BEST MANAGEMENT PRACTICES FOR PROTECTION OF SURFACE WATERS

NORTH CAROLINA
DEPARTMENT OF
TRANSPORTATION

MARCH, 1997

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS

BEST MANAGEMENT PRACTICES FOR PROTECTION OF SURFACE WATERS

MARCH 1997

TABLE OF CONTENTS

I. INTRODUCTION

Best Management Practices (BMPs) are activities, practices and procedures undertaken to prevent or reduce water pollution. They are sometimes categorized as: preventive measures which are actions or techniques to eliminate or reduce pollutants at the source or, control measures which are means to remove or reduce concentrations of pollutants from the runoff. The following compendium of BMPs was developed as a result of the adoption of state regulations addressing protection of water supply watersheds, and presents policies and guidelines followed by the North Carolina Department of Transportation (NCDOT) in planning, design, construction, and maintenance of the State highway system. This document is intended to serve as a condensed listing of BMPs. The reference listing directs the user to a source of further guidance in requirements or detailing of the Best Management Practices. While the document began as a response to water supply regulations, the need to protect other sensitive surface waters was recognized and the BMPs were expanded to address all surface waters.

All state highway projects are also subject to the rules and regulations established by the North Carolina Sedimentation Control Commission, which is responsible for the implementation of the Sedimentation Pollution Control Act of 1973. It should be noted that highway projects near wetlands, sensitive waters, trout streams, etc. are subject to regulatory review and permitting by various state and federal agencies, including the U.S. Army Corps of Engineers, the North Carolina Department of Environment, Health and Natural Resources (DEHNR) and the U.S. Environmental Protection Agency.

The primary goal of Best Management Practices is to prevent degradation of the states surface waters through the location, construction, and operation of the highway system. Therefore, the BMPs stated herein reflect actions that should be taken in the course of all highway operations at all locations, including water supply watershed areas.

The Department of Transportation shall use these BMPs consistently on all projects, as applicable. While all measures listed herein are not applicable to every highway, those that are will be incorporated into each project development to the maximum extent practicable. The most stringent application of the BMPs would be expected where highway projects could affect environmentally sensitive waters, such as; Water Supply Watersheds, Trout Waters, High Quality Waters and Outstanding Resource Waters.

The BMPs serve as general guidelines, and will result in acceptable protection of the states surface waters when used in conjunction with other North Carolina Department of Transportation's Standard Design Guidelines, Specifications, Design Drawings, and Sediment and Erosion Control Program Requirements.

II. PLANNING

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Adverse impacts on Waters on the United States will be avoided whenever practicable; minimized and mitigated when avoidance cannot be achieved.	FHWA Technical Advisory T 6640.8A
• During the development of the required environmental or planning documents, all locations where roadway runoff or other non-point source pollution may have an adverse impact on sensitive water resources will be identified. All potential impacts of each alternative and proposed mitigation measures will be described.	FHWA Technical Advisory T 6640.8A; 25 NCAC .0502 (3), (4); 25 NCAC .0603 (4)(d), (5), and (6)
• Discharge of dredged or fill material into waters of the United States shall be avoided or minimized through the use of other practical alternatives.	Federal Register Vol. 51, No. 219 p. 41257
• Construction of new roadways within water supply watershed critical areas will be avoided, to the extent practicable.	15A NCAC 2B water .0104(m)
• All proposed projects will be consistent with locally adopted plans and ordinances that direct development in water supply watershed protected and critical areas.	15A NCAC 2B .0104(b); 15A NCAC 2B .0211 (c), (d), (e), and (f)
• Point source discharges, such as rest areas, will not be located within water supply watershed critical areas.	Water Supply Protection Program

III. DESIGN

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• On-site areas which are subject to severe erosion, and off-site areas which are especially vulnerable to damage from erosion and/or sedimentation, will be identified and receive special attention during the project design phase.	Sediment and Erosion Control Program
• Avoid realignments of existing channels and streams. If unavoidable, minimize the extent of realignment. The geometry of the new channel shall be comparable to that of the existing channel.	Stream Relocation Guidelines
• Maintain a vegetated buffer or berm between a drainage channel and highway embankment where practicable.	Standard General Design Criteria
• Follow special buffer zone construction requirements for trout waters.	Guidelines for Construction Adjacent to or Crossing Trout Waters
• Investigate stability of channels and drainage ditches, and provide adequate linings to prevent erosion.	Standard General Design Criteria
• Stream crossings shall be designed to accommodate the natural stream channel with minimum disruption to the ecosystem and values unique to the floodplain.	Standard General Design Criteria
• Set the alignment and invert elevation of culverts to conform with natural streams.	Standard General Design Criteria
• Countersink invert of culvert a minimum of one foot below the natural stream gradient for identified trout water crossings. Provide baffles in invert to promote retention of natural substrate and low flow channel.	Standard General Design Criteria

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Relocated channel banks and beds shall be stabilized with vegetation and other protection, such as rip-rap.	Stream Relocation Guidelines
• Avoid ditching and channelization through wetlands.	Standard General Design Criteria
• Bridge crossings within the critical area of water supply reservoirs or rivers will be designed to eliminate direct discharge of flow from the bridge deck into the receiving water.	Standard General Design Criteria
• The discharge of dredged or fill material will not occur in the proximity of a public water supply intake.	Federal Register Vol. 51, No. 219, p. 41257
• Temporary and permanent erosion control measures will be indicated on the final plans. These features will include, but are not limited to, silt ditches, silt basins, rock structures, silt fencing, coffer dams, temporary drainage easements, and temporary seeding and mulching. The need for additional erosion control measures may become evident during construction.	Erosion and Sediment Control Guidelines
• Temporary erosion control plan sheets will be included in the construction plans. These plans identify and address distinct phasing of temporary erosion control measures and devices at specific phases of construction (clearing, grading, and completion).	Standard General Design Practice
• Designs and design criteria that are consistent with minimum standards promulgated by the Department of Environment, Health, and Natural Resources will be utilized.	Sediment and Erosion Control Program
• Design erosion and sedimentation control devices to accommodate the runoff associated with a ten(10) year frequency storm.	NCAC 15A:4B.0008

CONTROL MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Erosion and sedimentation control measures, structures, and devices within High Quality Water zones shall be designed to provide protection from the runoff of the 25 year frequency storm.	NCAC 15A:4B.0024(b)
• Sediment basins within High Quality Water Zones shall be designed to have a settling efficiency of at least 70 percent for the 40 micron size soil particle transported into the basin by the runoff of the two (2) year frequency storm.	NCAC 15A:4B.0024(c)
• Provide adequate rights-of-way or easements to install and maintain erosion control measures.	Sediment and Erosion Control Program
• The angle for graded slopes and fills shall be no greater than the angle which can be retained by vegetative cover or other adequate erosion control devices or structures.	General Statute 113A-57
• Newly Constructed open channels in High Quality Water zones shall be designed and constructed with side slopes no steeper than two (2) to one (1) if a vegetative cover is used for stabilization, unless soil conditions permit a steeper slope or where the slopes are stabilized by using mechanical devices.	NCAC 15A:4B.0024(d)
• Promote infiltration and filtration of pavement runoff by directing sheet flow over grassed shoulder slopes and shallow flat slope ditches.	Standard General Design Criteria
• Promote infiltration by utilizing stone lined ditches in lieu of rigid concrete pavement.	Standard General Design Criteria

CONTROL MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Detention and retention storage will be utilized where deemed necessary and practicable to mitigate the impact of roadway runoff into sensitive receiving waters.	Standard General Design Practice
• Hazardous Spill Basins are provided in new highway construction and major improvement projects at identified strategic locations along the system highways.	Guidelines for the Location and Design of Hazardous Spill Basins.
• Maintain sheet flow in wetlands by using drainage structures under highway fills.	Standard General Design Criteria
• Discharge flow from highway drainage systems at the edge of wetlands or floodplains to promote filtration of discharge prior to its entering the stream.	Standard General Design Practice

IV. CONSTRUCTION

A. GENERAL OPERATIONS

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Construction operations in rivers, streams, and water impoundments shall be restricted to those areas where channel changes are shown on the plans and to areas which must be entered for the construction or removal of temporary or permanent structures.	Standard Specifications
• Excavated materials shall not be deposited, nor shall earth dikes or other temporary earth structures be constructed in rivers, streams, or impoundments.	Standard Specifications
• Any discharge of dredged or fill material shall consist of suitable material free from toxic pollutants.	Federal Register Vol. 51, No. 219
• Any material excavated for footings in or near a lake or water course will be removed from the immediate vicinity of the water to prevent rainfall from transporting the material into the water course.	Erosion and Sediment Control Guidelines
• Frequent fording of live streams with construction equipment is not permitted. Temporary bridges or other structures shall be used wherever frequent stream crossings are necessary.	Standard Specifications 107.13
• All temporary fills shall be removed in their entirety.	Federal Register, Vol. 51, No. 219 p. 41257
• The contractor must comply with all laws, ordinances, regulations, orders and decrees, by local, State and Federal agencies which would include storage, use and disposal of toxic and hazardous materials.	Specifications Section 107.1

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• The contractor shall exercise every reasonable precaution throughout the life of the project to prevent pollution of rivers, streams and water impoundments.	Standard Specifications Section 107-13(D)
• Each borrow operation shall not be allowed to accumulate exposed, erodible slope area in excess of one (1) acre at any time without beginning permanent seeding and mulching of the borrow source, or implementation of other approved erosion control measures.	Standard Specifications 230-4(A)
• Topsoil shall be removed from borrow sources and stockpiled. Once all borrow material has been removed from the source or portion thereof, the stockpiled topsoil shall be spread uniformly over the source.	Standard Specifications 230-4(A)
• Except where borrow material is to be obtained from a commercial source, a development, use and reclamation plan for the borrow area shall be prepared and approved by the Resident Engineer.	Standard Specifications 230-4(C)
• A development, use and reclamation plan shall be approved for each area utilized for the disposal of waste and debris, other than active public waste or disposal areas.	Standard Specifications 802-2
• Waste or disposal areas shall be shaped to drain so that no water will collect or stand. A functioning drainage system shall be provided.	Standard Specifications 802-2
• Whatever measures necessary shall be taken to minimize soil erosion and siltation, water pollution and air pollution caused by operations.	Standard Specifications 107.13

CONTROL MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage and other harmful waste shall not be discharged into or alongside rivers, streams or impoundments, or into natural or man-made channels leading thereto.	Standard Specifications 107.13
• If excavated bridge footing areas are pumped out, the resulting effluent shall not be discharged directly into the waterway without first utilizing an approved filtering technique.	Erosion and Sediment Control Guidelines
• Temporary erosion control measures shall be coordinated with permanent erosion control measures and all other work on the project to assure economical, effective, and continuous erosion control throughout the construction and post construction period.	Standard Specifications 107.13
• Borrow sources shall be graded to drain so that no water will collect or stand. A functioning drainage system shall be provided. If drainage is not practical and the source is to serve as a pond, the minimum average depth below the water table shall be four (4) feet or the source will be graded to create wetlands, as appropriate.	Standard Specifications 230-4(C) as modified by Standard Special Provisions
• Measures shall be taken to prevent live or fresh concrete from coming into contact with any waters of the State.	Standard Construction Practice

B. EROSION AND SEDIMENT CONTROL

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Every reasonable precaution shall be taken to prevent the eroding of soil and the silting of rivers, streams, lakes, reservoirs, other water impoundments, ground water, or other property.	Standard Specifications 107.13
• Following completion of any construction phase or operation, on any area greater than one acre, the Contractor shall provide ground cover sufficient to restrain erosion within 30 calendar days. When construction is within a high quality water zone, ground cover sufficient to restrain erosion shall be provided within 15 calendar days.	Standard Specifications
• The following techniques shall be used during the construction of embankments to prevent excessive soil erosion: temporary and permanent earth berms shall be constructed along the outer edges of the top surface of embankments, temporary ditches shall be constructed, embankment surfaces will be shaped to provide for the drainage of surface runoff along and throughout the length of the embankment, and other methods used as necessary. Where appropriate, brush dikes shall be constructed and/or temporary or permanent slope drains or other drainage features shall be constructed to assist in controlling erosion.	Standard Specifications 235-4(D)
• The Resident Engineer will appoint an employee responsible for inspection of permanent erosion control measures. All devices will be inspected periodically, and after every significant rainfall.	Sediment and Erosion Control Program

CONTROL MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Temporary and permanent erosion control measures shall be provided as shown on the plans or as directed.	Standard Specifications 107.13
• Temporary and/or permanent erosion control measures shall be employed during the use of borrow sources and as an element of reclamation. Staged permanent seeding and mulching shall be employed on a continual basis while the source is in use. Immediate total reclamation will occur when the source is no longer needed.	Standard Specifications 230-4(C) as modified by Standard Special Provisions
• Earth surfaces of all areas utilized for the disposal of waste and debris shall be maintained both during the work and after the completion of all seeding and mulching or other erosion control measures, in a manner that will effectively control erosion and siltation.	Standard Specifications 802-2 as modified by Standard Special Provisions
• Temporary erosion control measures shall include, but are not limited to the use of temporary berms, dikes, dams, drainage ditches, silt basins, silt ditches, slope drains, rock structures inlet protection devices, vegetation, mulches, mats, netting, gravel, or any other method or device which may be necessary.	Standard Specifications 107.13
• Temporary and/or permanent erosion control measures shall be employed during the use of waste and disposal areas and during reclamation. Where practical, staged permanent seeding and mulching shall be employed on a continual basis during the use of the site. Immediate total reclamation of the site will occur upon completion.	Standard Specifications 802-2
• Temporary sediment control devices will be cleaned on a frequent and periodic basis. Devices should not achieve more than fifty percent (50%) of their possible accumulation capacity.	Guidelines for Control of Erosion and Sediment During Construction, p.90

CONTROL MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Clearing and grubbing shall be performed in a manner which will cause minimal soil erosion. The work shall be coordinated with other operations so that, unless otherwise authorized, no more than seventeen (17) acres of exposed, erodible surface area will be accumulated at any one time.	Standard Specifications 230-1
• Grading operations will not be allowed to accumulate exposed, erodible slope areas in excess of seventeen (17) acres at any one time without beginning permanent seeding and mulching or other erosion control measures.	Standard Specifications 225-2
• Intercept ditches should be constructed across the roadway in both cut and fill sections at the close of each day's operations to direct the runoff to controlled drainageways and outlets.	Sediment and Erosion Control Program
• If grading operations are suspended for any reason, partially completed cut and fill slopes shall be brought to the required slope and the work of seeding and mulching, or other required erosion control operations shall be performed.	Standard Specifications 225-2
• A self monitoring program will be performed to ensure compliance with the Sediment and Erosion Control Program Requirements, and to evaluate and rate levels of field implementation of the program.	Sediment and Erosion Control Program

V. MAINTENANCE

A. GENERAL OPERATIONS

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Salt is applied primarily on the primary system; however there are various hazardous locations on other highway systems which require attention. The system designated to receive salt applications is referred to as the Bare Pavement System.	Maintenance Bulletin Function Code 430
• Trucks are loaded with salt such that spillage is prevented.	Maintenance Bulletin Function Code 430
• The application of chlorides to the travelways of the system shall be consistent with our objectives to protect the environment. The recommended application rates are considered to be correct and proper for the various weather and highway conditions indicated and heavier applications are discouraged. Highway Maintenance Engineers should identify environmentally sensitive areas within their individual areas of responsibility that may require alternative application rates and devise special instructions for snow and ice removal techniques for roads adjacent to these locations.	Maintenance Bulletin Function Code 430
• Salt is applied once snow & ice accumulation reaches approximately 1/2 inch on the roadway. Snowfall between the months of December thru mid March requires salt application because of consistently colder temperatures. After mid-March the weather temperatures usually are more cooperative allowing less use of salt.	Maintenance Bulletin Function Code 430

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Accurate calibration of all chemical spreaders should be completed each fall in accordance with guidelines and instructions. This effort will conserve materials, protect the environment, and provide the operator with the information required to comply with the application recommendations Spreaders should be checked to be sure they are equipped with side shields of baffles in order to retain the spread within approximately 12 feet.	Maintenance Bulletin Function Code 430
• Cleaning equipment after salt use & lubricate spreader chains, driver & sprockets.	Maintenance Bulletin Function Code 430
• Debris collected by street sweeping is disposed of in accordance with DEHNR Waste Management rules.	DEHNR Waste Management Rules G.S. 150B-61
• Solid waste collected on highway right-of-way (ex: tires, metal, white goods, trash, hazardous materials etc.) and construction debris from maintenance and road construction activities (ex: stumps, used asphalt, rock, etc.) are disposed of in accordance with DEHNR Waste Management Rules.	DEHNR Waste Management Rules G.S. 150B-61
• Calcium chloride is used as a dust retarder. Application rates are controlled based on use. Motor oil is not allowed as an anti-dust agent.	Policy statement May 20, 1991 Dust Control
• Calcium chloride is mixed with sand and used as a deicing agent. The sand/ calcium chloride mixture is stockpiled and covered to prevent leaching of mixture. Application rates are similar to salt.	Maintenance Bulletin Function Code 430
• Dead animals within highway right-of-way are removed and buried.	General Statute 136-18 Policy statement 4-10-73 Subject - Removal Dead animals

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Asphalt release agent (biodegradable) are applied to the truck beds prior to loading asphalt. Fuels are not used.	Policy statement July 30, 1991 Subject - Asphalt release compound
• As pipes begin to fill with silt and debris restricting drainage flow the material will be removed. Material is wasted on site or hauled away in most cases.	Maintenance Bulletin 441 & 442
• As pavement failures occur repair operations are scheduled. Repairs consist of pothole repairs, full depth failures and short overlays. Liquid asphalt, plant mixes and surface treatment are utilized.	Maintenance Bulletins
• Minor shoulder and ditching operations are conducted when the need dictates. Shoulder drop-offs approaching 3 inches are identified for repair. Spot shoulder work and spot ditching are usually not reseeded, as volunteer grasses quickly grow back.	Maintenance Bulletin Function Code 442 Erosion & Sedimentation Control Guidelines for Division Operations
• Continuing shoulder drop-offs or continuing roadside ditch stoppages will prompt major repair activities. Process involves restructuring the shoulders and removing material from ditches. All distributed areas are seeded and erosion control devices are installed.	Maintenance Bulletin Function Code 441 Erosion & Sedimentation Control Guidelines for Division Operations.
• Grass mowing heights are maintained between 6" to 18" on cool season grasses and 4" to 18" on warm season grasses. Mowing cycles vary between 4 to 6 per year depending upon highway system.	Policy statement March 15, 1991 Subject - Mowing Policy

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Routine mowing patterns are established to provide safe sight distances and a uniform pleasing appearance while minimizing the area where mowing is required. Additional areas within the right-of-way are mowed on an annual (clean-up) basis to prevent unwanted growth within safety recovery areas and obscuring of signs.	Guidelines for Mowing and Roadside Vegetation Control
• The use of liquid asphalt as a tacking compound in used in all phases of asphalt work. Rates of applications are specified based on the repair activity as shown in the standard specifications. Liquid asphalt is stored in approved tanks and used as needed.	Standard Specifications 600-7, 605-7, 660-7, 800-6
• The removal of lead paint from bridges is collected as it is removed. The collected material is disposed of as a hazardous material.	DEHNR Air Quality Section, Waste Management
• Creosote timbers are disposed of in proper landfills.	DEHNR regulations - Solid Waste Management
• Unused or waste plant mixed asphalt is disposed of 3 ways: 1). Stockpiled for later reuse, 2). Disposed of in accordance with DEHNR Solid Waste Management; 3). Recycled.	Policy memo 4-29-83 Salvaging access Plant Mix Asphalt DEHNR - Solid Waste
• Program addresses corrective treatment of existing unvegetated areas that exceed one contiguous acre and are experiencing continued accelerated erosion. The treatment provided will consist of the establishment of vegetative cover or other protective measures, structures, or devices to control off-site sedimentation. The program places priority on those areas that are contributing to off-site damage.	Sediment & Erosion Control Program

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• The Department will respond to vehicular accidents involving spills on state roadways, rights-of-way and adjacent properties when requested by the Department of Environmental Health and Natural Resources, the Division of Emergency Management, the Highway Patrol, or other law enforcement authority. The Department's role in certain small spills may include direct contact containment and on large spills, will be limited to containment activities outside the established hot zone to prevent overland flow.	NCDOT Environmental Policy and Procedure
• The NCDOT Roadside Vegetation Management Program functions to establish and maintain roadside turf, landscape plantings, wildflowers and other ground covers for soil stabilization and aesthetics.	-NCDOT Vegetation Management Manual -NC House Resolution 1725 (Tree Planting Policy) -NC House Bill 342 (Tree Cutting Policy) -Erosion and Sediment Control Guidelines -1996 NC Turfgrass Survey -Wildflowers on North Carolina Roadsides -Weed Control Management Plan for Wildflower Plant Beds, Dr., Walt Skroch, FHWA/NC/94- 010 -Selection Establishment and Maintenance of Vegetation along NC Roadsides, Dr. Joe DiPaola-FHWA/NC85- 003 -NC Rare Plant Protection Policy -NC Administrative Code Section 0.0600 (Selective Vegetation Removal Policy) -NC See Law -NC Administration Code Title 19-Chapter 2 (Eradication of Kudzu Bermudagrass, Johnsongrass and Nutsedge)

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICE	*REFERENCE*
• Integrated pest management practices such as selecting low maintenance sustaining vegetation, follow stringent environmental guidelines in conducting pest management practices.	-NCDOT Vegetation Management Manual -Water Quality and Professional Turfgrass Managers - NCSU WQWM 156 -Lawn Maintenance Calendars NCSU-AG 431, 381, 367 -Carolina Lawns NCSU-AG 69
• Fertilizers will be used for sustaining plant life and application rates and schedules are outlined for low maintenance or utility standards.	-NCDOT Vegetation Management Manual -NC Commercial Fertilizer Law and Subchapter 48B
• Pesticides will be utilized to control undesirable plants, noxious weeds, insects, maintain safety sight distances, preserve pavement integrity and to maintain directional and informational signs free of vegetative obstructions	-NCDOT Vegetation Management Manual -Groundwater Impact Study, Dr. Henry Wade, DEHNR -NC Agricultural Chemicals Manual -Pest Control Recommendations for Turfgrass Managers NCSU AG 408 -State Noxious - Weed Seed Requirements -Product Labels and MSDS's -Turfgrass and Growth Regulators, Dr. Joe DiPaola, FHWA/NC-89/009 -Insect and Related Pest of Shrubs NCSU AG 189 -NC Pesticide Law -NCDOT Fire Ant Policy -Federal Seed Act -State Noxious-Weed Regulations -Turfgrass Pest Management Manual NCSU-AG 348

B. FACILITIES

PREVENTIVE MEASURES

BEST MANAGEMENT PRACTICES	*REFERENCE*
• Liquid asphalt is stored at various maintenance facilities throughout the state. Storage containment areas are provided around the asphalt tanks. Specifications are outlined in Oil Spillage Containment Plans, kept at each maintenance yard.	Federal Registry EPA - 10-22-91
• Pesticides are stored in a manner which is safe, secure, environmentally sound and legal in accordance with all applicable codes and regulations.	-NCDOT Vegetation Management Manual -North Carolina Pesticide Law of 1971 -Federal Insecticide Fungicide and Rodenticide Act (FIFRA) -North Carolina Administrative Code Regulation 9L. 1901-1913-Pesticide Storage
• Sites used for the storage of deicing chemicals will be located so as to avoid contamination of local wells and to minimize the possibility of damage to the environment. At all storage locations, precautions will be taken to see that they are properly covered and that drainage in and around these facilities prevents runoff into adjacent streams and properties.	Maintenance Bulletin Function Code 430
• Calcium chloride is packaged in individual bags and stored dry in warehouses.	Inventory & Manufactory requirement
• Oil Water separations are required for any discharge from vehicle service or wash bays (other than outer surface only).	DEHNR BMPs for the Collection, Storage and Disposal of Automotive Service Station Wastes.