII. Termination of Coverage**

C. *Special NOT Requirement for the State of Arizona.* NOTs shall also be submitted to the State of Arizona Department of Environmental Quality at the following address:

Storm Water Coordinator, Arizona Department of Environmental Quality, P.O. Box 600, Phoenix, Arizona 85001-0600.

5. The following definition has been added to Part IX of the permit:

**Part IX. Definitions**

*Significant sources of non-storm water,* includes, but is not limited to: Discharges which could cause or contribute to violations of water quality standards of the State of Arizona, and discharges which could include releases of oil or hazardous substances in excess of reportable quantities under section 311 of the Clean Water Act (see 40 CFR 110.10 and 40 CFR 117.21) or section 102 of CERCLA (see 40 CFR 302.4).

**Region X**

D. Alaska. Alaska 401 certification special permit conditions revise the permit as follows:

1. Part LA of the permit is revised to read as follows:

**Part I. Coverage Under This Permit**

A. *Permit Area.* The permit covers all areas administered by EPA Region 10 in the State of Alaska.

2. Part ILC of the permit is revised to read as follows:

**Part II. Notice of Intent Requirements**

**C. Where to Submit.**

3. A copy of initial Notice of Intent (NOI), any NOI for the continuation of the general permit, and any Notice of Termination shall be submitted to the appropriate State regional office, attention Storm Water Coordinator, as follows:

Alaska Department of Environmental Conservation, Northern Regional Office, 1001 Noble Street, suite 350, Fairbanks, Alaska 99701, (907) 452-1714, Fax: 451-2187.

Alaska Department of Environmental Conservation, Southeastern Regional Office, 410 W. Willoughby, suite 105, Juneau, Alaska 99801, (907) 465-5350, Fax: 465-5382.

Alaska Department of Environmental Conservation, Southcentral Regional Office, 3601 "C" Street, suite 1334, Anchorage, Alaska 99503, (907) 563-8529, Fax: 582-4028.

Alaska Department of Environmental Conservation, Pipeline Corridor Regional Office, 411 W. 4th Ave., suite 2C, Anchorage, Alaska 99502, (907) 278-8594, Fax: 272-0690.

4. With the NOI to the State, a brief description of the activities to be covered shall be submitted. This shall be on a single sheet and shall describe the area to be disturbed to the nearest acre, the primary pollutants expected from the activities and the type of treatment to be provided.

3. Part III.B.1.b is revised to read as follows:

**Part III. Special Conditions, Management Practices, and Other Non-Numeric Limitations**

**B. Releases in excess of Reportable Quantities.**

1.

b. The permittee shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and steps to be taken in accordance with Part III.B.3 of this permit to the appropriate EPA Regional Office at the address provided in Part V.C (addresses) of this permit and to the

appropriate State regional office (see section II.C for addresses):

4. Part IV.D.4 of the permit is revised to read as follows:

**Part IV. Storm Water Pollution Prevention Plans****D. Contents of Plan.**

4. **Inspections.** Qualified personnel (provided by the discharger) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater. Where sites have been finally stabilized, or during seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches) such inspection shall be conducted at least once every month. Monthly inspections shall be conducted for areas finally until a Notice of Termination (NOT) has been submitted for the area.

**E. Idaho.** Idaho 401 certification special permit conditions revise the permit as follows:

1. Part I.A of the permit is revised to read as follows:

**Part I. Coverage Under This Permit**

**A. Permit Area.** The permit covers all areas administered by EPA Region 10 in the State of Idaho.

2. Part III of the permit is revised to read as follows:

**Part III. Special Conditions**

**C.** All storm water shall be treated and disposed of in such a manner that the ground water standards of Idaho are not violated. Such standards are specified in Section 1.02299 of the "Idaho Water Quality Standards and Wastewater Treatment Requirements."

**F. Washington (Federal facilities and Indian lands).** Washington 401 certification special permit conditions revise the permit as follows:

1. Part I.A of the permit is revised to read as follows:

**Part I. Coverage Under This Permit**

**A. Permit Area.** The permit covers all Federal Facilities administered by EPA Region 10 in the State of Washington.

2. Part III of the permit is revised to read as follows:

**Part III. Special Conditions****C. Washington State Standards**

1. This permit does not authorize the violation of ground water standards (Chapter 173-200 WAC), surface water standards (Chapter 173-201 WAC), or sediment management standards (Chapter 173-204 WAC) of the State of Washington. The point of compliance with surface water standards shall be determined after consideration of the assignment of a dilution zone as allowed under Chapter 173-201 WAC. The point of compliance with ground water standards shall be determined by applying the provisions of Chapter 173-200 WAC. The point of compliance with sediment management standards shall be determined in accordance with Chapter 173-204 WAC.

2. Diversion of storm water discharges to ground water from existing discharges to surface water shall not be authorized by this permit if this causes a violation or the potential for violation of ground water standards (Chapter 173-200 WAC). Such discharges below the surface of the ground are also regulated by the Underground Injection Control Program (Chapter 173-218 WAC).

3. Washington Department of Ecology (WDOE) is currently developing a "Storm Water Pollution Prevention Plan" which will require facilities to assess the potential of their storm water discharges to violate the Washington State surface water, ground water, or sediment management standards. Those discharges with a high potential to violate standards will be required to develop and implement a monitoring program.

Upon issuance of the "Storm Water Pollution Prevention Plan" by WDOE, EPA may reopen this permit to require facilities to assess their storm water discharges and to require additional monitoring.

BILLING CODE 6560-50-01

Appendix C — NOI Form Instructions

See Reverse for Instructions

Form Approved. OMB No. 2040-0048  
Approval expires: 8-31-94

NPDES  
FORM



United States Environmental Protection Agency  
Washington, DC 20460

Notice of Intent (NOI) for Storm Water Discharges Associated with Industrial Activity Under the NPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a NPDES permit issued for storm water discharges associated with industrial activity in the State identified in Section II of this form. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. Facility Operator Information

Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address: \_\_\_\_\_ Status of Owner/Operator:   
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

II. Facility/Site Location Information

Name: \_\_\_\_\_ Is the Facility Located on Indian Lands? (Y or N)   
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ Quarter: \_\_\_\_\_ Section: \_\_\_\_\_ Township: \_\_\_\_\_ Range: \_\_\_\_\_

III. Site Activity Information

MSA Operator Name: \_\_\_\_\_  
Receiving Water Body: \_\_\_\_\_  
If You are Filing as a Co-permittee, Enter Storm Water General Permit Number: \_\_\_\_\_ Are There Existing Quantitative Data? (Y or N)  Is the Facility Required to Submit Monitoring Data? (1, 2, or 3)   
SIC or Designated Activity Code: Primary: \_\_\_\_\_ 2nd: \_\_\_\_\_ 3rd: \_\_\_\_\_ 4th: \_\_\_\_\_  
If This Facility is a Member of a Group Application, Enter Group Application Number: \_\_\_\_\_  
If You Have Other Existing NPDES Permits, Enter Permit Numbers: \_\_\_\_\_

IV. Additional Information Required for Construction Activities Only

Project Start Date: \_\_\_\_\_ Completion Date: \_\_\_\_\_ Estimated Area to be Disturbed (in Acres): \_\_\_\_\_ Is the Storm Water Pollution Prevention Plan in Compliance with State and/or Local Sediment and Erosion Plans? (Y or N)

V. Certification: I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature: \_\_\_\_\_

**Instructions - EPA Form 3810-4**  
**Notice Of Intent (NOI) For Storm Water Discharges Associated With Industrial Activity**  
**To Be Covered Under The NPDES General Permit**

**Who Must File A Notice Of Intent (NOI) Form**

Federal law at 40 CFR Part 122 prohibits point source discharges of storm water associated with industrial activity to a water body(ies) of the U.S. without a National Pollutant Discharge Elimination System (NPDES) permit. The operator of an industrial activity that has such a storm water discharge must submit a NOI to obtain coverage under the NPDES Storm Water General Permit. If you have questions about whether you need a permit under the NPDES Storm Water program, or if you need information as to whether a particular program is administered by EPA or a state agency, contact the Storm Water Hotline at (703) 821-4823.

**Where To File NOI Form**

NOIs must be sent to the following address:

Storm Water Notice of Intent  
 PO Box 1215  
 Newington, VA 22122

**Completing The Form**

You must type or print, using upper-case letters, in the appropriate areas only. Please place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words, but not for punctuation marks unless they are needed to clarify your responses. If you have any questions on this form, call the Storm Water Hotline at (703) 821-4823.

**Section I Facility Operator Information**

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same as the name of the facility. The responsible party is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Enter the appropriate letter to indicate the legal status of the operator of the facility.

F = Federal                      M = Public (other than federal or state)  
 S = State                        P = Private

**Section II Facility/Site Location Information**

Enter the facility's or site's official or legal name and complete street address, including city, state, and ZIP code. If the facility or site lacks a street address, indicate the state, the latitude and longitude of the facility to the nearest 15 seconds, or the quarter, section, township, and range (to the nearest quarter section) of the approximate corner of the site.

Indicate whether the facility is located on Indian lands.

**Section III Site Activity Information**

If the storm water discharges to a municipal separate storm sewer system (MS4), enter the name of the operator of the MS4 (e.g., municipality name, county name) and the receiving water of the discharge from the MS4. (A MS4 is defined as a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains) that is owned or operated by a state, city, town, borough, county, parish, district, association, or other public body which is designed or used for collecting or conveying storm water.)

If the facility discharges storm water directly to receiving water(s), enter the name of the receiving water.

If you are filing as a co-permittee and a storm water general permit number has been issued, enter that number in the space provided.

Indicate whether or not the owner or operator of the facility has existing quantitative data that represent the characteristics and concentration of pollutants in storm water discharges.

Indicate whether the facility is required to submit monitoring data by entering one of the following:

- 1 = Not required to submit monitoring data;
- 2 = Required to submit monitoring data;
- 3 = Not required to submit monitoring data; submitting certification for monitoring exclusion

Those facilities that must submit monitoring data (e.g., choice 2) are: Section 313 EPCRA facilities; primary metal industries; land disposal units/incinerators/SiFs; wood treatment facilities; facilities with coal pile runoff; and, battery reclaimers.

List, in descending order of significance, up to four 4-digit standard industrial classification (SIC) codes that best describe the principal products or services provided at the facility or site identified in Section II of this application.

For industrial activities defined in 40 CFR 122.28(b)(14)(i)-(ii) that do not have SIC codes that accurately describe the principal products produced or services provided, the following 2-character codes are to be used:

- HZ = Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under subtitle C of RCRA [40 CFR 122.28 (b)(14)(i)];
- LF = Landfills, land application sites, and open dumps that receive or have received any industrial wastes, including those that are subject to regulation under subtitle D of RCRA [40 CFR 122.28 (b)(14)(ii)];
- SE = Steam electric power generating facilities, including coal handling sites [40 CFR 122.28 (b)(14)(iii)];
- TW = Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment service or system, used in the storage, treatment, recycling, and reclamation of municipal or domestic sewage [40 CFR 122.28 (b)(14)(iv)]; or,
- CO = Construction activities [40 CFR 122.28 (b)(14)(v)].

If the facility listed in Section II has participated in Part 1 of an approved storm water group application and a group number has been assigned, enter the group application number in the space provided.

If there are other NPDES permits presently issued for the facility or site listed in Section II, list the permit numbers. If an application for the facility has been submitted but no permit number has been assigned, enter the application number.

**Section IV Additional Information Required for Construction Activities Only**

Construction activities must complete Section IV in addition to Sections I through III. Only construction activities need to complete Section IV.

Enter the project start date and the estimated completion date for the entire development plan.

Provide an estimate of the total number of acres of the site on which soil will be disturbed (round to the nearest acre).

Indicate whether the storm water pollution prevention plan for the site is in compliance with approved state and/or local sediment and erosion plans, permits, or storm water management plans.

**Section V Certification**

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

*For a corporation:* by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

*For a partnership or sole proprietorship:* by a general partner or the proprietor, or

*For a municipality, state, Federal, or other public facility:* by either a principal executive officer or serving elected official.

**Paperwork Reduction Act Notice**

Public reporting burden for this application is estimated to average 0.5 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

Appendix D — NOT Form Instructions

Please See Instructions Before Completing This Form

Form Approved, OMB No. 2040-0085  
Approval Expires: 3-31-95

NPDES  
FORM



United States Environmental Protection Agency  
Washington, DC 20460

Notice of Termination (NOT) of Coverage Under the NPDES General Permit  
for Storm Water Discharges Associated with Industrial Activity

Submission of this Notice of Termination constitutes notice that the party identified in Section II of this form is no longer authorized to discharge storm water associated with industrial activity under the NPDES program. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

I. Permit Information

NPDES Storm Water General Permit Number: \_\_\_\_\_ Check Here if You are No Longer the Operator of the Facility:  Check Here if the Storm Water Discharge is Being Terminated:

II. Facility Operator Information

Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

III. Facility/Site Location Information

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ Quarter: \_\_\_\_\_ Sector: \_\_\_\_\_ Township: \_\_\_\_\_ Range: \_\_\_\_\_

IV. Certification: I certify under penalty of law that all storm water discharges associated with industrial activity from the identified facility that are authorized by a NPDES general permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submital of this notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

Print Name: \_\_\_\_\_ Date: \_\_\_\_\_  
Signature: \_\_\_\_\_

Instructions for Completing Notice of Termination (NOT) Form

Who May File a Notice of Termination (NOT) Form

Permittees who are presently covered under the EPA issued National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activity may submit a Notice of Termination (NOT) form when their facilities no longer have any storm water discharges associated with industrial activity as defined in the storm water regulations at 40 CFR 122.38 (b)(14), or when they are no longer the operator of the facilities.

For construction activities, elimination of all storm water discharges associated with industrial activity occurs when disturbed soils at the construction site have been fully stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with industrial activity from the construction site that are authorized by a NPDES general permit have otherwise been eliminated. Final stabilization means that all soil-disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% of the cover for uncrowded areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, geotextiles, or geocell) have been employed.

Where to File NOT Form

Send this form to the following address:

Storm Water Notice of Termination  
P.O. Box 1185  
Newington, VA 22122

Completing the Form

Type or print, using upper-case letters, in the appropriate areas only. Please place each character between the marks. Allowances if necessary to stay within the number of characters allowed for each item. Use only one space to break between words, but not for punctuation marks unless they are needed to clarify your responses. If you have any questions about this form, call the Storm Water hotline at (703) 821-4823.

PLEASE SEE REVERSE OF THIS FORM FOR FURTHER INSTRUCTIONS



Instructions - EPA Form 3610-7  
Notice of Termination (NOT) of Coverage Under The NPDES General Permit  
for Storm Water Discharges Associated With Industrial Activity

**Section I Permit Information**

Enter the existing NPDES Storm Water General Permit number assigned to the facility or site identified in Section III. If you do not know the permit number, contact the Storm Water Hotline at (703) 821-4823.

Indicate your reason for submitting this Notice of Termination by checking the appropriate box:

If there has been a change of operator and you are no longer the operator of the facility or site identified in Section III, check the corresponding box.

If all storm water discharges at the facility or site identified in Section III have been terminated, check the corresponding box.

**Section II Facility Operator Information**

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same name as the facility. The operator of the facility is the legal entity which controls the facility's operation, other than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

**Section III Facility/Site Location Information**

Enter the facility's or site's official or legal name and complete address, including city, state and ZIP code. If the facility lacks a street address, indicate the state, the latitude and longitude of the facility to the nearest 15 seconds, or the quarter, section, township, and range (to the nearest quarter section) of the approximate corner of the site.

**Section IV Certification**

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require the application to be signed as follows:

*For a corporation:* by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1990 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedure;

*For a partnership or sole proprietorship:* by a general partner or the proprietor; or

*For a municipality, State, Federal, or other public facility:* by either a principal executive officer or ranking elected official.

**Paperwork Reduction Act Notice**

Public reporting burden for this application is estimated to average 0.5 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

[FR Doc. 92-21385 Filed 9-8-92; 8:45 am]

BILLING CODE 6560-50-C

**6.2 STATE STORM WATER NPDES PERMIT REGULATION (RESERVED)**

**6.3 CITY ORDINANCES RELATING TO STORM WATER**

**EXTRACTS FROM CODE OF ORDINANCES AND PLATTING  
ORDINANCE RELATING TO STORM WATER MANAGEMENT**

**CODE OF ORDINANCES**

**CHAPTER 2, ADMINISTRATION**

\* \* \* \* \*

**ARTICLE IV. MISCELLANEOUS BOARDS, COMMISSIONS AND COMMITTEES**

\* \* \* \* \*

**DIVISION 21. STORMWATER MANAGEMENT ADVISORY COMMITTEE**

**Sec. 2-231. Composition, organization, and duties.**

**(a) *Composition.***

- (1) There is a Stormwater Management Advisory Committee, which consists of eleven (11) members, representatives of the various community interests.
- (2) The advisory committee is appointed by the Mayor with the approval of the Council. All committee members shall serve without compensation.

**(b) *Organization.***

- (1) The advisory committee shall adopt its own rules of procedures.
- (2) At the first meeting after creation of the committee, a majority of the whole committee shall elect a chairperson and vice-chairperson to serve during the first term. Thereafter, a committee chairperson and vice-chairperson shall be elected by a majority of the whole committee to serve one-year terms expiring each June 30th. The election of the chairperson and vice-chairperson shall be held each year at the first regular meeting after appointments to fill expired terms.
- (3) The advisory committee shall meet not less than six times per year, nor more than twelve times per year, with the support and cooperation of the City Manager or his designees.

**(c) *Duties.* The advisory committee shall:**

- (1) Develop a thorough understanding of the ecology of the receiving waters surrounding the City of Corpus Christi, the composition of the runoff and discharge, the methods for altering the composition of such runoff and discharge, and the relative costs and benefits

of City and its Citizens utilizing these various methods to alter the composition of the runoff and discharge, and the requirements of the Clean Water Act and the City's NPDES Permit for the discharge of Stormwater.

(2) Monitor compliance with and enforcement of the City's current ordinances relating to runoff and discharge of stormwater and the elimination of pollutants therefrom.

(3) Advise the Mayor and Council on the appropriateness of the City's current ordinances relating to runoff and discharge of stormwater and the elimination of pollutants therefrom.

(4) From time to time suggest changes, expansions, and deletions to those ordinances.

(5) Advise the Mayor and Council on matters relating to the enforcement, modification, and renewal of City of Corpus Christi's NPDES Permit for the discharge of stormwater.

(6) Advise the Mayor and Council on these issues and activities within a strategy of compliance at minimum feasible cost, that is to assure that the steps taken by the city in the above matters minimize the expenditure of funds by the City and its Citizens, and impose the least possible burden on the conduct of their business, while complying with the Clean Water Act.

(Ord. No. 022964, § 1, 6-17-97)

\* \* \* \* \*

**CHAPTER 13, BUILDINGS; CONSTRUCTION AND RELATED OPERATIONS;  
HOUSING AND HOUSING PREMISES STANDARDS**

\* \* \* \* \*

**ARTICLE VI. STORM WATER QUALITY MANAGEMENT PLANS**

**Sec. 13-200. Adoption of the Storm Water Management Guidance Document.**

The Storm Water Management Guidance Document for Developmental Planning and Construction Activities, prepared by the Storm Water Department, dated May 28, 1997, a true copy of which is on file with the City Secretary, is adopted to ensure storm water entering the navigable waters of the United States from the City's Municipal Separate Storm Sewer System does not violate the terms of the City's Storm Water National Pollution Discharge Elimination System Permit. The Guidance Document contains suggested Best Management Practices that owners, developers, and contractors should consider adopting to help control and reduce pollutants that are transported by storm waters.

(Ord. No. 022941, § 1, 5-27-97)

**Sec. 13-201. Definitions.**

*"Area Adjacent to the Nueces River Water Supply"* means the land that is within 1,500 feet from the edge of the Nueces River or any of its tributaries above the Calallen Saltwater Intrusion Dam.

*"BMP"* means Best Management Practice.

*"Disturbing"* means clearing, grading, excavation, or other construction-related activities, including the open storage of raw materials, transport and parking of vehicles, etc., on an unpaved area.

*"Environmentally Sensitive Area"* means:

Receiving Waters.

Stream segment, bay, or estuary classified as having an "Exceptional" aquatic life use by TNRCC under 30 TAC 307.7(b)(3) and 307.10.

Areas identified as providing critical habitat for an endangered, threatened, or protected species. The U.S. Fish and Wildlife Service or Texas Department of Parks and Recreation should be consulted, if necessary.

Wetlands as defined by 33 CFR 328.3(b).

State Owned Submerged Land.

Critical Dune Areas, as determined by the Land Commissioner under Texas Natural Resources Code § 63.121.

Area Adjacent to the Nueces River Water Supply.

Floodplains, as determined by the Federal Emergency Management Agency.

Floodways, as determined by the Federal Emergency Management Agency.

Velocity Zones, as determined by the Federal Emergency Management Agency.

*"FEMA"* means Federal Emergency Management Agency.

*"Harmful liquid"* means a liquid that may cause harm to the environment, such as oil, chemicals, & hazardous substances.

*"Lot"* means a lot as defined by §3.1.41 of the Zoning Ordinance.

**"NPDES"** means National Pollution Discharge Elimination System.

**"Permanent stabilization"** means that all unpaved areas of the site, not covered by permanent structures, which were disturbed by construction activities, have a uniform perennial vegetative cover with a density of 70% or equivalent permanent stabilization has been used, such as coverage with geotextiles and mulch.

**"Pollution Control Plan"** means a site plan that contains the following information:

The outline of the site.

A delineation of the area of the site that will be disturbed by construction activities.

The direction of flow of storm water drainage leaving the site. If the drainage pattern will be altered, both the existing drainage patterns and proposed drainage patterns must be shown.

A description and location of any existing drainage structures on the site and any drainage structures that will be constructed on the site.

A description of how any "run-on" storm water will be handled, including sheet flow entering the site from adjoining property.

A description and the location of any Environmentally Sensitive Area that is located on the site or adjoins the site, which will receive storm water directly from the site.

The boundary line between the site and any adjoining State owned submerged land. A preliminary boundary line may be used in a Pollution Control Plan submitted with a preliminary plat. The Pollution Control Plan must be amended prior to filing of a final plat, once a final boundary determination has been approved by the General Land Office, to reflect any difference between the preliminary boundary line and the approved boundary line.

The location of any FEMA Flood Insurance Rate Map 100 year Floodplain Boundaries, Floodway Boundaries, or FEMA Velocity Zone Boundaries that encroach on the site. Preliminary boundaries may be used in the Pollution Control Plan submitted with a preliminary plat. The Pollution Control Plan must be amended to reflect any difference between the preliminary boundaries and the boundaries shown on the final plat.

A description and the location of all temporary control measures that will be implemented and installed during construction to control erosion, sedimentation,

and the discharge of pollutants into the City's Municipal Separate Storm Sewer System.

The permanent control measures that will be constructed to control erosion, sedimentation, and the discharge of pollutants into the City's Municipal Separate Storm Sewer System after completion of construction.

*"Receiving Waters"* mean Corpus Christi Bay, Nueces Bay, Oso Bay, Laguna Madre, Nueces River, Oso Creek, West Oso Creek, Petronilla Creek, and the Gulf of Mexico. The term includes perennial and intermittent streams that are natural tributaries to those waters, but does not include manmade drainage structures.

*"Responsible party"* means the owner, occupant, developer, builder, or general contractor who has operational control over site specification (including the ability to make modifications in specifications), or who has operational control over day to day activities at the site and is able to ensure compliance with plan requirements and permit conditions (e.g., a person who is authorized to direct the conduct of workers at the site). Any person who has filed a Notice of Intent (NOI) with EPA is presumed to be a Responsible Party under this Article until the person has filed a Notice of Termination (NOT) with EPA and sent the Director of Engineering Services a copy of the NOT.

*"Significant redevelopment"* means a change in the use of a tract of land that increases the proportion of impervious surface, a change in the use of a tract of land that will result in an increase of pollutants that may be carried off the property by storm waters, or the alteration or repair of a facility, which requires the facility to be brought into compliance with the current Building Code requirements under Section 101.5. of the City's Building Code.

*"Single-lot, single-family residential construction"* means the construction of a single family residential structure and accessory buildings upon a single lot, regardless of size. The construction of each individual residential structure is considered a single-lot, single-family residential construction, even if the Responsible Party is simultaneously constructing another residential structure on an adjoining lot. For the purposes of this Article, a lot may include one or more adjoining platted lots that are treated as a single tract of land.

*"Storm water"* means storm water runoff, snow melt runoff, and surface runoff and drainage.

*"Storm Water Quality Management Plan"* means a preliminary engineering report and analysis that provides:

A brief description of the project, with maps showing the area covered by the plan.



The land use assumptions used. Generally, the most impactful land use allowed under the current zoning, any changes in the zoning being proposed, or the applicable area development plan should be assumed. However, a less impactful land use may be used if an application is submitted to rezone the tract to a less impactful land use or the highest use allowed under the current zoning is less than the use designated in the area development plan.

Hydraulic calculations based upon established procedures (such as the rational method).

An on-site drainage plan, which details the direction of flow and collection structures, including the size and required capacity of the drainage structures.

The on-site drainage plan should address how "run-on" storm water will be handled, including sheet flow entering the site from adjoining property.

Demonstration of the conformance with existing Master Plan drainage and/or the need for Master Plan amendment for both on-site and off-site improvements. In the absence of a request for rezoning, the most impactful land use allowed under the current or proposed zoning will be assumed.

Delineation of the route of runoff to ultimate outfall. This information will be used to determine the ultimate capacity for water quality treatment at an ultimate outfall station.

Identification of any Environmentally Sensitive Area that is on the site, or that would be sensitive to storm water pollution from the site. Areas of investigation should include, but are not limited to, water supply sources, recreational waters, wetlands, barrier island dunes, and other sensitive ecological systems.

(Ord. No. 022941, § 1, 5-27-97)

#### **Sec. 13-202. Storm Water Quality Management Plans Required.**

(a) Except as provided in subparagraph (2) of this paragraph, a site specific Storm Water Quality Management Plan is required for all residential, commercial, and industrial developments of five (5) acres or more.

(1) For the purpose of this section, the area of the development must include all contiguous land owned by the Responsible Party, regardless of the amount of land that will be affected by the development activity.

(2) A Storm Water Quality Management Plan is not required when a portion of a previously developed tract of land is redeveloped, unless the redevelopment will

result in the conversion of more than 1/4 acre from a porous surface to an impervious surface.

(b) The Storm Water Quality Management Plan must be submitted at the time of submission of a preliminary plat; a final plat if no preliminary plat was submitted or if a Storm Water Quality Management Plan was not submitted with the preliminary plat; or a replat of a final plat under the Platting Ordinance, if a Storm Water Quality Management Plan was not submitted with the preliminary plat or final plat; or submission of a site plan with an application for a building permit, if a Storm Water Quality Management Plan was not submitted with the preliminary or final plat.

(c) The Storm Water Quality Management Plan must identify the location of the ultimate outfall from the City's Municipal Separate Storm Sewer System into the Receiving Water and any Environmentally Sensitive Areas that will receive any pollutants carried by storm water pollution from the site.

(d) The Storm Water Quality Management Plan must state whether an NPDES Storm Water Pollution Prevention Plan or a Pollution Control Plan will be submitted to the Director of Engineering Services under Section 13-204.

(e) The Storm Water Quality Management Plan must be sealed and signed by a Registered Professional Engineer licensed to practice engineering in the State of Texas.

(Ord. No. 022941, § 1, 5-27-97)

### **Sec. 13-203. Special Land Use Requirements.**

(a) A Storm Water Quality Management Plan and any plans submitted for a building permit for the development of property that will be used for one of the following uses must identify the appropriate Best Management Practices, published in the City of Corpus Christi's Storm Water Management Guidance Document for Developmental Planning and Construction Activities (Guidance Document) that the Responsible Party will adopt to prevent pollutants associated with the use from being discharged into the City's Municipal Separate Storm Sewer System. However, a Responsible Party is not required to identify any specific Best Management Practice.

(1) Fueling stations — "Fueling Station Practices" in Section 4.9.5 of the Guidance Document.

(2) Vehicle/equipment washing and steam cleaning facilities — "Vehicle/Equipment Washing and Steam Cleaning Practices" in Section 4.9.6 of the Guidance Document.

(3) Facilities engaged in harmful liquid materials loading and unloading — "Harmful Liquid Materials Loading and Unloading Practices" in Section 4.9.7 of the Guidance Document.

(4) Facilities engaged in harmful liquids storage in aboveground tanks — "Harmful Liquid Storage in Above-Ground Tank Practices" in Section 4.9.8 of the Guidance Document.

(5) Facilities engaged in container storage of harmful liquids (such as oil, chemicals, & hazardous substances), food wastes, and hazardous wastes — "Container Storage of Harmful liquids, Food Wastes, Hazardous Wastes Practices" in Section 4.9.9 of the Guidance Document.

(6) Facilities engaged in outdoor storage of raw materials that are subject to leaching and transport by erosion and sedimentation, such as gravel, sand, topsoil, compost, sawdust, wood chips; building materials, including lumber, which are subject to leaching; and concrete and metal products, which are subject to chemical erosion, corrosion, and leaching — "Outdoor Storage Practices" in Section 4.9.11 of the Guidance Document.

(b) The owner of a site within the City that is currently being used for one of the activities described in subsection (a) of this Section is not required to physically alter the existing facility to comply with this section, unless alterations or repairs to the facility require the facility to be brought into compliance with the current Building Code requirements under Section 101.5. of the City's Building Code.

(c) The Storm Water Quality Management Plan and any building plans submitted with an application for a building permit for a site that is in the Area Adjacent to the Nueces County Water Supply must identify the measures that will ensure the development conforms with current measures required to safeguard the quality of water within the Nueces River and the health of those consuming water from the Nueces River.

(Ord. No. 022941, § 1, 5-27-97)

#### **Sec. 13-204. Planning Requirements for Site Development During Construction.**

##### *(a) Development of Sites 5 Acres or More.*

(1) An NPDES Storm Water Pollution Prevention Plan is currently required by EPA for all construction projects where five (5) acres or more will be disturbed during development. Developments of sites that disturb five (5) acres or more within the City of Corpus Christi's jurisdiction must prepare an NPDES Storm Water Pollution Prevention Plan that satisfies EPA regulations.

a. A copy of the NPDES Storm Water Pollution Prevention Plan must be provided to the City's Director of Engineering Services.

b. A copy of any Notice of Intent (NOI) provided to EPA must be provided to the Director of Engineering Services. Approval of the elements of the NPDES Storm Water Pollution Prevention Plan is not required by the Director of Engineering Services. However, the Director of Engineering Services or Building Official may require correction of any deficiencies in the NPDES Storm Water Pollution Prevention Plan, and may require additional measures in order to meet the requirements of Section 13-205, Pollution Control Measures.

c. A copy of any Notice of Termination (NOT) submitted to EPA must be provided to the Director of Engineering Services.

(2) If the site is five (5) acres or more, but less than five (5) acres and more than 1/4 acre will be disturbed, an NPDES Storm Water Pollution Prevention Plan is not required, but a Pollution Control Plan, as defined in Section 13-201, is required, unless the site is a single-lot, single-family residential construction.

*(b) Development of Sites Less than five (5) Acres and More than 1/4 Acre.*

(1) A Pollution Control Plan, as defined in Section 13-201, is required for commercial construction, industrial construction, multi-family residential construction, and development of a residential subdivision within the City of Corpus Christi's jurisdictional area where less than five (5) acres but more than 1/4 acre will be developed. The area of the development will be based upon the platted lot area or, if not platted, upon the area of the tract owned by the developer, including all contiguous property owned by the same person. Disturbance of a partial area of a tract is not a condition that will cause a change of the category in development size.

(2) Submission of a site specific Pollution Control Plan is not required for a single-lot, single-family residential construction, regardless of its size.

(3) The Pollution Control Plan must include any measures as required to comply with the Pollution Control Measures specified in Section 13-205. A Pollution Control Plan must be submitted to the Building Official for review before issuance of a building permit or approval to begin development.

(4) Implementation of the pollution control measures detailed in the plan is required. (Inspections of the status of the pollution control measures will be performed by City personnel during normal construction inspections and at other times when construction activities may be conducted.)

(5) A certificate of occupancy will not be issued until the Building Official is satisfied that all temporary and permanent measures specified by the plan are complete.

(6) The Director of Engineering Services will not accept any improvements required under Section V of the Platting Ordinance until the Director of Engineering Services is satisfied that all temporary and permanent measures specified by the plan are complete, unless the Responsible Party has entered into a maintenance agreement with the City, as provided in Section 13-205(f).

(7) A Pollution Control Plan is not required when a portion of a previously developed tract of land is redeveloped, unless the redevelopment will result in the conversion of more than 1/4 acre from a porous surface to an impervious surface.

**(c) *Development of Sites ¼ Acre or Less and Single-Lot, Single-Family Residential Construction.*** A site specific Pollution Control Plan is not required for the development of sites which are ¼ acre in size or less, nor for single-lot single-family residential construction. However, the Responsible Party shall comply with the Pollution Control Measures in Section 13-205.

(1) In order to obtain a building permit, a Responsible Party shall provide a written acknowledgment that the Responsible Party is aware of the Pollution Control Measures of the City of Corpus Christi and that the Responsible Party will comply with these measures during the development of the property.

(2) In order to obtain a certificate of occupancy, a Responsible Party must certify that all necessary temporary or permanent Pollution Control Measures specified in Section 13-205, Pollution Control Measures, are in place. If adequate Pollution Control Measures are not in place, the Building Official is authorized to withhold the certificate of occupancy.

(3) Prior to requesting acceptance of any improvements required by Section V of the Platting Ordinance, a Responsible Party must certify that all necessary permanent Pollution Control Measures specified in Section 13-205, Pollution Control Measures, other than the required stabilization, are in place. If adequate Pollution Control Measures are not in place, the Director of Engineering Services will not accept any improvements required by Section V of the Platting Ordinance, unless the Responsible Party has entered into a maintenance agreement with the City, as provided in Section 13-205(f).

(d) For the purposes of this section, the entire plat or site will be considered to be the area being disturbed unless the site plan specifically designates which areas will be disturbed and which areas will not be disturbed. The Responsible Party shall take appropriate measures to ensure no construction related activities disturb any area that is not designated as disturbed on the plat or site plan.

(Ord. No. 022941, § 1, 5-27-97)

**Sec. 13-205. Pollution Control Measures.**

The Responsible Party of any construction site within the City of Corpus Christi shall implement measures necessary to control erosion, sedimentation, debris, and storm water pollution. The Responsible Party is responsible for the maintenance and performance of the temporary pollution control measures until permanent pollution control measures are in place. The pollution controls are designed to be selected by the developer based on the most cost effective and appropriate means to provide the required controls. In instances where a specific pollution problem is not present, controls are not required. Suggested Best Management Practices are detailed in Section 4 of the Storm Water Management Guidance Document for Developmental Planning and Construction Activities.

(a) Temporary Pollution Control Measures (During-Construction).

This paragraph provides examples of temporary pollution control measures that can be used to control erosion and sedimentation.

(1) Structural Control of Soil Erosion.

a. Silt Fences should be utilized, where necessary, to retain the sediments from disturbed areas within the site and decrease the velocity of sheet flows. [BMP 4.2.1.1 *Filter Fabric Fence*]

b. Straw bales should be utilized, where necessary, to retain sediments from disturbed areas within the site and decrease the velocity of sheet flows. Straw bales are particularly useful in paved areas where silt fences cannot be erected. [BMP 4.2.2.1 *Straw Bale Fence*]

c. Stabilized construction entrances should be designed to reduce the amount of soil tracked off the construction site by vehicles leaving the site. A stabilized construction entrance should be utilized, if necessary, to control tracking. The Responsible Party should ensure that vehicles entering and leaving the construction site use the stabilized construction entrance. The owner or operator of a vehicle entering or leaving a construction site may not track soil off the construction site unless the operator uses the stabilized construction entrance. [BMP 4.7.1 *Stabilized Access Roads and Parking Areas*]

d. Vegetative buffer strips, of appropriate size should be maintained, where necessary and practical, to aid in reducing the velocity of storm water and in trapping sediments in the storm water leaving the site. A vegetative buffer will usually suffice as a structural control until final stabilization is accomplished. [BMP 4.2.5 *Vegetative Buffer Strips*]

e. Inlet protection barriers must be installed around all inlets until the area immediately surrounding the inlet is paved or stabilized. [BMP 4.5.1.1 *Inlet Protection Barriers*]

(2) **Waste Controls.** Waste disposal must be accomplished in a manner so that no solid wastes, including building materials, hazardous substances, oil, or packaging leave the site, except for disposal at an appropriate, approved solid waste management facility, in conformance with the Texas Solid Waste Disposal Act. To the extent practicable, no solid waste, including building materials, hazardous substances, or oil may be allowed to enter the City's Municipal Separate Storm Sewer System, the City's streets, or the navigable waters of the United States. Building materials include, but are not limited to, uncovered stockpiles of soil, sand, dry cement, lumber, bricks, or other products used in construction. The prime contractor, who is issued the building permit, is responsible for the conduct of all subcontractors with regards to disposal of wastes generated by the construction activities at the site.

(3) **Dust Control.** Dust control should be provided at whatever frequency required.

(4) **Hazardous Material Storage.** Chemicals, paints, solvents, fertilizers, and other toxic materials must be stored in waterproof containers. Except during applications, the contents must be kept in trucks or in storage facilities. Runoff containing such materials shall be collected, removed from the site, and disposed of at an approved solid waste or chemical disposal facility.

(5) **Concrete Trucks.** The Responsible Party may not allow the owner or operator of a concrete truck to wash out or discharge surplus concrete or drum wash water at a construction site, unless the surplus concrete or drum wash water in concrete trucks is discharged at a facility on the construction site that will retain all concrete wash waters or leachates, including any wash waters or leachates mixed with storm water. Concrete wash waters and leachates may not be allowed to enter the municipal separate storm sewer system, City streets, the waters of the United States, or ground waters.

(6) The Responsible Party may adopt alternative procedures, such as regularly scheduled street cleaning in the immediate vicinity of the construction site, instead of adopting temporary structural controls for erosion under Subsection (a)(1) of this Section. If alternative procedures will be used, the Responsible Party shall include those provisions in its NPDES Storm Water Pollution Prevention Plan, Pollution Control Plan, or the plans submitted for a building permit, if an NPDES Storm Water Pollution Prevention Plan or Pollution Control Plan is not required.

***(b) Permanent Pollution Control Measures (Post-Construction).***

(1) Permanent stabilization must be applied to all unpaved areas that have reached final grade or those areas that will not be disturbed within the next 45 days. Permanent stabilization consists of sodding, seeding, or mulching with a seed bearing hay that will provide for new growth within a three (3) month period. New vegetative ground cover must be maintained by watering, regrading, reseeding, or sodding, as necessary, until 70% growth coverage is obtained. [See Guidance Document BMP 4.2.4.1 *Seeding with Mulching*]

a. Acceptance of improvements by the City can occur before the permanent stabilization coverage requirement is met, if the developer agrees to maintain the stabilization until coverage is achieved and all other permanent measures are complete.

b. Once permanent stabilization has been achieved, the Responsible Party may notify the Director of Engineering Services that permanent stabilization has been achieved.

c. After inspection of the site by a City inspector, the Director of Engineering Services will send the Responsible Party written confirmation that permanent stabilization has been achieved.

(2) Erosion control structures must be provided where necessary to control erosive velocities in unlined channels or swales leaving the site. [See Guidance Document BMP 4.1.3.1 *Pipe Slope Drain* and BMP 4.1.4.1 *Paved Flume*]

(3) Sediment traps must be provided on the site, as necessary, to control sedimentation from concentrated storm water discharges into an Environmentally Sensitive Area. Individual assessments must be made on a site specific basis. However, a rock rubble low berm must be installed around an outfall that discharges directly into an Environmentally Sensitive Area, unless this requirement is waived by the Director of Engineering Services because the Responsible Party has installed another type of sediment trap that provides equal or better protection. [See Guidance Document BMP 4.3.2.1 *Stone Outlet Sediment Trap* and BMP 4.3.2.2 *Excavated Earth Outlet Sediment Trap*]

(4) Stenciling, metal plates anchored in concrete inlets, precast manhole covers, wording stamped in concrete, or other acceptable form of signing must be provided on top of any storm sewer inlets. [See Guidance Document BMP 4.9.15 *Inlet Stenciling*]



*(c) Scheduling of Control Measures.*

Pollution control measures must be implemented in a sequence that will provide maximum storm water pollution control based on the following principles:

- (1) Down slope and side slope perimeter controls must be installed before land disturbing activity occurs.
- (2) The Responsible Party shall not disturb the site until the Responsible Party is ready for construction to proceed.
- (3) Efforts to provide cover or stabilize disturbed areas must occur as soon as possible.
- (4) Construction of infiltration measures must be delayed until the end of the construction project when upstream drainage areas have been stabilized.
- (5) Temporary perimeter controls may not be removed until all upstream areas are finally stabilized.

*(d) Inspection of Pollution Control Measures.*

The Responsible Party shall inspect all Pollution Control Measures every seven (7) days and within 24 hours following a rainfall of 0.5 inches or greater, at the site, and maintain a record of each inspection, which shall be made available for inspection by a representative of the City during normal business hours.

*(e) Maintenance of Pollution Control Measures.*

- (1) The Responsible Party shall maintain and ensure adequate performance of the temporary Pollution Control Measures until permanent Pollution Control Measures are in place.
- (2) Whenever the temporary or permanent Pollution Control Measures do not to keep soil, sediment, and debris on the construction site, such as excessive tracking of dirt offsite by vehicles and runoff of sediments from the site over sidewalks and into the streets and gutters, etc., the Responsible Party shall remove the soil, sediment, and debris from streets, sidewalks, and inlets, as necessary, return the soil and sediment to the areas to be stabilized, and properly dispose of the debris.
- (3) The owner or person in control of site is responsible for the maintenance of any Permanent Pollution Control Measure located on the site, unless the owner has dedicated the Permanent Pollution Control Measure to the City and has provided the City with any easements necessary to allow access to the Permanent Pollution Control Measure and to conduct of any required maintenance activities.

**(f) Maintenance Agreements Between A Responsible Party and City.**

**(1) If all permanent Pollution Control Measures, other than the required stabilization, are complete, a Responsible Party may provide a maintenance agreement for the required stabilization. This agreement may allow the Responsible Party to receive acceptance of improvements by the City and allow the filing of the final plats.**

**(2) The maintenance agreement must be submitted with the Engineer's Certification of Infrastructure Completion. The Director of Engineering Services will execute the agreement at the time of acceptance of the public improvements, subject to any terms and conditions set out in the agreement.**

**(3) If a change in ownership occurs during the period when temporary measures are still in place, the maintenance agreement between the City and the Responsible Party, who entered into the agreement, will remain in force until:**

**a. Such time as either all permanent Pollution Control Measures are in place (stabilization at 70% coverage).**

**b. A new Responsible Party has entered into an agreement with the City to assume the prior Responsible Party's responsibilities under the agreement with the City.**

**c. A new owner acquires the tract with notice of the requirements of the maintenance agreement and agrees to assume the liabilities and responsibilities under the agreement of the Responsible Party, who entered into the agreement with the City, at which time the new owner becomes responsible for the maintenance of the portion of the site to which the new owner has title.**

**(4) The original Responsible Party, who entered into the maintenance agreement with the City, remains responsible for the balance of the site under the terms of the original agreement for maintenance.**

**(5) Once the Responsible Party has satisfied all terms and conditions of the maintenance agreement, including permanent stabilization, the Responsible Party shall notify the Director of Engineering Services.**

**(6) After inspection of the site by a City inspector, the Director of Engineering Services will send the Responsible Party written confirmation that the Responsible Party has complied with the agreement and the agreement is terminated.**

**Sec. 13-206. Appeals to City Manager.**

A person adversely affected by a decision of the Director of Engineering Services or the Building Official under this Article, may appeal the decision to the City Manager, or the City Manager's designee, within fifteen (15) days from the date the Director of Engineering Services or the Building Official notifies the person of the decision in writing. An appeal must be submitted in writing and must be addressed to the City Manager. The appeal must set out specifically why the decision of the Director of Engineering Services or the Building Official should be considered for relief. The City Manager, or the City Manager's designee, should act promptly on any appeals under this Article.

(Ord. No. 022941, § 1, 5-27-97)

**Sec. 13-207. Prosecution for Violations of this Article.**

(a) A violation of any provision of this Article is a Class C misdemeanor. A conviction is punishable by a fine as provided in section 1-6 of this Code. Each day a violation continues constitutes a separate offense. Each violation of a separate provision in this Article constitutes a separate offense. A culpable mental state is not required to prove an offense under this ordinance.

(b) Failure to appear in response to a citation issued for violation of this chapter is a separate violation of this Article.

(Ord. No. 022941, § 1, 5-27-97)

**CHAPTER 55, UTILITIES**

**Article XVI. Prohibition of Pollution of the Municipal Separate Storm Sewer System (MS4)**

**Sec. 55-201. General provisions.**

(a) This article sets forth uniform requirements for users of the City of Corpus Christi's Municipal Separate Storm Sewer System (MS4), and enables the City to comply with all applicable Federal and State laws, including the Clean Water Act (33 U.S.C. 1251 et seq.). The objectives of this article are:

- (1) To prevent the introduction of pollutants into the MS4 and the waters of the United States through the City's MS4.
- (2) To protect Storm Water Management personnel who may be affected by pollutants in the MS4 in the course of their employment and to protect the general public;

- (3) To enable the City to comply with its NPDES permit conditions and any other Federal or State laws applicable to the MS4.

(b) This article applies to all users of the MS4.

(c) This article authorizes monitoring, compliance, and enforcement activities; establishes administrative review procedures; and requires industrial user reporting.

(d) In this article the following rules of construction apply:

“*May*” is permissive or discretionary.

“*May not*” prohibits.

“*Must*” establishes a mandatory condition.

“*Shall*” is mandatory.

(Ord. 022881, § 1, 3-25-97)

#### **Sec. 55-202. Definitions.**

As used in this chapter:

*Act* means the Federal Water Pollution Control Act, also known as the Clean Water Act, as amended, 33 U.S.C. 1251 et seq.

*Business facility* means a location within the City of Corpus Christi at which commercial, industrial, or professional business activities are conducted.

*Code Enforcement Official* means an employee designated by the City Manager to make application for administrative and criminal search warrants under authority of the Texas Code of Criminal Procedure, Article 18.05, as such warrants may be necessary to enforce any provision of the Code of Ordinances of the City of Corpus Christi or other municipal ordinances duly promulgated.

*Discharge* means to blow, conduct, deposit, drain, dump, emit, empty, enter, leak, place, pour, pump, release, run, seep, spill, throw, or cause or allow a substance or material to be blown, conducted, deposited, drained, dumped, emptied, emitted, entered, leaked, placed, poured, pumped, released, run, seeped, spilled or thrown into the MS4, including placement of a substance or material at a location where it will be blown or washed by a flow of water or another fluid into the MS4.

*Municipal Separate Storm Sewer System (MS4)* means a system of conveyances (including storm drains, gutters, ditches, man-made channels, impoundments, roads with drainage systems,

municipal streets, catch basins, curbs, storm sewer manholes, pumping or treatment facilities, private drains, and any other drainage devices) designed or used for collecting and conveying of storm water and surface water drainage to the bays and natural tributaries, which is not part of a Publicly Owned Treatment Works (POTW), as defined at 40 CFR 122.2, that is owned or operated by the City of Corpus Christi or a utility organized by the City. The MS4 includes any other publicly or privately owned structures or improvements that drain into or connect with the system owned or operated by the City that is located within the incorporated limits or the City or within 5,000 feet of the City limits, unless it is under the jurisdiction and control of any State agency that regulates water quality or water pollution.

*Storm water* means any flow occurring during, following, or resulting from any form of natural precipitation, including snowmelt.

*Superintendent* means the Storm Water Superintendent, a person designated by the City Manager to supervise the operation of the MS4, or a representative designated by the Storm Water Superintendent.

*U.S.C.* means the United States Code.

(Ord. 022881, § 1, 3-25-97)

#### **Sec. 55-203. Prohibited Discharges Into the MS4.**

(a) No person may intentionally discharge into the municipal storm sewer system grass clippings, leaf litter and animal wastes in massed quantities (e.g., dumping of bags of collected leaves and grass clippings in the system). It shall be a defense to prosecution that these wastes occurred naturally or from normal landscape maintenance (e.g., leaves falling from trees, grass clippings left on lawns). Intentionally sweeping or blowing grass clippings into the streets or gutters is prohibited.

(b) Swimming pool water shall not be a prohibited discharge, provided that the discharge has been tested using a method approved by the director of public health to assure that it will not contain a harmful level of chlorine or other pollutants when it reaches streams, lakes or bays.

(c) Except as otherwise provided in subsections (a) and (b), no person may discharge the following into the municipal separate storm sewer system:

- (1) An illicit discharge (e.g. a discharge of other than storm water), including artesian well water, cooling water (including contact and non-contact cooling water and treated and untreated cooling water), ground water, subsurface drainage, industrial wastewater, water from a well;

[However the following discharges may be put into the municipal separate storm sewer system—a discharge under a valid national pollution discharge elimination system (NPDES) permit, a discharge resulting from fire fighting activities, a

discharge resulting from washing an automobile at a residence or at a charitable car wash, a discharge of potable water, a discharge of any surface waters (including water from diverted stream flows, uncontaminated rising ground water, water from foundation drains, crawl space pumps and footing drains, water from springs, and flows from riparian habitats and wetlands), a discharge resulting from flushing a water supply line, a discharge of street wash water, a nonpoint source discharge from agricultural activities (including return flows from irrigated agriculture), or condensate from cooling systems].

- (2) An illegal discharge (e.g., a discharge of any substance that is prohibited from being discharged into the waters of the United States or the State of Texas, or a tributary to those waters, by any federal or state law);
- (3) A direct discharge of a pesticide or fertilizer;
- (4) A pollutant or wastewater, other than storm water or a discharge that is not classified as an illicit discharge in subsections (b) and (c)(1) of this section, that is prohibited from being discharged into the publicly owned treatment works (POTW) by section 55-141(a) of this chapter; or
- (5) Solid wastes, including animal wastes (including an animal carcass, animal parts or scrap, excrement, grease of animal origin, offal, paunch manure and urine), ashes or clinkers, construction/demolition materials, dirt or other fill material, debris, floatable, garbage, heavy brush, household appliance, household hazardous waste (any hazardous waste from chemicals or other substances utilized for residential or housekeeping purposes, including, but not be limited to, bleaches, drain cleaners, paint, paint thinners, and solvents), industrial or commercial wastes, medical wastes refuse, sewage, used motor vehicle fluids (including motor oils, anti-freeze and solutions containing anti-freeze, brake fluids, transmission fluids, and other lubricants that have been drained from or any excess materials remaining after servicing a vehicle or piece of equipment), yard waste (including grass clippings, weeds, leaves, mulch, trees and shrub limbs, or other plant material).

(d) Over spray and small amounts of runoff from irrigation of vegetation that pools in a gutter or on a road surface, but does not flow in a steady stream into any manhole or catch basin, is not considered an illicit discharge into the municipal separate storm sewage system.

(e) A person may raise as a defense to prosecution for a violation of subsections (c) and (d) of this section that the illicit discharge was uncontaminated. An illicit discharge is considered uncontaminated if the quality of the water is equal to or better than the quality of the first natural body of water into which a portion of the municipal separate storm sewage system flows (receiving waters), including the Cayo del Oso, Corpus Christi Bay, Nueces Bay, Nueces River, Oso Creek, or Upper Laguna Madre. The results of the last water quality test of the receiving

waters published by the superintendent with the city secretary will constitute prima facie evidence of the quality of the receiving waters.

(f) Nothing in this article prevents the placement of solid wastes scheduled for pickup at a location designated by the director of solid waste services.

(g) Runoff from any effort to remove graffiti from buildings or other structures is not considered an illicit discharge into the municipal separate storm sewage system.

(h) Nothing in this section prohibits any activities relating to the construction, maintenance, or operation of the municipal separate storm sewage system.

(i) Notwithstanding subsection (c) of this section, a person may discharge any substance or material specified, if at the time of discharge, the discharge of the substance or material was authorized by a valid permit from the Texas Natural Resource Commission or United States Environmental Protection Agency and the discharge was in compliance with all requirements contained in the permit.

(Ord. No. 022583, § 1, 5-28-96)

#### **Sec. 55-204. Removal of Improper Discharges from and Repair of Damage to MS4.**

(a) Any person who discharges any substance or article into the MS4 in violation of section 55-203 of this article shall promptly remove the substance or article from the MS4, take all measures necessary to reduce or eliminate any harmful effects for any substance or article that cannot be removed, repair any damages caused to the MS4 by the substance or article, and compensate the City for any additional expenses it was caused to incur as a result of the illegal or illicit discharge.

(b) If the person who discharged the substance or article into the MS4 fails to remove the substance or article within ten (10) days after receiving notice as provided in section 342.006(b) of the Health and Safety Code, the Superintendent may have the substance or article removed from the MS4 and any damages to the MS4 repaired at the expense of the person who discharged the substance or article.

(c) The Superintendent may remove any substance or article from the MS4 without notice to person who discharged the substance or article into the MS4, when directed to do so by the Federal or State On Scene Coordinator, under the Act; the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended; the Oil Spill Prevention and Response Act; or Texas Oil and Hazardous Substances Spill Prevention and Control Act. The person who discharged the substance or article is liable for all costs incurred by the City as a result of the discharge.

(d) A person is presumed to have discharged a substance or thing into the MS4 if the substance or article contains any writing or other marking indicating that the person is the owner of the

thing or has had possession of the thing. However, a person who manufactured or offered the item for sale to the public, which is marked with a trade name, is not presumed to have discharged the item if found in the MS4.

(j) Notwithstanding any other provision of this Article, the Superintendent may temporarily disconnect any connection with the MS4, in order to prevent the continuing discharge of oil, a hazardous substance, sewage, or any other substance that poses an imminent health or safety threat to the community into the MS4. The person who discharged the substance is liable for all costs incurred by the City under this subsection.

(Ord. 022881, § 1, 3-25-97)

#### **Sec. 55-205. Prohibited Connections with MS4.**

(a) No person may construct, maintain, or use, or cause or allow to be constructed, maintained or used, any drain from private property into a public street or any drain that connects with the MS4, unless the person has applied for a building or plumbing permit and a permit for the connection is obtained from the Superintendent.

(b) Any person in apparent control of any property in the City, who is maintaining any connection, or causing or allowing any connection to be maintained that does not conform with the provisions of this section or any other applicable provision of the City's Code of Ordinances shall be deemed to be maintaining a prohibited connection and, upon notice in writing from the Superintendent, must remove the drain or obtain the required permits and make any modifications necessary for the drain to conform to the requirements of this section and any other applicable provisions of the City's Code of Ordinances.

(c) Upon receipt of written notice, the person in apparent control of any property in the City has five (5) working days to request a timely meeting with the Superintendent. The purpose of the meeting will be to establish a schedule, setting out when the drain will be removed or made to conform with the provisions of this section. In no event may the schedule allow for a time period greater than six months to remove the drain or bring the drain into conformance with this section.

(d) The Superintendent is authorized to execute schedules in writing.

(e) A violation of the schedule constitutes a violation of this article, and each day beyond the scheduled time of removal or repair constitutes a separate violation of this article.

(f) For purposes of this article, any person, in whose name a water meter connection is registered for servicing the private property, is presumed to be the person in apparent control of the property. Proof that the property in question has a water meter connection registered in the name of the defendant named in a criminal complaint filed under this Article constitutes prima facie evidence to support the presumption that the person in whose name such water connection is registered is the person who permitted or allowed a prohibited connection under this section.



(g) It is a defense to prosecution under this Article that the person in apparent control of the property in the City, who is charged with constructing or maintaining a prohibited connection, received prior written approval for the drain or the connection to the MS4 from the Superintendent or that the drain and the method of construction of such drain was consistent with other provisions of the City's Code of Ordinances in effect prior to the issuance of a notice of such violation of this ordinance.

(h) In the event a person in apparent control of any property in the City, upon receipt of the notice requirement set out in Section 55-211(b), fails to remove the drain or make the drain conform in every respect to the requirements of this section and any other applicable provisions of the City's Code of Ordinances, and in addition to any other remedies set out this article, the City may disconnect the prohibited connection from the MS4 and charge the costs of the disconnection to the person in apparent control of the property from which the prohibited connection originates.

(i) In the event the prohibited connection is deemed a health problem by the Director of Public Health, under Section 342.007 of the Health and Safety Code, the City may attach a lien on the property from which the prohibited connection originates.

(Ord. 022881, § 1, 3-25-97)

**Sec. 55-206. Annual Report, NPDES Compliance Monitoring, Inspection, and Sampling.**

(a) The holder of a NPDES permit shall annually report its Federal compliance status to the Superintendent on forms provided by the City.

(1) It shall be the duty of every holder of a NPDES permit to notify the City of the existence of such permit by providing the Superintendent a copy of the permit upon receipt by the permittee.

(2) Holders of either Federal NPDES permits or State NPDES permits, and persons whose facilities connect to the MS4 under written authority of the City, shall report to the Superintendent any spill, release, or event for which the holder was required to notify the National Response Center (NRC), TNRCC, or Texas General Land Office (TGLO) within one hour of the report to the NRC, TNRCC, or TGLO.

(3) The Superintendent has the authority to demand to see any NPDES permits held by the owner or operator of a business facility. The Superintendent may enter a business facility to investigate and make determination whether such business facility is subject to NPDES permitting requirements.

(4) It is a violation of this article if a business facility required to have an NPDES permits operates without a NPDES permit.

(b) The Superintendent may enter any business facility during hours in which the business facility is open for business or is operating or is discharging into the MS4 to ascertain whether there is a violation of this Article. The owner or operator of a business facility must allow the Superintendent ready access to all parts of the business facility for the purposes of inspection, sampling, records examination and copying, and the performance of any additional duties.

(1) Where a business facility has security measures in force that require proper identification and clearance before entry into the business facility, the owner or operator shall make necessary arrangements with its security guards so that, upon presentation of suitable identification, personnel from the City, State, and Federal agencies are permitted to enter without delay, for the purposes of performing their specific responsibilities.

(2) City, State, and Federal agencies have the right to set on the business facility any devices necessary to sample and/or meter any discharge or to detect any illegal or illicit discharge into the MS4.

(3) The Superintendent may require the owner or operator of a business facility to install monitoring equipment, as necessary. The business facility's sampling and monitoring equipment must be maintained at all times in a safe and proper operating condition by the owner or operator of the business facility at the owner's or operator's expense.

(4) Any temporary or permanent obstruction to safe and easy access to a business facility to be inspected and/or sampled must be promptly removed by the owner or operator at the written or verbal request of the Superintendent and shall not be replaced. The costs of clearing such access shall be born by the owner or occupant.

(5) Unreasonable delays in allowing City personnel access to residence or business facility is a violation of this article.

(6) Hours of operation of the business facility and times during which the facility is discharging into the MS4 are deemed reasonable hours for entry of City, State, or Federal inspectors for the purposes of this section.

(Ord. 022881, § 1, 3-25-97)

**Sec. 55-207 — 55-210. Reserved.**

(Ord. 022881, § 1, 3-25-97)

**Sec. 55-211. Penalties.**

(a) A violation of any provision of this article is a Class C misdemeanor. A conviction is punishable by a fine by a fine as provided in section 1-6 of this Code. Each day of violation continues constitutes a separate offense. Each violation of a separate provision in this Article

constitutes a separate offense. A culpable mental state is not required to prove an offense under this ordinance.

(b) If the person violating any of the provisions of this article is a corporation, the president, vice-president, secretary, or treasurer of the corporation or any manager, agent or employee of the corporation responsible for the management of the property where the violation occurred is severally liable for any penalty.

(c) Failure to appear in response to a citation issued for violation of this chapter is a separate violation of this article.

(Ord. 022881, § 1, 3-25-97)

**Sec. 55-212. Other Enforcement Actions Authorized.**

(a) Upon the written certification by the Code Enforcement Official or Superintendent of a violation of any section of this article, the City Attorney is authorized to petition any court of competent jurisdiction for an injunction to enjoin the continued violations. This remedy is cumulative of all other enforcement powers granted to the City by the terms of its charter, any ordinance, or by the laws of the state.

(b) In the event the responsibility and maintenance of the MS4 is transferred from the City of Corpus Christi to another public utility, such utility, upon the approval of its board, is also authorized to petition any court of competent jurisdiction for an injunction to enjoin the violation of this Article upon the written certification of the violation of a provision by an authorized representative of the governing body of such utility.

(Ord. 022881, § 1, 3-25-97)

**Sec. 55-213. Collection of Expenses; Lien, Suit.**

The Superintendent shall file a statement of expenses incurred under sections 55-205, 55-207, and 55-212, giving the amount of such expenses, the date on which such work was done and a description of the property upon which such work was done or improvements made with the county clerk of the county. The City has a privileged lien on such lot or real estate upon which such work was done or improvements made to secure the expenditures so made, under § 342.007 of the Texas Health and Safety Code, which lien is second only to tax liens and liens for street improvements, and such amount bears ten (10) per cent interest from the date the statement was filed. For any such expenditures and interest, suit may be instituted and recovery and foreclosure of such lien may be had in the name of the City, and the statement of expenses so made, or a certified copy the statement, is prima facie proof of the amount expended for such work or improvements.

(Ord. 022881, § 1, 3-25-97)

**Section 55-214. Special Warrants.**

Under Article 18.05, Texas Code of Criminal Procedure, if the Superintendent has been refused access to a building facility or residence, or any part thereof, and if such official can demonstrate (1) probable cause to believe that there may be a violation of this ordinance and (2) that there is a need to inspect as part of a routine inspection program of the City designed to verify compliance with this ordinance, or any permit or order issued under this ordinance, to protect the overall public health safety and welfare of the community, then upon application by the City Attorney, through a Code Enforcement Official, the Municipal Court Judge of the City shall issue a search and/or seizure warrant describing therein the specific location subject to the warrant. The warrant shall specify what, if anything, may be searched and/or seized on the property described. Such warrant shall be served at reasonable hours by the Code Enforcement Official in the company of a uniformed police officer of the City. Hours during business operation or during permittee's discharge to the MS4, if there be a permit, shall be presumed reasonable hours of access. In the case of a suspected unpermitted discharge, or discharge from a domestic source, the Municipal Court Judge shall make determination of reasonable hours for entry. In the event of an emergency affecting public health and safety, inspections shall be made without the issuance of a warrant.

(Ord. 022881, § 1, 3-25-97)

**Sec. 55-215. Conflicts with Other Laws.**

Nothing in this article is intended nor shall any part or portion hereof be construed so as to conflict with any applicable provisions of the Act, Texas Health and Safety Code, or Texas Water Code.

(Ord. 022881, § 1, 3-25-97)

**PLATTING ORDINANCE**

\* \* \* \* \*

**SECTION III - PROCEDURE**

\* \* \* \* \*

**I. STORM WATER QUALITY PROTECTION REQUIREMENTS.**

1. A preliminary plat shall identify the Receiving Waters, as defined in Section 13-201, which will ultimately receive any storm water runoff from the tract and whether the stream segment, bay, or estuary is classified as having an "Exceptional" aquatic life use by TNRCC under 30 TAC 307.7(b)(3) and 307.10.
  
2. A preliminary plat shall identify the location of any of the following features that are located on the tract or adjoin the tract being platted.
  - a) Any natural body of water, including an intermittent or perennial stream.
  
  - b) A preliminary description of any area that is probably Endangered/Protected Species Habitat.
  
  - c) A preliminary description of any area of the site that may be jurisdictional wetland, as defined by 33 CFR 328.3(b).
  
  - d) A preliminary boundary line of any submerged lands belonging to the State of Texas that adjoins the tract.
  
  - e) A preliminary determination of the location of any Critical Dune Areas that may be located on the site.
  
3. A final plat must contain any information required in subparagraphs 1 and 2 of this paragraph and must identify the location of any of the following features that are located on the tract being platted.
  - a) The location of FEMA Flood Insurance Rate Map 100 year Floodplain Boundaries that encroach on the site.
  
  - b) The location of FEMA Floodway Boundaries that encroach on the site.

- c) The location of FEMA Velocity Zone Boundaries that encroach on the site.
- d) Any area identified as providing Endangered/Protected Species Habitat by the Texas Parks and Wildlife Department or U. S. Fish and Wildlife Service.
- e) The limits of any current jurisdictional wetland, as defined by 33 CFR 328.3(b).
- f) The boundary line of any submerged lands belonging to the State of Texas that adjoins the tract, based on a State-approved determination of the boundary between the State-owned lands and privately-owned property.
- g) The location of any Critical Dune Areas, as determined by the Land Commissioner under Texas Natural Resources Code § 63.121.

(Ord. No. 022941, § 2, 5-27-97)

\* \* \* \* \*

**SECTION V - REQUIRED IMPROVEMENTS**

\* \* \* \* \*

**B. MINIMUM STANDARDS:**

\* \* \* \* \*

**10. STORM WATER QUALITY CONTROL MEASURES TO REDUCE POLLUTION AFTER CONSTRUCTION.**

- a) **Storm Water Management Guidance Document for Developmental Planning and Construction Activities.** Prior to submission of a preliminary plat or final plat for review, the Responsible Party shall review the City of Corpus Christi's Storm Water Management Guidance Document for Developmental Planning and Construction Activities, adopted by Section 13-200, Code of Ordinances, and determine whether it is feasible to incorporate cost effective Best Management Practices that will reduce pollution of the receiving waters by storm water runoff from the property being platted.

- b) **Storm Water Quality Management Plan.** A site specific Storm Water Quality Management Plan, as defined in Section 13-201 of the Code of Ordinances, is required for all residential, commercial, and industrial developments of five (5) acres or more. For the purpose of this section, the area of the development shall include all adjoining land owned by the same person, regardless of the amount of land that will be affected by the development activity. The Storm Water Quality Management Plan must be submitted at the time of submission of a preliminary plat; a final plat if no preliminary plat was submitted or a Storm Water Quality Management Plan was not submitted with the preliminary plat; or a replat of a final plat, if a Storm Water Quality Management Plan was not submitted with the preliminary plat or final plat.
- c) **Permanent Measures to Reduce Pollution from Runoff.** During the planning for development, areas sensitive to storm water pollution must be identified, including water supply sources, recreational waters, and environmentally sensitive areas, as defined in Section 13-201 of the Code of Ordinances, in order to provide a criterion upon which to base cost effective storm water control measures.
- (1) Vegetated buffer strips are encouraged along boundaries of environmentally sensitive areas. Native vegetation should be utilized where practicable.
  - (2) Drainage outfalls that will discharge directly into an environmentally sensitive area shall be located with consideration of the natural topography and drainage patterns of the environmentally sensitive area. Velocity control must be provided at outfall openings to eliminate erosion of the environmentally sensitive area. Rock rubble shall be placed at the outfall to allow for velocity reduction and trapping of some floating debris and sediments from storm water.
  - (3) All wetlands must be delineated, and any required permits obtained from the U.S. Army Corps of Engineers, or other appropriate regulatory agencies, before work that may disturb the wetlands is commenced.
  - (4) All plats of lands that border on submerged lands belonging to the State of Texas must have a State-approved determination of the boundary between the State-owned land and privately owned property. The boundary line must be shown on the final plat.
  - (5) All projects that will occur within 1,000 feet of the mean high tide limit of the Gulf of Mexico must comply with the City of Corpus

Christi Dune Protection and Beach Access Plan; Chapter 10, Beachfront Management and Construction, of the Code of Ordinances; and the Nueces County Beach Management Plan.

- (6) Any development within the Nueces River watershed that is upstream from the City's raw water supply intake must be designed to reduce runoff of contaminated storm water to the water supply.
- (7) Greenbelts should be planned where possible to function in combination with drainage ways, park lands, and rights of way. Grassy drainage swales, which will encourage percolation of drainage waters and reduce erosion from unlined drainage channels, are encouraged.

(Ord. No. 022941, § 3, 5-27-97)



**6.4 PROPOSED REISSUANCE OF NPDES GENERAL PERMITS FOR STORM  
WATER DISCHARGES FROM CONSTRUCTION ACTIVITIES**

# **federal register**

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**Monday  
June 2, 1997**

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## **Part II**

# **Environmental Protection Agency**

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**Proposed Reissuance of NPDES General  
Permits for Storm Water Discharges  
From Construction Activities; Notice  
Agency Information Collection Activities  
Notice**

**ENVIRONMENTAL PROTECTION AGENCY**

[FRL-5832-6]

**Proposed Reissuance of NPDES General Permits for Storm Water Discharges From Construction Activities****AGENCY:** Environmental Protection Agency (EPA).**ACTION:** Notice of proposed NPDES general permits.

**SUMMARY:** The Regional Administrators of Regions I, II, III, VI, VII, VIII, IX, and X are today proposing to re-issue National Pollutant Discharge Elimination System (NPDES) general permits for storm water discharges associated with construction activity. EPA first issued permits for these activities in September 1992. Almost all of these existing permits expire in September 1997 and today's proposed permits will be replacements. Today's permits are similar to the 1992 permits and will authorize the discharge of storm water from construction activities consistent with the terms and conditions of these permits.

**ADDRESSES:** The index to the administrative record for this permit is available at the appropriate Regional Office or from the EPA Water Docket in Washington, DC. The complete administrative record is located at the Water Docket, MC-4101, U.S. EPA, 401 M Street SW, Washington, DC 20460. Copies of information in the record are available upon request. A reasonable fee may be charged for copying. Specific record information can also be made available at the appropriate Regional Office upon request.

**FOR FURTHER INFORMATION CONTACT:** For further information on the proposed NPDES general permit write or telephone the EPA Regional Storm Water Coordinators at the addresses listed in Part IV. J. of this Fact Sheet. **PUBLIC COMMENT PERIOD:** The public comment period for this proposed permit will be from the date of publication until August 1, 1997. All public comments shall be submitted to: ATTN: CBGP—Comments, W-97-01, Water Docket MC-4101, U.S. EPA, Room 2616 Mail, 401 M Street SW., Washington, DC 20460

Please submit the original and three copies of your comments and enclosures (including references). Comments must be received or post-marked by midnight no later than August 1, 1997. To ensure that EPA can read, understand and therefore properly respond to comments, the Agency would prefer

that commenters cite, where possible, the paragraph(s) or sections in the notice or supporting documents to which each comment refers. Commenters who want EPA to acknowledge receipt of their comments should enclose a self-addressed stamped envelope. No facsimiles (faxes) will be accepted. Comments may also be submitted electronically to: ow-docket@epamail.epa.gov. Electronic comments must be submitted as an ASCII file avoiding the use of special characters and forms of encryption. Electronic comments must be identified by the docket number W-97-01. No Confidential Business Information (CBI) should be submitted through e-mail. Comments and data will also be accepted on disks in WordPerfect 5.1 format or ASCII file format. Electronic comments on this notice may be filed online at many Federal Depository Libraries.

The record for these proposed permits has been established under docket number W-97-01, and includes supporting documentation as well as printed, paper versions of electronic comments. It does not include any information claimed as CBI. The record is available for inspection from 9 am to 4 pm, Monday through Friday, excluding legal holidays, at the Water Docket, Room M2616, Washington, DC 20460. For access to the docket materials, please call (202) 260-3027 to schedule an appointment.

**Public Hearings**

Public hearings will be held at the times and locations provided below.

**EPA Region 1:****Boston, Massachusetts**

Date: Thursday, July 24, 1997.

Time: 6:00 pm-9:00 pm.

Place: John A. Volpe National Transportation Systems Center, 55 Broadway—Kendall Square, Cambridge, MA 02142.

**Portland, Maine**

Date: Tuesday, July 22, 1997.

Time: 2:00 pm-5:00 pm.

Place: Portland City Hall, 389 Congress Street, Room 208, Portland, ME 04101.

**Concord, New Hampshire**

Date: Tuesday, July 1, 1997.

Time: 6:00 pm-9:00 pm.

Place: Department of Environmental Services, Auditorium, 6 Hazen Drive, Concord, NH 03302.

**EPA Region 6:****Public Meetings**

Houston, TX: June 17, 1997, 1:00 pm, Howard Johnson/Hobby, 7777 Airport Blvd., Houston, Texas.

Albuquerque, NM: June 20, 1997, 1:00 pm, University of New Mexico, Student Union Grand Ballroom, Albuquerque, New Mexico.  
Dallas, TX: July 10, 1997, 9:00 am, EPA Region 6 Offices, 12th Floor, 1445 Ross Ave., Dallas, Texas.

**Public Hearing**

Dallas, TX: July 10, 1997, 1:00 pm, EPA Region 6 Offices, 12th Floor, 1445 Ross Ave., Dallas, Texas.

The public meetings will include a presentation on the draft permits and a question and answer session. Written, but not oral, comments for the official permit record will be accepted at the public meetings. The public hearing in Dallas covers all Region 6 draft permits proposed today, will be conducted in accordance with 40 CFR 124.12, and provides interested parties with the opportunity to provide written and/or oral comments for the official record.

**EPA Region 9:**

Date: July 24, 1997.

Time: 1-5 p.m.

Place: Arizona Department of Environmental Quality, Public Meeting Room, 3033 North Central Ave., Phoenix, Arizona.

**EPA Region 10:****Boise, Idaho**

Date: Thursday, July 24, 1997.

Time: 6:00 pm-10:00 pm.

Place: Idaho Public Television Building, Telemedia Room (First Floor), 1455 North Orchard, Boise, Idaho 83706

**Seattle, Washington**

Date: Tuesday, July 29, 1997.

Time: 6:00 pm-10:00 pm.

Place: Park Place Building, Denali/Kenai Room (14th Floor), 1200 6th Avenue, Seattle, Washington 98101

**Anchorage, Alaska**

Date: Thursday, July 31, 1997.

Time: 5:00 pm-9:00 pm.

Place: Federal Building/United States Court House, Room 135, 222 West 7th Avenue, Anchorage, Alaska 99513

**SUPPLEMENTARY INFORMATION:****Contents**

- I. Introduction
- II. Coverage of General Permits
- III. Summary of Options for Controlling Pollutants
- IV. Summary of Permit Conditions
  - A. Eligibility
  - B. Limitations on Coverage
  - C. Obtaining Coverage
  - D. Terminating Coverage
  - E. Notice of Intent Requirements
    1. Deadlines for Submitting NOIs
    2. Contents of the NOI

3. Where to Submit
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- F. Special Conditions, Management Practices and Other Non-Numeric Limitations
1. Prohibitions on Non-storm Water Discharges
2. Releases of Reportable Quantities of Hazardous Substances or Oil
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- G. Pollution Prevention Plan Requirements
  1. Deadline for Plan Preparation
  2. Signature and Plan Review
  3. Making Plans Available
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  5. Contents of the Plan
    - a. Site Description
    - b. Controls to Reduce Pollutants
    - c. Maintenance
    - d. Inspections
    - e. Non-Storm Water Discharges
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  7. Contractors/Subcontractors
  - H. Retention of Records
  - I. Notice of Termination Requirements
  - J. Regional Offices
- V. Cost Estimates
- VI. Economic Impact (Executive Order 12866)
- VII. Unfunded Mandates Reform Act
- VIII. Paperwork Reduction Act
- IX. Section 401/Coastal Zone Management Act Certification
- X. Regulatory Flexibility Act
- XI. Official Signatures

### Part I—Introduction

The Regional Administrators of the United States Environmental Protection Agency (EPA) are proposing to re-issue general permits to authorize storm water discharges associated with construction activity disturbing five or greater acres. EPA is expanding coverage in this proposal to also provide for coverage for construction sites of under five acres of disturbed land where designated by the Director for coverage under 40 CFR 122.26(a)(1)(v) or 122.26(a)(9) and 122.26(g)(1)(i). These proposed permits will take the place of the existing construction storm water general permits, which in almost all cases were issued for five year terms in September 1992 and expire in September 1997.

These proposed new permits are similar to the existing permit, with several changes. The most significant changes include expanded conditions to protect endangered and threatened species; new conditions to protect historic properties; a new requirement to post a copy of the permit coverage confirmation and a brief description of the project; provide for public access to copies of a pollution prevention plan on the site, or in another nearby location where it can be viewed by the public, if they request; terms for construction activities transitioning from the existing

permit; clarification of who must be a permittee and their requirements; a streamlined permitting option for utility companies; the requirement to submit a notice of permit termination when construction is completed; the ability to acquire permit coverage for other construction dedicated industrial activities (e.g. concrete batching plant) under this one permit; and pollution prevention plan performance objectives.

Point source discharges of storm water associated with industrial activity are prohibited unless authorized under a National Pollutant Discharge Elimination System (NPDES) permit by the Clean Water Act. In 1990, EPA promulgated the storm water permit application rule (55 FR 47990), as revised, which defined what types of industrial activity are subject to this requirement. EPA defined storm water discharges associated with industrial activity to include construction activity disturbing five or more acres of land. EPA issued the first general permits to cover construction activities in September 1992. These proposed general permits for storm water discharges associated with construction activity will be issued with distinctly different permit numbers in the following areas:

*Region 1:* The Commonwealth of Massachusetts, the States of Maine and New Hampshire, and Indian Country lands in the Commonwealth of Massachusetts, the States of Maine, New Hampshire, Rhode Island, and Connecticut; and Indian Country lands and Federal facilities in Vermont.

*Region 2:* The Commonwealth of Puerto Rico and Indian Country lands in the State of New York.

*Region 3:* District of Columbia; Federal facilities in the State of Delaware.

*Region 6:* The States of New Mexico and Texas; Indian Country lands in Louisiana, Oklahoma and Texas; New Mexico (except Navajo Reservation lands (see Region 9) and Ute Mountain Ute Reservation lands (see Region 8)).

*Region 7:* Indian Country lands in Iowa, Kansas and Nebraska, (except Pine Ridge Reservation lands (see Region 8)).

*Region 8:* Federal facilities in Colorado and Indian Country lands in Colorado (including the portion of the Ute Mountain Ute Reservation located in New Mexico); Indian Country lands in Montana; Indian Country lands in North Dakota (including that portion of the Standing Rock Reservation located in South Dakota—except for the Lake Traverse Reservation which is covered under the permit for areas of South Dakota); Indian Country lands in South

Dakota (including the portion of the Pine Ridge Reservation located in Nebraska and the portion of the Lake Traverse Reservation located in North Dakota—except for the Standing Rock Reservation which is covered under the permit for areas of North Dakota); Indian County lands in Utah (except Goshute and Navajo Reservation lands (see Region 9)) and Indian Country lands in Wyoming.

*Region 9:* The Island of American Samoa, the State of Arizona, the Island of Guam, Johnston Atoll, Midway Island and Wake Island, Commonwealth of the Northern Mariana Islands; and Indian Country lands in the State of Arizona (including Navajo Reservation lands in New Mexico and Utah), the State of California, and the State of Nevada (including the Duck Valley Reservation in Idaho, the Fort McDermitt Reservation in Oregon and the Goshute Reservation in Utah).

*Region 10:* The States of Idaho and Alaska; Indian Country lands in Idaho (except Duck Valley Reservation (see Region 9)), Alaska, Washington, and Oregon (except see Region 9 for Fort McDermitt Reservation); and Federal facilities in Washington.

### Part II—Coverage of General Permits

Section 402(p) of the Clean Water Act (CWA) states that storm water discharges associated with industrial activity to waters of the United States must be authorized by an NPDES permit. On November 16, 1990, EPA published regulations under the NPDES program which defined the term "storm water discharge associated with industrial activity". Included in this definition are storm water discharges from construction activities (including clearing, grading, and excavation activities) that result in the disturbance of five or more acres of total land area, including smaller areas that are part of a larger common plan of development or sale (40 CFR 122.26(b)(14)(x)).<sup>1</sup> These types of construction activity are commonly referred to as Phase I construction activities. The term "storm water discharge from construction activities" will be used in this document to refer to the variety of storm water discharges from Phase I construction sites that are related to actions commonly occurring on, or in

<sup>1</sup> On June 4, 1992, the United States Court of Appeals for the Ninth Circuit remanded the exemption for construction sites of less than five acres to the EPA for further rulemaking (*Natural Resources Defense Council v. EPA*, Nos. 90-70671 and 91-70200, slip op. at 6217 (9th Cir. June 4, 1992). Until a new rule is promulgated to address sites of under five acres, EPA will continue to require NPDES permits for storm water discharges from construction activities of five or more acres

support of, construction, including those that meet the definition of a storm water discharge associated with industrial activity or those that are designated under the designation provisions of 40 CFR 122.26.

The previous permit may have created some confusion as to eligibility for operators of sites disturbing less than five acres that are part of a larger common plan of development or sale. EPA is clarifying in today's proposed permit, that all construction activity regulated under 40 CFR 122.26(b)(14)(x) is eligible for coverage under this permit including small construction sites disturbing less than five acres that are a part of a larger common plan of development of which disturbance cumulatively exceeds five acres. These are also Phase I construction activities.

EPA further clarifies that singular construction sites with disturbances of less than five acres are not eligible for coverage under this permit unless they are specifically designated for coverage under 40 CFR 122.26 (a)(1)(v) or under 122.26(a)(9) and 122.26(g)(1)(i). Under EPA's existing regulations, these facilities are required to submit permit applications not later than August 7, 2001, unless an applicant is specifically required by the Director to submit an application before that time. These small (Phase II) construction sites will be addressed by EPA in future rulemaking in response to the Ninth Circuit decision. EPA is employing the assistance of a Federal Advisory Committee to make recommendations on how best to deal with such sites. EPA will publish a proposed rule addressing these Phase II small construction activities by September 1, 1997 and will finalize this rule by March 1, 1999. As a result of this effort, if singular construction sites of less than five acres are regulated under the NPDES Phase II storm water permitting program, permits for those sites will be issued at a future date.

EPA issued the first round of Phase I construction general permits on two dates; September 9, 1992 for certain States and territories and on September 25, 1992 for the remaining States and territories where EPA is the permitting authority. Today's proposed permit is the second round permit for use in the States, Territories and Indian Country lands where EPA is the NPDES permitting authority. In this second round permit, EPA is expanding permit coverage to certain Indian Country lands which were not covered under the 1992 permit. These new areas are listed in the areas of coverage section of the proposed permit and this fact sheet.

All Phase I construction activity operators in EPA Region IV should take note, that different from the 1992 permit, this second round permit no longer authorizes discharges from construction activities in Indian Country lands located in Florida, Mississippi or North Carolina. EPA Region IV is preparing a separate second round permit for use in all Region IV areas where EPA is the NPDES permitting authority. This permit was separately noticed in the **Federal Register** on April 16, 1997 (Volume 62, Number 73, pages 18605-18628) for storm water discharges in Florida.

EPA intends to issue this second round construction storm water general permit prior to expiration of the existing 1992 permit which expires on September 9, 1997 for most locations where EPA is the permitting authority and on September 25, 1997 for the other areas. EPA intends to make every effort to issue this permit prior to the expiration date of the existing permits. However, if this does not occur, under the Administrative Procedures Act (APA), when EPA is the permit issuing authority, the conditions in an expired permit remain in force until the effective date of the new permit, provided the applicant submits a timely application (40 CFR 122.6, 48 FR 14158 (April 1, 1983)).

EPA is proposing that construction projects currently authorized to discharge under the 1992 construction general permit, submit a new notice of intent (NOI) for continued coverage under the APA extended permit, should they need continuing permit coverage past the expiration date. If a project is scheduled to begin near the time of permit expiration and EPA has yet to issue the new permit, EPA recommends that the operator submit an NOI further in advance of the start of the project than the minimum 48 hours and prior to expiration of the existing permit.

Upon issuance of the new permit, operators as defined in this proposed permit, must submit an NOI in accordance with the requirements of the permit. The proposed permit proposes the use of a revised NOI form. This new general permit would authorize storm water discharges from existing construction sites and new construction sites over the five year term of issuance. To obtain authorization under today's permit, a discharger must submit a complete and accurate NOI and comply with the terms of the permit. The terms of the permit, including the requirements for submitting an NOI, are discussed in more detail below.

The following discharges are not authorized by this proposed general permit:

- Storm water discharges associated with industrial activity that originate from the site after construction activities have been completed and the site has undergone final stabilization;
- Non-storm water discharges (except certain non-storm water discharges specifically listed in today's general permit). However, today's permit can authorize storm water discharges from construction activities where the discharges are mixed with non-storm water discharges that are authorized by a different NPDES permit;
- Storm water discharges from construction activities that are covered by an existing NPDES individual or general permit. However, storm water discharges associated with industrial activity from a construction site that are authorized by an existing permit may be authorized by today's general permit after the existing permit expires, provided the expired permit did not establish numeric limitations for the storm water discharges;
- Storm water discharges from construction activities that the Director has determined to be or may reasonably be expected to be contributing to a violation of a water quality standard;
- Storm water discharges from construction activity and the construction and implementation of Best Management Practices (BMPs) to control storm water runoff, if the discharges are likely to adversely affect a listed endangered or threatened species or its critical habitat (unless in compliance with specific Endangered Species Act (ESA) related permit conditions in this permit); and
- Storm water discharges from construction activities, and the construction and implementation of Best Management Practices (BMPs) to control storm water runoff, if the discharges are not in compliance with the National Historic Preservation Act (NHPA).

### Part III—Summary of Options for Controlling Pollutants

EPA is providing the following summary information on controlling pollutants in storm water discharges in order to assist permittees in preparing storm water pollution prevention plans. Most controls for construction activities can be categorized into two groups:

- Sediment and erosion controls; and
- Storm water management measures.

Sediment and erosion controls generally address pollutants in storm water generated from the site during the time when construction activities are

occurring. Storm water management measures generally are installed during and before completion of the construction process, but primarily result in reductions of pollutants in storm water discharged from the site after the construction has been completed. Additional measures include housekeeping best management practices.

#### A. Sediment and Erosion Controls

Erosion controls provide the first line of defense in preventing offsite sediment movement and are designed to prevent erosion through protection and preservation of soils. Sediment controls are designed to remove sediment from runoff before the runoff is discharged from the site. Sediment and erosion controls can be further divided into two major classes of controls: stabilization practices and structural practices. Major types of sediment and erosion practices are summarized below. A more complete description of these practices is given in "Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices," U.S. EPA, 1992.

##### 1. Sediment and Erosion Controls: Stabilization Practices

Stabilization, as discussed here, refers to covering or maintaining an existing cover over soils. The cover may be vegetation, such as grass, trees, vines, or shrubs. Stabilization measures can also include nonvegetative controls such as geotextiles, riprap, or gabions (wire mesh boxes filled with rock). Mulches, such as straw or bark, are most effective when used in conjunction with establishing vegetation, but can be used without vegetation. Stabilization of exposed and denuded soils is one of the most important factors in minimizing erosion while construction activities occur. A vegetation cover reduces the erosion potential of a site by absorbing the kinetic energy of raindrops that would otherwise disturb unprotected soil; intercepting water so that it infiltrates into the ground instead of running off the surface; and slowing the velocity of runoff, thereby promoting deposition of sediment in the runoff. Stabilization measures are often the most important measures taken to prevent offsite sediment movement and can provide large reductions suspended sediment levels in discharges and receiving waters.<sup>2</sup> Examples of

stabilization measures are summarized below.

a. *Temporary Seeding.* Temporary seeding provides for temporary stabilization by establishing vegetation at areas of the site where activities will temporarily cease until later in the construction project. Without temporary stabilization, soils at these areas are exposed to precipitation for an extended time period, even though work is not occurring on these areas. Temporary seeding practices have been found to be up to 95 percent effective in reducing erosion.<sup>3</sup>

b. *Permanent Seeding.* Permanent seeding involves establishing a sustainable ground cover at a site. Permanent seeding stabilizes the soil to reduce sediment in runoff from the site by controlling erosion and is typically required at most sites for aesthetic reasons.

c. *Mulching.* Mulching is typically conducted as part of permanent and temporary seeding practices. Where temporary and permanent seeding is not feasible, exposed soils can be stabilized by applying plant residues or other suitable materials to the soil surface. Although generally not as effective as seeding practices, mulching by itself, does provide some erosion control. Mulching in conjunction with seeding provides erosion protection prior to the onset of vegetation growth. In addition, mulching protects seeding activities, providing a higher likelihood of successful establishment of vegetation. To maintain optimum effectiveness, mulches must be anchored to resist wind displacement.

d. *Sod Stabilization.* Sod stabilization involves establishing long-term stands of grass with sod on exposed surfaces. When installed and maintained properly, sodding can be more than 99 percent effective in reducing erosion,<sup>4</sup> making it the most effective vegetation practice available. The cost of sod stabilization (relative to other vegetative controls) typically limits its use to exposed soils where a quick vegetative cover is desired and sites which can be maintained with ground equipment. In addition, sod is sensitive to climate and may require intensive watering and fertilization.

e. *Vegetative Buffer Strips.* Vegetative buffer strips are preserved or planted strips of vegetation at the top and bottom of a slope, outlining property boundaries, or adjacent to receiving

waters such as streams or wetlands. Vegetative buffer strips can slow runoff flows at critical areas, decreasing erosion and allowing sediment deposition.

f. *Protection of Trees.* This practice involves preserving and protecting selected trees that exist on the site prior to development. Mature trees provide extensive canopy and root systems which help to hold soil in place. Shade trees also keep soil from drying rapidly and becoming susceptible to erosion. Measures taken to protect trees can vary significantly, from simple measures such as installing tree fencing around the drip line and installing tree armoring, to more complex measures such as building retaining walls and tree wells.

##### 2. Sediment and Erosion Controls: Structural Practices

Structural practices involve the installation of devices to divert flow, store flow, or limit runoff. Structural practices have several objectives. First, structural practices can be designed to prevent water from crossing disturbed areas where sediment may be removed. This involves diverting runoff from undisturbed up slope areas through use of earth dikes, temporary swales, perimeter dike/swales, or diversions to stable areas. A second objective of structural practices can be to remove sediment from site runoff before the runoff leaves the site. Approaches to removing sediment from site runoff include diverting flows to a trapping or storage device or filtering diffuse flow through silt fences before it leaves the site. All structural practices require proper maintenance (removal of sediment) to remain functional.

a. *Earth Dike.* Earth dikes are temporary berms or ridges of compacted soil that channel water to a desired location. Earth dikes should be stabilized with vegetation.

b. *Silt Fence.* Silt fences are a barrier of geotextile fabric (filter cloth) used to intercept sediment in diffuse runoff. They must be carefully maintained to ensure structural stability and to remove excess sediment.

c. *Drainage Swales.* A drainage swale is a drainage channel lined with grass, riprap, asphalt, concrete, or other materials. Drainage swales are installed to convey runoff without causing erosion.

d. *Sediment Traps.* Sediment traps can be installed in a drainage way, at a storm drain inlet, or other points of discharge from a disturbed area.

e. *Check Dams.* Check dams are small temporary dams constructed across a swale or drainage ditch to reduce the

<sup>3</sup>"Guides for Erosion and Sediment Control in California," USDA, Soil Conservation Service, Davis CA, Revised 1985.

<sup>4</sup>"Guides for Erosion and Sediment Control in California," USDA—Soil Conservation Service, Davis CA, Revised 1985.

<sup>2</sup>"Performance of Current Sediment Control Measures at Maryland Construction Sites," January 1990, Metropolitan Washington Council of Governments.

velocity of runoff flows, thereby reducing erosion of the swale or ditch. Check dams should not be used in a live stream. Check dams reduce the need for more stringent erosion control practices in the swale due to the decreased velocity and energy of runoff.

f. *Level Spreader*. Level spreaders are outlets for dikes and diversions consisting of an excavated depression constructed at zero grade across a slope. Level spreaders convert concentrated runoff into diffuse runoff and release it onto areas stabilized by existing vegetation.

g. *Subsurface Drain*. Subsurface drains transport water to an area where the water can be managed effectively. Drains can be made of tile, pipe, or tubing.

h. *Pipe Slope Drain*. A pipe slope drain is a temporary structure placed from the top of a slope to the bottom of a slope to convey surface runoff down slopes without causing erosion.

i. *Temporary Storm Drain Diversion*. Temporary storm drain diversions are used to re-direct flow in a storm drain to discharge into a sediment trapping device.

j. *Storm Drain Inlet Protection*. Storm drain inlet protection can be provided by a sediment filter or an excavated impounding area around a storm drain inlet. These devices prevent sediment from entering storm drainage systems prior to permanent stabilization of the disturbed area.

k. *Rock Outlet Protection*. Rock protection placed at the outlet end of culverts or channels can reduce the depth, velocity, and energy of water so that the flow will not erode the receiving downstream reach.

l. *Other Controls*. Other controls include temporary sediment basins, sump pits, entrance stabilization measures, waterway crossings, and wind breaks.

### B. Storm Water Management Measures

Storm water management measures are installed during and prior to completion of the construction process, but primarily result in reductions of pollutants in storm water discharged from the site after the construction has been completed. Construction activities often result in significant changes in land use. Such changes typically involve an increase in the overall imperviousness of the site, which can result in dramatic changes to the runoff patterns of a site. As the amount within a drainage area increases, the amount of pollutants carried by the runoff increases. In addition, activities such as automobile travel on roads can result in higher pollutant concentrations in

runoff compared to preconstruction levels. Traditional storm water management controls attempt to limit the increases in the amount of runoff and the amount of pollutants discharged from a site associated with the change in land use.

Major classes of storm water management measures include infiltration of runoff onsite; flow attenuation by vegetation or natural depressions; outfall velocity dissipation devices; storm water retention structures and artificial wetlands; and storm water detention structures. For many sites, a combination of these controls may be appropriate. A summary of storm water management controls is provided below. A more complete description of storm water management controls is found in "Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices," U.S. EPA, 1992, and "A Current Assessment of Urban Best Management Practices," Metropolitan Washington Council of Governments, March 1992.

#### 1. Onsite Infiltration

A variety of infiltration technologies, including infiltration trenches and infiltration basins, can reduce the volume and pollutant loadings of storm water discharges from a site. Infiltration devices tend to mitigate changes to predevelopment hydrologic conditions. Properly designed and installed infiltration devices can reduce peak discharges, provide ground water recharge, augment low flow conditions of receiving streams, reduce storm water discharge volumes and pollutant loads, and protect downstream channels from erosion. Infiltration devices are a feasible option where soils are permeable and the water table and bedrock are well below the surface. Infiltration basins can also be used as sediment basins during construction<sup>5</sup>. Infiltration trenches can be more easily placed into under-utilized areas of a development and can be used for small sites and infill developments. However, trenches may require regular maintenance to prevent clogs, particularly where grass inlets or other pollutant removing inlets are not used. In some situations, such as low density areas of parking lots, porous pavement can provide for infiltration.

<sup>5</sup>"Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs," July, 1987, Metropolitan Washington Council of Governments.

#### 2. Flow Attenuation by Vegetation or Natural Depressions

Flow attenuation provided by vegetation or natural depressions can provide pollutant removal and infiltration and can lower the erosive potential of flows<sup>6</sup>. In addition, these practices can enhance habitat values and the appearance of a site. Vegetative flow attenuation devices include grass swales and filter strips as well as trees that are either preserved or planted during construction.

Typically the costs of vegetative controls are less than other storm water practices. The use of check dams incorporated into flow paths can provide additional infiltration and flow attenuation.<sup>7</sup> Given the limited capacity to accept large volumes of runoff, and potential erosion problems associated with large concentrated flows, vegetative controls should usually be used in combination with other storm water devices.

Grass swales are typically used in areas such as low or medium density residential development and highway medians as an alternative to curb and gutter drainage systems.<sup>8</sup>

#### 3. Outfall Velocity Dissipation Devices

Outfall velocity dissipation devices include riprap and stone or concrete flow spreaders. Outfall velocity dissipation devices slow the flow of water discharged from a site to lessen erosion caused by the discharge.

#### 4. Retention Structures/Artificial Wetlands

Retention structures include ponds and artificial wetlands that are designed to maintain a permanent pool of water. Properly installed and maintained retention structures (also known as wet ponds) and artificial wetlands<sup>9</sup> can achieve a high removal rate of sediment, BOD, organic nutrients and metals, and are most cost-effective when used to control runoff from larger, intensively developed sites.<sup>10</sup> These devices rely on settling and biological processes to

<sup>6</sup>"Urban Targeting and BMP Selection," United States EPA, Region V, November 1990.

<sup>7</sup>"Standards and Specifications for Infiltration Practices," 1984, Maryland Water Resources Administration.

<sup>8</sup>"Controlling Urban Runoff: A Practical Manual for Planning and Designing Urban BMPs," Metropolitan Washington Council of Governments, July 1987.

<sup>9</sup>See "Wetland basins for Storm Water Treatment: Discussion and Background," Maryland Sediment and Storm Water Division, 1987 and "The Use of Wetlands for Controlling Stormwater Pollution," Strecker, E., et. al., 1990.

<sup>10</sup>"Controlling Urban Runoff, A Practical Manual for Planning and Designing Urban BMPs," Metropolitan Washington Council of Governments, 1987.

remove pollutants. Retention ponds and artificial wetlands can also create wildlife habitat, recreation, and landscape amenities, as well as corresponding higher property values.

#### 5. Water Quality Detention Structures

Storm water detention structures include extended detention ponds, which control the rate at which the pond drains after a storm event. Extended detention ponds are usually designed to completely drain in about 24 to 40 hours, and will remain dry at other times. They can provide pollutant removal efficiencies that are similar to those of retention ponds.<sup>11</sup> Extended detention systems are typically designed to provide both water quality and water quantity (flood control) benefits.

#### C. Housekeeping BMPs

Pollutants that may enter storm water from construction sites because of poor housekeeping include oils, grease, paints, gasoline, concrete truck wash down, raw materials used in the manufacture of concrete (e.g., sand, aggregate, and cement), solvents, litter, debris, and sanitary wastes.

Construction site management plans can address the following to prevent the discharge of these pollutants:

- Designate areas for equipment maintenance and repair;
- Provide waste receptacles at convenient locations and provide regular collection of wastes;
- Locate equipment wash down areas on site, and provide appropriate control of washwaters;
- Provide protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials; and
- Provide adequately maintained sanitary facilities.

### Part IV—Summary of Permit Conditions

#### A. Eligibility

These proposed permits would authorize all discharges of storm water from construction activities, except those discussed under the Limitations on Coverage section. Any discharge authorized by a different NPDES permit may be commingled with discharges authorized by this permit. The proposed permit would also authorize discharges from support activities which are related to the construction project (e.g., concrete or asphalt batch plants, equipment staging yards, material storage areas, etc.) provided that the

support activities meet the following conditions:

- The support activity is not a commercial operation serving multiple unrelated construction projects and does not operate beyond the completion of the construction project; and
- Appropriate controls and measures are identified in the storm water pollution prevention plan for the discharges from the support activity areas.

#### B. Limitations on Coverage

The following storm water discharges from construction sites are not authorized by this permit:

1. Storm water discharges which originate from the site after the construction activities have been completed and the site has undergone final stabilization
2. Storm water discharges which are mixed with non storm water sources other than those identified and in compliance with the permit. Non storm water discharges which are authorized under a different NPDES permit may be commingled with discharges authorized under this permit.
3. Storm water discharges associated with construction activity that have been issued an individual permit or required to obtain coverage under an alternative general permit are not covered under this permit.
4. Storm water discharges which the Director (EPA) has determined to be or may reasonable be expect to be contributing to a violation of water quality standards are not covered by this permit.
5. Discharges which are not in compliance with the Endangered Species Act (ESA). In order to obtain coverage, the applicant must certify to meeting one of the criteria detailed in the permit. The criteria are as follows: (a) The storm water discharge(s), and the construction and implementation of Best Management Practices (BMPs) to control storm water runoff, are not likely to adversely affect species identified in Addendum A<sup>12</sup> of this permit or critical habitat for a listed species; or (b) the applicant's activity has received previous authorization

<sup>12</sup> Proposed Addendum A is a State/County listing of endangered species that applicants can refer to to ensure compliance with the eligibility terms and conditions of the proposed permit. Addendum A is not included in this notice, but can be found as Addendum H to the Multi-Sector Storm Water General Permit issued on September 29, 1995 (60 FR 50804). EPA will prepare a final Addendum A to accompany the issuance of the final permit after the public comment period. Reviewers wishing to make comment on Addendum A for today's proposed permit may do so by reviewing Addendum H in the Multi-Sector Permit.

under section 7 or section 10 of the Endangered Species Act and that authorization addressed storm water discharges and/or BMPs to control storm water runoff (e.g., developer included impact of entire project in consultation over a wetlands dredge and fill permit under Section 7 of the Endangered Species Act); or (c) the applicant's activity was considered as part of a larger, more comprehensive assessment of impacts on endangered and threatened species under section 7 or section 10 of the Endangered Species Act that which accounts for storm water discharges and BMPs to control storm water runoff (e.g., where an area-wide habitat conservation plan and section 10 permit is issued which addresses impacts from construction activities including those from storm water, or a National Environmental Policy Act (NEPA) review is conducted which incorporates ESA section 7 procedures); or (d) consultation under section 7 of the Endangered Species Act is conducted for the applicant's activity which results in either a no jeopardy opinion or a written concurrence on a finding of no likelihood of adverse effects; or (e) the applicant's activity was considered as part of a larger, more comprehensive site-specific assessment of impacts on endangered and threatened species by the owner or other operator of the site and that permittee certified eligibility under item (a), (b), (c), or (d) above (e.g., owner was able to certify no adverse impacts for the project as a whole under item (a), so the contractor can then certify under item (e)). Utility companies applying for permit coverage for the entire permit area of coverage as defined under Part I.A. may certify under item (e) since authorization to discharge is contingent on a principal operator of a construction project having been granted coverage under this, or an alternative NPDES permit for the areas of the site where utilities installation activities will occur.

EPA notes that it is requiring all applicants to follow directions provided in Addendum A to ensure protection of listed species and critical habitat when applying for permit coverage. Those directions require that applicants assess the impacts of their "storm water discharges" and "BMPs to control storm water runoff" on listed species and critical habitat that are located "in proximity" to the those discharges and BMPs. In proximity is defined as Addendum A to include species: located in the path or immediate area through which or over which contaminated point source storm water

<sup>11</sup> "Urban Targeting and BMP Selection," United States EPA, Region V, November 1990.



flows from construction activities to the point of discharge into the receiving water; located in the immediate vicinity of, or nearby, the point of discharge into receiving waters; or located in the area of a site where storm water BMPs are planned or are to be constructed. This definition reflects the purpose of this permit which regulates storm water discharges and measures (i.e., BMPs) to control those discharges. However, EPA also solicits comment on whether the area or scope of impacts to be considered by applicants should be broadened to encompass listed species found on the entire construction site and not just those species found "in proximity" as currently defined in Addendum A.

6. Storm water discharges adversely affecting properties eligible for protection under the National Historic Preservation Act. To be eligible for coverage under this permit, all applicants must determine whether their storm water discharges or BMPs to control storm water runoff would affect a property that is listed or is eligible for listing in the National Historic Register maintained by the Secretary of Interior (also known as "historic properties" in the NHPA regulations at 36 CFR 800.2). Applicants must comply with all requirements in this permit (including those pertaining to the development of storm water pollution prevention plans and submission of NOIs) to protect historic properties. Coverage under this permit is available only if (a) the storm water discharges or BMPs to control storm water runoff do not affect a property that is listed or is eligible for listing in the National Historic Register maintained by the Secretary of Interior; or, (b) the applicant consults with the State Historic Preservation Officer (SHPO) or the Tribal Historic Preservation Officer (THPO) on the potential for adverse effects which results in a no effect finding; or (c) the applicant has obtained and is in compliance with a written agreement between the applicant and the SHPO/THPO that outlines all measures to be undertaken by the applicant to mitigate or prevent adverse effects to the historic property; or (d) the applicant agrees to implement and comply with the terms of a written agreement between another owner/operator (e.g., subdivision developer, property owner, etc.) and the SHPO/THPO that outlines all measures to be undertaken by operators on the site to mitigate or prevent adverse effects to the historic property; or (e) the applicant's activity was considered as part of a larger, more comprehensive site-specific assessment of effects on

historic properties by the owner or other operator of the site and that permittee certified eligibility under items (a), (b), (c), or (d) above. Utility companies applying for permit coverage for the entire construction site may certify under item (d) since authorization to discharge is contingent on a principal operator of a construction project having been granted coverage under this, or an alternative NPDES permit for the areas of the site where utilities installation activities will occur.

This permit does not authorize any storm water discharges or BMPs to control storm water runoff which are not in compliance with any applicable State or local historic preservation laws.

#### C. Obtaining Coverage

Dischargers who submit a complete and accurate NOI in accordance with the requirements of this permit are authorized to discharge storm water from construction sites under the terms and conditions of this permit. As proposed, authorization to discharge occurs two days after the date that the NOI is postmarked, unless otherwise notified by EPA. Dischargers must have developed and be ready to implement a Storm Water Pollution Prevention Plan (SWPPP) for the areas of the construction project for which they are responsible prior to submission of the NOI. A new NOI must be filed by the new operator when an operator changes or when a new operator is added.

The Agency requests comment on an alternative time frame for NOI submittal. EPA solicits comments on requiring a 30-day advance time frame in which to submit a notice of intent. EPA believes this additional time would allow for a more timely administrative processing of each NOI and allow EPA time to acknowledge coverage and assign a permit number to the permittee prior to work actually commencing on the site. In addition, the 30-day advance notice period may allow EPA more time to review potential impacts of construction activities on endangered species and historic properties. Comments on this option should be submitted during the public review and comment period described above.

EPA may deny coverage under this permit and require submittal of an individual NPDES permit application based on a review of the completeness and/or content of the NOI or other information (e.g., water quality information, compliance history, etc.). Where EPA requires a discharger authorized under the general permit to apply for an individual NPDES permit or an alternative general permit, EPA will notify the discharger in writing that

a permit application is required. Coverage under this general permit will automatically terminate if the discharger fails to submit the required individual or alternative permit application in a timely manner. Where the discharger does submit a requested permit application, coverage under this general permit will automatically terminate on the effective date of the issuance or denial of the individual NPDES permit or the alternative general permit as it applies to the individual permittee.

#### D. Terminating Coverage

Operators needing to terminate coverage must submit a Notice of Termination (NOT). Permittees must submit the NOT within 30 days after completion of their construction activities and final stabilization of their portion of the site. An NOT must also be submitted by the first operator when another operator takes over the responsibilities of a previous operator. Notice of Termination requirements are discussed later in this fact sheet. When a utility company is covered by an area wide permit for installation of services, it is not required to submit NOTs for each project.

#### E. Notice of Intent Requirements

NPDES general permits for storm water discharges associated with industrial activity require that dischargers submit a Notice of Intent (NOI) to be covered by the permit prior to the authorization of their discharges under such permit (see 40 CFR 122.28(b)(2), (April 2, 1992, (57 FR 11394)). Consistent with these regulatory requirements, today's permit establishes NOI requirements. Dischargers that submit a complete and accurate NOI are not required to submit an individual permit application for such discharge, unless the Director specifically notifies the discharger that an individual permit application must be submitted.

Dischargers who want to obtain coverage under this permit must submit an NOI using the form provided by EPA (or a photocopy thereof). Proposed NOI forms are in Addendum C of the proposed permit. Each entity which meets either of the two criteria in Part IX (Definitions) of the permit for an "operator" must submit an NOI. An "operator" is any party associated with a construction project which has operational control over project specifications (including the ability to make modifications in specifications) or has day-to-day operational control of those activities at a project site which are necessary to ensure compliance with the permit. The criteria for an operator

in the permit are the same as EPA intended for the existing permits. However, a definition for the term operator has been added to the permit for clarification.

The rationale for the criteria for an operator was discussed in Appendix A—Summary of Responses to Public Comment which accompanied the issuance of the expiring permit (September 9, 1992, (57 FR 41190)). To ensure effective implementation of the requirements of the permit, the permit must directly regulate each entity with control over the critical functions identified above in the definition of an operator. Control over project specifications is necessary to ensure that a project design includes appropriate sediment and erosion control measures and post construction storm water management measures. Day to day operational control is necessary to ensure effective implementation of permit requirements at a project site.

The entities who are considered operators will commonly consist of the owner or developer of a project (the party with control of project specifications) and the general contractor (the party with day to day operational control of the activities at project site which are necessary to ensure compliance with the permit). Contractors and subcontractors who are under the general supervision of the general contractor are not considered operators and would not need to submit NOIs. However, they must certify that they understand the terms and conditions of the proposed permit in accordance with Part IV. E of the permit.

Utility companies (e.g., telephone, electric, gas, cable TV, etc.) are a special class of operator. They typically disturb only a very small portion of the construction site during installation of above ground or underground utility lines. Main service lines are typically installed before construction of buildings, with stubs left for later connections to individual houses or buildings as they are completed. All this utility installation is typically done by utility company personnel or contractors hired directly by the utility company. All installation is typically completed long before final site stabilization is even possible, so utility companies will seldom, if ever, have responsibility for final stabilization (except for areas disturbed by utility companies only during the construction process). While the owner of the project specifies what level of service is desired and safety codes dictate minimum specifications (e.g., size and type of electric wire, depth of trenches, etc.), the utility company retains the ultimate

decision on specifications (e.g., could choose to install bigger lines to serve future demand in adjacent areas) and retains ownership of the utility lines after they are installed in the utility easements. The utility company's long term ownership of utility lines is significant, in that developers and construction companies typically transfer the completed project to the ultimate owner and have no future interest in the site. Utility contractors hired by a utility company or other site operators and not meeting the definition of "operator" are considered subcontractors for the purpose of the permit and are covered by the subcontractor certification requirements of Part IV.E.

In some ways utility companies operate akin to subcontractors, but often without a contract since State/Tribal laws typically require the utility company to provide service to anyone who pays the appropriate installation charges. At times, only one utility company may exist for a particular service within a service area. A site owner often has no choice about which utility company to use and even where there is a choice it is usually between a limited number of "authorized" utility companies. Once a utility company is selected, the site operator typically must allow the utility company to do the installation and cannot choose to install the lines itself. This adds up to a very limited, if any, direct control a site operator actually has over utility company operations on a site other than identifying where easements and structures will be located and coordination on timing of installation. In addition, during enforcement actions there have been complaints from the construction industry that there have been instances where lack of coordination and clear definition of responsibilities have led to damage to storm water control measures without the operator of such measures even being aware that another party was on site.

Recognizing the special case utility companies present, today's permit proposes to establish special NOI and permit requirements for the limited construction activities by utility companies and to allow coverage for the entire permit area with the submittal of a single NOI. Area-wide coverage would only be available provided the site owner/operator has previously obtained coverage for the more comprehensive construction activities at the site and the pollution prevention plan addresses utilities installation and assigns responsibilities for control measures.

As envisioned, the site owner/operator could develop measures specifically for the utility and include them in a "master" pollution prevention plan, or the utility company could provide appropriate control measures for its activities on site to the site owner/operator for attachment to the "master" pollution prevention plan. Given the limited activities of utility companies, the site inspection and other permit conditions of a more comprehensive nature would default to the site owner/operator for implementation. This conditional permit coverage reduces the administrative and financial burden of requiring separate NOIs for each utility company operating at every construction site.

Some of the other options considered for addressing utilities installation included: requiring a full NOI and pollution prevention plan for each utility company project or allowing the utility company to submit a single NOI for area wide permit coverage, but requiring a pollution prevention plan for each project (or providing an addendum for the site operator's plan). While either alternative could satisfy the requirements of the Clean Water Act, the Agency prefers to implement a process with fewer administrative burdens and economic impacts. A requirement for a separate NOI from each utility company at a site would add two to six additional NOIs per project. This would increase the administrative burden on the regulated community, the States, Tribes and EPA. A requirement for NOIs and full pollution prevention plans from each utility company at a site would add unnecessary cost to the relatively routine process of installing utilities (as opposed to the more complicated aspects of managing runoff from an entire construction project). This added cost would eventually be passed on to the owner/buyer of the completed project. While utility companies do have a role in preventing pollution of storm water at construction sites, the Agency has attempted to include utility company accountability in the permit in the most practicable manner possible. The Agency requests comments on these and any alternative methods to insure accountability and equity for all operators at construction sites.

Dischargers operating under approved State, Tribal or local sediment and erosion plans, grading plans, or storm water management plans, must, in addition to filing copies of the NOI with EPA, submit signed copies of the NOI to the State or local agency approving such plans by the deadlines stated below.

### 1. Deadlines for Submitting NOIs

Deadlines for submittal of NOIs to be authorized to discharge under this permit are as follows:

- Parties with operational control over project specifications, (the owners and/or developers), must submit an NOI at least two days prior to commencement of the construction activity.

- Other parties with day to day operational control of activities at a project site must submit an NOI two days prior to their commencing work at the site.

- For storm water discharges from construction sites where the operator changes, (including projects where an operator is added after an NOI has been submitted), an NOI shall be submitted at least two days prior to when the operator commences work at the site.

- Utility companies (telephone, gas, electric, water, sewer and cable etc.) whose involvement in an individual construction project is limited to installation of underground or above ground service lines and associated equipment to provide connections from a main transmission line to individual customers, may file a single NOI to obtain coverage for all such activities in the defined areas of permit coverage. A utility company should file for coverage at least two days prior to beginning work. Coverage obtained by utility companies in this manner is limited to the utility company's activities on sites where an operator of the individual construction project has obtained coverage under this permit; an alternate general permit or an individual permit. The pollution prevention plan for the construction site must identify control measures for the installation of the utilities and the parties responsible for those measures.

When a utility company is constructing a project for itself, it must obtain permit coverage on a case by case basis in the manner described for operators with control over project specifications (i.e.; two days prior to beginning work). Permittees with construction projects authorized to discharge under the previous general permit issued in 1992 must:

- Submit a new NOI within thirty (30) days of the effective date of this permit in order to continue authorization to discharge after July 2, 1997. If the permittee will be eligible to submit a Notice of Termination (NOT) (e.g., construction finished and final stabilization complete) before the 30th day, no NOI is required.

- During the time between the effective date of this permit and July 2,

1997, comply with the terms and conditions of the 1992 baseline general permit they were previously authorized under and submitted an NOI for extended coverage as described under the Administrative Procedures Act before termination of the 1992 baseline general permit.

- Update their current pollution prevention plan to comply with the requirements of Part IV no later than July 2, 1997.

EPA will accept an NOI at a later date for any unpermitted activities that may have occurred between the time construction commenced and the time authorization is received. Late NOIs can only provide coverage for future discharges and do not retro-actively apply to any unpermitted discharges that may have occurred in the past.

*Options Considered:* Several options for NOI deadlines were considered. As described above, the Agency requests comment on an alternative NOI submittal time frame of 30-days. Commenters should give consideration to the criteria that could be used to establish the final permit's NOI deadlines, such as: recognizing the time lapse between submission of the NOI and receipt of actual discharge authorization and minimizing the impact this time lapse could have on the construction industry, providing a mechanism for considering each project's potential impacts on the environment, endangered species or historic properties and thus their eligibility for general permit coverage, providing a realistic time for at least one operator (typically the owner) at a construction project to receive confirmation of permit coverage, providing a common link between the various permittees at a construction site, and minimizing, where possible, the total number of NOIs that would be necessary at each construction project.

The proposed option contained in this proposed permit is to retain the two day NOI deadline used in the 1992 permits. The advantage of this approach is the short turn-around in obtaining permit coverage. While there are certain problems regarding coverage that have arisen with a short time frame, including inadvertently granted coverage and incomplete NOIs, EPA believes that such deficiencies have been resolved without adverse impacts on the environment. EPA is continuing this option as the preferred option due to the flexibility to provide permit coverage for these activities in a timely fashion without adverse impact on the environment.

The option EPA is requesting comment on would require a longer lead

time for NOI submittal by the owner or developer of the site that would allow enough time for that permittee to receive confirmation of permit authorization, including an assigned permit number. This initial NOI would include an assessment of the permit eligibility of the site as a whole, including addressing any endangered species or historic preservation concerns early on in the process. Subsequent applicants, such as the contractors hired by the owner/developer, could then rely on this initial assessment and be eligible to file an NOI only two days prior to commencing work. This option could possibly reduce the cost to implement a pollution prevention plan, in that subsequent contractors would be able to identify any owner/develop applicants that may have already developed a pollution prevention plan that covers all construction activities on the site. Subsequent applicants could thereby avoid duplicate cost to complete their own plan specific to their portion of the site activity.

A third option was to require all operators to submit NOIs 14 days in advance of commencing construction. While this approach allowed additional time for review of NOIs, experience in processing of NOIs suggests that two weeks is not enough time for determining completeness of the NOI and returning a response to the applicant. While electronic filing of NOIs could help, the Agency currently does not have the capability to accept electronic applications and some operators may not have the ability to file NOIs electronically.

A fourth option was to require an NOI for each construction project from the operator(s) with control over site specifications (e.g., developer or owner). Operators with day to day control over implementation of storm water controls (e.g. general contractor) would be allowed to submit a single NOI for all their company's activities within the permit area. This option had the obvious advantage of reducing the total number of NOIs that would need to be submitted. However, the operators implementing a more complex pollution prevention plan covering all of the site-dependent activities at a wide range of different construction sites (as opposed to the relatively small and consistent activities of a utility company) would require a higher level of permit controls to provide environmental accountability. Uncertainty over the time needed to develop the appropriate permit conditions for such an approach lead to abandoning this approach in favor of concentrating on ensuring that

a replacement construction general permit was available for new construction projects before the current permit expires.

The Agency requests comments on the 30-day advance notice option and welcomes any suggestions on streamlining obtaining permit coverage while still ensuring compliance with the Agency's responsibilities under the Clean Water Act, the Endangered Species Act, and the National Historic Preservation Act. The Agency notes that it is currently undergoing consultation under section 7 of the Endangered Species Act and plans to initiate consultation under sections 106 and 110 of the National Historic Preservation Act on the issuance of this permit. These consultations may result in additional permit conditions to protect endangered and threatened species, critical habitat, and historic properties.

## 2. Contents of the NOI.

An NOI (a draft copy of a proposed new form is found in Addendum C of today's notice (or a photocopy)) must be completed and submitted to EPA's NOI Center address to obtain authorization to discharge under today's permit. The NOI contained in this proposed permit is a revised NOI. EPA is requesting much of the same information as in the previous form, but has also added additional questions concerning endangered species, historic preservation, and pollution prevention plan status. EPA is concurrently providing this NOI to the Office of Management and Budget for review under the Paperwork Reduction Act. The NOI form requires the following information:

- The street address (description of location if no street address is available), county, and the latitude and longitude of the approximated center of the construction site/project for which the notification is submitted;
- The name, address, and telephone number of the operator(s) filing the NOI for permit coverage and operator status as a Federal, State, Tribal, private, or public entity;
- Whether or not the construction project is located on an Indian lands;
- The name of the receiving water(s), or if the discharge is through a municipal separate storm sewer, the name of the municipal operator of the storm sewer and the receiving water(s);
- The permit number of other operator at the site, to the extent available;
- An estimate of project start date and completion date, estimate of the number of acres of the site on which soil will be disturbed,

Acreage may be determined by dividing square footage by 43,560, as demonstrated in the following example.

*Convert 54,450 ft<sup>2</sup> to acres*

Divide 54,450 ft<sup>2</sup> by 43,560 square feet per acre: 54,450 ft<sup>2</sup> ÷ 43,560 ft<sup>2</sup>/acre = 1.25 acres;

- An estimation of the frequency of discharge;
  - The location of where the pollution prevention plan can be viewed if different from the project address.
  - A certification that a storm water pollution prevention plan, including both construction and post construction controls, has been prepared for the site in accordance with the permit and that such plan complies with approved State, Tribal and/or local sediment and erosion plans or permits and/or storm water management plans or permits. A copy of the plans or permits should not be included with the NOI submission, and should not be submitted unless requested by EPA;
  - Whether any species identified in Addendum A of the permit are in proximity to the storm water discharges to be covered by this permit or to the BMPs to be used to comply with this permit. Addendum A of the permit contains instructions for making this determination;
    - That there will be no effect on any properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act that are located on the construction site; and
    - The applicant must also sign a certification statement indicating an understanding of the terms and conditions of the permit.
- Notice of Intent Requirements for Utility Companies seeking Area Wide Coverage (these requirements apply only when the utility companies are installing service):
- The name, address and telephone number of the utility company filing the NOI for permit coverage and operator status as a Federal, State, Tribal, private, public or public entity;
  - The State, Tribal or other area of which coverage is being requested, and whether or not any construction projects will be located on Indian Reservation lands;
  - The name, address, and telephone number of the utility company's point of contact for the utility company's compliance with the area wider coverage;
  - A certification that a storm water pollution prevention plan with standard operating procedures of the limited utility company construction activities related to installation of service

connections has been prepared in accordance with the requirements of this permit and that the plan provides compliance with approved state and/or local sediment and erosion plans or permits and storm water management plans or permits; and

- Certification of eligibility and compliance with the Endangered Species Act and The National Historic Preservation Act.

The NOI must be signed in accordance with the signatory requirements of 40 CFR 122.22. A complete description of these signatory requirements is provided in the Standard Permits Section of the general permit.

## 3. Where To Submit

Completed NOI forms are to be submitted to the address indicated on the NOI form. The following items should be posted at the construction site in a prominent place for public viewing: a copy of the Director's acknowledgment of coverage and the assigned permit number; a local contact telephone number and address for public access to view the pollution prevention plan at reasonable times during regular business hours (advance notice by the public of the desire to view the plan may be required, not to exceed two working days). The permit does not require that free copies of the plan be provided to interested members of the public, only that they have reasonable access to view the document and copy it at their own expense; and a brief description of the project.

### *F. Special Conditions Management Practices, and Other Non-Numeric Limitations*

#### 1. Prohibition on Non-Storm Water Discharges

Today's proposed permits would not authorize non-storm water discharges that are mixed with storm water discharges except for the specific classes of non-storm water discharges described in the permit. Non-storm water discharges that would be authorized under today's proposed permits would include discharges from firefighting activities; fire hydrant flushings; waters used to wash vehicles or control dust in accordance with permit requirements; potable water sources including waterline flushings; routine external building wash down that does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs;

uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.<sup>13</sup> Discharges of material other than storm water which are in compliance with another NPDES permit issued for that discharge may be mixed with the storm water discharges authorized by this permit.

To be authorized under today's proposed permits, these sources of non-storm water (except flows from firefighting activities) must be specifically identified in the storm water pollution prevention plan prepared for the facility. (Plan requirements are discussed in more detail below).

Today's proposed permits would not require pollution prevention measures to be identified and implemented for non-storm water flows from firefighting activities since these flows will usually occur as unplanned emergency situations where it is necessary to take immediate action to protect the public.

The general prohibition on non-storm water discharges in today's permit ensures that non-storm water discharges (except for those classes of non-storm water discharges that are authorized subject to compliance with certain conditions) are not inadvertently authorized by this permit. Where a storm water discharge is mixed with process wastewaters or other sources of non-storm water prior to discharge, and the discharge is currently not authorized by an NPDES permit, the discharge cannot be covered by today's permit and the discharger should submit the appropriate application forms (Forms 1 and 2C) to obtain permit coverage or discontinue the discharge.

## 2. Releases of Reportable Quantities of Hazardous Substances or Oil

Today's proposed permits would provide that the discharge of hazardous substances or oil from a facility must be prevented or minimized in accordance with the storm water pollution plan developed for the facility. Where a permitted storm water discharge contains a hazardous substance or oil in an amount equal to or in excess of a reporting quantity established under 40 CFR 110, 40 CFR 117, or 40 CFR 302, during a 24-hour period, today's permits would require the following actions:

- The permittee must notify the National Response Center (NRC) (800-424-8802; in the Washington, D.C.

metropolitan area 202-426-2675) in accordance with the requirements of 40 CFR 110, 40 CFR 117, and 40 CFR 302, as soon as they have knowledge of the discharge:

- The permittee must modify the storm water pollution prevention plan for the facility within 14 calendar days of knowledge of the release to provide a description of the release, the date of the release and the circumstances leading to the release. In addition, the permittee must modify the plan, as appropriate, to identify measures to prevent the reoccurrence of such releases and to respond to such releases.

- Within 14 calendar days of the knowledge of the release, the permittee must submit to EPA a written description of the release (including the type and estimated amount of material released), the date that such release occurred, the circumstances leading to the release, and (4) any steps to be taken to minimize the chance of future occurrences.

Where a discharge of a hazardous substance or oil in excess of reporting quantities is caused by a non-storm water discharge (e.g., a spill of oil into a separate storm sewer), the spill would not be authorized by this proposed permit. The discharger must report the spill as required under 40 CFR 110. In the event of a spill, the requirements of Section 311 of the CWA and otherwise applicable provisions of Sections 301 and 402 of the CWA continue to apply.

This approach is consistent with the requirements for reporting releases of hazardous substances and oil-requirements that make a clear distinction between hazardous substances typically found in storm water discharges and those associated with spills that are not considered part of a normal storm water discharge (see 40 CFR 117.12(d)(2)(i)).

## 3. Compliance With Water Quality Standards

The previous permit did not specifically address water quality standards. Today's proposed permit would require as an eligibility condition that dischargers seeking coverage under this permit not be causing or have the reasonable potential to cause or contribute to a violation of a water quality standard. If a discharge is known to be doing such, prior to or at the time of application, then the operator may not seek coverage under this general permit but must seek coverage under an alternative permit. Where a discharge is already authorized under this permit and is later discovered to cause or have the reasonable potential to cause or contribute to the violation of an

applicable State, Tribal or Federal Water Quality Standard, the permitting authority will notify the operator of such violation(s) and the permittee shall take all necessary actions to ensure future discharges do not cause or contribute to the violation of a water quality standard and document these actions in the pollution prevention plan. If violations remain or reoccur, then coverage under this permit will be terminated by the permitting authority and an alternative permit may be issued. Compliance with this requirement does not preclude any enforcement activity as provided by the Clean Water Act for the underlying violation.

## 4. Operator Responsibility

The proposed permits outline the expected responsibilities of the various operators which may be working at the construction site. Permittees with operational control of the project specifications must ensure that these specifications meet the minimum requirements of the pollution prevention plan; the pollution prevention plan indicates which area of the projects they have operational control over; and ensure that the plan indicates who has day to day operational control including names and permit numbers. If a person with day to day operational control is not identified at the time the pollution prevention plan is developed, the permittee with operational control of the project specifications will be responsible.

Permittees with day to day operational control of a construction site must ensure the pollution prevention plan meets minimum requirements; ensure that the plan clearly identifies which areas of the project they have control over; and ensure that the pollution prevention plan indicates the name and permit number of the person with operational control of the project specifications.

The permit also identifies partial site operators. These are operators with operational control over only a portion of a larger construction site. These operators are only responsible for permit compliance and pollution prevention plan compliance as it relates to their activities on site. They must also ensure that their activity does not cause another party's pollution controls to be less effective. Partial site operators must either implement their portions of a common pollution prevention plan or develop and implement their own pollution prevention plan.

<sup>13</sup> These discharges are consistent with the allowable classes of non-storm water discharges to municipal separate storm sewer systems (40 CFR 122.26(d)(iv)(D)). This permit would authorize such discharges consistent with the terms and conditions of the permit.

### G. Pollution Prevention Plan Requirements

The pollution prevention plans required by today's permit focus on two major tasks: (1) Providing a site description that identifies sources of pollution to storm water discharges associated with industrial activity from the facility; and (2) identifying and implementing appropriate measures to reduce pollutants in storm water discharges to ensure compliance with the terms and conditions of this permit. All storm water pollution prevention plans shall be developed in accordance with good engineering practices.

In developing this permit, the Agency reviewed a significant number of existing State and local sediment and erosion control and storm water management requirements. State and local data were reviewed for a wide range of climates and varying types of construction activities.

#### 1. Deadlines for Plan Preparation

Today's proposed permits would require that the storm water pollution prevention plan must be completed prior to the submittal of an NOI to be covered under this permit and updated as appropriate, including certifications;

#### 2. Signature and Plan Review

Signature and plan review requirements are as follows:

- The plan must be signed by all permittees for a site in accordance with the signatory requirements in the Standard Permit Conditions section of the permit, and must be retained on site at the facility that generates the storm water discharge. If the site is inactive or does not have an onsite location adequate to store the pollution prevention plan, the location of the plan, and the phone number of a contact person shall be posted on site indicating where the plan can be viewed at reasonable times during regular business hours (advance notice by the public of the desire to view the plan may be required, not to exceed two working days). The permit does not require that free copies of the plan be provided to interested members of the public, only that they have reasonable access to view the document and copy it at their own expense. A brief description of the project shall also be posted at the construction site in a prominent and safe place for public viewing during regular business hours (alongside the building permit if the building permit is required to be displayed).

- EPA may notify the permittee at any time that the plan does not meet one or

more of the minimum requirements. The notification shall identify those provisions of the permit which are not being met by the plan, and identify which provisions of the plan require modification in order to meet the requirements of the permit. Within seven calendar days of receipt of such notification from EPA (or as otherwise requested by EPA), the permittee must make the required changes to the plan and submit to EPA a written certification that the requested changes have been made.

#### 3. Making Plans Available

The permittee must make plans available, upon request, to EPA, State, Tribal or local agencies approving sediment and erosion plans, grading plans, or storm water management plans; interested members of the public; local government officials; or to the operator of the municipal separate storm sewer which receives the discharge.

#### 4. Keeping Plans Current

The permittee must amend the plan whenever there is a change in design, construction, operation, or maintenance, that has a significant effect on the potential for the discharge of pollutants to waters of the United States or to municipal separate storm sewer systems. The plan must also be amended if inspections or investigations by site operators, local, State, Tribal, or Federal officials indicate the storm water pollution prevention plan is proving to be ineffective in eliminating or significantly minimizing pollutants in the storm water discharges from the construction activity. In addition, the plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the storm water pollution prevention plan.

#### 5. Contents of the Plan

Storm water pollution prevention plans must include a site description; a description of controls that will be used at the site (e.g., erosion and sediment controls, storm water management measures); a description of maintenance and inspection procedures; and a description of pollution prevention measures for any non-storm water discharges that exist.

a. *Site Description:* Storm water pollution prevention plans must be based on an accurate understanding of the pollution potential of the site. The first part of the plan requires an evaluation of the sources of pollution at a specific construction site. The plan must identify potential sources of pollution that may reasonably be expected to affect the quality of storm

water discharges from the construction site. In addition, the source identification components for pollution prevention plans must provide a description of the site and the construction activities. This information is intended to provide a better understanding of site runoff and major pollutant sources. At a minimum, plans must include the following:

- A description of the nature of the construction activity. This would typically include a description of the ultimate use of the project (e.g., low-density residential, shopping mall, highway);

- A description of the intended sequence of major activities that disturb soils for major portions of the site (e.g., grubbing, excavation, grading);

- Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities. Where the construction activity is to be staged, it may be appropriate to describe areas of the site that will be disturbed at different stages of the construction process;

- Estimates of the runoff coefficient of the site after construction activities are completed as well as existing data describing the quality of any discharge from the site or the soil. The runoff coefficient is defined as the fraction of total rainfall that will appear at the conveyance as runoff. Runoff coefficients can be estimated from site plan maps, which provide estimates of the area of impervious structures planned for the site and estimates of areas where vegetation will be precluded or incorporated. Runoff coefficients are one tool for evaluating the volume of runoff that will occur from a site when construction is completed. These coefficients assist in evaluating pollutant loadings, potential hydraulic impacts to receiving waters, and flooding impacts. They are also used for sizing of post-construction storm water management measures;

- A site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance; an outline of areas that will not be disturbed; the location of major structural and nonstructural controls identified in the plan; the location of areas where stabilization practices are expected to occur; the location of surface waters (including wetlands); and locations where storm water is discharged to a surface water. Site maps should also include other major features and potential pollutant sources, such as the location of impervious structures

and the location of soil piles during the construction process;

- A description of any discharge associated with industrial activity other than construction (including storm water discharges from dedicated asphalt plants and dedicated concrete plants) and the location of that activity on the construction site;

- The name of the receiving water(s), and areal extent of wetland acreage at the site;

- Information on endangered and threatened species including whether any endangered species are in proximity to the storm water discharges and BMPs to be constructed to control storm water runoff; and

- Information on any properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act that are located on the construction site.

b. *Controls to Reduce Pollutants:* The storm water pollution prevention plan must describe and ensure the implementation of practices that will be used to reduce the pollutants in storm water discharges from the site and assure compliance with the terms and conditions of the permit. Permittees are required to develop a description of four classes of controls appropriate for inclusion in the facility's plan, and implement controls identified in the plan in accordance with the plan. The description of controls must address erosion and sediment controls, storm water management, a specified set of other controls, and any applicable procedures and requirements of State, Tribal and local sediment and erosion plans or storm water management plans.

The pollution prevention plan must clearly describe the intended sequence of major activities and when, in relation to the construction process, the control will be implemented. Good site planning and preservation of mature vegetation are primary control techniques for controlling sediment in storm water discharges during construction activities as well as for developing a strategy for storm water management that controls pollutants in storm water discharges after the completion of construction activities. Properly staging major earth disturbing activities can also dramatically decrease the costs of sediment and erosion controls. The description of the intended sequence of major activities will typically describe the intended staging of activities on different parts of the site.

Permittees must develop and implement four classes of controls in the pollution prevention plan, each of which is discussed below.

i. *Erosion and Sediment Controls:* The requirements for erosion and sediment controls for construction activities in this permit have long and short term goals and criteria. This includes the following:

- Construction phase erosion and sediment controls should be designed with the objective to retain sediment on site;

- All control measures must be properly selected and installed in accordance with good engineering practices and manufacturers specifications;

- Off site accumulations of sediment must be removed at a frequency to minimize impacts;

- Sediment should be removed from sediment traps when the design capacity has been reduced by 50 percent;

- Litter shall be picked up prior to storm events or otherwise prevented from entering a receiving water; and

- Offsite material storage areas must be addressed in the pollution prevention plan. Erosion and sediment controls include both stabilization practices and structural practices.

ii. *Stabilization Practices.* Pollution prevention plans must include a description of interim and permanent stabilization practices, including site-specific scheduling of the implementation of the practices. The plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized as quickly as possible. Stabilization practices are the first line of defense for preventing erosion; they include temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetative buffer strips, and other appropriate measures. Temporary stabilization practices can be the single most important factor in reducing erosion at construction sites.

Stabilization also involves preserving and protecting selected trees that were on the site prior to development. Mature trees have extensive canopy and root systems, which help to hold soil in place. Shade trees also keep soil from drying rapidly and becoming susceptible to erosion. Measures taken to protect trees can vary significantly, from simple measures such as installing tree fencing around the drip line and installing tree armoring, to more complex measures such as building retaining walls and tree wells.

Since stabilization practices play such an important role in preventing erosion, it is critical that they are rapidly employed in appropriate areas. This

permit provides that, except in three situations, stabilization measures be initiated on disturbed areas as soon as practicable, but no more than 14 days after construction activity on a particular portion of the site has temporarily or permanently ceased. The three exceptions to this requirement are the following:

- Where construction activities will resume on a portion of the site within 21 days from when the construction activities ceased;

- Where the initiation of stabilization measures is precluded by snow cover or frozen ground, in which case, stabilization measures must be initiated as soon as practicable; and

- In arid areas (areas with an average annual rainfall of 0 to 10 inches), semi-arid area (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts, where the initiation of stabilization measures is precluded by seasonal arid conditions, in which case, stabilization measures must be initiated as soon as practicable.

iii. *Structural Practices.* The pollution prevention plan must include a description of structural practices to the degree economically attainable, to divert flows from exposed soils, store flows, or otherwise limit runoff and the discharge of pollutants from exposed areas of the site. Structural controls are necessary because vegetative controls cannot be employed at areas of the site that are continually disturbed and because a finite time period is required before vegetative practices are fully effective. Options for such controls include silt fences, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, sediment traps, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Structural measures should be placed on upland soils to the degree possible. Placement of structural controls in flood plains should be avoided.

For sites with more than 10 disturbed acres at one time that are served by a common drainage location, a temporary or permanent sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures (such as suitably sized dry wells or infiltration structures), must be provided where attainable until final stabilization of the site has been accomplished. Flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization may be diverted around both the sediment basin and the disturbed area. The requirement to

provide 3,600 cubic feet of storage area per acre drained does not apply to such diverted flows.

For the drainage locations which serve more than 10 disturbed acres at one time and where a sediment basin providing storage or equivalent controls for 3,600 cubic feet per acre drained is not attainable, smaller sediment basins or sediment traps should be used. At a minimum, silt fences, or equivalent sediment controls are required for all downslope and appropriate sideslope boundaries of the construction area. Diversion structures should be used on upland boundaries of disturbed areas to prevent runoff from entering disturbed areas.

For drainage locations serving 10 or less acres, smaller sediment basins or sediment traps should be used and at a minimum, silt fences, or equivalent sediment controls are required for all downslope and appropriate sideslope boundaries of the construction area. Alternatively, the permittee may provide a sediment basin providing storage for 3,600 cubic feet of storage per acre drained. Diversion structures should be used on upland boundaries of disturbed areas to prevent runoff from entering disturbed areas.

iv. *Storm Water Management.* The plan must include a description of "storm water management" measures.<sup>14</sup> This permit addresses only the installation of storm water management measures and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Permittees are responsible only for the installation and maintenance of storm water management measures prior to final stabilization of the site and are not responsible for maintenance after storm water discharges associated with construction activities have been eliminated from the site. However, discharges of pollutants from storm water management structures after construction ceases may in themselves, need to be authorized under an NPDES permit. The owner/operator of such discharges after construction may inquire with EPA if this requirement applies.

Land development can significantly increase storm water discharge volumes and peak velocities where appropriate storm water management measures are not implemented. In addition, storm

water discharges will typically contain higher levels of pollutants, including total suspended solids (TSS), heavy metals, nutrients, and oxygen demanding constituents.<sup>15</sup>

Storm water management measures that are installed during the construction process can control the volume of storm water discharged and peak discharge velocities, as well as reduce the amount of pollutants discharged after the construction operations have been completed. Reductions in peak discharge velocities and volumes can also reduce pollutant loads, as well as reduce physical impacts such as stream bank erosion and stream bed scour. Storm water management measures that mitigate changes to predevelopment runoff characteristics assist in protecting and maintaining the physical and biological characteristics of receiving streams and wetlands.

Structural measures should be placed on upland soils to the degree attainable. The installation of such devices may be subject to section 404 of the CWA if the devices are placed in wetlands (or other waters of the United States).

Options for storm water management measures that are to be evaluated in the development of plans include infiltration of runoff on site; flow attenuation by use of open vegetated swales and natural depressions; storm water retention structures and storm water detention structures (including wet ponds); and sequential systems that combine several practices.

The pollution prevention plan must include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels. The explanation of the technical basis for selecting practices should address how a number of factors were evaluated, including the pollutant removal efficiencies of the measures, the costs of the measure, site specific factors that will affect the application of the measures, whether the measure is economically achievable at a particular site, and other relevant factors.

Although not a limitation or performance standard in the permit, EPA anticipates that storm water management measures at many sites will be able to provide for the removal of at least 80 percent of total suspended solids (TSS).<sup>16</sup> A number of storm water

management measures can be used to achieve this level of control, including properly designed and installed wet ponds, infiltration trenches, infiltration basins, sand filter system, manmade storm water wetlands, and multiple pond systems. The pollutant removal efficiencies of various storm water management measures can be estimated from a number of sources, including "Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices," U.S. EPA, 1992, and "A Current Assessment of Urban Best Management Practice," prepared for U.S. EPA by Metropolitan Washington Council of Governments, March 1992. Proper selection of a technology depends on site factors and other conditions.

In selecting storm water management measures, the permittee should consider the impacts of each method on other water resources, such as ground water. Although storm water pollution prevention plans primarily focus on storm water management, EPA encourages facilities to avoid creating ground water pollution problems. For example, if the water table is unusually high in an area or soils are especially sandy and porous, an infiltration pond may contaminate a ground water source unless special preventive measures are taken. Under EPA's July 1991 Ground Water Protection Strategy, States are encouraged to develop Comprehensive State Ground Water Protection Programs (CSGWPP). Efforts to control storm water should be compatible with State/Tribal ground water objectives as reflected in CSGWPPs.

The evaluation of whether the pollutant loadings and the hydrologic conditions (the volume of discharge) of flows exceed predevelopment levels can be based on hydrologic models which consider conditions such as the natural vegetation which is typical for the area.

Increased discharge velocities can greatly accelerate erosion near the outlet of onsite structural measures. To mitigate these effects, these permits would require that velocity dissipation devices be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive velocity flow from the structure to a water course. Velocity dissipation devices maintain and protect the natural physical and biological characteristics and functions of the watercourse, e.g., hydrologic conditions, such as the hydroperiod and hydrodynamics, that were present prior to the initiation of construction activities.

v. *Other Controls.* Other controls to be addressed in storm water pollution

<sup>14</sup> For the purpose of the special requirements for construction activities, the term "storm water management" measures refers to controls that will primarily reduce the discharge of pollutants in storm water from sites after completion of construction activities.

<sup>15</sup> See "Nationwide Urban Runoff Program," EPA, 1984.

<sup>16</sup> TSS can be used as an indicator parameter to characterize the control of other pollutants, including heavy metals, oxygen demanding pollutants, and nutrients, commonly found in storm water discharges.



prevention plans for construction activities require that nonsolid materials, including building material wastes shall not be discharged at the site, except as authorized by a Section 404 permit.

This proposed permit requires that offsite vehicle tracking of sediments and the generation of dust be minimized. For example, this may be accomplished by measures such as providing gravel or paving at access entrance and exit drives, parking areas, and unpaved roads on the site carrying significant amounts of traffic (e.g., more than 25 vehicles per day); providing entrance wash racks or stations for trucks; and/or providing street sweeping.

In addition, this permit requires that the plan shall ensure and demonstrate compliance with applicable State/Tribal and/or local sanitary sewer, septic system, and waste disposal regulations to the extent they apply to the permitted activity.<sup>17</sup> The plan must also include a narrative description of practices to reduce pollutants from construction related materials which are stored onsite. Including an inventory of construction materials, storage practices, and spill prevention and response. The plan should include a description of pollutant sources from areas other than construction and a description of controls and measures which will be implemented in those areas.

The plan must also include measures to protect listed endangered and threatened species and/or critical habitat (if applicable) including any terms or conditions that are imposed under the eligibility requirements of Part I.B.3.e and Addendum A of this permit to protect such species and/or critical habitat from storm water discharges or BMPs to control storm water runoff. Failure to include these measures will result in the storm water discharges from the construction activities being ineligible for coverage under this permit.

<sup>17</sup> In rural and suburban areas that are served by septic systems, malfunctioning septic systems can contribute pollutants to storm water discharges. Malfunctioning septic tanks may be a more significant surface runoff pollution problem than a ground water problem. This is because a malfunctioning septic system is less likely to cause ground water contamination where a bacterial mat in the soil retards the downward movement of wastewater. Surface malfunctions are caused by clogged or impermeable soils, or when stopped up or collapsed pipes force untreated wastewater to the surface. Surface malfunctions can vary in degree from occasional damp patches on the surface to constant pooling or runoff of wastewater. These discharges have high bacteria, nitrate, and nutrient levels and can contain a variety of household chemicals. This permit does not establish new criteria for septic systems, but rather addresses existing State or local criteria.

The plan must also include measures to protect properties that are listed or eligible for listing under the National Historic Register including any measures agreed to through written agreements with the SHPO or THPO. Failure to include these measures will result in the storm water discharges from the construction activities being ineligible for coverage under this permit.

vi. *State/Tribal and Local Controls.* Many municipalities, States and Tribes have developed sediment and erosion control requirements for construction activities. A significant number of municipalities and States/Tribes have also developed storm water management controls. This general permit requires that storm water pollution prevention plans for facilities that discharge storm water associated with industrial activity from construction activities include procedures and requirements of State/Tribal and local sediment and erosion control plans or storm water management plans. Permittees are required to provide a certification that their storm water pollution prevention plan reflects requirements related to protecting water resources that are specified in State/Tribal or local sediment and erosion plans or storm water management plans.<sup>18</sup> In addition, permittees are required to amend their storm water pollution prevention plans to reflect any change in a sediment and erosion site plan or site permit or storm water management site plan or site permit approved by State/Tribal or local officials for which the permittee receives written notice. Where such amendments are made, the permittee must provide a recertification that the storm water pollution prevention plan has been modified. This provision does not apply to provisions of master plans, comprehensive plans, nonenforceable guidelines, or technical guidance documents, but rather to site-specific State/Tribal or local permits or plans.

c. *Maintenance.* Erosion and sediment controls can become ineffective if they are damaged or not properly maintained. Maintenance of controls has been identified as a major part of effective erosion and sediment programs. Plans must contain a

<sup>18</sup> Operators of storm water discharges from construction activities which, based on an evaluation of site specific conditions, believe that State/Tribal and local plans do not adequately represent BAT and BCT requirements for the facility may request to be excluded from the coverage of the general permit by submitting to the Director an individual application with a detailed explanation of the reasons supporting the request, including any supporting documentation showing that certain permit conditions are not appropriate.

description of prompt and timely maintenance and repair procedures addressing all erosion and sediment control measures (e.g., sediment basins, traps, silt fences), vegetation, and other measures identified in the site plan to ensure that such measures are kept in good and effective operating condition.

d. *Inspections:* Procedures in a plan must provide that specified areas on the site are inspected by qualified personnel provided by the discharger a minimum of once every fourteen calendar days, before anticipated storm events (or series of storm events such as intermittent showers over one or more days) expected to cause a significant amount of runoff and within 24 hours after any storm event of greater than 0.5 inches. Areas of the site that must be observed during such inspections include disturbed areas, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site. Where sites have been temporarily or finally stabilized, or during seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (with an average annual rainfall of 10 to 20 inches) the inspection must be conducted at least once every month.

Disturbed areas and areas used for storage of materials that are exposed to precipitation must be inspected for evidence of, or the potential for, pollutants entering the runoff from the site. Erosion and sediment control measures identified in the plan must be observed to ensure that they are operating correctly. Observations can be made during wet or dry weather conditions. Where discharge locations or points are accessible, they must be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. This can be done by inspecting receiving waters to see whether any signs of erosion or sediment are associated with the discharge location. Locations where vehicles enter or exit the site must be inspected for evidence of offsite sediment tracking.

Based on the results of the inspection, the site description and the pollution prevention measures identified in the plan must be revised as soon as possible after an inspection that reveals inadequacies. The inspection and plan review process must provide for timely implementation of any changes to the plan within seven calendar days following the inspection.

An inspection report that summarizes the scope of the inspection, name(s) and qualifications of personnel conducting

the inspection, the dates of the inspection, major observations relating to the implementation of the storm water pollution prevention plan, and actions taken must be retained as part of the storm water pollution prevention plan for at least three years after the date that the site is finally stabilized. The report shall identify incidents of non-compliance. When the report does not contain an incident of non-compliance, the report shall contain a certification that the facility is in compliance with the pollution prevention plan and this permit. The report must be signed in accordance with the signatory requirements in the Standard Conditions section of this permit.

Diligent inspections are necessary to ensure adequate implementation of onsite sediment and erosion controls, particularly in the later stages of construction when the volume of runoff is greatest and the storage capacity of the sediment basins has been reduced.<sup>19</sup>

e. *Non-Storm Water Discharges*: The plan must identify and ensure the implementation of appropriate pollution prevention measures for each of the non-storm water component(s) of the discharge.<sup>20</sup> Such discharges include discharges from firefighting activities, fire hydrant flushings, waters used to wash vehicles or control dust in accordance with efforts to minimize offsite sediment tracking, potable water sources including waterline flushings, irrigation drainage from watering vegetation, routine exterior building wash down that does not use detergents, pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used, air conditioning condensate, springs, uncontaminated ground water (including dewatering ground water infiltration), and foundation or footing drains where flows are not contaminated with process materials such as solvents, provided the non-storm water component of the discharge is specifically identified in the pollution prevention plan.

EPA believes that where these classes of non-storm water discharges are identified in a pollution prevention plan and where appropriate pollution prevention measures are evaluated, identified, and implemented, they

generally pose low risks to the environment. The Agency also notes that it can request individual permit applications for such discharges where appropriate. The Agency is not requiring that flows from fire-fighting activities be identified in plans because of the emergency nature of such discharges coupled with their low probability and the unpredictability of their occurrence.

#### 6. Additional Requirements

These proposed permits would authorize a storm water discharge associated with industrial activity from a construction site that is mixed with a storm water discharge from an industrial source other than construction, only under the following conditions:

- The industrial source other than construction is located on the same site as the construction activity; and
- Storm water discharges from where the construction activities are occurring are in compliance with the terms of this permit.

#### 7. Contractors/Subcontractors

The storm water pollution prevention plan must clearly identify for each measure identified in the plan, the contractor(s) and/or subcontractor(s) that will implement the measure. All contractors and subcontractors identified in the plan must sign a copy of the certification statement contained in the proposed permit (Part IV.F) before conducting any professional service at the site identified in the pollution prevention plan:

All certifications must be included in the storm water pollution prevention plan. The certification must also include the name and title of the person providing the signature, the name address and telephone number of the contracting firm; the name and address of the site; and the date of certification.

The permittee must insure that contractors and subcontractors who do not meet the definition of "operator," but will be conducting activities which may impact the effectiveness of any control measure identified in the plan sign a certification statement before conducting any professional service on site. The certification must include the name and title of the person providing the signature; the name, address and telephone number of the contracting firm; the address identifying the site, and the date the certification is made.

#### H. Retention of Records

The permittee is required to retain records or copies of all reports required by this permit, including storm water

pollution prevention plans and records of all data used to complete the NOI to be covered by the permit, for a period of at least three years from the date of final stabilization. This period may be extended by request of the Director.

The permittee shall retain a copy of the storm water pollution prevention plan required by the permit at the construction site from the date of project initiation to the date of final stabilization. All permittees with day to day operational control of the plan's implementation shall have a copy of the plan available for their use when they are on the construction site. The copy of the plan may be a single plan kept at a central location for all of the operators on site. Where no location is available at the construction site to store the plan when no personnel are on site, notice of the location of the plan must be posted at the construction site. A copy of the plan must be readily available to inspectors during normal business hours.

#### I. Notice of Termination Requirements

A discharger must submit a Notice of Termination (NOT) to EPA in two sets of circumstances: after a site has undergone final stabilization and the facility no longer discharges storm water associated with industrial activity from a construction site or when the permittee has transferred operational control to another permittee and is no longer an operator for the site. A permittee cannot submit an NOT without final stabilization unless another party has agreed to assume responsibility for final stabilization of the site. NOTs must be submitted using the form provided by the Director (or a photocopy thereof). A copy of the NOT form is in Addendum C and can be photocopied for use. NOTs will assist EPA in tracking the status of the discharger.

Today's proposed permits would define final stabilization for the purpose of submitting an NOT as occurring when all soil disturbing activities are completed and a uniform perennial vegetative cover with a density of 70 percent for the unpaved areas and areas not covered by permanent structures has been established or equivalent stabilization measures have been employed. Equivalent stabilization measures include permanent measures other than establishing vegetation, such as the use of rip-rap, gabions, and/or geotextiles. In some parts of the country, background native vegetation will cover less than 100% of the ground (e.g. arid areas). Establishing at least 70% of the natural cover of native vegetation meets the vegetative cover criteria for final

<sup>19</sup> "Performance of Current Sediment Control Measures at Maryland Construction Sites," January 1990, Metropolitan Washington Council of Governments.

<sup>20</sup> This is consistent with the allowable types of non-storm water discharges to municipal separate storm sewer systems (40 CFR 122.26(d)(2)(iv)(A)). These discharges are still subject to NPDES requirements.

stabilization. For example, if the native vegetation covers 50% of the ground, 70% of 50% would require 35% total cover for final stabilization.

A copy of the NOT, and instructions for completing the NOT, are provided in Addendum C of today's notice. The NOT form requires the following information:

- The street (description of location if not street address is available) address of the construction site for which the notification is submitted;
- The name, address, and telephone number of the permittee submitting the NOT.

- The NPDES permit for the storm water discharge identified by the NOT.
- An indication of whether the storm water discharges associated with construction activity have been eliminated or the operator of the discharge has changed;

- For changes in operators, the name, address, and phone number of the new operator; and

• The following certification: "I certify under penalty of law that either (a) all storm water discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated or (b) I am no longer an operator at the construction site and a new operator has assumed operational control for those portions of the construction site where I previously had operational control. I understand that by submitting this notice of termination, I am no longer authorized to discharge storm water associated with construction activity under this general permit, and that discharging pollutants in storm water associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit from the Clean Water Act."

Notices of Termination are to be sent to the address specified on the form.

The NOT must be signed by the appropriate individual in accordance with the signatory requirements of the permit. A description of these signatory requirements is provided in the instructions accompanying the NOT, and this permit.

Submittal of a NOT, by itself, does not relieve permittees from the obligations of the permit, such as the requirement to stabilize the site. Appropriate enforcement actions may still be taken for permit violations where a permittee submits a NOT but the permittee has not

transferred operational control to another permittee or the site has not undergone final stabilization.

**J. Regional Offices**

For questions or further information regarding this proposed permit, please contact the EPA Storm Water Coordinator at the locations below.

Other submittals of information required under these permits or individual permit applications or other written correspondence concerning discharges in any State, Indian land, or from any Federal Facility covered, should also be sent to the appropriate EPA Regional Office listed below:

**CT, MA, ME, NH, RI, VT**  
 United States EPA, Region I, Office of Ecosystem Protection, John F. Kennedy Federal Building, CMU, Boston, MA 02203, Storm water coordinator—Thelma Hamilton (617) 565-3569, or Beverly Guertin (617) 565-3600

**NJ, NY, PR, VI**  
 United States EPA, Region II, Division of Environmental Planning and Protection, (2DEPP-WPB), Water Programs Branch, 290 Broadway, New York, NY 10007-1866, Storm Water Coordinator—Sergio Bosques (212) 637-3717, or Jose Rivera (809) 729-6951

**DE, DC, MD, PA, VA, WV**  
 United States EPA, Region III, Water Protection Division, (3WP13), Storm Water Staff, 841 Chestnut Building, Philadelphia, PA 19107, Storm Water Coordinator—Elaine Harbold (215) 566-5744

**AR, LA, NM (except see Region IX for Navajo lands and see Region VIII for Ute Mountain Ute Reservation land), OK, TX**

United States EPA, Region VI, Storm Water Staff, Enforcement and Compliance Assurance Division (GEN-WC), EPA SW Construction GP, P.O. Box 50625, Dallas, TX 75205, Storm Water Coordinator—Brent Larsen (214) 665-7523

**IA, KS, MO, NE**  
 United States EPA, Region VII, Water, Wetlands, and Pesticides Division, NPDES and Facilities Management Branch, Storm Water Staff, 726 Minnesota Avenue, Kansas City, KS 66101, Storm Water Coordinator—Ralph Summers (913) 551-7418

**CO, MT, ND, SD, WY, UT (except see Region IX for Goshute Reservation and Navajo Reservation lands)**  
 United States EPA, Region VIII, Office of Ecosystems Protection and Remediation (8EPR-EP), Storm Water Staff, 999 18th Street, Denver, CO 80202-2466, Storm Water Coordinator—Vern Berry

(303) 312-6234

Note—For Montana Indian Lands, please use the following address:

United States EPA, Region VIII, Montana Operations Office, Federal Office Building, Drawer 10096, 301 South Park, Helena, MT 59626-0096, Storm Water Coordinator—Vern Berry (303) 312-6234

**AZ, CA, HI, NV, American Samoa, Guam, Commonwealth of the Northern Mariana Islands, the Goshute Reservation in UT and NV, the Navajo Reservation in UT, NM, and AZ, the Duck Valley Reservation in ID, Fort McDermitt Reservation in OR, Johnston Atoll, Midway and Wake Island**

United States EPA, Region IX, Water Management Division, (WTR-5), Storm Water Staff, 75 Hawthorne Street, San Francisco, CA 94105, Storm Water Coordinator—Eugene Bromley (415) 744-1906,

**AK, ID (except see Region IX for Duck Valley Reservation lands), OR, WA**  
 United States EPA, Region X, Office of Water OW-130, Storm Water Staff, 1200 6th Avenue, Seattle, WA 90101, Storm Water Coordinator—Joe Wallace (206) 553-8399.

**Part V—Cost Estimates**

The two major costs associated with pollution prevention plans for construction activities include the costs of sediment and erosion controls (see Table 1) and the costs of storm water management measures (see Table 2). Today's permits would provide flexibility in developing controls for construction activities. Typically, most construction sites will employ several types of sediment and erosion controls and storm water management controls, but not all the controls listed in Tables 1 and 2. In general, sites that disturb a large area will incur higher pollution prevention costs.

TABLE 1.—SEDIMENT AND EROSION CONTROL COSTS

|                           |                                   |
|---------------------------|-----------------------------------|
| Temporary seeding ...     | \$1.00 per square foot.           |
| Permanent seeding ...     | \$1.00 per square foot.           |
| Mulching .....            | \$1.25 per square foot.           |
| Sod stabilization .....   | \$4.00 per square foot.           |
| Vegetative buffer strips. | \$1.00 per square foot.           |
| Protection of trees ..... | \$30.00 to \$200.00 per tree set. |
| Earth dikes .....         | \$5.50 per linear foot.           |
| Silt fences .....         | \$6.00 per linear foot.           |
| Ddrainage swales-grass.   | \$3.00 per square yard.           |
| Drainage swales-sod       | \$4.00 per square yard.           |
| Ddrainage swales-riprap.  | \$45.00 per square yard.          |

**TABLE 1.—SEDIMENT AND EROSION CONTROL COSTS—Continued**

|                                  |                                  |
|----------------------------------|----------------------------------|
| Drainage swales-asphalt.         | \$35.00 per square yard.         |
| Drainage swales-concrete.        | \$65.00 per square yard.         |
| Check dams-rock .....            | \$100 per dam.                   |
| Check dams-covered straw bales.  | \$50 per dam.                    |
| Level spreader-earth-en.         | \$4.00 per square yard.          |
| Level spreader-concrete.         | \$65.00 per square yard.         |
| Subsurface drain .....           | \$2.25 per linear foot.          |
| Pipe slope drain .....           | \$5.00 per linear foot.          |
| Temporary storm drain diversion. | Variable.                        |
| Storm drain inlet protection.    | \$300 per inlet.                 |
| Rock outlet protection           | \$45 per square yard.            |
| Sediment traps .....             | \$500 to \$7,000 per trap.       |
| Temporary sediment basins.       | \$5,000 to \$50,000 per basin.   |
| Sump pit .....                   | \$500 to \$7,000.                |
| Entrance stabilization           | \$1,500 to \$5,000 per entrance. |
| Entrance wash rack ..            | \$2,000 per rack.                |
| Temporary waterway crossing.     | \$500 to \$1,500.                |
| Wind breaks .....                | \$2.50 per linear foot.          |

Practices such as sod stabilization and tree protection increase property values and satisfy consumer aesthetic needs.  
 Sources: "Means Site Work Cost Data," 9th edition, 1990, R.S. Means Company. "Sediment and Erosion Control, An Inventory of Current Practices," prepared by Kamber Engineering for U.S. EPA, April 1990.

**TABLE 2.—ANNUALIZED COSTS OF SEVERAL STORM WATER MANAGEMENT OPTIONS FOR CONSTRUCTION SITES**

|                                   | Annualized cost for 9-acre developed area | Annualized cost for 20-acre developed area |
|-----------------------------------|---|--|
| Wet Ponds .....                   | \$5,872                                   | \$9,820                                    |
| Dry Ponds .....                   | 3,240                                     | 5,907                                      |
| Dry Ponds with Extended Detention | 3,110                                     | 5,413                                      |
| Infiltration Trenches             | 4,134                                     | 6,359                                      |

Estimates based on methodology presented in "Cost of Urban Runoff Quality Controls," Wiegand, C., Schueler, T., Chittenden, W., and Jellick, D., Urban Runoff Quality-Impact and Quality Enhancement Technology, Proceedings of an Engineering Foundation Conference, ASCE, 1986, edited by B. Urbonas and L.A. Roesner.  
 Costs are presented in 1992 dollars. Annualized costs are based on a 10 year period and 10 percent discount rate. Estimates include a contingency cost of 25 percent of the construction cost and operation and maintenance costs of 5 percent of the construction cost. Land costs are not included.

**Part VI—Economic Impact (Executive Order 12866)**

Under Executive Order 12866, [58 FR 51735 (October 4, 1993)] the Agency must determine whether the regulatory action is "significant" and therefore subject to OMB review and the requirements of the Executive Order. The Order defines "significant regulatory action" as one that is likely to result in a rule that may have an annual effect on the economy of \$100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights and obligations of recipients thereof; or raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in the Executive Order.

EPA has determined that this re-issued general permit is not a "significant regulatory action" under the terms of Executive Order 12866 and is therefore not subject to formal OMB review prior to proposal.

**Part VII—Unfunded Mandates Reform Act**

Section 201 of the Unfunded Mandates Reform Act (UMRA), Public Law 104-4, generally requires Federal agencies to assess the effects of their "regulatory actions" on State, local, and tribal governments and the private sector. UMRA uses the term "regulatory actions" to refer to regulations. (See, e.g., UMRA section 201, "Each agency shall \* \* \* assess the effects of Federal regulatory actions \* \* \* (other than to the extent that such regulations incorporate requirements specifically set forth in law)" (emphasis added)). UMRA section 102 defines "regulation" by reference to section 658 of Title 2 of the U.S. Code, which in turn defines "regulation" and "rule" by reference to section 601(2) of the Regulatory Flexibility Act (RFA). That section of the RFA defines "rule" as "any rule for which the agency publishes a notice of proposed rulemaking pursuant to section 553(b) of [the Administrative Procedure Act (APA)], or any other law \* \* \*".

As discussed in the RFA section of this notice, NPDES general permits are not "rules" under the APA and thus not subject to the APA requirement to

publish a notice of proposed rulemaking. NPDES general permits are also not subject to such a requirement under the CWA. While EPA publishes a notice to solicit public comment on draft general permits, it does so pursuant to the CWA section 402(a) requirement to provide "an opportunity for a hearing." Thus, NPDES general permits are not "rules" for RFA or UMRA purposes.

Nevertheless, EPA has considered the draft general permit in light of UMRA's requirements. As noted elsewhere in today's notice, the draft general permit is virtually the same as the NPDES general permits for construction that many construction operators have used over the past five years. EPA has determined that the draft permit would not contain a Federal requirement that may result in expenditures of \$100 million or more for State, local and tribal governments, in the aggregate, or the private sector in any one year.

The Agency also believes that the draft general permit would not significantly nor uniquely affect small governments. For UMRA purposes, "small governments" is defined by reference to the definition of "small governmental jurisdiction" under the RFA. (See UMRA section 102(1), referencing 2 U.S.C. section 658, which references section 601(5) of the RFA.) "Small governmental jurisdiction" means governments of cities, counties, towns, etc., with a population of less than 50,000, unless the agency establishes an alternative definition.

Under existing regulations, a permit application is not required until August 7, 2001, for a storm water discharge associated with construction activity where the construction site is owned or operated by a municipality with a population of less than 100,000. 40 CFR 122.26(e)(1)(ii)&(g). In any event, the requirements of the draft general permit would not significantly affect small governments because most State laws already provide for the control of sedimentation and erosion in a similar manner as today's proposed general permit. The draft permit's requirements also would not uniquely affect small governments because compliance with the proposed permit conditions affects small governments in the same manner as any other entities seeking coverage under the permit.

**Part VIII—Paperwork Reduction Act**

EPA has reviewed the requirements imposed on regulated facilities in this proposed general permit under the Paperwork Reduction Act of 1980, 44 U.S.C. 3501 *et seq.* In a separate Federal Register notice, EPA is proposing a

revision to the current Information Collection Request (ICR) document for today's permit (Approved by the Office of Management and Budget (OMB) OMB No. 2040-0086, expiration date of August 31, 1998) to account for the increased information requirements proposed in the new Notice of Intent (NOI) for the construction general permit. EPA will publish the proposed ICR revisions in a separate **Federal Register** notice EPA and will submit the revision to OMB for approval prior to issuance of the final permit. EPA estimates a slight increase in the burden associated with filling out the Notice of Intent (NOI) form for coverage under this permit due to the added requirements under the Endangered Species Act and the National Historic Preservation Act. EPA also anticipates a small increase in the time due to the requirement to submit a notice of termination (NOT) upon completion of construction activities.

#### Part IX—Section 401 and Coastal Zone Management Act Certifications

Section 401 of the CWA provides that no Federal license or permit, including NPDES permits, to conduct any activity that may result in any discharge into navigable waters shall be granted until the State/Tribal in which the discharge originates certifies that the discharge will comply with the applicable provisions of sections 301, 302, 303, 306, and 307 of the CWA. The section 401 certification process has been initiated for all States, Indian lands and Federal facilities covered by today's general permits. Any additional State/Tribal permit conditions will be contained in the final permit.

The Coastal Zone Management Act (CZMA) requires that all Federal licensing and permitting actions be reviewed for consistency with each approved State coastal zone management plan. EPA has also initiated this review.

#### Part X—Regulatory Flexibility Act

Section 603(a) of the Regulatory Flexibility Act (RFA), 5 U.S.C. 603(a), provides that "[w]henver an agency is required by section 553 [of the Administrative Procedures Act (APA)], or any other law, to publish general notice of proposed rulemaking for any proposed rule," the agency must conduct an initial regulatory flexibility analysis for the proposed rule. Section 605(b) of the RFA provides an exemption from this requirement for a proposed rule that the agency head certifies "will not, if promulgated, have

a significant economic impact on a substantial number of small entities."

The Agency takes the position that NPDES general permits are not subject to rulemaking requirements under APA section 553 or any other law. The requirements of APA section 553 apply only to the issuance of "rules," which the APA defines in a manner that excludes permits. See APA section 551 (4), (6) and (8). The CWA also does not require publication of a general notice of proposed rulemaking for general permits. EPA issues draft NPDES general permits for public comment in the **Federal Register** in order to meet the applicable CWA procedural requirement to provide "an opportunity for a hearing." See CWA section 402(a), 33 U.S.C. 1342(a).

Nevertheless, the Agency has considered and addressed the potential impact of the draft general permit on small entities in a manner that meets the requirements of the RFA. EPA took such action based on the likelihood that a large number of small entities may seek coverage under the general permit if finalized as proposed. Specifically, EPA has analyzed the potential impact of the draft general permit on small entities and determined that the permit will not have a significant economic impact on a substantial number of small entities. Like the existing general permit it will replace, the draft general permit would make available to many small entities, particularly operators of construction sites, a streamlined process for obtaining authorization to discharge. Of the possible permitting mechanisms available to dischargers subject to the CWA, NPDES general permits are designed to reduce the reporting and monitoring burden associated with NPDES permit authorization, especially for small entities with discharges having comparatively less potential for environmental degradation than discharges regulated under individual NPDES permits. Thus, general permits like the existing and draft permit at issue here provide small entities with a permitting application option that is much less burdensome than NPDES individual permit applications.

Beyond that, the draft general permit is virtually identical to the existing general permit for construction that under which many construction operators have operated over the past five years. Moreover, there are other, new provisions of the proposed permit were designed to minimize burdens on small entities, including provisions in the proposal related to subcontractor obligations related to pollution prevention plans required by the permit.

Under the prior general permit for construction site discharges, affected subcontractors expressed concern to EPA about the need to prepare their own pollution prevention plan to address discharges related to subcontractor activities at a construction site. The subcontractors perceived this obligation to be redundant, particularly if a general contractor had prepared a pollution prevention plan that addressed the activities of subcontractors. Today's proposed permit would address this by allowing subcontractors to certify that they have reviewed and comply with the pollution prevention plan prepared by the general contractor (where the general contractor's pollution prevention plan addresses activities of subcontractors). EPA believes this modification from the prior permit should reduce adverse economic impacts on subcontractors who, in many instances, are small entities. In view of the foregoing, the Regional Administrators find that the proposed general permit will not have a significant economic impact on a substantial number of small entities.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 22, 1997.

John DeVillars,  
Regional Administrator, Region I.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 21, 1997.

Jeanne M. Fox,  
Regional Administrator, Region 2.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 22, 1997.

Stanley L. Laskowski,  
Acting Regional Administrator, Region III.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 21, 1997.

Myron O. Knudsen, P.E.,  
Acting Regional Administrator, Region 6.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 21, 1997.

U. Gale Hutton,  
Acting Regional Administrator, Region 7.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 20, 1997.

Patricia D. Hull,  
Acting Regional Administrator, Region VIII.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 20, 1997.

Alexis Strauss,  
Acting Regional Administrator, Region 9.

#### Part XI—Official Signatures

Accordingly, I hereby certify pursuant to the provisions of the Regulatory Flexibility Act, that this proposed permit will not have a significant impact on a substantial number of small entities.

Authority: Clean Water Act, 33 U.S.C. 1251 *et seq.*

Dated: May 20, 1997.

Jane S. Moore,  
Acting Regional Administrator, Region X.

#### Storm Water General Permit for Construction Activities

##### Cover Page

Permit No. [See Part I.A.]

#### Authorization to Discharge Under the National Pollutant Discharge Elimination System

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 *et seq.* the Act), except as provided in Part I.B.3 of this permit, operators of storm water discharges from construction activities, located in an area specified in Part I.A., are authorized to discharge in accordance with the conditions and requirements set forth herein.

Only those operators of storm water discharges from construction activities in the general permit area who submit a Notice of Intent in accordance with Part II of this permit are authorized under this general permit.

This permit shall become effective on [insert the date of publication of the final permit in the Federal Register].

This permit and the authorization to discharge shall expire at midnight, [insert the date five years after the date of publication of the final permit in the Federal Register].

Signed and issued this day of \_\_\_\_\_, 1997.

(Signature of Water Management Director or Regional Administrator)

This signature is for the permit conditions in Parts I through IX and for any additional conditions in Part X which apply to facilities located in the corresponding State, Reservation, or other area.

#### NPDES General Permits for Storm Water Discharges From Construction Activities

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#### Part I. Coverage Under This Permit

##### A. Permit Area

The permit language is structured as if it were a single permit, with area-specific conditions specified in Part XI. Permit coverage is actually provided by legally separate and distinctly numbered permits covering each of the following areas:

##### Region 1:

- CTR10\*#I: Indian Country Lands in the State of Connecticut
- MAR10\*##I: Commonwealth of Massachusetts, except Indian Country Lands
- MAR10\*##I: Indian Country Lands in the Commonwealth of Massachusetts
- MER10\*##I: State of Maine, except Indian Country Lands
- MER10\*##I: Indian Country Lands in the State of Maine
- NHR10\*##I: State of New Hampshire, except Indian Country Lands

NHR10\*##I: Indian Country Lands in the State of New Hampshire  
 RIR10\*##I: Indian Country Lands in the State of Rhode Island  
 VTR10\*##I: Indian Country Lands in the State of Vermont  
 VTR10\*##F: Federal Facilities in the State of Vermont

## Region 2:

NYR10\*##I: Indian Country Lands in the State of New York  
 PRR10\*##I: The Commonwealth of Puerto Rico

## Region 3:

DCR10\*##I: The District of Columbia  
 DER10\*##F: Federal Facilities in the State of Delaware

## Region 4:

Coverage Not Available. Construction activities in Region 4 must obtain permit coverage under an alternative permit.

## Region 5:

Coverage Not Available.

## Region 6:

LAR10\*##I: Indian Country Lands in the State of Louisiana  
 NMR10\*##I: The State of New Mexico, except Indian Country Lands  
 NMR10\*##I: Indian Country Lands in the State of New Mexico, except Navajo Reservation lands (see Region 9) and Ute Mountain Ute Reservation lands (see Region 8)  
 OKR10\*##I: Indian Country Lands in the State of Oklahoma  
 TXR10\*##I: The State of Texas, except Indian Country Lands  
 TXR10\*##I: Indian Country Lands in the State of Texas

## Region 7:

IAR10\*##I: Indian Country Lands in the State of Iowa  
 KSR10\*##I: Indian Country Lands in the State of Kansas  
 NER10\*##I: Indian Country Lands in the State of Nebraska, except Pine Ridge Reservation lands (see Region 8)

## Region 8:

COR10\*##F: Federal Facilities in the State of Colorado  
 COR10\*##I: Indian Country Lands in the State of Colorado, including the portion of the Ute Mountain Ute Reservation located in New Mexico  
 MTR10\*##I: Indian Country Lands in the State of Montana  
 NDR10\*##I: Indian Country Lands in the State of North Dakota, including that portion of the Standing Rock Reservation located in South Dakota (except for the Lake Traverse

Reservation which is covered under the permit areas for South Dakota).  
 SDR10\*##I: Indian Country Lands in the State of South Dakota, including the portion of the Pine Ridge Reservation located in Nebraska and the portion of the Lake Traverse Reservation located in North Dakota (except for the Standing Rock Reservation which is covered under the permit areas for North Dakota).  
 UTR10\*##I: Indian Country Lands in the State of Utah, except Goshute and Navajo reservation lands (see Region 9)  
 WYR10\*##I: Indian Country Lands in the State of Wyoming

## Region 9:

ASR10\*##I: The Island of American Samoa  
 AZR10\*##I: The State of Arizona, except Indian Country Lands  
 AZR10\*##I: Indian Country Lands in the State of Arizona, including Navajo Reservation lands in New Mexico and Utah  
 CAR10\*##I: Indian Country Lands in the State of California  
 GUR10\*##I: The Island of Guam  
 JAR10\*##I: Johnston Atoll  
 MWR10\*##I: Midway Island and Wake Island  
 NIR10\*##I: Commonwealth of the Northern Mariana Islands  
 NVR10\*##I: Indian Country Lands in the State of Nevada, including the Duck Valley Reservation in Idaho, the Fort McDermitt Reservation in Oregon and the Goshute Reservation in Utah

## Region 10

AKR10\*##I: The State of Alaska, except Indian Country Lands  
 AKR10\*##I: Indian Country Lands in Alaska  
 IDR10\*##I: The State of Idaho, except Indian Country Lands  
 IDR10\*##I: Indian Country Lands in the State of Idaho, except Duck Valley Reservation lands (see Region 9)  
 ORR10\*##I: Indian Country Lands in the State of Oregon except Fort McDermitt Reservation lands (see Region 9)  
 WAR10\*##F: Federal Facilities in the State of Washington  
 WAR10\*##I: Indian Country Lands in the State of Washington

## B. Eligibility

1. This permit authorizes discharges of storm water from construction activities as defined in 40 CFR 122.26(b)(14)(x) and those construction site discharges designated by the Director as needing a storm water permit under 122.26(a)(1)(v) or under

122.26(a)(9) and 122.26(g)(1)(i), except for discharges identified under paragraph I.B.3. Any discharge authorized by a different NPDES permit may be commingled with discharges authorized by this permit.

2. This permit also authorizes storm water discharges from support activities related to a construction site (e.g. concrete or asphalt batch plants, equipment staging yards, material storage areas, etc.) from which there otherwise is a storm water discharge from a construction activity provided:

- a. The support activity is not a commercial operation serving multiple unrelated construction projects, and does not operate beyond the completion of the construction activity; and
- b. Appropriate controls and measures are identified in the storm water pollution prevention plan for the discharges from the support activity areas.

## 3. Limitations on Coverage

The following storm water discharges from construction sites are not authorized by this permit:

- a. *Post Construction Discharges.* Storm water discharges that originate from the site after construction activities have been completed and the site has undergone final stabilization.
- b. *Discharges Mixed with Non-storm Water.* Discharges that are mixed with sources of non-storm water other than discharges which are identified in Part III.A.2. of this permit and which are in compliance with Part IV.D.5 (non-storm water discharges) of this permit. Any discharge authorized by a different NPDES permit may be commingled with discharges authorized by this permit.
- c. *Discharges Covered by Another Permit.* Storm water discharges associated with construction activity that have been issued an individual permit or required to obtain coverage under an alternative general permit in accordance with paragraph VI.L;
- d. *Discharges Threatening Water Quality.* Storm water discharges from construction sites that the Director (EPA) determines will cause, or have the reasonable potential to cause, excursions above water quality standards. (Where such determinations have been made, the discharger will be notified by the Director that an individual permit application is necessary.);

e. *Discharges that are not Protective of Endangered and Threatened Species.*

(1) A discharge of storm water associated with construction activity is covered under this permit only if the applicant certifies that it meets at least one of the following criteria. Failure to

continue to meet one of these criteria during the term of the permit will result in the storm water discharges associated with construction being ineligible for coverage under this permit.

(a) The storm water discharge(s), and the construction and implementation of Best Management Practices (BMPs) to control storm water runoff, are not likely to adversely affect species identified in Addendum A of this permit or critical habitat for a listed species; or

(b) The applicant's activity has received previous authorization under section 7 or section 10 of the Endangered Species Act (ESA) and that authorization addressed storm water discharges and/or BMPs to control storm water runoff (e.g., developer included impact of entire project in consultation over a wetlands dredge and fill permit under Section 7 of the Endangered Species Act); or

(c) The applicant's activity was considered as part of a larger, more comprehensive assessment of impacts on endangered and threatened species under section 7 or section 10 of the Endangered Species Act that which accounts for storm water discharges and BMPs to control storm water runoff (e.g., where an area-wide habitat conservation plan and section 10 permit is issued which addresses impacts from construction activities including those from storm water, or a National Environmental Policy Act (NEPA) review is conducted which incorporates ESA section 7 procedures); or

(d) Consultation under section 7 of the Endangered Species Act is conducted for the applicant's activity which results in either a no jeopardy opinion or a written concurrence on a finding of no likelihood of adverse effects; or

(e) The applicant's activity was considered as part of a larger, more comprehensive site-specific assessment of impacts on endangered and threatened species by the owner or other operator of the site and that permittee certified eligibility under item (a), (b), (c), or (d) above (e.g. owner was able to certify no adverse impacts for the project as a whole under item (a), so the contractor can then certify under item (e)). Utility companies applying for permit coverage for the entire permit area of coverage as defined under Part I.A. may certify under item (e) since authorization to discharge is contingent on a principal operator of a construction project having been granted coverage under this, or an alternative NPDES permit for the areas of the site where utilities installation activities will occur.

(2) All applicants must follow the procedures provided at Addendum A of this permit when applying for permit coverage.

(3) The applicant must comply with any terms and conditions imposed under the eligibility requirements of paragraphs (1)(a), (b), (c), (d), or (e) above to ensure that storm water discharges or BMPs to control storm water runoff are protective of listed endangered and threatened species and/or critical habitat. Such terms and conditions must be incorporated in the applicant's storm water pollution prevention plan.

(4) For the purposes of conducting consultation to meet the eligibility requirements of paragraph (1)(d) above, applicants are designated as non-Federal representatives. See 50 CFR 402.08. However, applicants who choose to conduct consultation as a non-Federal representative must notify EPA and the appropriate Service office in writing of that decision.

(5) This permit does not authorize any "take" (as defined under section 9 of the Endangered Species Act) of endangered or threatened species unless such takes are authorized under sections 7 or 10 of the Endangered Species Act.

(6) This permit does not authorize any storm water discharges nor require any BMPs to control storm water runoff that are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the Endangered Species Act or result in the adverse modification or destruction of habitat that is designated as critical under the Endangered Species Act.

*f. Discharges Adversely Affecting Properties Eligible for Protection Under the National Historic Preservation Act.*

(1) To be eligible for coverage under this permit, all applicants must determine whether their storm water discharges or BMPs to control storm water runoff would affect a property that is listed or is eligible for listing in the National Historic Register maintained by the Secretary of Interior (also known as "historic properties" in the NHPA regulations at 36 CFR 800.2). Applicants must comply with all requirements in this permit (including those pertaining to the development of storm water pollution prevention plans and submission of NOIs) to protect historic properties. Coverage under this permit is available only if:

(a) The storm water discharges or BMPs to control storm water runoff do not affect a property that is listed or is eligible for listing in the National Historic Register maintained by the Secretary of Interior; or,

(b) The applicant consults with the State Historic Preservation Officer (SHPO) or the Tribal Historic Preservation Officer (THPO) on the potential for adverse effects which results in a no effect finding; or

(c) The applicant has obtained and is in compliance with a written agreement between the applicant and the SHPO/THPO that outlines all measures to be undertaken by the applicant to mitigate or prevent adverse effects to the historic property; or

(d) The applicant agrees to implement and comply with the terms of a written agreement between another owner/operator (e.g., subdivision developer, property owner, etc.) and the SHPO/THPO that outlines all measures to be undertaken by operators on the site to mitigate or prevent adverse effects to the historic property; or

(e) The applicant's activity was considered as part of a larger, more comprehensive site-specific assessment of effects on historic properties by the owner or other operator of the site and that permittee certified eligibility under items (a), (b), (c), or (d) above. Utility companies applying for permit coverage for the entire construction site may certify under item (d) since authorization to discharge is contingent on a principal operator of a construction project having been granted coverage under this, or an alternative NPDES permit for the areas of the site where utilities installation activities will occur.

(2) This permit does not authorize any storm water discharges or BMPs to control storm water runoff which are not in compliance with any applicable State or local historic preservation laws.

*C. Obtaining Authorization*

1. In order for storm water discharges from construction activities to be authorized to discharge under this general permit, a discharger must:

(a) First develop a Pollution Prevention Plan (covering either the entire site or all portions of the site for which they are operators—see definition in Part IX) according to the requirements in Part IV (preparation and implementation of the Plan may be a cooperative effort where there is more than one operator at a site), and then

(b) Submit a Notice of Intent (NOI) in accordance with the requirements of Part II, using an NOI form provided by the Director (or a photocopy thereof). The Pollution Prevention Plan must be implemented upon commencement of construction activities.

2. For construction sites where the operator changes, or where a new operator is added after the submittal of



an NOI under Part II, a new NOI must be submitted in accordance with Part II.

3. Unless notified by the Director to the contrary, dischargers who submit an NOI in accordance with the requirements of this permit are authorized to discharge storm water from construction activities under the terms and conditions of this permit two (2) days after the date that the NOI is postmarked. The Director may deny coverage under this permit and require submittal of an application for an individual NPDES permit based on a review of the NOI or other information (see Part VI.L of this permit).

#### D. Terminating Coverage

1. Operators wishing to terminate coverage under this permit must submit a notice of termination (NOT) in accordance with Part VIII of this permit.

2. All permittees must submit a NOT within thirty (30) days after completion of their construction activities and final stabilization of their portion of the site, or another operator taking over all of their responsibilities at the site. A permittee cannot submit an NOT without final stabilization unless another party has agreed to assume responsibility for final stabilization of the site. Appropriate enforcement actions may be taken for permit violations where a permittee submits a NOT but the permittee has not transferred operational control to another permittee or the site has not undergone final stabilization. Project-by-project NOTs are not required to be submitted by utility company operators for installation of utilities at construction sites if the utility company operator has been authorized to discharge in the full area of coverage for a given permit as defined in Part I.A. of this permit.

### Part II. Notice of Intent Requirements

#### A. Deadlines for Notification

1. Except as provided in Parts II.A.3, II.A.4, II.A.5, or II.A.6, parties with operational control over project specifications, (e.g., owner or developer), must submit an initial Notice of Intent (NOI) in accordance with the requirements of this Part at least two (2) days prior to the commencement of construction activities (i.e., the initial disturbance of soils associated with clearing, grading, excavation activities, or other construction activities);

2. Except as provided in Parts II.A.3, II.A.4., or Part II.A.5, parties defined as operators solely due to their day-to-day operational control over those activities at a project site which are necessary to

ensure compliance with the storm water pollution prevention plan or other permit conditions (e.g., general contractor, erosion control contractor, etc.) must submit an NOI at least two (2) days prior to commencing work at the site.

3. For storm water discharges from construction sites where the operator changes, (including projects where an operator is added after an NOI has been submitted under Parts II.A.1 or II.A.2) an NOI in accordance with the requirements of this Part shall be submitted at least 2 days prior to when the new operator assumes operational control over site specifications or commences work at the site.

4. Utility Companies (i.e., telephone, electric, gas, water, sewer, cable TV, etc. companies that provide service to the public) whose involvement in an individual construction project is limited to installation of underground or above-ground service lines and associated equipment to provide connections from a main transmission line to individual customers (e.g., homes, apartments, businesses, etc.) or a location where the site operator's utility subcontractor will tap in (e.g., public water utility installs a stub with a tap into the main trunk line and developer's utility contractors run the distribution lines), may file a single NOI to obtain coverage for all such activities in the permit areas defined in Part I.A. Permit coverage obtained in this manner is limited to the utility company's activities on sites where:

a. An operator of the individual construction project has obtained permit coverage under this or an alternative general permit or under an individual permit;

b. The pollution prevention plan for the site identifies control measures for utilities installation activities; and

c. The party responsible for implementation of each control measure for utilities installation is clearly identified.

Where a utility company is constructing a main transmission line, or other project for themselves, the utility company must obtain permit coverage on a site-by-site basis.

**Note:** Utility contractors hired by a utility company or other site operator and not meeting the definition of "operator" are considered subcontractors and are covered by the subcontractor certification requirements of Part IV.F.

5. Dischargers are not prohibited from submitting late NOIs. When a late NOI is submitted, authorization is only for future discharges. The Agency reserves the right to bring appropriate

enforcement actions for any unpermitted activities that may have occurred between the time construction commenced and authorization of future discharges.

6. Permittees with construction projects authorized to discharge under the previous general permit issued in 1992 and now replaced by this permit must:

a. Submit a new NOI within thirty (30) days of the effective date of this permit in order to continue authorization to discharge after [insert date 30 days after effective date of permit]. If the permittee will be eligible to submit a Notice of Termination (NOT) (e.g., construction finished and final stabilization complete) before the 30th day, no NOI is required.

b. During the time between the effective date of this permit and [insert date 30 days from the effective date of the permit], comply with the terms and conditions of the 1992 baseline general permit they were previously authorized under and submitted an NOI for extended coverage as described under the Administrative Procedures Act before termination of the 1992 baseline general permit.

c. Update their current pollution prevention plan to comply with the requirements of Part IV no later than [insert date 30 days from the effective date of the permit].

#### B. Contents of Notice of Intent

##### 1. Notice of Intent for Individual Construction Projects

The Notice(s) of Intent shall be signed in accordance with Part VI.G of this permit and shall include the following information:

a. The street address (description of location if no street address is available), county, and the latitude and longitude of the approximate center of the construction site/project for which the notification is submitted;

b. The name, address, and telephone number of the operator(s) filing the NOI for permit coverage and operator status as a Federal, State, Tribal, private, or other public entity;

c. Whether or not the construction project is located on Indian Lands;

d. The name, address, and telephone number of the construction site owner and owner's status as a Federal, State, Tribal, private, or other public entity;

e. The name of the receiving water(s), or if the discharge is through a municipal separate storm sewer, the name of the municipal operator of the storm sewer and the receiving water(s);

f. The permit number of any NPDES permit(s) for any discharge(s) (including

any storm water discharges or any non-storm water discharges) from the site, to the extent available.

g. An estimate of project start date and completion dates, estimates of the number of acres of the site on which soil will be disturbed, and

h. A certification that a storm water pollution prevention plan, including both construction and post-construction controls, has been prepared for the site in accordance with Part IV of this permit, and such plan provides compliance with approved State/Tribal and/or local sediment and erosion plans or permits and/or storm water management plans or permits in accordance with Part IV.D.2.d of this permit. (A copy of the plans or permits should not be included with the NOI submission).

i. Whether, based on the instruction in Addendum A, any species identified in Addendum A are in proximity to the storm water discharges covered by this permit or the BMPs to be used to comply with permit conditions.

j. Under which section(s) of Part I.B.3.e.(1) (Endangered Species) and Part I.B.3.f. (Historical Preservation) the applicant is certifying eligibility.

k. The following certifications shall be signed in accordance with Part VI.G.

I certify under penalty of law that I have read and understand the Part I.B. eligibility requirements for coverage under the general permit for storm water discharges from construction activities, including those requirements relating to the protection of endangered species identified in Addendum A.

I further certify that I have followed the procedures found in Addendum A to protect listed endangered and threatened species and designated critical habitat and that the discharges covered under this permit and BMPs to control storm water runoff meet one of the eligibility requirements of Part I.B.3.e.(1) of this permit. Check the box(es) corresponding to that part of Part I.B.3.e.(1) under which you claim compliance with the eligibility requirements of the permit—(a), (b), (c), (d), or (e).

I further certify, to the best of my knowledge, that such discharges, and implementation of BMPs to control storm water runoff, do not have an effect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, or are otherwise eligible for coverage, in accordance with Part I.B.3.f. of the permit, due to a previous agreement under the National Historic Preservation Act.

I understand that continued coverage under this storm water general permit is contingent upon maintaining eligibility as provided for in Part I.B.

## 2. Notice of Intent for Permit Issuance Area-wide Coverage of Utility Companies While Installing Utility Service

The Notice(s) of Intent for utility companies filing for area-wide coverage in accordance with Part II.A.4. shall be signed in accordance with Part VI.G of this permit and shall include the following information:

a. The name, address, and telephone number of the utility company filing the NOI for permit coverage and operator status as a Federal, State, Tribal, private, or other public entity;

b. The State or other area for which coverage is being requested and whether or not any construction projects will be located on an Indian reservation;

c. The name, address, and telephone number of the utility company's point of contact for the utility company's compliance with the area-wide coverage granted by the permit;

d. A certification that a storm water pollution prevention plan with standard operating procedures for the limited utility company construction activities related to installation of service connections has been prepared in accordance with Part IV of this permit, and such plan provides compliance with approved State/Tribal and/or local sediment and erosion plans or permits and/or storm water management plans or permits in accordance with Part IV.D.2.d of this permit. (A copy of the plans or permits should not be included with the NOI submission.)

e. Under which sections of Part I.B.3.e.1. (Endangered Species) and Part I.B.3.f. (Historical Preservation) the applicant is certifying eligibility.

f. The following certifications shall be signed in accordance with Part VI.G.

I certify under penalty of law that I have read and understand the Part I.B. eligibility requirements for coverage under the general permit for storm water discharges from construction activities, including those requirements relating to the protection of endangered species identified Part I.B.3.e.

I further certify that I understand that authorization to discharge is contingent on a principal operator of a construction project having been granted coverage under this, or an alternative NPDES permit for the areas of the site where utilities installation activities will occur and that a pollution prevention plan including appropriate control measures for activities related to installation of utility service has been prepared and will be implemented.

I further certify that I have followed the procedures found in Addendum A to protect listed endangered and threatened species and designated critical habitat and that the discharges covered under this permit and BMPs to control storm water runoff meet one of the eligibility requirements of Part

I.B.3.e.(1) of this permit. Check the box(es) corresponding to that part of Part I.B.3.e.(1) under which you claim compliance with the eligibility requirements of the permit—(a), (b), (c), (d), or (e).

I further certify, to the best of my knowledge, that such discharges, and implementation of BMPs to control storm water runoff, do not have an effect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, or are otherwise eligible for coverage, in accordance with Part I.B.3.f. of the permit, due to a previous agreement under the National Historic Preservation Act.

I understand that continued coverage under this storm water general permit is contingent upon maintaining eligibility as provided for in Part I.B.

## C. Where to Submit

1. NOIs, signed in accordance with Part VI.G of this permit, are to be submitted to the Director at the address: Storm Water Notice of Intent (4203), U.S. EPA 401 M Street, SW., Washington, DC 20460.

2. A copy of the Director's acknowledgment of coverage under the general permit and assignment of a permit number; a local contact telephone number/address for public access to view the pollution prevention plan at reasonable times during regular business hours (advance notice by the public of the desire to view the plan may be required, not to exceed two working days). The permit does not require that free copies of the plan be provided to interested members of the public, only that they have reasonable access to view the document and copy it at their own expense. A brief description of the project shall also be posted at the construction site in a prominent and safe place for public viewing during regular business hours (alongside the building permit if the building permit is required to be displayed).

## Part III. Special Conditions, Management Practices, and Other Non-Numeric Limitations

### A. Prohibition on Non-Storm Water Discharges

1. Except as provided in paragraph I.B.2 or 3 and III.A.2, all discharges covered by this permit shall be composed entirely of storm water.

2. Discharges of material other than storm water that are in compliance with a NPDES permit (other than this permit) issued for that discharge may be mixed with discharges authorized by this permit.

3. The following non-storm water discharges are authorized by this permit provided the non-storm water

component of the discharge is in compliance with paragraph IV.D.5: discharges from fire fighting activities; fire hydrant flushings; waters used to wash vehicles or control dust in accordance with Part IV.D.2.c.(2); potable water sources including waterline flushings; routine external building washdown which does not use detergents; pavement washwaters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensate; springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.

#### *B. Releases in Excess of Reportable Quantities*

The discharge of hazardous substances or oil in the storm water discharge(s) from a facility shall be prevented or minimized in accordance with the applicable storm water pollution prevention plan for the facility. This permit does not relieve the permittee of the reporting requirements of 40 CFR 117 and 40 CFR 302. Where a release containing a hazardous substance in an amount equal to or in excess of a reporting quantity established under either 40 CFR 117 or 40 CFR 302, occurs during a 24 hour period:

1. The permittee is required to notify the National Response Center (NRC) (800-424-8802; in the Washington, DC metropolitan area 202-426-2675) in accordance with the requirements of 40 CFR 117 and 40 CFR 302 as soon as he or she has knowledge of the discharge;

2. The permittee shall submit within 14 calendar days of knowledge of the release a written description of: the release (including the type and estimate of the amount of material released), the date that such release occurred, the circumstances leading to the release, and steps to be taken to minimize the chance of future occurrences to the appropriate EPA Regional Office at the address provided in Part V.C (addresses) of this permit; and

3. The storm water pollution prevention plan required under Part IV of this permit must be modified within 14 calendar days of knowledge of the release to: provide a description of the release, the circumstances leading to the release, and the date of the release. In addition, the plan must be reviewed to identify measures to prevent the reoccurrence of such releases and to respond to such releases, and the plan must be modified where appropriate.

#### *C. Spills*

This permit does not authorize the discharge of hazardous substances or oil resulting from an on-site spill.

#### *D. Discharge Compliance With Water Quality Standards*

Dischargers seeking coverage under this permit shall not be causing or have the reasonable potential to cause or contribute to a violation of a water quality standard. Where a discharge is already authorized under this permit and is later determined to cause or have the reasonable potential to cause or contribute to the violation of an applicable State, Tribal or Federal Water Quality Standard, the permitting authority will notify the operator of such violation(s) and the permittee shall take all necessary actions to ensure future discharges do not cause or contribute to the violation of a water quality standard and document these actions in the pollution prevention plan. If violations remain or re-occur, then coverage under this permit will be terminated by the permitting authority and an alternative permit may be issued. Compliance with this requirement does not preclude any enforcement activity as provided by the Clean Water Act for the underlying violation.

#### *E. Responsibilities of Operators*

1. *Developer/Owner Operator*—The permittee(s) with operational control over project specifications (including the ability to make modifications in specifications) (e.g. developer or owner) must:

a. Ensure the project specifications for the portion of the site for which they are operators meet the minimum requirements of Part IV (Pollution Prevention Plan Development) and all other applicable conditions;

b. Ensure that the pollution prevention plan indicates which areas of the project they have operational control over and ensure that if modifications are made to the pollution prevention plan, where other operators are implementing portions of the plan, that these other operators be immediately notified of such modifications.

c. Ensure that the pollution prevention plan for the portion of the site for which they are operators indicates the name and NPDES permit number for parties with day to day operational control of those activities necessary to ensure compliance with the storm water pollution prevention plan or other permit conditions. If these parties have not been identified at the time the pollution prevention plan is

initially developed, the permittee with operational control over project specifications shall be considered to be the responsible party until such time as the authority is transferred to another party (e.g. general contractor hired) and the plan updated;

d. Ensure that the pollution prevention plan complies with measures to identify and protect listed threatened and endangered species and/or critical habitat as specified in Part I.B.3.e., Addendum A of this permit and as may be required as a result of consultation; and

e. Ensure that the pollution prevention plan complies with measures to protect properties eligible for protection under the National Historic Preservation Act as specified in Part I.B.3.f. of this permit.

2. *Full Site Operator*—The permittee(s) with day-to-day operational control of those activities at a project site which are necessary to ensure compliance with the storm water pollution prevention plan or other permit conditions (e.g. general contractor) must:

a. Ensure the pollution prevention plan for the portion of the site for which they are operators meets the minimum requirements of Part IV (Pollution Prevention Plan Development) and identifies the parties responsible for implementation of control measures identified in the plan;

b. Ensure that the pollution prevention plan indicates which areas of the project they have operational control over and ensure that if modifications are made to the pollution prevention plan, where other operators are implementing portions of the plan, that these other operators be immediately notified of such modifications;

c. Ensure that the pollution prevention plan for the portion of the site for which they are operators indicates the name and NPDES permit number of the party with operational control over project specifications (including the ability to make modifications in specifications);

d. Ensure that the pollution prevention plan complies with measures to identify and protect listed threatened and endangered species and/or critical habitat as specified in Part I.B.3.e., Addendum A of this permit and as may be required as a result of consultation; and

e. Ensure that the pollution prevention plan complies with measures to protect properties eligible for protection under the National Historic Preservation Act as specified in Part I.B.3.f. of this permit.

3. *Partial Site Operators.* Permittees with operational control over only a portion of a larger construction site (e.g., one of four homebuilders in a particular subdivision, utility companies, etc.) are responsible for compliance with all applicable terms and conditions of this permit as it relates to their activities on their portion of the construction site, including protection of endangered species, protection of historic properties and implementation of pollution prevention plan measures. Partial site operators shall ensure (either directly or through coordination with another permittee) that their activities do not render another party's pollution controls ineffective. Partial site operators must either implement their portions of a common pollution prevention plan developed by a full site operator or develop and implement their own pollution prevention plan.

#### Part IV. Storm Water Pollution Prevention Plans

A storm water pollution prevention plan shall be developed for each construction site covered by this permit (at least one per permit area for utility company service connection permit coverage). For more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort by the different operators at a site to prepare and participate in a comprehensive pollution prevention plan is encouraged. Individual operators at a site may, but are not required, to develop separate pollution prevention plans that cover only their portion of the project provided reference is made to other operators at the site. Storm water pollution prevention plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges from the construction site. The plan shall describe and ensure the implementation of practices which will be used to reduce the pollutants in storm water discharges associated with construction activity at the construction site and to assure compliance with the terms and conditions of this permit. When developing pollution prevention plans, applicants must follow the procedures in Addendum A of this permit to determine whether endangered and threatened species would be affected by the applicant's storm water discharges or BMPs to control storm water runoff. Any information on whether endangered and threatened species and their critical habitat are found in proximity to the construction site must be included in

the pollution prevention plan. Any terms or conditions that are imposed under the eligibility requirements of Part I.B.3.e and Addendum A of this permit to protect endangered and threatened species and/or critical habitat from storm water discharges or BMPs to control storm water runoff must be incorporated into the pollution prevention plan. Permittees must implement the applicable provisions of the storm water pollution prevention plan required under this part as a condition of this permit.

#### A. Deadlines for Plan Preparation and Compliance

The plan shall:

1. Be completed (including certifications required under Part IV.F) prior to the submittal of an NOI to be covered under this permit and updated as appropriate; and
2. The plan shall provide for compliance with the terms and schedule of the plan beginning with the initiation of construction activities.

#### B. Signature, Plan Review and Making Plans Available

1. The plan shall be signed in accordance with Part VI.G, and be retained on-site at the facility which generates the storm water discharge in accordance with Part V (retention of records) of this permit. If the site is inactive or does not have an onsite location adequate to store the pollution prevention plan, the location of the plan, along with a contact phone number, shall be posted on site. If the plan is located offsite, reasonable local access to the plan, during normal working hours, must be provided as described below.

2. The permittee shall make plans available upon request to the Director; a State, Tribal or local agency approving sediment and erosion plans, grading plans, or storm water management plans; interested members of the public; local government officials; or to the operator of a municipal separate storm sewer receiving discharges from the site. Viewing by the public shall be at reasonable times during regular business hours (advance notice by the public of the desire to view the plan may be required, not to exceed two working days). The permit does not require that free copies of the plan be provided to interested members of the public, only that they have reasonable access to view the document and copy it at their own expense. The copy of the plan required to be kept onsite (or locally available) must be made available to the Director (or authorized

representative) for review at the time of an onsite inspection.

3. The Director, or authorized representative, may notify the permittee (co-permittees) at any time that the plan does not meet one or more of the minimum requirements of this Part. Such notification shall identify those provisions of the permit which are not being met by the plan, and identify which provisions of the plan require modifications in order to meet the minimum requirements of this Part. Within 7 calendar days of receipt of such notification from the Director, (or as otherwise provided by the Director), or authorized representative, the permittee shall make the required changes to the plan and shall submit to the Director a written certification that the requested changes have been made. The Director may take appropriate enforcement action for the period of time the permittee was operating under a plan that did not meet the minimum requirements of the permit.

#### C. Keeping Plans Current

The permittee must amend the plan whenever:

1. There is a change in design, construction, operation, or maintenance, which has a significant effect on the discharge of pollutants to the waters of the United States and which has not otherwise been addressed in the plan;

2. Inspections or investigations by site operators, local, State, Tribal or federal officials indicate the storm water pollution prevention plan is proving ineffective in eliminating or significantly minimizing pollutants from sources identified under Part IV.D.2 of this permit, or is otherwise not achieving the general objectives of controlling pollutants in storm water discharges associated with construction activity; and

3. The plan shall be amended to identify any new contractor and/or subcontractor that will implement a measure of the storm water pollution prevention plan (see Part IV.F). The plan must also be amended to address any measures necessary to protect endangered and threatened species or historic properties. Amendments to the plan may be reviewed by EPA in the same manner as Part IV.B above.

#### D. Contents of Plan

The storm water pollution prevention plan shall include the following items:

##### 1. Site Description

Each plan shall provide a description of pollutant sources and other information as indicated:

- a. A description of the nature of the construction activity;
- b. A description of the intended sequence of major activities which disturb soils for major portions of the site (e.g., grubbing, excavation, grading, utilities and infrastructure installation, etc.);
- c. Estimates of the total area of the site and the total area of the site that is expected to be disturbed by excavation, grading, or other activities;
- d. An estimate of the runoff coefficient of the site after construction activities are completed and existing data describing the soil or the quality of any discharge from the site;
- e. A general location map (e.g. portion of a city or county map or similar scale) and a site map indicating drainage patterns and approximate slopes anticipated after major grading activities, areas of soil disturbance, an outline of areas which are not to be disturbed, the location of major structural and nonstructural controls identified in the plan, the location of areas where stabilization practices are expected to occur, surface waters (including wetlands), and locations where storm water is discharged to a surface water;
- f. A description of any discharge associated with industrial activity other than construction (including storm water discharges from dedicated asphalt plants and dedicated concrete plants) covered by the permit; and the location of that activity;
- g. The name of the receiving water(s), and areal extent of wetland acreage at the site;
- h. A copy of the permit requirements (may simply attach copy of permit language);
- i. Information on whether listed endangered or threatened species and/or critical habitat are found in proximity to the construction activity and whether such species are adversely affected by the applicant's storm water discharges or BMPs to control storm water runoff as required under Addendum A of the permit; and
- j. Information on whether the storm water discharges from the construction activities, and the construction and implementation of BMPs, would have an affect on a property that is listed or eligible for listing under the National Historic Register and, where effects may occur, any written agreements with the SHPO or THPO to mitigate these effects.

## 12. Controls

Each plan shall include a description of appropriate controls and measures that will be implemented at the construction activity. The plan must

clearly describe for each major activity identified in Part IV.D.1.b: (a) appropriate control measures and the timing during the construction process that the measures will be implemented and (b) which permittee is responsible for implementation (e.g., perimeter controls for one portion of the site will be installed by Contractor A after the clearing and grubbing necessary for installation of the measure, but before the clearing and grubbing for the remaining portions of the site. Perimeter controls will be actively maintained by Contractor B until final stabilization of those portions of the site upward of the perimeter control. Temporary perimeter controls will be removed by Owner after final stabilization). The description and implementation of controls shall address the following minimum components:

### a. *Erosion and Sediment Controls.*

#### (1) Short and Long Term Goals and Criteria:

(a) The construction-phase erosion and sediment controls should be designed to retain sediment on site to the maximum extent practicable.

(b) All control measures must be properly selected, installed, and maintained in accordance with the manufacturers specifications and good engineering practices. If periodic inspections or other information indicates a control has been used inappropriately, or incorrectly, the permittee must replace or modify the control for site situations.

(c) If sediments escapes the construction site, off-site accumulations of sediment must be removed at a frequency sufficient to minimize offsite impacts (e.g., fugitive sediment in street could be washed into storm sewers by the next rain and/or pose a safety hazard to users of public streets).

(d) Sediment must be removed from sediment traps or sedimentation ponds when design capacity has been reduced by 50%.

(e) Litter, construction debris, and construction chemicals exposed to storm water shall be picked up prior to anticipated storm events (e.g. forecasted by local weather reports), or otherwise prevented from becoming a pollutant source for storm water discharges (e.g. screening outfalls, picked up daily, etc.).

(f) Offsite material storage areas (also including overburden and stockpiles of dirt, etc.) used solely by the permitted project are considered a part of the project and shall be addressed in the pollution prevention plan.

#### (2) Stabilization Practices:

A description of interim and permanent stabilization practices, including site-specific scheduling of the

implementation of the practices. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Use of impervious surfaces for stabilization should be avoided. A record of the dates when major grading activities occur, when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures are initiated shall be included in the plan. Except as provided in paragraphs IV.D.2.(a).(1).(a), (b), and (c) below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than 14 days after the construction activity in that portion of the site has temporarily or permanently ceased.

(a) Where the initiation of stabilization measures by the 14th day after construction activity temporary or permanently cease is precluded by snow cover or frozen ground conditions, stabilization measures shall be initiated as soon as practicable.

(b) Where construction activity on a portion of the site is temporarily ceased, and earth disturbing activities will be resumed within 21 days, temporary stabilization measures do not have to be initiated on that portion of site.

(c) In arid areas (areas with an average annual rainfall of 0 to 10 inches), semi-arid areas (areas with an average annual rainfall of 10 to 20 inches), and areas experiencing droughts where the initiation of stabilization measures by the 14th day after construction activity has temporarily or permanently ceased is precluded by seasonal arid conditions, stabilization measures shall be initiated as soon as practicable.

#### (3) Structural Practices:

A description of structural practices to divert flows from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from exposed areas of the site to the degree attainable. Such practices may include silt fences, earth dikes, drainage swales, sediment traps, check dams, subsurface drains, pipe slope drains, level spreaders, storm drain inlet protection, rock outlet protection, reinforced soil retaining systems, gabions, and temporary or permanent sediment basins. Placement of Structural practices in floodplains should be avoided to the degree attainable. The installation of these

devices may be subject to section 404 of the CWA.

(a) For common drainage locations that serve an area with 10 or more acres disturbed at one time, a temporary (or permanent) sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent control measures, shall be provided where attainable until final stabilization of the site. The 3,600 cubic feet of storage area per acre drained does not apply to flows from offsite areas and flows from onsite areas that are either undisturbed or have undergone final stabilization where such flows are diverted around both the disturbed area and the sediment basin. For drainage locations which serve 10 or more disturbed acres at one time and where a temporary sediment basin providing 3,600 cubic feet of storage per acre drained, or equivalent controls is not attainable, smaller sediment basins and/or sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all downslope boundaries of the construction area and for those side slope boundaries deemed appropriate as dictated by individual site conditions.

(b) For drainage locations serving less than 10 acres, sediment basins and/or sediment traps should be used. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls are required for all downslope boundaries (and those side slope boundaries deemed appropriate as dictated by individual site conditions) of the construction area unless a sediment basin providing storage for 3,600 cubic feet of storage per acre drained is provided.

b. *Storm Water Management.* A description of measures that will be installed during the construction process to control pollutants in storm water discharges that will occur after construction operations have been completed. Structural measures should be placed on upland soils to the degree attainable. The installation of these devices may be subject to section 404 of the CWA. This permit only addresses the installation of storm water management measures, and not the ultimate operation and maintenance of such structures after the construction activities have been completed and the site has undergone final stabilization. Permittees are only responsible for the installation and maintenance of storm water management measures prior to final stabilization of the site, and are not responsible for maintenance after storm water discharges associated with construction activity have been eliminated from the site. However, post-

construction storm water BMPs that discharge pollutants from point sources once construction is completed, may in themselves, need authorization under a separate NPDES permit.

(1) Such practices may include: storm water detention structures (including wet ponds); storm water retention structures; flow attenuation by use of open vegetated swales and natural depressions; infiltration of runoff onsite; and sequential systems (which combine several practices). The pollution prevention plan shall include an explanation of the technical basis used to select the practices to control pollution where flows exceed predevelopment levels.

(2) Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel for the purpose of providing a non-erosive velocity flow from the structure to a water course so that the natural physical and biological characteristics and functions are maintained and protected (e.g., no significant changes in the hydrological regime of the receiving water).

c. *Other Controls.*

(1) No solid materials, including building materials, shall be discharged to waters of the United States, except as authorized by a section 404 permit.

(2) Off-site vehicle tracking of sediments and the generation of dust shall be minimized.

(3) The plan shall ensure and demonstrate compliance with applicable State, Tribal and/or local waste disposal, sanitary sewer or septic system regulations to the extent these are located within the permitted area.

(4) The plan shall include a narrative description of practices to reduce pollutants from construction related materials which are stored onsite including an inventory of construction materials (including waste materials), storage practices to minimize exposure of the materials to storm water, and spill prevention and response.

(5) A description of pollutant sources from areas other than construction (including storm water discharges from dedicated asphalt plants and dedicated concrete plants), and a description of controls and measures that will be implemented at those sites.

(6) The plan shall include measures to protect listed endangered and threatened species and/or critical habitat (if applicable) including any terms or conditions that are imposed under the eligibility requirements of Part I.B.3.e and Addendum A of this permit to protect such species and/or critical habitat from storm water discharges or BMPs to control storm

water runoff. Failure to include these measures will result in the storm water discharges from the construction activities being ineligible for coverage under this permit.

(7) The plan shall include measures to protect properties that are listed or eligible for listing under the National Historic Register including any measures agreed to through written agreements with the SHPO or THPO. Failure to include these measures will result in the storm water discharges from the construction activities being ineligible for coverage under this permit.

d. *Approved State, Tribal or Local Plans.*

(1) Permittees which discharge storm water associated construction activities must include in their storm water pollution prevention plan procedures and requirements specified in applicable sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State or local officials. Permittees shall provide a certification in their storm water pollution prevention plan that their storm water pollution prevention plan reflects requirements applicable to protecting surface water resources in sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State, Tribal or local officials. Permittees shall comply with any such requirements during the term of the permit. This provision does not apply to provisions of master plans, comprehensive plans, non-enforceable guidelines or technical guidance documents that are not identified in a specific plan or permit that is issued for the construction site.

(2) Storm water pollution prevention plans must be amended to reflect any change applicable to protecting surface water resources in sediment and erosion site plans or site permits, or storm water management site plans or site permits approved by State, Tribal or local officials for which the permittee receives written notice. Where the permittee receives such written notice of a change, the permittee shall provide a recertification in the storm water pollution plan that the storm water pollution prevention plan has been modified to address such changes.

(3) Dischargers seeking alternative permit requirements shall submit an individual permit application in accordance with Part V.I.L of the permit at the address indicated in Part V.C of this permit for the appropriate Regional Office, along with a description of why requirements in approved State, Tribal or local plans or permits, or changes to

such plans or permits, should not be applicable as a condition of an NPDES permit.

### 3. Maintenance

A description of procedures to ensure the timely maintenance of vegetation, erosion and sediment control measures and other protective measures identified in the site plan in good and effective operating condition. Maintenance needs identified in inspections or by other means shall be accomplished before the next anticipated storm event, or as necessary to maintain the continued effectiveness of storm water controls. If maintenance prior to the next anticipated storm event is impracticable, maintenance must be scheduled and accomplished as soon as practicable.

### 4. Inspections

Qualified personnel (provided by the permittee or cooperatively by multiple permittees) shall inspect disturbed areas of the construction site that have not been finally stabilized, areas used for storage of materials that are exposed to precipitation, structural control measures, and locations where vehicles enter or exit the site at least once every fourteen calendar days, before anticipated storm events (or series of storm events such as intermittent showers over one or more days) expected to cause a significant amount of runoff and within 24 hours of the end of a storm event of 0.5 inches or greater. Where sites have been finally or temporarily stabilized, runoff is unlikely due to winter conditions (e.g. site covered with snow, ice, or frozen ground), or during seasonal arid periods in arid areas (areas with an average annual rainfall of 0 to 10 inches) and semi-arid areas (areas with an average annual rainfall of 10 to 20 inches) such inspection shall be conducted at least once every month.

a. Disturbed areas and areas used for storage of materials that are exposed to precipitation shall be inspected for evidence of, or the potential for, pollutants entering the drainage system. Erosion and sediment control measures identified in the plan shall be observed to ensure that they are operating correctly. Where discharge locations or points are accessible, they shall be inspected to ascertain whether erosion control measures are effective in preventing significant impacts to receiving waters. Locations where vehicles enter or exit the site shall be inspected for evidence of offsite sediment tracking.

b. Based on the results of the inspection, the site description

identified in the plan in accordance with paragraph IV.D.1 of this permit and pollution prevention measures identified in the plan in accordance with paragraph IV.D.2 of this permit shall be revised as appropriate, but in no case later than 7 calendar days following the inspection. Such modifications shall provide for timely implementation of any changes to the plan within 7 calendar days following the inspection.

c. A report summarizing the scope of the inspection, name(s) and qualifications of personnel making the inspection, the date(s) of the inspection, major observations relating to the implementation of the storm water pollution prevention plan (including the location(s) of discharges of sediment or other pollutants from the site and of any control device that failed to operate as designed or proved inadequate for a particular location), and actions taken in accordance with paragraph IV.D.4.b of the permit shall be made and retained as part of the storm water pollution prevention plan for at least three years from the date that the site is finally stabilized. Such reports shall identify any incidents of non-compliance. Where a report does not identify any incidents of non-compliance, the report shall contain a certification that the facility is in compliance with the storm water pollution prevention plan and this permit. The report shall be signed in accordance with Part VI.G of this permit.

### 5. Non-Storm Water Discharges

Except for flows from fire fighting activities, sources of non-storm water listed in Part III.A.2 of this permit that are combined with storm water discharges associated with construction activity must be identified in the plan. The plan shall identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.

#### *E. Contractor and Subcontractor Certifications*

##### 1. Contractors and Subcontractors Implementing Storm Water Control Measures

The storm water pollution prevention plan must clearly identify for each control measure identified in the plan, the party that will implement the measure. The Permittee(s) shall insure all contractors and subcontractors identified in the plan as being responsible for implementing storm water control measures sign a copy of the following certification statement, in accordance with Part VI.G of this

permit, before performing any work in the area covered by the storm water pollution prevention plan. All certifications must be included with the storm water pollution prevention plan.

I certify under penalty of law that I understand the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) general permit that authorizes storm water discharges associated with construction activity from the construction site identified as part of this certification.

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

##### 2. Contractors and Subcontractors Impacting Storm Water Control Measures

The permittee shall insure contractor(s) and/or subcontractor(s) that will conduct activities that may impact the effectiveness of control measures identified in the plan, but who do not meet the definition of "operator" (Part IX), sign a copy of the following certification statement, in accordance with Part VI.G of this permit, before beginning work on site. All certifications must be included with the storm water pollution prevention plan.

I certify under penalty of law that I will coordinate, either through the general contractor, owner, or directly, with the contractor(s) and/or subcontractor(s) identified in the pollution prevention plan having responsibility for implementing storm water control measures to minimize any impact my actions may have on the effectiveness of these storm water controls measures.

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of this permit; the name, address and telephone number of the contracting firm; the address (or other identifying description) of the site; and the date the certification is made.

##### 3. Utility Companies

The storm water pollution prevention plan must clearly identify, for each control measure identified in the plan relating to the installation of utility service, the party that will implement the measure. The Permittee(s) shall provide to the site operator(s) responsible for maintenance of the pollution prevention plan addressing impacts of utilities installation, a copy of the following certification statement, signed in accordance with Part VI.G of

this permit, before performing any work in the area covered by the storm water pollution prevention plan. All certifications must be included with the storm water pollution prevention plan.

I certify under penalty of law that I understand the terms and conditions of the National Pollutant Discharge Elimination System (NPDES) general permit that authorizes storm water discharges associated with construction activity from the portion of the construction site that will be disturbed during my installation of utility service.

The certification must include the name and title of the person providing the signature in accordance with Part VI.G of this permit; the name, address and telephone number of the permittee; the address (or other identifying description) of the site; and the date the certification is made.

#### Part V. Retention of Records

##### A. Documents

The permittee shall retain copies of storm water pollution prevention plans and all reports required by this permit, and records of all data used to complete the Notice of Intent to be covered by this permit, for a period of at least three years from the date that the site is finally stabilized. This period may be extended by request of the Director at any time.

##### B. Accessibility

The permittee shall retain a copy of the storm water pollution prevention plan required by this permit (including a copy of the permit language) at the construction site (or other local location accessible to the Director and the public) from the date of project initiation to the date of final stabilization. The permittees with day to day operational control over pollution prevention plan implementation shall have a copy of the plan available at a central location onsite for the use of all operators and those identified as having responsibilities under the plan whenever they are on the construction site.

##### C. Addresses

Except for the submittal of NOIs (see Part II.C of this permit), all written correspondence concerning discharges in any State, Indian land or from any Federal Facility covered under this permit and directed to the U.S. Environmental Protection Agency, including the submittal of individual permit applications, shall be sent to the address of the appropriate Regional Office listed below:

Region 1: CT, MA, ME, NH, RI, VT

United States EPA, Region I, Office of Ecosystem Protection, Municipal Assistance Unit, John F. Kennedy Federal Building—CMU, Boston, MA 02203

Region 2: NJ, NY, PR, VI

United States EPA, Region II, Division of Environmental Planning and Protection, (2DEPP-WPB), Water Programs Branch, 290 Broadway, New York, NY 10007-1866

Region 3: DE, DC, MD, PA, VA, WV

United States EPA, Region III, Water Management Division, (3WM55), Storm Water Staff, 841 Chestnut Building, Philadelphia, PA 19107

Region 6: AR, LA, NM (Except See Region IX for Navajo Lands, and See Region VIII for Ute Mountain Ute Reservation Lands), OK, TX

United States EPA, Region VI, Storm Water Staff, Enforcement and Compliance Assurance Division (GEN-WC), EPA SW Construction GP, P.O. Box 50625, Dallas, TX 75205

Region 7: IA, KS, MO, NE (Except See Region VIII for Pine Ridge Reservation Lands)

United States EPA, Region VII, Water, Wetlands, and Pesticides Division, NPDES and Facilities Management Branch, Storm Water Staff, 726 Minnesota Avenue, Kansas City, KS 66101

Region 8: CO, MT, ND, SD, WY, UT (Except See Region IX for Goshute Reservation and Navajo Reservation Lands)

United States EPA, Region VIII, Office of Ecosystems Protection, and Remediation (8EPR-EP), Storm Water Staff, 999 18th Street, Denver, CO 80202-2466

Note—For Montana Indian Lands, please use the following address: United States EPA, Region VIII, Montana Operations Office, Federal Office Building, 301 South Park, Drawer 10096, Helena, MT 59626-0096

Region 9: AZ, CA, HI, NV, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, the Goshute Reservation in UT and NV, the Navajo Reservation in UT, NM, and AZ, the Duck Valley Reservation in ID, Fort McDermitt Reservation in OR

United States EPA, Region IX, Water Management Division, WTR-5, Storm Water Staff, 75 Hawthorne Street, San Francisco, CA 94105

Regions 10: AK, ID (Except See Region IX for Duck Valley Reservation Lands), OR (Except See Region IX for Ft. McDermitt Reservation), WA

United States EPA, Region X, Office of Water OW-130, Storm Water Staff, 1200 6th Avenue, Seattle, WA 98101

#### Part VI. Standard Permit Conditions

##### A. Duty To Comply

1. The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of CWA and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.

##### 2. Penalties for Violations of Permit Conditions.

The Director will adjust the civil and administrative penalties listed below in accordance with the Civil Monetary Penalty Inflation Adjustment Rule (Federal Register: December 31, 1996, Volume 61, Number 252, pages 69359-69366, as corrected, March 20, 1997, Volume 62, Number 54, pages 13514-13517) as mandated by the Debt Collection Improvement Act of 1996 for inflation on a periodic basis. This rule allows EPA's penalties to keep pace with inflation. The Agency is required to review its penalties at least once every four years thereafter and to adjust them as necessary for inflation according to a specified formula. The civil and administrative penalties listed below were adjusted for inflation starting in 1996.

##### a. Criminal

(1) *Negligent Violations.* The CWA provides that any person who negligently violates permit conditions implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than 1 year, or both.

(2) *Knowing Violations.* The CWA provides that any person who knowingly violates permit conditions implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment for not more than 3 years, or both.

(3) *Knowing Endangerment.* The CWA provides that any person who knowingly violates permit conditions implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act and who knows at that time that he is placing another person in imminent danger of death or serious bodily injury is subject



to a fine of not more than \$250,000, or by imprisonment for not more than 15 years, or both.

(4) *False Statement.* The CWA provides that any person who knowingly makes any false material statement, representation, or certification in any application, record, report, plan, or other document filed or required to be maintained under the Act or who knowingly falsifies, tampers with, or renders inaccurate, any monitoring device or method required to be maintained under the Act, shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than two years, or by both. If a conviction is for a violation committed after a first conviction of such person under this paragraph, punishment shall be by a fine of not more than \$20,000 per day of violation, or by imprisonment of not more than four years, or by both. (See section 309.c.4 of the Clean Water Act).

#### b. Civil Penalties

The CWA provides that any person who violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to a civil penalty not to exceed \$27,500 per day for each violation.

#### c. Administrative Penalties

The CWA provides that any person who violates a permit condition implementing sections 301, 302, 306, 307, 308, 318, or 405 of the Act is subject to an administrative penalty, as follows:

- (1) *Class I penalty.* Not to exceed \$11,000 per violation nor shall the maximum amount exceed \$27,500.
- (2) *Class II penalty.* Not to exceed \$11,000 per day for each day during which the violation continues nor shall the maximum amount exceed \$137,500.

#### B. Continuation of the Expired General Permit

This permit expires five years after the effective date. However, an expired general permit may continue in force and effect. To retain coverage under the continued permit, permittees should provide notice of their intent to remain covered under this permit at least 2 days prior to the expiration date. The notice must be signed in accordance with Part VI.G.1. of this permit and must contain the following information:

1. Name, address and telephone number of the operator.
2. The existing storm water construction permit number.

This information may be submitted on a post card or in a letter and shall be submitted to the EPA Storm Water

Notice of Intent Center at: Storm Water Notice of Intent (4203), US EPA, 401 M Street, SW, Washington, D.C. 20460.

#### C. Need To Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

#### D. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment.

#### E. Duty to Provide Information

The permittee shall furnish to the Director or an authorized representative of the Director any information which is requested to determine compliance with this permit or other information.

#### F. Other Information

When the permittee becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in the Notice of Intent or in any other report to the Director, he or she shall promptly submit such facts or information.

#### G. Signatory Requirements

All Notices of Intent, storm water pollution prevention plans, reports, certifications or information either submitted to the Director or the operator of a large or medium municipal separate storm sewer system, or that this permit requires be maintained by the permittee, shall be signed as follows:

1. All Notices of Intent shall be signed as follows:

a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25,000,000 (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, Federal, or other public agency: by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes (1) the chief executive officer of the agency, or (2) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of EPA).

2. All reports required by the permit and other information requested by the Director or authorized representative of the Director shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described above and submitted to the Director.

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of manager, operator, superintendent, or position of equivalent responsibility or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position).

c. *Changes to authorization.* If an authorization under paragraph II.B.3. is no longer accurate because a different operator has responsibility for the overall operation of the construction site, a new notice of intent satisfying the requirements of paragraph II.B must be submitted to the Director prior to or together with any reports, information, or applications to be signed by an authorized representative.

d. *Certification.* Any person signing documents under paragraph VI.G shall make the following certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

#### H. Penalties for Falsification of Reports

Section 309(c)(4) of the Clean Water Act provides that any person who knowingly makes any false material

statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including reports of compliance or noncompliance shall, upon conviction, be punished by a fine of not more than \$10,000, or by imprisonment for not more than two years, or by both.

#### *I. Oil and Hazardous Substance Liability*

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under section 311 of the CWA or section 106 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA).

#### *J. Property Rights*

The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations.

#### *K. Severability*

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

#### *L. Requiring an Individual Permit or an Alternative General Permit*

1. The Director may require any person authorized by this permit to apply for and/or obtain either an individual NPDES permit or an alternative NPDES general permit. Any interested person may petition the Director to take action under this paragraph. Where the Director requires a discharger authorized to discharge under this permit to apply for an individual NPDES permit, the Director shall notify the discharger in writing that a permit application is required. This notification shall include a brief statement of the reasons for this decision, an application form, a statement setting a deadline for the discharger to file the application, and a statement that on the effective date of issuance or denial of the individual NPDES permit or the alternative general permit as it applies to the individual permittee, coverage under this general permit shall automatically terminate. Applications shall be submitted to the appropriate Regional Office indicated in

Part V.C of this permit. The Director may grant additional time to submit the application upon request of the applicant. If a discharger fails to submit in a timely manner an individual NPDES permit application as required by the Director under this paragraph, then the applicability of this permit to the individual NPDES permittee is automatically terminated at the end of the day specified by the Director for application submittal.

2. Any discharger authorized by this permit may request to be excluded from the coverage of this permit by applying for an individual permit. In such cases, the permittee shall submit an individual application in accordance with the requirements of 40 CFR 122.26(c)(1)(ii), with reasons supporting the request, to the Director at the address for the appropriate Regional Office indicated in Part V.C of this permit. The request may be granted by issuance of any individual permit or an alternative general permit if the reasons cited by the permittee are adequate to support the request.

3. When an individual NPDES permit is issued to a discharger otherwise subject to this permit, or the discharger is authorized to discharge under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the effective date of the individual permit or the date of authorization of coverage under the alternative general permit, whichever the case may be. When an individual NPDES permit is denied to an owner or operator otherwise subject to this permit, or the owner or operator is denied for coverage under an alternative NPDES general permit, the applicability of this permit to the individual NPDES permittee is automatically terminated on the date of such denial, unless otherwise specified by the Director.

#### *M. State/Tribal Environmental Laws*

1. Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable State/Tribal law or regulation under authority preserved by section 510 of the Act.

2. No condition of this permit shall release the permittee from any responsibility or requirements under other environmental statutes or regulations.

#### *N. Proper Operation and Maintenance*

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and

control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit and with the requirements of storm water pollution prevention plans. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. Proper operation and maintenance requires the operation of backup or auxiliary facilities or similar systems, installed by a permittee only when necessary to achieve compliance with the conditions of the permit.

#### *O. Inspection and Entry*

The permittee shall allow the Director or an authorized representative of EPA, the State/Tribe, or, in the case of a construction site which discharges through a municipal separate storm sewer, an authorized representative of the municipal operator or the separate storm sewer receiving the discharge, upon the presentation of credentials and other documents as may be required by law, to:

1. Enter upon the permittee's premises where a regulated facility or activity is located or conducted or where records must be kept under the conditions of this permit;
2. Have access to and copy at reasonable times, any records that must be kept under the conditions of this permit; and
3. Inspect at reasonable times any facilities or equipment (including monitoring and control equipment).

#### *P. Permit Actions*

This permit may be modified, revoked and reissued, or terminated for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.

#### **Part VII. Reopener Clause**

A. If there is evidence indicating that the storm water discharges authorized by this permit cause, have the reasonable potential to cause or contribute to, a violation of a water quality standard, the discharger may be required to obtain individual permit or an alternative general permit in accordance with Part I.C of this permit or the permit may be modified to include different limitations and/or requirements.

B. Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5.

## Part VIII. Termination of Coverage

### A. Notice of Termination

Where a site has been finally stabilized and all storm water discharges from construction activities that are authorized by this permit are eliminated, or where the operator of all storm water discharges at a facility changes, the permittee must submit a Notice of Termination that is signed in accordance with Part VI.G of this permit. The Notice of Termination shall include the following information:

1. The street (description of location if no street address is available) address of the construction site for which the notification is submitted;

2. The name, address and telephone number of the permittee submitting the Notice of Termination;

3. The NPDES permit number for the storm water discharge identified by the Notice of Termination;

4. An indication of whether the storm water discharges associated with construction activity have been eliminated or the operator of the discharges has changed;

5. For changes in operators, the name, address, and phone number of the new operator, and

6. The following certification signed in accordance with Part VI.G (signatory requirements) of this permit:

I certify under penalty of law that either: (a) all storm water discharges associated with construction activity from the portion of the identified facility where I was an operator have ceased or have been eliminated or (b) I am no longer an operator at the construction site and a new operator has assumed operational control for those portions of the construction site where I previously had operational control. I understand that by submitting this notice of termination, I am no longer authorized to discharge storm water associated with construction activity under this general permit, and that discharging pollutants in storm water associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this notice of termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

For the purposes of this certification, elimination of storm water discharges associated with construction activity means that all disturbed soils at the portion of the construction site where the operator had control have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time to insure final stabilization is maintained, or that all storm water discharges associated with

construction activities from the identified site that are authorized by a NPDES general permit have otherwise been eliminated from the portion of the construction site where the operator had control.

### B. Addresses

All Notices of Termination are to be sent, using the form provided by the Director (or a photocopy thereof), to the address specified on the NOT form.

## Part IX. Definitions

**"Best Management Practices"** ("BMPs") means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

**"Control Measure"**—As used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the United States.

**"Commencement of Construction"**—The initial disturbance of soils associated with clearing, grading, or excavating activities or other construction activities.

**"CWA"** means the Clean Water Act or the Federal Water Pollution Control Act, 33 U.S.C 1251 et seq.

**"Director"** means the Regional Administrator of the Environmental Protection Agency or an authorized representative.

**"Discharge of Storm Water Associated with Construction Activity"**—As used in this permit, refers to storm water "point source" discharges from areas where soil disturbing activities (e.g., clearing, grading, or excavation, etc.), construction materials or equipment storage or maintenance (e.g., fill piles, concrete truck washout, fueling, etc.), or other industrial storm water directly related to the construction process (e.g., concrete or asphalt batch plants, etc.) are located.

**"Final Stabilization"** means that all soil disturbing activities at the site have been completed, and that a uniform (e.g., evenly distributed, without large bare areas) perennial vegetative cover with a density of 70% of the native background vegetative cover for the area has been established on all unpaved areas and areas not covered by permanent structures, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or

geotextiles) have been employed. In some parts of the country, background native vegetation will cover less than 100% of the ground (e.g. arid areas). Establishing at least 70% of the natural cover of native vegetation meets the vegetative cover criteria for final stabilization. For example, if the native vegetation covers 50% of the ground, 70% of 50% would require 35% total cover for final stabilization.

**"Flow-weighted composite sample"** means a composite sample consisting of a mixture of aliquots collected at a constant time interval, where the volume of each aliquot is proportional to the flow rate of the discharge.

**"Large and Medium municipal separate storm sewer system"** means all municipal separate storm sewers that are either:

(i) Located in an incorporated place (city) with a population of 100,000 or more as determined by the latest Decennial Census by the Bureau of Census (these cities are listed in Appendices F and G of 40 CFR 122); or

(ii) Located in the counties with unincorporated urbanized populations of 100,000 or more, except municipal separate storm sewers that are located in the incorporated places, townships or towns within such counties (these counties are listed in Appendices H and I of 40 CFR 122); or

(iii) Owned or operated by a municipality other than those described in paragraph (i) or (ii) and that are designated by the Director as part of the large or medium municipal separate storm sewer system.

**"NOI"** means notice of intent to be covered by this permit (see Part II of this permit.)

**"NOT"** means notice of termination (see Part VIII of this permit).

**"Operator"** means any party associated with the construction project that meets either of the following 2 criteria: (1) The party has operational control over project specifications (including the ability to make modifications in specifications), or (2) the party has day-to-day operational control of those activities at a project site which are necessary to ensure compliance with the storm water pollution prevention plan or other permit conditions (e.g., they are authorized to direct workers at the site to carry out activities identified in the storm water pollution prevention plan or comply with other permit conditions).

**"Point Source"** means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure,

container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel or other floating craft from which pollutants are or may be discharges. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

"*Runoff coefficient*" means the fraction of total rainfall that will appear at the conveyance as runoff.

"*Storm Water*" means storm water runoff, snow melt runoff, and surface runoff and drainage.

"*Storm Water Associated with Industrial Activity*" is defined at 40 CFR 122.26(b)(14) and incorporated here by reference. Most relevant to this permit is 40 CFR 122.26(b)(14)(x), which relates to construction activity including clearing, grading and excavation activities.

"*Waters of the United States*" means:

(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

(b) All interstate waters, including interstate "wetlands";

(c) All other waters such as interstate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:

(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;

(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or

(3) Which are used or could be used for industrial purposes by industries in interstate commerce;

(d) All impoundments of waters otherwise defined as waters of the United States under this definition;

(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;

(f) The territorial sea; and

(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the United States. Waters of the United States do not include prior converted cropland. Notwithstanding the

determination of an area's status as prior converted cropland by any other federal agency, for the purposes of the Clean Water Act, the final authority regarding Clean Water Act jurisdiction remains with EPA.

#### Part X. State/Tribal Specific Conditions

The provisions of this Part provide modifications or additions to the applicable conditions of Parts I through IX of this permit to reflect specific additional conditions identified as part of the State Section 401 or CZMA certification process or as otherwise established by the permitting authority. The additional revisions and requirements listed below are set forth in connection with particular State, Indian lands and Federal facilities and only apply to the States, Indian lands and Federal facilities specifically referenced.

#### Other conditions to be added as result of 401/CZMA certifications:

(To be added upon completion of certification processes. Added conditions will be specific to each State/Tribal area.)

#### Note on Addendum A

Proposed Addendum A is a set of instructions for applicants to follow, including a State/County listing of endangered species that applicants can refer to, to ensure compliance with the eligibility terms and conditions of this proposed permit. The proposed instructions are included in this notice, however, the State/County listing of species of Addendum A is not included in this notice, but can be found in Addendum H to the Multi-Sector Storm Water General Permit published in the *Federal Register* on September 29, 1995 (60 FR 50804). EPA will prepare a final Addendum A species listing to accompany the issuance of the final permit after the public comment period. Reviewers wishing to make comment on the species listing in Addendum A for today's proposed permit may do so by reviewing the species listing in Addendum H of the Multi-Sector Permit.

#### Addendum A—Endangered Species Guidance

##### I. Instructions

Below is a list of endangered and threatened species that EPA has determined may be affected by the activities covered by the baseline construction general permit (BCGP). These species are listed by county. In order to get BCGP coverage, applicants must:

- Indicate in box provided on the NOI whether any species listed in this Addendum

or critical habitat are in proximity to the facility.

- Certify pursuant to Section I.B.3.e that they have followed the procedures found in Addendum A to protect listed endangered and threatened species and designated critical habitat and that the storm water discharges and BMPs to control storm water run off covered under this permit meet one or more of the eligibility requirements of Part I.B.3.e.(1) of this permit, while checking the box(es) that correspond to paragraph (a), (b), (c), (d), or (e) of Part I.B.3.e.(1) for which eligibility is claimed.

To do this, please follow steps 1 through 6 below when developing the pollution prevention plan below.

#### Step 1: Determine if the Construction Site Is Found Within Designated Critical Habitat for Listed Species

Some (but not all) listed species have designated critical habitat. Exact locations of such habitat is provided in the Service regulations at 50 CFR part 17 and part 226. To determine if their construction site occurs within (also known as "in proximity to") critical habitat, applicants should either review those regulations or contact the nearest Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) Office. FWS has offices in every state. NMFS has regional offices in: Gloucester, Massachusetts; St. Petersburg, Florida; Long Beach, California; Portland, Oregon; and Juneau, Alaska.

If the construction site is not located in designated critical habitat, then the applicant need not consider impacts to critical habitat when following steps 2 through 5. If the applicant's site is located within (i.e. in proximity to) critical habitat then the applicant most look at impacts to critical habitat when following steps 2 through 6.

(EPA notes that many measures imposed to protect listed species under steps 2 through 6 will also protect critical habitat. However, obligations to ensure that an action is not likely to result in the destruction or adverse modification of critical habitat are separate from those of ensuring that an action is not likely to jeopardize the existence of threatened and endangered species. Thus, meeting the eligibility requirements of this permit may require measures to protect critical habitat that are separate and distinct from those to protect listed species.)

#### Step 2: Review the County Species List To Determine if any Species Are Located in the County Where the Construction Activities Occur

If no species are listed in a facility's county or if a facility's county is not found on the list, an applicant is eligible for BCGP coverage and may indicate in the NOI that no species are found in proximity and certify that it is eligible for BCGP coverage under Part I.B.3.e.(1)(a) of the permit by marking box a. in the certification provisions of the NOI. Where a facility is located in more than one county, the lists for all counties should be reviewed. If species are located in the county, follow step 3 below.

### Step 3: Determine if any Species May Be Found "In Proximity" to the Construction Activity's Storm Water Discharges

A species is in proximity to a construction activity's storm water discharge when the species is:

- Located in the path or immediate area through which or over which contaminated point source storm water flows from construction activities to the point of discharge into the receiving water.
- Located in the immediate vicinity of, or nearby, the point of discharge into receiving waters.
- Located in the area of a site where storm water BMPs are planned or are to be constructed.

The area in proximity to be searched/surveyed for listed species will vary with the size and structure of the construction activity, the nature and quantity of the storm water discharges, and the type of receiving waters. Given the number of construction activities potentially covered by the BCGP, no specific method to determine whether species are in proximity is required for permit coverage under the BCGP. Instead, applicants should use the method or methods which best allow them to determine to the best of their knowledge whether species are in proximity to their particular construction activities. These methods may include:

- **Conducting visual inspections:** This method may be particularly suitable for construction sites that are smaller in size or located in non-natural settings such as highly urbanized areas or industrial parks where there is little or no natural habitat, or for construction activities that discharge directly into municipal storm water collection systems.

- **Contacting the nearest State or Tribal Wildlife Agency or U.S. Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) offices.** Many endangered and threatened species are found in well-defined areas or habitats. That information is frequently known to State, Tribal, or Federal wildlife agencies.

- **Contacting local/regional conservation groups.** These groups inventory species and their locations and maintain lists of sightings and habitats.

- **Conducting a formal biological survey.** Larger construction sites with extensive storm water discharges may choose to conduct biological surveys as the most effective way to assess whether species are located in proximity and whether there are likely adverse effects.

- **Conducting an Environmental Assessment Under the National Environmental Policy Act (NEPA).** Some construction activities may require environmental assessments under NAPA. Such assessments may indicate if listed species are in proximity. (BCGP coverage does not trigger NAPA because it does not regulate any dischargers subject to New Source Performance Standards under section 306 of the Clean Water Act. See CWA § 511(c). However, some construction activities might require review under NEPA because of Federal funding or other Federal nexus.)

If no species are in proximity, an applicant is eligible for BCGP coverage and may

indicate that in the NOI and certify that it is eligible for BCGP coverage under Part I.B.3.E.(1)(a) of the permit by marking box a. in the certification provisions of the NOI.

If listed species are found in proximity to a facility, applicants must indicate the location and nature of this presence in the Pollution Prevention Plan and follow step 4 below.

### Step 4: Determine if Species or Critical Habitat Could Be Adversely Affected by the Construction Activity's Storm Water Discharges or by BMPS To Control Those Discharges

Scope of Adverse Effects: Potential adverse effects from storm water include:

- **Hydrological.** Storm water may cause siltation, sedimentation or induce other changes in the receiving waters such as temperature, salinity or pH. These effects will vary with the amount of storm water discharged and the volume and condition of the receiving water. Where a storm water discharge constitutes a minute portion of the total volume of the receiving water, adverse hydrological effects are less likely.

- **Habitat.** Storm water may drain or inundate listed species habitat.

- **Toxicity.** In some cases, pollutants in storm water may have toxic effects on listed species.

The scope of effects to consider will vary with each site. Applicants must also consider the likelihood of adverse effects on species from any BMPs to control storm water. Most adverse impacts from BMPs are likely to occur from the construction activities. However, it is possible that the operation of some BMPs (for example, larger storm water retention ponds) may affect endangered and threatened species.

If adverse effects are not likely, then the applicant should certify that it is eligible for BCGP coverage under Part I.B.3.e.(1)(a) of the permit by marking box a. in the certification provisions of the NOI. If adverse effects are likely, applicants should follow step 5 below.

### Step 5: Determine if Measures Can Be Implemented To Avoid any Adverse Effects

If an applicant determines that adverse effects are likely, it can receive coverage if appropriate measures are undertaken to avoid or eliminate any actual or potential adverse effects prior to applying for permit coverage. These measures may involve relatively simple changes to construction activities such as re-routing a storm water discharge to bypass an area where species are located, relocating BMPs, or limiting the size of construction activity that will be subject to storm water discharge controls.

At this stage, applicants may wish to contact the FWS and/or NMFS to see what appropriate measures might be suitable to avoid or eliminate adverse impacts to listed species and/or critical habitat. (See 50 CFR 402.13(b)). This can entail the initiation of informal consultation with the FWS and/or NMFS which is described in more detail below at Step Six.

If applicants adopt measures to avoid or eliminate adverse effects, they must continue to abide by them during the course of permit coverage. These measures must be described in the pollution prevention plan and may be enforceable as permit conditions.

If appropriate measures to avoid the likelihood of adverse effects are not available to the applicant, the applicant should follow Step 6 below.

### Step 6: Determine if the Eligibility Requirements of Part I.B.3.E.(1) (b)-(e) Can Be Met

Where adverse effects are likely, the applicant must contact the EPA and FWS/NMFS. Applicants may still be eligible for BCGP coverage if any likelihood of adverse effects are addressed through meeting the criteria of Part I.B.3.e.(1)(b)-(e) of the permit. To do so the applicant may:

- **I.B.3.e.(1)(b).** The applicant's activity has received previous authorization through an earlier section 7 consultation or issuance of an ESA section 10 permit (incidental taking permit) and that authorization addressed storm water discharges and/or BMPs to control storm water runoff. (e.g., developer included impact of entire project in consultation over a wetlands dredge and fill permit under Section 7 of the Endangered Species Act). If the applicant is eligible for coverage under this criteria, it should indicate this by marking box (b) of the certification provisions.

- **I.B.3.e.(1)(c).** The applicant's activity was considered as part of a larger, more comprehensive assessment of impacts on endangered and threatened species and/or critical habitat under section 7 or section 10 of the Endangered Species Act that which accounts for storm water discharges and BMPs to control storm water runoff (e.g., where a area-wide habitat conservation plan and section 10 permit is issued which addresses impacts from construction activities including those from storm water or a NEPA review is conducted which incorporates ESA section 7 procedures). If the applicant is eligible for coverage under this criteria, it should indicate this by marking box (c) of the certification provisions.

- **I.B.3.e.(1)(d).** Enter section 7 consultation with the FWS and/or NMFS for the applicant's storm water discharges and BMPs to control storm water runoff.

In such cases, EPA automatically designates the applicant as a non-federal representative. See I.B.3.e.(4). When conducting section 7 consultation as a non-federal representative, applicants should follow the procedures found in 50 CFR 402 the ESA regulations. Applicants must also notify EPA and the appropriate FWS/NMFS office of its intention to conduct consultation as a non-federal representative.

Coverage by the BCGP is permissible under Part I.B.3.E.(1)(b) if the consultation results in either: (1) FWS/NMFS written concurrence with a finding of no likelihood of adverse effects (see 50 CFR 402.13) or (2) issuance of a biological opinion in which FWS and/or NMFS finds that the action is not likely to jeopardize the continued existence of listed endangered threatened species or result in the adverse modification or destruction of adverse habitat (see 50 CFR 403.14(h)).

Any terms and conditions developed through consultations to protect listed species and critical habitat must be incorporated into the pollution prevention

plan. As noted above, applicants may, if they wish, initiate consultation during Step Five above (upon becoming aware that endangered and threatened species are in proximity to the facility).

If the applicant is eligible for coverage under this criteria, it should indicate this by marking box (d) of the certification provisions.

• I.B.3.e.(1)(e). The applicant's activity was considered as part of a larger, more comprehensive site-specific assessment of impacts on endangered and threatened species by the owner or other operator of the site when it developed a SWPPP and that permittee certified eligibility under items I.B.3.e.(1)(a), (b), (c), or (d) of the permit (e.g. owner was able to certify no adverse impacts for the project as a whole under item (a), so contractor can then certify under item (e)). Utility companies applying for area-wide permit coverage may certify under item (e) since authorization to discharge is contingent on a principal operator of a construction project having been granted coverage under

this, or an alternative NPDES permit for the areas of the site where utilities installation activities will occur.

If the applicant is eligible for coverage under this criteria, it should indicate this by marking box (e) of the certification provisions.

The applicant must comply with any terms and conditions imposed under the eligibility requirements of paragraphs I.B.3.e.(1)(a), (b), (c), (d), (e) to ensure that storm water discharges or BMPs to control storm water runoff are protective of listed endangered and threatened species and/or critical habitat. Such terms and conditions must be incorporated in the applicant's storm water pollution prevention plan.

If the eligibility requirements of Part I.B.3.e.(1)(a)-(e) cannot be met then the applicant may not receive coverage under the BCGP. Applicants should then consider applying to EPA for an individual permit.

This permit does not authorize any "taking" (as defined under section 9 of the Endangered Species Act) of endangered or

threatened species unless such takes are authorized under sections 7 or 10 the Endangered Species Act. Applicants who believe their construction activities may result in takes of listed endangered and threatened species should be sure to get the necessary coverage for such takes through an individual consultation or section 10 permit.

This permit does not authorize any storm water discharges or BMPs to control storm water runoff that are likely to jeopardize the continued existence of any species that are listed as endangered or threatened under the Endangered Species Act or result in the adverse modification or destruction of designated critical habitat.

## II. Endangered Species County-by-County List

(See Addendum H to the Multi-Sector Storm Water General Permit published in the Federal Register on September 29, 1995 (60 FR 50804).

BILLING CODE 6560-50-P

ADDENDUM B

THIS FORM REPLACES PREVIOUS FORM 2040 0086  
See Reverse for Instructions

Form Approved. OMB No. 2040-0086  
Approval Expires: 01/00

NPDES  
FORM



United States Environmental Protection Agency  
Washington, DC 20460

Notice of Intent (NOI) for Storm Water Discharges Associated with  
CONSTRUCTION ACTIVITY Under a NPDES General Permit

Submission of this Notice of Intent constitutes notice that the party identified in Section I of this form intends to be authorized by a NPDES permit issued for storm water discharges associated with construction activity in the State identified in Section II of this form. Becoming a permittee obligates such discharger to comply with the terms and conditions of the permit. IN ORDER TO OBTAIN AUTHORIZATION, ALL REQUESTED INFORMATION MUST BE PROVIDED ON THIS FORM. SEE INSTRUCTIONS ON BACK OF FORM.

I. Facility Owner/Operator Information

Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
Address: \_\_\_\_\_ Status of Owner/Operator:   
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

II. Site Information

Name of the Project: \_\_\_\_\_  
Location of Project: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Is the facility located on Indian Lands?  
 Yes  No

Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ County: \_\_\_\_\_

Is Pollution Prevention Plan (PPP) developed?  Yes  No  
Is PPP implemented?  Yes  No

Address of location of PPP for viewing:  Address in I. above  Address in II. above  Other, please specify below  
Address: \_\_\_\_\_ Phone: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

Other Operator NPDES Permit Number: \_\_\_\_\_

Name of Receiving Water: \_\_\_\_\_  
Construction Start Date: \_\_\_\_\_ Completion Date: \_\_\_\_\_

Estimated area to be disturbed (to nearest acre): \_\_\_\_\_  
Is the Storm Water Pollution Prevention Plan in compliance with all other applicable local sediment and erosion plans?  Yes  No  None

Based on the instructions provided in Addendum A of the permit, are any species identified in Addendum A in proximity to the storm water discharges to be covered under this permit, or the areas of BMP construction to control those storm water discharges?  Yes  No  
Will Construction (and disturbing activities) be conducted for storm water controls?  Yes  No  
Is application subject to a written historic preservation agreement?  Yes  No

Estimate of Likelihood of Discharge (choose only one):  
1.  Unlikely 2.  Once per month 3.  Once per week 4.  Once per day 5.  Continual

III. Certification

I certify under penalty of law that I have read and understand the Part I.B. eligibility requirements for coverage under the general permit for storm water discharges from construction activities, including those requirements relating to the protection of endangered species identified in Part I.B.3.e.  
I further certify that I have followed the procedures found in Addendum A to protect listed endangered and threatened species and designated critical habitat and that the discharges covered under this permit and BMPs to control storm water runoff meet one or more of the eligibility requirements of Part I.B.3.e.(1) of this permit. Check the box(es) corresponding to that part of Part I.B.3.e.(1) under which you claim compliance with the eligibility requirements of the permit. (a)  (b)  (c)  (d)  (e)   
I further certify, to the best of my knowledge, that such discharges, and construction of BMPs to control storm water runoff, do not have an effect on properties listed or eligible for listing on the National Register of Historic Places under the National Historic Preservation Act, or are otherwise eligible for coverage, in accordance with Part I.B.3.f. of the permit, due to a previous agreement under the National Historic Preservation Act.  
I understand that continued coverage under this permit is contingent upon maintaining eligibility as provided for in Part I.B.  
 Utility Companies check here if applying for coverage as described in Section II(A)(4). The following certification statement additionally applies: I certify that I understand that authorization to discharge is contingent upon a principal operator of the construction project being granted coverage under this, or an alternative NPDES permit.  
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system design to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage this system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name: \_\_\_\_\_ Date: \_\_\_\_\_

Signature: \_\_\_\_\_



Instructions - EPA Form xx Notice of Intent (NOI) for Storm Water Discharges  
Associated with Construction Activity To Be Covered Under a NPDES Permit

Form  
Approved.

OMS No. 2040-0086  
Approval Expires: 09/00

#### Who Must File A Notice Of Intent Form

Under the provisions of the Clean Water Act, as amended, (33 U.S.C. . . 1251 et seq., the Act), except as provided by part I.B.3 the permit, federal law prohibits discharges of storm water from construction activities without a National Pollutant Discharge Elimination System Permit. The operator of a construction site that has such a storm water discharge must submit a NOI to obtain coverage under a NPDES Storm Water General Permit. If you have questions about whether you need a permit under the NPDES Storm Water program, or if you need information as to whether a particular program is administered by EPA or a state agency, write to or telephone the Notice of Intent Processing Center at (703) 931-3230.

#### Where to File NOI Form

NOIs must be sent to the following address:

Storm Water Notice of Intent (4203)  
USEPA  
401 M Street, SW  
Washington, D.C. 20460

Please do not send copies of Pollution Prevention Plans (PPPs) to the above address.

#### Completing The Form

You must type or print, using upper-case letters, in the appropriate areas only. Please place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response. If you have any questions on this form, call the Notice of Intent Processing Center at (703) 931-3230.

#### Section I. Facility Owner/Operator Information

Provide the legal name, mailing address, and telephone number of the person, firm, public organization, or any other entity that either individually or taken together meet the following two criteria: (1) they have operational control over the site specifications (including the ability to make modifications in specifications); and (2) they have the day-to-day operational control of those activities at the site necessary to ensure compliance with plan requirements and permit conditions. Do not use a colloquial name.

Enter the appropriate letter to indicate the legal status of the operator of the facility: F = Federal; S = State; M = Public (other than federal or state); P = Private

#### Section II. Site Information

Enter the Project's official or legal name and complete street address, including city, county, state, ZIP code and phone number. If the site lacks a street address, indicate with a general statement the location of the site (e.g., intersection of state highways 61 and 34). The applicant must also provide the latitude and longitude of the facility in degrees, minutes, and seconds to the nearest 15 seconds.

The latitude and longitude of your facility can be located on USGS quadrangle maps. The quadrangle maps can be obtained at 1-800 USA MAPS. Longitude and latitude may also be obtained at the Census Bureau Internet site: <http://www.census.gov/cgi-bin/gazetteer>

Indicate whether the facility is on Indian Lands.

Indicate if the Pollution Prevention Plan (PPP) has been developed. Also indicate if the PPP has been implemented. Refer to Part IV of the General Permit for information on PPPs. OYeeO means the PPP is ready to be implemented upon notification of coverage or that the PPP is ready to be implemented at the time the NOI form is submitted.

Provide the address and phone number where the PPP can be viewed, if different from addresses previously given. Check appropriate box.

Enter the name of the receiving water body. If no water body exists on site, enter name of closest predominant receiving water body. Contact the appropriate state (or EPA regional) office to obtain more information on water bodies.

Enter the construction start and completion dates using four digits for the year.

Enter the estimated area to be disturbed including but not limited to: grubbing, excavation, grading, and utilities and infrastructure installation. Indicate to the nearest acre.

Indicate if the PPP is in compliance with all other applicable local sediment and erosion plans.

Indicate if any species listed in Addendum A of the General Permit is in proximity to the storm water discharges or BMP construction associated with the discharges and requirements to be covered by this permit.

Indicate if land disturbing activities will be conducted for the construction of storm water controls.

Indicate if applicant is subject to and in compliance with a written historic preservation agreement.

Indicate only one estimate of likelihood of discharge.

#### Section III. Certification

Indicate under which criteria the applicant claims compliance with the Endangered Species Act. Refer to Part I.B.3.e.(1) of the General Permit.

If applicant is a Utility Company, indicate if applying for coverage as described in Section II (A) (4) of the General Permit.

Federal Statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner of the proprietor, or;

For a municipality, state, Federal, or other public facility: by either a principal executive or ranking elected official.

#### Paperwork Reduction Act Notice


Public reporting burden for this application is estimated to average 1.75 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, SW Washington, D.C. 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, D.C. 20503.

PLEASE MAKE SURE YOU ACQUIRE A COPY OF THIS PERMIT AND READ ALL TERMS AND CONDITIONS.



ADDENDUM C

**THIS FORM REPLACES PREVIOUS FORM 3510-7 (8-92)** Form Approved. OMB No. 2040-0045  
 Please See Instructions Before Completing This Form Approval expires: 9-31-98

|                       |   |  |
|-----------------------|---|--|
| <b>NPDES<br/>FORM</b> |  | United States Environmental Protection Agency<br>Washington, DC 20460<br><b>Notice of Termination (NOT) of Coverage Under a NPDES General Permit for<br/>                 Storm Water Discharges Associated with Industrial Activity</b> |
|-----------------------|---|--|

Submission of this Notice of Termination constitutes notice that the party identified in Section II of this form is no longer authorized to discharge storm water associated with industrial activity under the NPDES program. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.

**I. Permit Information**

NPDES Storm Water General Permit Number: \_\_\_\_\_ Check Here if You are No Longer the Operator of the Facility:  Check Here if the Storm Water Discharge is Being Terminated:

**II. Facility Operator Information**

Name: \_\_\_\_\_ Phone: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_

**III. Facility/Site Location Information**

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP Code: \_\_\_\_\_  
 Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_ Quarter: \_\_\_\_\_ Section: \_\_\_\_\_ Township: \_\_\_\_\_ Range: \_\_\_\_\_

**IV. Certification:** I certify under penalty of law that all storm water discharges associated with industrial activity from the identified facility that are authorized by a NPDES general permit have been eliminated or that I am no longer the operator of the facility or construction site. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge storm water associated with industrial activity under this general permit, and that discharging pollutants in storm water associated with industrial activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act.

Print Name: \_\_\_\_\_ Date: \_\_\_\_\_  
 Signature: \_\_\_\_\_

**Instructions for Completing Notice of Termination (NOT) Form**

**Who May File a Notice of Termination (NOT) Form**

Permittees who are presently covered under an EPA-issued National Pollutant Discharge Elimination System (NPDES) General Permit (including the 1995 Multi-Sector Permit) for Storm Water Discharges Associated with Industrial Activity may submit a Notice of Termination (NOT) form when their facilities no longer have any storm water discharges associated with industrial activity as defined in the storm water regulations at 40 CFR 122.29(b)(14), or when they are no longer the operator of the facilities.

For construction activities, elimination of all storm water discharges associated with industrial activity occurs when disturbed soils at the construction site have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all storm water discharges associated with industrial activity from the construction site that are authorized by a NPDES general permit have otherwise been eliminated. Final stabilization means that all soil-disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed.

**Where to File NOT Form**

Send this form to the the following address:  
 Storm Water Notice of Termination (4203)  
 401 M Street, S.W.  
 Washington, DC 20460

**Completing the Form**

Type or print, using upper-case letters, in the appropriate areas only. Please place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use only one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response. If you have any questions about this form, telephone or write the Notice of Intent Processing Center at (703) 831-8230.

**Instructions - EPA Form 3510-7  
Notice of Termination (NOT) of Coverage Under The NPDES General Permit  
for Storm Water Discharges Associated With Industrial Activity**

**Section I Permit Information**

Enter the existing NPDES Storm Water General Permit number assigned to the facility or site identified in Section III. If you do not know the permit number, telephone or write your EPA Regional storm water contact person.

Indicate your reason for submitting this Notice of Termination by checking the appropriate box:

If there has been a change of operator and you are no longer the operator of the facility or site identified in Section III, check the corresponding box.

If all storm water discharges at the facility or site identified in Section III have been terminated, check the corresponding box.

**Section II Facility Operator Information**

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same name as the facility. The operator of the facility is the legal entity which controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

**Section III Facility/Site Location Information**

Enter the facility's or site's official or legal name and complete address, including city, state and ZIP code. If the facility lacks a street address, indicate the state, the latitude and longitude of the facility to the nearest 15 seconds, or the quarter, section, township, and range (to the nearest quarter section) of the approximate center of the site.

**Section IV Certification**

Federal statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

*For a corporation:* by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

*For a partnership or sole proprietorship:* by a general partner or the proprietor; or

*For a municipality, State, Federal, or other public facility:* by either a principal executive officer or ranking elected official.

**Paperwork Reduction Act Notice**

Public reporting burden for this application is estimated to average 0.5 hours per application, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate, any other aspect of the collection of information, or suggestions for improving this form, including any suggestions which may increase or reduce this burden to: Chief, Information Policy Branch, 2136, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, or Director, Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503.

[FR Doc. 97-14191 Filed 5-30-97; 8:45 am]

BILLING CODE 6560-50-C

# REFERENCES



City of  
Corpus  
Christi

**REFERENCES**

## REFERENCES

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3. Harris County Flood Control District, HARRIS COUNTY FLOOD HAZARD STUDY FINAL REPORT, September, 1984, Houston, Texas.
4. The Urban Committee of the Association of Illinois Soil and Water Conservation Districts, PROCEDURES AND STANDARDS FOR URBAN SOIL EROSION AND SEDIMENTATION CONTROL IN ILLINOIS, revised July, 1988.
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