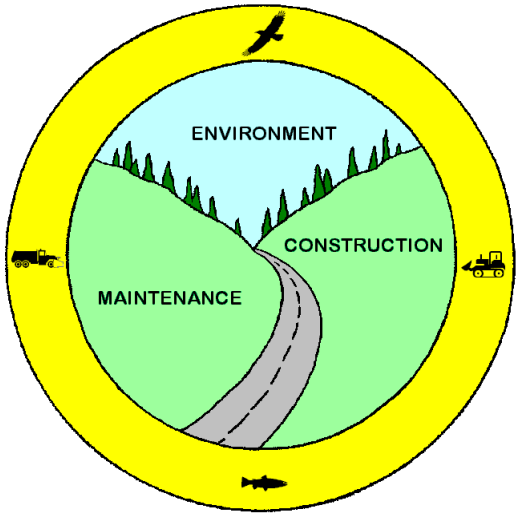


Environmental Handbook for Transportation Operations

A Summary of the Environmental Requirements and Best Practices for Maintaining and Constructing Highways and Transportation Systems
June 2011

New York State Department of Transportation

"Providing New York State with Safe, Efficient, Balanced, and Environmentally Sound Transportation Systems"

`

Prepared by: NYSDOT Environmental Science Bureau (ESB)

TABLE OF CONTENTS

Page

NYSDOT Environmental "Yellow Page"

Points of contact within the region and main office to assist with environmental issues.

Fill in the names and phone numbers of the Regional Landscape Architecture/Environmental Services Unit (RLA/ESU) and other environmental staff. The regional contact lists are maintained on the Intradot ESB site under regional contacts.

Regional Environmental Contact (REC):

Regional Cultural Resource Coordinator (CRC):

Regional Landscape Architect (RLA):

Regional Maintenance Environmental Coordinator (MEC):

Regional Hazardous Waste Contact:

Regional Construction Environmental Coordinator (CEC):

Regional Health and Safety Representative:

Regional Scenic Byway Coordinator (SBC):

Other NYSDOT Phone Numbers

Employee Safety and Health (Main Office)	(518) 457-2420
Environmental Science Bureau (ESB) (Main Office)	(518) 457-5672
Landscape Architecture Bureau (LAB) (Main Office)	(518) 457-5672
Facilities Engineer – Main Office Trans. Maintenance	(518) 457-6435
Petroleum Bulk Storage Manager – Rick McKeon	(518) 457-6912
Maintenance Env. Program Manager – John Rowen	(518) 457-4469

Other Phone Numbers

NYSDEC Spill Hotline – within NYS	(800) 457-7362
– outside NYS	(518) 457-7362

RESOURCE/REGULATORY AGENCIES AND TERMS ACRONYMS/ABBREVIATIONS

APA: Adirondack Park Agency

BMP: Best Management Practice

C&D Waste: Construction and Demolition Waste

CEC: Construction Environmental Coordinator

CFR: Code of Federal Regulation

CMP: Corridor Management Plan

CRC: Regional Cultural Resource Coordinator

ESB: NYSDOT Environmental Science Bureau

ECL: Environmental Conservation Law

EPA: United States Environmental Protection Agency

FHWA: Federal Highway Administration

HDDV: Heavy Duty Diesel Vehicle

Kg: Kilogram (2.2 pounds)

MEC: Maintenance Environmental Coordinator

MOU: Memorandum of Understanding

M&PT: Maintenance and Protection of Traffic

MSDS: Material Safety Data Sheet

NYCDEP: New York City Department of Environmental Protection

NYCMA: New York City Metropolitan Area (Includes all of New York City and Nassau, Suffolk, Westchester, Rockland Counties, and lower Orange County for air regulatory issues)

NYCRR: Official Compilation of Codes, Rules and Regulations of the State of New York

NYS: New York State

NYSDEC: New York State Department of Environmental Conservation

NYSDOL: New York State Department of Labor

NYSDOT: New York State Department of Transportation

NYSSBAB: New York State Scenic Byways Advisory Board

OPRHP: New York State Office of Parks, Recreation and Historic Preservation

OSHA: U. S. Occupational Safety and Health Agency

PBS: Petroleum Bulk Storage

RSBC: Regional Scenic Byways Coordinators

RLA/ESU: Regional Landscape Architecture/Environmental Services Unit

ROW: Right-of-Way

SHPO: State Historic Preservation Office

SEQR: State Environmental Quality Review

SPDES: State Pollutant Discharge Elimination System

TCLP: Toxicity Characteristic Leaching Procedure

TEM: The Environmental Manual

USACE: United States Army Corps of Engineers

USC: United States Code

VOC: Volatile Organic Chemical

1 INTRODUCTION

The New York State Department of Transportation (NYSDOT) is firmly committed to environmental excellence in providing a safe, efficient, balanced, and environmentally sound transportation system in the State of New York. Achieving this mission requires NYSDOT to conduct maintenance, manage equipment, and perform construction activities appropriately to prevent and/or minimize adverse impacts to the environment.

1.1 Use of This Guidance by NYSDOT

The NYSDOT must ensure compliance with various and complex federal and state environmental regulations covering all aspects of the environment. This handbook is intended to provide NYSDOT personnel with general awareness and guidance of the primary requirements that apply to the types of activities conducted by NYSDOT Operations. It is not intended to substitute for the actual regulations and interpretations by the environmental units that may be required for specific issues but, rather to serve as a summary of typical issues and as a flag for certain issues that may require more assistance from the Maintenance or Construction Environmental Coordinator (MEC and CEC, respectively), Regional Landscape Architecture/Environmental Services Unit (RLA/ESU) and/or other appropriate resource personnel.

NYSDOT Operations activities are typically associated either with work conducted along the right-of-way (ROW) or as facility-based activities conducted at a residency or shop. In general, the environmental requirements are described in the context of the operation or type of facility or equipment most affected by the issue. The requirements, however, may affect multiple activities and operations and cross reference may be required. Since regulations and activities are frequently changing, this handbook is intended to be a working document that is updated periodically.

1.2 Use of This Guidance by Entities other than NYSDOT

This guidance has been developed based on the typical activities, experiences and procedures of the NYSDOT. It includes specific internal procedures of the NYSDOT and does not include requirements for activities and facilities not typically present within the NYSDOT.

Although this is a NYSDOT guidance document, other transportation agencies including county and town highway departments, other maintenance operations and entities may find the information helpful and useful. Users should consider the applicability of the cited regulatory requirements and procedures that were developed based on NYSDOT experiences and adapt them to their own specific operations.

For instance, interagency MOUs or other agreements referenced in the guidance have been negotiated between NYSDOT and the regulatory agencies. These MOUs are specific to NYSDOT and may not apply to other entities. Likewise, NYSDOT established its own implementing regulations for SEQR; other state actions must comply with statewide SEQR requirements. Specific characteristics of wastes must be considered, as waste classifications discussed in this guidance are based on experience specific to the products and processes of the NYSDOT.

NYSDOT internal resource personnel are referenced where applicable within the guidance. Non-NYSDOT entities should consult the appropriate regulatory/resource agency personnel for further information and specific questions on their specific activities.

2 GENERAL WORK ON THE RIGHT-OF-WAY (ROW)

This section addresses general work typically conducted on the ROW, including excavation, filling, de-icing, snow removal, clearing vegetation, and storing/using materials.

2.1 Work In or Near Wetlands

Work in or near wetlands in New York State is regulated by the NYSDEC, the U.S. Army Corps of Engineers (USACE), and if inside the Adirondack Park, the Adirondack Park Agency (APA). There are many different types of wetlands. Wetlands may not always appear to be wet, may hold ponded water only for brief periods in the spring and appear dry during other times. If work needs to be performed in or adjacent to potential wetland areas, contact the MEC to review maps that show the approximate locations of all state-regulated wetlands and some federally-regulated wetlands. However, these maps are not always accurate or up-to-date and must be verified in the field. Contact the MEC for assistance.

2.1.1 State wetlands

A permit is required from the NYSDEC, or APA inside the Adirondack Park, for certain activities. State-regulated freshwater wetlands are generally 12.4 acres (5 hectares) or larger; inside the Adirondack Park, however, there is no minimum size limit. Tidal wetlands, found in NYSDOT Regions 10, 11 and south of the Tappan Zee Bridge (Reg. 8), also have no minimum size limit. State-regulated wetlands are mapped by NYSDEC (or APA inside Adirondack Park).

Contact the MEC for assistance in determining state permit requirements if conducting any of the following activities in or within 30 meters (legally 100 feet) of a state-regulated freshwater wetland, or in or within 90 meters (legally 300 feet) of a state-regulated tidal wetland:

- Draining, filling, excavating, or grading;
- Constructing new structures or modifying or expanding existing structures;
- Clear-cutting vegetation;
- Stockpiling or staging material;
- Building access roads;
- Storing chemicals; or
- Applying pesticides.

Normal maintenance activities are exempt if the action does not involve any of the above activities. For example, repairing an existing ROW fence in a state-regulated wetland is exempt from a permit but, constructing a new fence is not. Another example: cleaning a ditch that is within 30 meters (100 feet) of a state-regulated wetland to previous elevation and alignment is exempt from a permit, but disposing of the excavated material within 30 meters (100 feet) of a state-regulated wetland is not.

ECL Article 24 regulates activities in and within 100 feet of state-regulated freshwater wetlands. ECL Article 25 regulates activities in and within 300 feet of state-regulated tidal wetlands.

2.1.2 Federal wetlands

A USACE permit is required for the discharge of dredged or fill material into all freshwater and tidal wetlands, regardless of size. Contact the MEC for assistance in determining federal permits requirements if conducting any of the following activities in any wetland, regardless of size:

- Filling, excavating, or grading;
- Dredging;
- Storing, stockpiling, or staging material; or

- Constructing new structures or access roads, or modifying or expanding existing structures.

Many normal maintenance activities can be covered under USACE Nationwide Permits, if NYSDOT fully complies with all general and regional permit conditions. Specifically, maintenance activities often comply with the terms and conditions of USACE Section 404 Nationwide Permit Number 3 - Maintenance. Refer to Appendix A for guidance regarding maintenance ditch cleaning, culvert cleaning, bank stabilization/scour protection activities and associated cofferdam use pursuant to Nationwide Permit Number 3 - Maintenance (Note: The guidance reflects specific agreements to NYSDOT that may not be applicable to other entities). Consult with the MEC to ensure that the activity complies with all permit conditions.

Section 404 (33USC 1244) of the Clean Water Act regulates filling and excavation in federal-jurisdictional wetlands which must be evaluated in accordance with the 404(b)(1) guidelines.

2.2 Work In or Near Streams and Waterbodies

The USACE regulates filling or excavating in any water of the United States, including creeks, streams, rivers, ponds and lakes. NYSDEC regulates the disturbance of the "bed or banks" of any stream that is capable of supporting trout. These streams will be classified by NYSDEC as C(T) or higher (AA, AA(T), A, A(T), B, B(T) and C(T)). "Banks" can include all landward areas within 15 meters (legally 50 feet) of the mean high water line. NYSDEC also regulates the excavation or placement of fill in any NYSDEC navigable water or adjacent wetlands. Waters are considered navigable by NYSDEC if they are “navigable by a vessel with a capacity of one person,” even if only seasonally (these streams can have very low flows). Consult with the MEC or contact NYSDEC to determine the stream classification.

In addition, NYSDEC regulations include state Water Quality Standards for turbidity, oil and other substances that apply to all surface waters. For example, the standard for turbidity is "No increase that will cause a substantial visible contrast to natural conditions”.

Although NYSDOT is not required to obtain Article 15 permits from NYSDEC, a long-standing MOU between NYSDOT and NYSDEC requires that all NYSDOT construction and maintenance activities in or adjacent to streams be coordinated with NYSDEC to protect water quality, fish and wildlife and aquatic habitat (this MOU applies to NYSDOT projects only; all non-NYSDOT construction and maintenance activities in or adjacent to protected streams require an Article 15 permit from NYSDEC). In addition, the removal of accumulated sediment from streams may be regulated by the USACE. Contact the MEC, at least 3 months in advance, if planning or conducting work in or adjacent to streams or other water bodies.

Section 404 of the federal Clean Water Act regulates filling and excavation in any water of the United States. Section 10 of the Rivers and Harbors Act, 1899, regulates filling in federally designated navigable waters. Article 15-0501 and 6 NYCRR Part 608.2 regulate disturbance of the bed and banks of state-protected streams. Article 15-0505 and 6 NYCRR Part 608.5 regulate activities in state designated navigable waters or adjacent wetlands; 6 NYCRR Part 703.2 sets the state Water Quality Standards for turbidity, oil and other substances.

2.3 Work At or Adjacent to Cultural Resources

Maintenance activities have the potential to affect cultural resources when they involve ground disturbance in previously undisturbed soils; repair, removal, replacement or relocation of objects within the right-of-way; or work on or adjacent to culverts and streams. These types of activities may be subject to compliance with Federal and State historic preservation regulations that require the

Department to take into account the effect of its actions on both known and as yet unidentified cultural resources.

Contact the Regional MEC or CRC for assistance. The CRC may need to screen for cultural resources, assess measures to avoid or minimize impacts, and determine appropriate treatment.

Examples of maintenance activities that may affect cultural resources include but are not limited to:

- Slope stabilization;
- Shoulder & pavement widening;
- Repair or relocation of retaining walls;
- Scour protection;
- Dredging;
- Work to drainage channels and ditches;
- Replacing or extending culverts;
- Waste material and staging area sites;
- Earthwork occurring in undisturbed soils;
- Mature tree or vegetation removal;
- Repair, restoration or removal of sidewalks, lights, guide rails, signs, fences or stone walls; or
- Cut and fill activities.

Cultural resources include a variety of historic properties, at least 50 years old, meeting the criteria for listing on the National Register of Historic Places. Historic property types include:

Building - Constructed for human activity (house, school, church). The historic property may include the historic building and associated landscape features within a designed or legally defined parcel of land.

Structure - Functional construction for purpose other than human shelter (bridge, culvert, barn, dam, earthworks).

Object - Primarily artistic in nature, small in scale or simply constructed (mile markers, historic markers, signs, fountains, statuary, sculpture). Although objects may be moveable, they are associated with a specific setting or environment.

Site - Location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, which may be standing, ruined, or vanished (battlefield, cemetery site, mill site, prehistoric village). Archaeological sites often are not marked by physical remains visible on the ground surface.

District – A concentration of buildings, structures, objects, and/or sites united by plan or physical development. The relationship of buildings to each other, setbacks, fence patters, views, driveways and walkways, and street trees together may contribute to the historic significance of a district. (Residential areas, industrial complexes, rural historic districts, historic transportation networks including railroads, canals, roads, and parkways).

Parkways - New York State has many historic parkways, eligible for or listed in the National Register of Historic Places.

Canals - The New York State Canal System has been determined eligible for listing on the National

Register.

Maintenance activities have the potential to affect the setting or landscape elements associated with historic properties. The setting as a whole, or individual components, may contribute to the significance of historic properties. The CRC should be consulted when activities involve work on or adjacent to contributing structures, objects and landscape elements associated with the setting of historic properties. Examples include:

- Fences
- Walls
- Sidewalks
- Mature Trees
- Light Posts

The Regional CRC should be consulted when repair of historic structures or objects is needed.

2.3.1 Recommended Treatments at Historic Properties

Work at or adjacent to historic properties should strive to retain and preserve the historic character that contributes to the significance of the resource. In general, the likelihood of impacting historic properties can be minimized by the following practices:

- Erosion prevention;
- Protection of fragile soils, slopes and land forms;
- Limits on encroachment by vehicles and equipment;
- Limits on grading, cut and fill; and
- Limits on removal of mature trees or vegetation associated with designed landscapes, unless the tree or trees are hazardous or pose sight distance concerns.

When necessary, limited replacement in-kind is recommended for repair of structures and objects with deteriorated or missing features or parts, based on the original. Although using the same kind of material is preferred, substitute material may be acceptable if the form, design, and material itself convey the visual appearance of the remaining parts of the feature and finish.

If historic objects must be temporarily moved or permanently relocated, the recommended treatment is to reset the object as close as possible to its original location. For additional guidance on the maintenance of NYS Historic Markers, refer to the NYS Museum web site: http://www.nysm.nysed.gov/services/marker/srvmarker.html

2.3.2 Routine Maintenance for Historic Bridges

Maintenance work on bridges and culverts built after 1961 do not require review unless these activities will disturb the adjacent ground or stream bank. For highway bridges built prior to 1961, contact the MEC or CRC to determine if the bridge is historic. Preventative or routine maintenance activities on historic bridges are generally exempt from further review.

Routine bridge maintenance and repair actions include:

- Repair or replacement of bridge decking and bridge expansion joints with the same or similar materials;
- Cleaning scuppers or other drainage conveyances;
- Modifications of expansion joints;
- Maintenance and repair of pedestrian railing when the existing rail is a contributing element;
- Maintenance of bridge bearings, including lubrication;

- Repair or replacement of steel beam plates and/or bridge bearings with the same or similar materials;
- Repair of cracks in superstructure and substructure with the same or similar materials;
- Replacement of steel caps, protective jackets, and dolphins;
- Repairs to abutments using the same or similar materials, where no excavation is proposed;
- Replacement of truss members using new members of the same size, profile, and appearance as the original members. The method for attaching the new members will retain the appearance of the original attachment system (e.g., rivets may be replaced with button-headed or dome-headed bolts);
- Repainting of metal structure or components of either superstructure or substructure to match existing color;
- Tightening of loose diagonals and lateral bracing on metal truss bridges;
- Pressure washing and cleaning of structure. Removal of debris from channels around piers and abutments; or
- Repair of damage to substructure due to scour.

For historic bridges, replacement of structural members or repairs, other than those listed above, may require review. The Regional Bridge Maintenance Engineer may determine that coordination with the CRC is needed if proposed work has the potential to affect the historic significance of the bridge.

For canal bridges, Appendix C of the Programmatic Agreement for Canal Bridges of the New York State Canal System provides guidance on the Historic Bridge Preventative Maintenance Program. This program applies to NYSDOT owned historic bridges on the historic canal system as long as the bridge remains in state ownership. Proposed treatments include cyclical actions, non-intrusive actions to enhance safety, and corrective repairs. Contact the Regional Bridge Maintenance Engineer or CRC for additional information.

2.3.3 If Cultural Resources or Human Remains are Discovered

In the event that potential grave sites, human remains, buried walls, or suspected artifacts are encountered during maintenance activities, suspend work immediately, protect the location from further disturbance, and contact the MEC. In coordination with the CRC, a decision will be made for appropriate action.

Projects which have federal involvement (i.e. funding, permit, license, approval) and the potential to affect cultural resources must comply with Section 106 of the National Historic Preservation Act of 1966. Section 14.09 of the NYS Historic Preservation Act applies to activities with state funding and no federal involvement.

2.4 Soil, Rock and Other Mineral Removal

A mined land permit from NYSDEC is required if more than 1,000 tons or 575 cubic meters (legally 750 cubic yards), whichever is less, of mineral material is "mined" within twelve consecutive months from a single source. Removal of any quantity of gravel or sand from streams, however, requires a Section 404 permit from the USACE and approval from the NYSDEC fisheries staff and therefore should be coordinated with the MEC (See *2.2 - Work In Or Near Streams or Waterbodies*). Excavations, grading, or moving of earth materials integral to the direct construction of a project are excluded from the definition of "mining" and do not require a mined land permit. A mined land-use plan including a reclamation plan is required for a permit application. For contractor-constructed projects, the NYSDOT contract documents and specifications can satisfy the requirements of the mined land-use plan. NYSDOT is responsible for ensuring that the sources are reclaimed in

conformance with mined-land use reclamation requirements.

The Mined Land Reclamation requirements are at 6 NYCRR Parts 420-426. Sections 107-10 and 11 of the Contract Administration Manual outline procedures for restoration of disturbed areas.

2.5 Diesel Vehicle Operation

Exhaust gases from diesel-engine trucks contain air pollutants. Diesel-engine trucks are not allowed to idle for more than five (5) minutes except when:

- The vehicle is forced to remain motionless due to traffic conditions that the operator has no control over;
- The vehicle is forced to remain motionless as part of a State authorized periodic or roadside diesel emissions inspection;
- The vehicle or piece of equipment is being used to provide power for an auxiliary purpose. Auxiliary purposes may include loading or unloading cargo, processing or mixing cargo, running secondary construction and maintenance equipment, etc.;
- Operation of the engine is necessary for maintenance of the vehicle or piece of equipment;
- Operation of the engine of the vehicle or piece of equipment is necessary as part of some emergency situation; or
- The vehicle or piece of equipment is to remain motionless for a period exceeding two hours, and during which period the ambient temperature remains below 25^{o}F.

On-road heavy duty diesel vehicles (HDDVs) powered by diesel engines with gross vehicle weight ratings exceeding 8,500 pounds designed primarily for moving people or goods must meet exhaust clarity standards. Random inspections or roadside pullover emissions tests of HDDVs operating on highways may occur anywhere within the state. In addition, HDDVs registered in the NYC Metropolitan Area must undergo annual exhaust emission inspections.

NYSDEC's Air Quality Regulation, "Vehicles Propelled by Diesel Engines Regulation," 6 NYCRR Subpart 217-3, states that diesel-engine trucks are not allowed to idle for more than five minutes when the truck is not in motion except for noted exceptions, subpart 217-5, "Heavy Duty Inspection and Maintenance Program" includes HDDV exhaust inspection requirements.

2.6 Loud Operations

Very loud noise from NYSDOT maintenance operations may contribute to temporary or permanent hearing loss for the NYSDOT employees doing the work. For information regarding this occupational exposure to very loud noises, contact the Regional Employee Safety and Health Representative or NYSDOT's Employee Safety and Health Unit, and refer to NYSDOT Safety Bulletin, SB-96-A, Hearing Conservation.

Pile drivers, rock drills, jackhammers, air compressors as well as vehicle engine noise, can create a noisy or annoying environment for nearby residents and activities. NYSDOT tries to minimize these noise levels and annoyance to the public as much as possible. Before beginning a scheduled operation that is particularly noisy, consider a public relations effort to notify the community in advance, indicate the duration of the operation, and apologize in advance for any inconvenience.

In populated areas, also consider potential noise impacts when planning the work schedule. The timing of especially noisy activities can sometimes be adjusted to take the affected residents and other particularly noise sensitive activities into account. In most cases, complaints can be reduced or eliminated by prior notification, schedule adjustment and equipment assessment in consultation with

the effected public.

In general, equipment with internal combustion engines must have a properly designed and well maintained muffler. Noise can also be reduced by operating equipment at lower speeds, increasing the spacing between pieces of equipment and minimizing the need to back-up. Noise barriers or plywood enclosures around the noise source can further be used for very noisy operations near particularly sensitive receptors. The MEC and the ESB Noise Analysis Section can help answer questions about potential noise impacts to neighbors. FHWA Regulation 23 CFR 772 applies to highway traffic and construction noise analysis.

2.7 Dust/Particulate Generating Operations

Activities that generate elevated airborne particulates (dust) can contribute to nuisance and respiratory illness concerns of the public and the employees conducting the work, as well as contribute to violations of air quality standards for particulates. Operations such as blast cleaning, jackhammering, saw cutting, scarifying, or equipment movement require the incorporation of dust suppressant measures, engineering controls, and personnel protection to prevent unhealthy localized environments for workers and the public. All abrasive blasting operations associated with bridge painting work should use Class A Containment to prevent particulate releases. Soil or debris should only be moved in vehicles with covers in good working order and whose wheels have been brushed or washed to remove excess soil. Information on employee exposure to airborne particulate can be obtained from the Regional Employee Safety and Health Representative or NYSDOT's Employee Safety and Health Unit.

2.8 Highway Work Permits

Requests are made to NYSDOT for Highway Work Permits for proposed work to be conducted on NYSDOT ROW. In reviewing permit applications, the NYSDOT must comply with SEQR (See *6 - State Environmental Quality Review* and *TEM Chapter 4.1.2* regarding Involved Agency Responsibilities) and consider the potential impacts to environmental resources such as impacts to wetlands, surface waters, endangered species, ambient air quality standards, archeological, and historical resources as outlined in this handbook. The applicant is responsible for providing environmental assessment information and should be encouraged to develop needed information as early as possible during project development. If there are environmental questions associated with the project, contact the MEC for assistance.

2.9 Stormwater Management Related to Maintenance Activities

NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity, Permit No. GP-0-10-001

Land development projects, including transportation improvement projects, and associated increases in impervious cover can alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes, contribute to flooding, stream channel erosion, sediment transport, and deposition. This runoff contributes to increased quantities of water-borne pollutants, but can be controlled and minimized through the effective use of BMPs to mitigate the adverse impacts of stormwater runoff.

On January28th, 2010 the NYSDEC issued the State Pollutant Discharge Elimination System (SPDES) General Permit for Stormwater Discharges from Construction Activity, Permit Number GP-0-10-001. This document is available on the Department's Environmental Science Bureau website at:

http://axim22.nysdot.private:7779/portal/page?_pageid=39,1893018&_dad=portal&_schema=PORTAL or:
http://www.dot.ny.gov/portal/page/portal/divisions/engineering/environmental-analysis/water-ecology/stormwater-management

Routine Maintenance Activities

Under the SPDES General Permit GP-0-10-001, the Department is required to assess the requirements for stormwater management practices for any project that exceeds 0.4045 Ha (1 acre) of soil disturbance. Soil disturbance also includes the removal of existing paved areas (such as travel lanes, shoulders, sidewalks, driveways, or parking areas) that disturbs the bottom 150 mm (6") of subbase material, unless the work in these areas is considered routine maintenance. Routine maintenance activities, such as pavement milling and filling, placing shoulder backup material, and ditch cleaning, are not included in the disturbance calculations.

In the SPDES General Permit, "Routine Maintenance Activity" is defined as an "activity that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility." This includes traditional maintenance activities, such as ditch cleaning and shoulder reshaping, but also activities that meet the definition of routine maintenance that may be part of a larger construction project. Refer to Table 1 for a list of routine maintenance activities. There is currently no limit on the amount of disturbed area for maintenance activities.

Table 1 Examples of Routine Maintenance

1	Cleaning and shaping of existing ditches that maintain the approximate original line and grade, and hydraulic capacity of the ditch.
2	Cleaning and shaping of existing ditches that does not maintain the approximate original line and grade, hydraulic capacity and purpose of the ditch if the changes to the line and grade, hydraulic capacity or purpose of the ditch are installed to improve water quality and quantity controls
3	Placing of aggregate shoulder backing that makes the transition between the shoulder and the ditch or embankment.
4	Full depth milling and filling of existing asphalt pavements, replacement of concrete pavement slabs, and similar work that does not expose soil or disturb the bottom 150 mm (6") of subbase material.
5	Long-term use of equipment storage areas at or near NYSDOT maintenance facilities.
6	Removal of sediment at the edge of the highway to restore a previously existing sheet-flow drainage connection from the highway surface to the highway ditch or embankment.
7	Existing use of Canal Corp owned upland disposal sites for the canal.
8	Replacement of curbs, gutters, sidewalks, and guide rail posts.
9	Regrading of gravel roads and parking lots.
10	Streambank restoration projects (does not include the placement of spoil material.

In addition, designers should be aware that activities done by maintenance contracts can not categorically be considered SPDES "Routine Maintenance Activities". Projects should be reviewed for SPDES permit requirements independent of NYSDOT project type classification. Those activities that are not SPDES routine maintenance activities and have soil disturbances in excess of

0.4045 Ha (1 acre) may require coverage under the SPDES General Permit.

NYSDEC SPDES General Permit for Municipal Separate Storm Sewer Systems (MS4), Permit No. GP-0-10-002

This general permit was also issued by NYSDEC on April 29, 2010 and went into effect on May 1, 2010. This document is available on the Departments Environmental Science Bureau website at:

http://axim22.nysdot.private:7779/portal/page?_pageid=39,1893018&_dad=portal&_schema=PORTAL , or:

http://www.dot.ny.gov/portal/page/portal/divisions/engineering/environmental-analysis/water-ecology/stormwater-management

Small MS4s are defined as separate storm sewers that are "owned or operated by the United States, 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…that discharges to Waters of the United States" (40 CFR 122.26(b)(16)). Accordingly, the Department has been designated an MS4 in New York State.

Illicit Discharge Detection and Elimination

An illicit discharge is generally any discharge to a stormwater system that is not entirely composed of stormwater. Illicit discharges are considered "illicit" because stormwater systems are not designed to accommodate or treat non-stormwater wastes. Examples of illicit discharges include sanitary sewage, septic system effluent, industrial process wastewater, laundry wastewater, commercial carwash wastewater, and auto and household toxics improperly dumped into storm drains.

Illicit discharges can enter a stormwater system through:

- **Direct connections**, such as wastewater pipes either mistakenly or deliberately connected to a storm drain or outletting into a ditch; or
- **Indirect connections**, such as infiltration into the stormwater system through cracks in a sanitary sewer or substances dumped directly into a storm drain.

Either connection results in untreated discharges releasing high levels of pollutants that degrade water quality and threaten aquatic, wildlife and human health.

Discharges or connections that are discovered during construction or reconstruction of a highway facility or appurtenance should be examined and allowed only upon application for, and approval of, a Highway Work Permit. Upon completion of construction or reconstruction, the Highway Work Permit may be converted into a Use and Occupancy Permit. If there is no construction or reconstruction of a highway facility or appurtenance, the discharges or connections should be examined and allowed only upon application for, and approval of, a Use and Occupancy Permit.

Overland flow or artificially collected (e.g., in a pipe) discharges that are not stormwater or groundwater which result in flow to the state highway right of way are unacceptable because an adjacent landowner's act of creating or allowing discharges of materials onto the state's land may, among other things and without limitation, constitute a nuisance and/or trespass. See *Highway Design Manual* Chapter 8, Highway Drainage, for additional information.

One of the requirements of the NYSDEC SPDES General Permit is for the Department to document its policies regarding illicit discharge detection and elimination.

As an MS4, the Department must at a minimum comply with the following:

a) Develop, implement and enforce a program to detect and eliminate illicit discharges (as defined at Section 122.26(b)(2)) into the MS4;
b) Develop and maintain a map, showing the location of all outfalls and the names and location of all waters of the United States that receive discharges from those outfalls;
c) Conduct an outfall reconnaissance inventory of every outfall once every five years;
d) Map new outfalls as they are constructed or discovered (see Engineering Instruction 07-033 *Stormwater Outfall Mapping Inventory Guidance For Regional Data Exchange*, for additional information);
e) Prohibit illicit discharges into the storm sewer system and implement appropriate enforcement procedures and actions;
f) Develop and implement a program to detect and address non-stormwater discharges, including illegal dumping, to the system;
g) Inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste;
f) Address the following categories of non-stormwater discharges or flows as necessary:
   Water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration (as defined at 40 CFR 35.2005(20), uncontaminated pumped ground water, discharges from potable water sources, foundation drains, air conditioning condensation, irrigation water, springs, water from crawl space and basement sump pumps, footing drains, lawn watering, individual residential car washing, flows from riparian habitats and wetlands, dechlorinated swimming pool discharges, street wash water, and fire fighting activities;
   As the above listed discharges have been deemed normally acceptable under the MS4 permit, the Department concurs that the discharges listed in h) above are acceptable as it relates to the MS4 permit.
g) Develop measurable goals and select appropriate management practices to ensure the reduction of all pollutants of concern from illicit discharges to the stormwater system to the maximum extent practicable.

Maintenance staff should look for evidence of private connections and illicit discharges while performing their regular maintenance activities within the right-of-way. While illicit discharges can occur at any point in the stormwater system, NYSDOT staff should be especially conscious of illicit discharges when cleaning and repairing drainage structures, cleaning ditches, performing work near drainage outlets or when exposing underground piping systems. Properties adjacent to the highway right-of-way should also be periodically examined for illicit material which could enter or flow into the right-of-way.

If an illicit discharge or connection is discovered or suspected, maintenance staff must report the finding to their Highway Maintenance Supervisor. The Highway Maintenance Supervisor will immediately report the discovery to the Resident Engineer (RE), who should document the finding and arrange for a site investigation by the appropriate agency. It is important that the location of the illicit discharge be accurately reported (use street address, station, mile marker, landmark or intersection), so the investigation team can readily locate the discharge. Maintenance personnel are not responsible for investigating or cleaning up illicit discharges, illicit connections or illegal dumping not generated by the crew.

2.10 Work Within a Designated Scenic Byway Corridor

There are currently over 2,600 miles of State and Nationally designated Scenic Byways in New York State. Scenic Byway guidelines are flexible. Local, county and state roads are eligible, and each scenic byway involves multiple communities. A scenic byway is organized around at least one theme or intrinsic quality such as scenic, natural, recreational, cultural or historical.

Prior to initiating work within a designated Scenic Byway corridor, contact the Regional Scenic Byway Coordinator to determine if the Byway Management Organization should be contacted for input. Opportunities may exist to partner with the Byway Management Organization for operational activities due to their access to a variety of funding sources.

2.10.1 Corridor Management Plan

Many of the Byways have approved Corridor Management Plans (CMP) that outline strategies to balance the interests of the byway communities and its resources with the interests of visitors and their experiences. The CMP includes discussions on byway specific visions, goals and themes; public participation; stewardship; tourism development; marketing and promotion; resource interpretation; financial resources; support and implementation; and transportation safety. The CMP is developed with input from the Regional Offices among numerous other stakeholders, including municipalities and the Public.

2.10.2 Designated State and National Scenic Byways

New York State's three nationally designated America's Byways include the Lakes to Locks Passage, All-American Road; the Great Lakes Seaway Trail National Scenic Byway; and the Mohawk Towpath National Scenic Byway. There are over 70 New York State designated byways, including various touring routes in the Adirondack North Country Region such as the Adirondack Trail and the Olympic Trail; all New York State Parkways; all Scenic Roads as designated by the former NYSDEC Scenic Roads Program, and numerous scenic byways that have gone through the formal nomination and designation process of preparing a Corridor Management Plan for approval by the Advisory Board, such as the North Fork Trail, Scenic Route 90, the Upper Delaware Scenic Byway, Cayuga Lake Scenic Byway, etc.

2.10.3 New York State Scenic Byways Program

The New York State Scenic Byways Program was created in 1992 by the State Legislature. The Program is administered by the NYS Department of Transportation and managed by staff of the Department's Environmental Analysis Bureau. Each Region has an identified Scenic Byway Coordinator. A New York State Scenic Byways Advisory Board guides the Statewide Program. Various State agencies are represented on the Board, as are private organizations with specific interests, such as tourism, the motoring public and preservation of scenic quality.

For additional information on the New York State Scenic Byways Program, please contact Mark Woods at (518) 457-6277, or ScenicByways@dot.state.ny.us. The New York State Scenic Byways Program website is: www.nybyways.com and the National Scenic Byways Program websites are: www.byways.org (for travelers) and www.bywaysonline.org (for byway organizations.)

3 HIGHWAY MAINTENANCE AND OPERATIONS

This section includes specific activities typically conducted on the ROW.

3.1 Road and Roadside Maintenance

Road and roadside maintenance activities should be planned well in advance and conducted in a way that avoids or minimizes any effects to environmental resources.

3.1.1 Pavement and concrete maintenance

Asphalt applications

Asphalt cutback and dilution - The use of cutback asphalt in paving activities is prohibited except in the following circumstances:

- When the asphalt is used in the production of long-life stockpile material for pavement patching and repair; or
- When the asphalt is used as a penetrating prime coat for the purpose of preparing a surface to receive asphalt pavement.

Asphalt cleaning - Use good practices when using petroleum products such as diesel fuel to clean asphalt tools and equipment to prevent contamination to any waters or soil. Don't clean equipment or tools near streams, ponds, or drainage structures. Solid pieces of asphalt must be removed by scraping or other mechanical means if possible before applying a cleaning agent. Asphalt removed solely by mechanical methods, using no cleaning solvents may be disposed of as C&D (See *Pavement disposal* below). If a petroleum product such as diesel fuel is used for cleaning, a minimal amount of petroleum product should be used to accomplish the cleaning because all spent cleaning product must be recovered. Use hand sprayers or other similar devices to minimize the amount of petroleum-based cleaner applied. Contain all products (including the cleaning product and the contaminated asphalt residue cleaned from the equipment) during cleaning using tarps, sand pads, pails or other collection methods to avoid spillage or accidental release of cleaning products. Contaminated sand, soil, asphalt pavement residue, and other debris containing petroleum products resulting from activities such as paver cleaning with petroleum products should be handled as petroleum contaminated soil/debris and must be disposed at an authorized disposal (i.e., a lined municipal solid waste landfill) or treatment facility. See *5.4- Waste Management - Specific Items (Petroleum Contaminated Soil)*. Report releases of petroleum products to the NYSDEC Spills Hotline (1-800-457-7362).

Pavement disposal - Recognizable uncontaminated broken concrete and asphalt from demolition activities or excess material from a project are construction and demolition (C&D) waste. Pavement containing routine intact traffic markings (i.e. paint) or which has come into contact with petroleum products such as lubricants through normal vehicle use of the roadway are considered uncontaminated and can be handled as C&D debris.

Except for in Nassau or Suffolk Counties and within the APA (a permit is required within the APA), these materials can be disposed of at suitable locations on NYSDOT property ("spoiled onsite"), or taken to an off-site disposal facility that charges no fees and operates only during daylight hours (i.e., facilities requesting fill at no charge). Do not place this material within 30 meters (100 feet) of wetlands, archeological sites, or other sensitive environmental areas. See *3.5- Waste and Spoil (Excavated Material) Disposal* and 5*.1.4- C&D Debris* for additional information. If disposed of within Nassau and Suffolk Counties, C&D debris including uncontaminated pavement debris must be disposed of at an authorized lined disposal facility or taken to an authorized C&D debris processing facility.

3.1.2 Pavement marking

Traffic marking activities use paints/coatings that may contain hazardous ingredients and must not be conducted in the rain. EPA and NYSDEC regulate coatings including traffic paint to limit the release of volatile organic compounds (VOCs) which help form the air pollutant, ozone. Current paint specifications which NYSDOT has adopted state-wide meet all the above requirements. NYSDOT has replaced solvent-based alkyd traffic paints with waterborne paints that contain 80% less organic solvents, and with epoxy paints that release no solvent vapors.

Yellow traffic marking paints in years past contained lead chromate in the pigment. NYSDOT has been phasing out the use of lead chromate in yellow pigments. Beginning with the 2004 marking season, non-lead based pigments were used in waterborne paints by NYSDOT Maintenance staff. NYSDOT Engineering Instruction 06-002 issued in January 2006 announced that all marking paints used on construction contracts must be free of lead chromate. As additional specification and procedures are developed and existing stocks of pavement marking paints are replaced, we expect that all markings in future years will be lead-free.

For older markings that contain lead, however, NYSDOT testing determined that typical dried yellow markings/chips do not "leach" lead and chromium at levels that would require paint waste to be classified as hazardous wastes. Therefore, dried paint marking chips/millings (yellow and white) are non-hazardous industrial wastes. See *5.4 - Waste Management - Specific Items (Paint and Dried Paint Chips and Flakes)* for further discussion on disposal of traffic paints or of chips/markings milled or removed from the road surface. Some of the constituents in paints have reporting requirements for spills and releases and for use above certain thresholds. See *4.4 - Spills of Fuels, Chemicals and Hazardous Products* and *4.5 - Emergency Planning and Community Right-to-Know*.

3.1.3 Shoulder maintenance

Cleaning/sweeping: Cleaning/sweeping of shoulders can generate large amounts of dust. Care should be taken to minimize dust as much as possible. Equipment should be in good working order and contain filters and/or other controls as feasible. See *5.4 - Waste Management - Specific Items (Street Sweepings)* for disposal information.

Widening/filling: In certain instances, NYSDOT designs and builds roads with narrow shoulders or steep slopes to avoid or minimize impacts to wetlands, waterbodies, floodplains, or sensitive cultural resources. When conducting shoulder maintenance activities in areas with narrow shoulders or steep slopes, inspect the area and/or consult with the MEC to determine if there are wetlands, waterbodies, or sensitive cultural resources (such as historic buildings or parkways) in the area. If there are such resources, contact the MEC before placing excess material to widen the shoulders or smooth out the slopes, as this activity may require a permit or consultation with NYSDEC, USACE, APA, and/or OPRHP.

3.1.4 Vegetation management

NYSDOT manages vegetation on State highway rights-of-way (ROW) for the following safety, environmental, and infrastructure management objectives:

1. Provide motorists with adequate site distances;
2. Control visibility of signs and guiderails;
3. Prevent the presence of deadly fixed objects (usually trees that may impact cars that leave the roadway);
4. Control the introduction and spread of invasive plant species and noxious plants;
5. Maintain pavement by controlling drainage problems; and
6. Prevent pavement breakage by plants.

To meet this goal, NYSDOT and its contractors use an Integrated Vegetation Management (IVM) Program. IVM is a process that staff uses to strengthen vegetation management work by adding results-oriented planning before the work is started and evaluating the results afterwards. The process components include: prevention; monitoring; establishing action thresholds for when control is needed; selecting and undertaking control methods; and evaluation. Depending on which vegetation management tasks a NYSDOT employee performs, he or she uses some or all IVM components.

IVM helps NYSDOT select the best vegetation management and control methods, given safety, operational, environmental and community concerns. Sometimes, the best method is to leave a natural setting undisturbed, or to combine several control methods. NYSDOT's IVM program uses the following control methods, and each has particular environmental challenges and opportunities:

- Mechanical:
  - Mowing;
  - Weeding/string trimming; and
  - Tree and brush cutting;
- Selective use of herbicides and growth regulators;
- Cultural and biological controls;
- Alternatives to herbicides; and
- Close coordination of maintenance, design and construction on capital projects.

IVM includes the division of the roadside into management zones. The character of these zones dictates the level of management needed and control techniques.

- **Zone 1: High Management Zone**- an intensely managed area immediately adjacent to shoulder, curb, or guiderail where no or minimal vegetation is desired
- **Zone 2: Moderate Management Zone**- includes the clear zone (which can be as wide as 30 feet), drainage ditches, and other operational features where mowing is primary control method.
- **Zone 3: Natural Zone**- the area from the edge of Zone 2 to the right-of-way line that receives minimal management, if any; for example, removal of hazardous trees.

Vegetation management is a balancing act for all involved. Vegetation control must protect highway user safety and the operability of the transportation system. At the same time, it must minimize, or avoid, impacts to water quality, soil stability, habitat for ground-nesting migratory birds and other wildlife, farms next to the roadside, private property and settings of historic buildings or parkways (See *2.3 - Operations That Could Impact Archeological or Historic Sites*).

NYSDOT offers its staff tools and resources to strengthen vegetation management and environmental stewardship:

- The budget process includes a vegetation and environmental variable to help Regions fund the tasks in this section of the *Handbook;*
- Each Region is encouraged to participate in the Green and Blue Highways initiative, which allows orderly planning and delivery of stewardship activities; and
- All Regions have at least one GPS unit, to ease collection of field conditions and information.

Mowing:

(For more information on any of the topics in this section, see the *Mowing Limits Manual* and related mowing guidance at: http://axim22.nysdot.private:7779/pls/portal/docs/PAGE/WCC_PG/OFFICE_OF_OPERATIONS/TRANSPORTATION_MAINTENANCE_INSTRUCTIONS/TMI-10-03.PDF)

Management of undesirable species in roadside turf is primarily accomplished by a regular mowing program. Healthy roadside turf is an asset as it is resistant to weeds, woody vegetation, and invasive and noxious species. A well-planned mowing program helps curtail the growth of undesirable species and protect grass cover. Further, mowing helps suppress most woody species which need large leaf systems to support their roots.

By helping maintain good quality turf, mowing can reduce erosion and protect water quality. However, in developing a mowing plan, a Residency can also help protect wildlife habitat by designating areas for less frequent or no mowing.

Following are some specific environmental considerations related to mowing:

- Do not mow wetland mitigation areas; the MEC can help identify these areas before mowing season. If mowing markers were not installed during construction, consider installing permanent markers;
- Try to avoid mowing when turf is saturated or significantly wet. When soil is rutted, weeds and invasive species are more likely overtake preferred grasses and native species;
- Environmental agencies prefer that the NYSDOT control ditch vegetation with mowing, rather than cleaning ditches with heavy equipment. Mowing causes less erosion of exposed soil and can result in improved water quality;
- Whenever possible, vary the mowing limit lines for a more natural appearance;
- Do not mow areas managed for wildflowers more than once a year, after the first hard frost or in the late fall;
- A suggested BMP is to leave an unmowed buffer strip at least 10 feet (3 meters) at the edge of all streams and wetlands. Such strips should be monitored to ensure brush does not become a fixed object or limit sight distances;
- On Air Quality Action Days, NYSDOT's has a policy to curtail roadside mowing and similar activities by NYSDOT employees or contractors, consistent with safety, operational needs or contractual requirements;
- Special mowing restrictions apply in the Capital District: In portions of Albany, Saratoga, and Warren Counties, some areas of the ROW provide habitat for Karner blue butterflies, a federally and state protected Endangered Species. Karner blue butterflies lay their eggs on, and their caterpillars feed exclusively on, the blue lupine plant. Mowing blue lupine plants before September 1st violates state and federal law. Consult the MEC to identify areas with blue lupine to properly schedule mowing activities; and
- NYSDOT is gaining experience with grasses that require little or no mowing. For example, Little Bluestem grass is a native species that grows 20-40 inches high. It is suitable for planting in Roadside Zones 2 and 3. See the Alternatives to Herbicides section for more information.

Conservation Alternative Mowing Plans (CAMPs)

CAMPs is NYSDOT's statewide program of mowing its 1 million roadside acres in an environmentally sensitive manner. It is directed towards Interstate, Expressway, and Parkway systems outside urbanized or gateway areas. CAMPs includes recommendations for mowing frequencies in Roadside Management Zone 2, where the majority of mowing work is required. Mowing in Zone 2 should be managed by section, as follows:

a) Frequently Mowed Section- includes an area adjacent to the road (typically 8-10 feet wide) and drainage ditches-- mowed several times a year; and
b) Annually Mowed Section- a transition between areas of frequent mowing and natural regeneration-- mowed once a year or less. Such a reduction in mowing frequency may result in denser grasses, perennials and brush. This vegetation may require acquisition or rental of heavier or special mowing equipment.

CAMPs protects grassland habitat for ground nesting migratory songbirds, such as the Eastern Meadowlark and the Bobolink, by delaying mowing in Roadside Zone 2 until after August 1st to avoid disturbance during nesting season. This is in compliance with the Migratory Bird Treaty Act, by which it is unlawful to intentionally or unintentionally take, capture or kill any migratory bird or disturb their nests or eggs without a permit.

CAMPs encourages changes in mowing practices that may conserve funds for staff hours and fuel usage, improve air quality through reduced fuel emissions, reduce required equipment maintenance, and reduce habitat fragmentation without impacting the safety or functionality of the roadsides.

Herbicides:

Herbicides are a significant component of NYSDOT's IVM program. Their use is generally restricted to the following circumstances:

- Controlling vegetation in places that cannot be mowed, such as around guiderail and sign posts;
- Controlling vegetation that can cause physical harm to workers and travelers, such as poison ivy, poison oak, Giant Hogweed or Wild Parsnip;
- Targeted applications to remove invasive or noxious species that are causing safety, operational or environmental problems; or
- Treating remaining stumps after hazardous tree or brush removal to prevent resprouting.

Herbicide application by NYSDOT employees is considered a "commercial pesticide business" activity. Staff applying herbicides must keep daily records for all herbicide applications. In addition to complying with regulations, accurate and timely record-keeping is key to protecting the environment, addressing public inquiries and helping NYSDOT plan the most effective vegetation management program for succeeding years. Certified Commercial Pesticide Applicators and Technicians must submit annual reports (even if they had no applications).

Application requirements and restrictions apply regardless of whether herbicides are applied by NYSDOT staff or contractors. Some key guidance is as follows:

a) The following levels of training are required for the following applications:

Level of training	**Application**
Certified Commercial Pesticide Applicator	Any herbicide, including restricted use
Certified Commercial Pesticide Technician	Any general use herbicide typically used by NYSDOT or any application while under the direction of a Certified Applicator
Certified apprentice	Any application under the direct supervision of a Certified Applicator

b) Apprentices must receive 40 hours of on-the-job herbicide training and 8 hours of core training before they may apply general use herbicide with off-site supervision;

c) Herbicide labels:

i. All herbicides must be applied according to the manufacturer's label instructions. Staff applying herbicides is responsible for reading and knowing the entire label.

ii. A label may also include 2ee "unlabeled pest" designations issued by the New York State Department of Environmental Conservation. These 2ee designations are useful to NYSDOT and its contractors as they provide more herbicide options for controlling invasive and noxious species. Information on 2ee designations may be found at: http://pmep.cce.cornell.edu/regulation/2ee/index.html

iii. The applicator must have a copy of the label in their possession during applications.

d) Herbicides may not be applied into or over water unless the label instructions specifically state they may be applied in water and NYSDEC has approved the application. To avoid accidental water applications, inspect the route ahead of time and "flag" all cross culverts, streams and wetlands so that the sprayer can be shut off 20 feet (6 meters) before entering the sensitive area and its required buffer area. Some regions have identified these locations with permanent identification markers;
e) Applying herbicides within 100 feet (30 meters) of a state-regulated wetland requires an Article 24 wetland permit from the NYSDEC or, in the Adirondack Park, from the APA (6 NYCRR Part 663.4.d.40). Some NYSDEC Regional Offices have issued General Permits to NYSDOT for herbicide applications in regulated wetland-adjacent areas (within 100 feet) where NYSDOT had submitted a permit application that included an approved Integrated Vegetation Management Plan. Residencies can obtain maps, paper or GIS (Geographic Information System) documents that show the approximate locations of state-regulated wetlands from the MEC;
f) NYSDEC regulations require placing visual notification signs during and for at least 24 hours subsequent to show that herbicides have been applied within 100 feet (30 meters) of a dwelling, public building, or public park;
g) When herbicides are applied to right-of-way not owned in fee by NYSDOT and a dwelling is anywhere on the property, advance notification - - in writing - - is required to the dwelling's occupants. NYSDOT regions and residencies may not apply to right of way not owned in fee, unless they receive prior approval from the Office of Transportation Maintenance in the Main Office;
h) Herbicides should only be applied when the wind is calm, generally during early morning, late afternoon or evening. This reduces herbicide "drift" onto sensitive non-target surfaces, such as adjacent streams, wetlands or desirable vegetation;
i) Typically, rain diminishes the effectiveness of herbicides or causes them to run off the target. Unless the label allows, do not apply herbicides when rain is imminent, during rain or when the ground is saturated;
j) Many herbicides are available in returnable containers. Regions and Residencies are encouraged to investigate if such containers are appropriate for use, given the price, expected amount of herbicides used at a location and the minimum size and number of containers that must be purchased;
k) Do not wash herbicide application equipment or empty containers in ditches, streams, ponds or wetlands, or allow the wash water to flow into any surface waters, including wetlands; and
l) Most herbicide spills are not generally reportable to NYSDEC (i.e. Krenite, Escort, Roundup, Rodeo and Oust do not need to be reported). Clean up any spills as quickly as possible; if herbicides spill into a water body, notify the MEC and the local NYSDEC regional water program engineer (See *4.4.20.8.10 - Spills of Fuels, Chemicals, and Hazardous Products*).

Pesticide applicator regulations are in 6NYCRR Parts 325-327. Other regulations for specific natural resources may also apply.

Alternatives to Herbicides:
NYSDOT continues to investigate methods and practices to control vegetation around guiderail and signposts without using synthetic herbicides. A few methods with particular promise are:

- Non-woven, porous matting, such as *U-Teck Weed Ender*, which is installed around guiderail posts and covers vegetation growth on each side of guiderail;
- Traffic tape, which can seal cracks in shoulders and curves, reducing the likelihood of "Mohawks," tufts of grass growing in joints between pavement sections;
- Various hard materials, including asphalt, concrete, *PolyPavement*, concrete pavers, crushed stone,

and mulch; and
- Low/no-mow vegetation, such as Little Bluestem grass, Lady's Mantle, Creeping Phlox, Ornamental Goldenrod, and Wild Thyme. For more information, consult your MEC.

When considering options for roadside vegetation management, balance the environmental benefit, reliability, effectiveness, and unit cost of each product or process, as well as the staff time required to install/implement. With vegetation barriers, for example, the benefit of reduced herbicide use might be offset by increased stormwater runoff. In certain locations (e.g. in significant coastal fish and wildlife habitats, wetlands, etc.), an increased environmental benefit may be more worth an extra cost than in others.

Cultural/ Biological:
NYSDOT implements cultural and biological methods to help control and enhance roadside vegetation. These practices include:
- Planting desirable species, such as native vegetation or dense ground cover, which in turn reduce the opportunities for unwanted vegetation to grow;
- Using living organisms to control pests or weeds, such as the use of two species of beetles to control purple loosestrife, an invasive species; and
- Planting trees and bushes for enhancing aesthetics and screening buildings from the roadside.

Close Coordination of Maintenance, Design and Construction on Capital Projects:
A key vegetation management policy is the proactive/preventive establishment of grass on all new projects within a few days of completion. This practice prevents erosion and sediment accumulation, as well as establishing a desired species (e.g. a species of grass) before unwanted vegetation takes over.

Another example of a design/construction control method is the placement of a hard surface underneath guiderail along new highway shoulders. Paving prevents the need for herbicides in the future to control vegetation under and behind the guiderail. However, it is much more difficult to install on older roads where guiderail is already in place.

Hazardous Trees:
The NYSDOT cuts and prunes trees along State highways with its staff and with contractors, to address the following concerns:
- Remove dead or dying trees that could fall on the highway or private property;
- Maintain sight distance at intersections or along the road;
- Maintain clear zones by removing trees/brush that could become deadly fixed objects;
- Prevent growth from shading road in winter and requiring higher levels of chemical deicers and sand, or remove growth resulting in snow drifts on the right-of-way;
- Improve the roadside appearance, or open vistas, to the surrounding landscape; and
- Remove trees/brush that are invasive species.

There are several aspects to hazardous tree management:

a) <u>Tree Definition</u>
For regulatory, operational and safety concerns, it is important to define when vegetation is a tree and when it is brush. For the purpose of protecting the Indiana Bat, the United States Fish and Wildlife Service defines a tree as having a diameter of five inches or greater. For the purpose of granting Forest Preserve permits, the Adirondack Park Agency defines a tree as having a diameter of three inches or more.

For safety and operational purposes, NYSDOT considers any woody vegetation less than six inches in diameter as "brush" and any vegetation greater than six inches in diameter as a "tree." Residency Personnel with basic chainsaw safety awareness should normally be capable of brush removal operations, and possibly smaller trees that fall outside the limits of overriding hazards, such as energized wires and targets within the felling zone (such as buildings, vehicles etc). If the crew supervisor has any doubt regarding the appropriateness of felling such smaller trees, he or she should consult their supervisor to determine if the operation should be handled by a NYSDOT tree crew, or outside contractor.

b) Prevention

NYSDOT should work to reduce the chance that projects or activities create future hazardous trees. NYSDOT employees and contractors should take care to minimize:

- Soil compaction over tree roots;
- Cutting tree roots for highways, sidewalks, drainage, traffic control or ITS devices;
- Damage to lower trunks with mowers or string trimmers; and
- If a tree is significantly damaged from any of these activities, NYSDOT employees or contractors should consult with the MEC to determine if removal is appropriate at the time of work rather than letting the tree decline and pose a future hazard.

c) Removal

NYSDOT employees and contractors should choose equipment, removal methods, and work zone traffic control patterns that provide the highest level of safety.

Trees and brush should be cut flush to the ground so stumps do not remain. Stumps can cause safety problems and obstacles, and can be unsightly. In addition, some tree and brush species will resprout after they are cut, creating new and often more hazardous woody growth. Methods to control the likelihood that cut trees or brush will grow new stems/offshoots include immediate treatment of cut stumps with herbicides, seasonal timing of cutting, and stump grinding.

If removal will disturb soil, erosion control should be provided. Ruts, or stump holes, should be filled and seeded. Tree trunks and branches should be removed or disposed of as soon as possible to avoid an unsightly appearance and to reduce fire hazard.

d) Pruning of Trees and Shrubs

The most common reasons for pruning are safety, plant health, appearance, structural integrity, storm or physical damage, and maintenance of views or vistas. In some cases, pruning can remove hazards to transportation users - - and safely allow a tree to remain.

Do not prune unless there is a good reason to do so. Random pruning cuts can lead to the injury or death, rather than encouraging the intended growth or healing, and create future hazardous trees.

The best time to prune is usually early spring, just before bud break. However, tree species that "bleed", such as maple, ash, and birch, are best pruned after June 1st. Time bush/shrub pruning before the flower blooms or after the plant goes dormant in the fall, so that new growth will not develop that could be susceptible to winter injury.
Because of safety concerns, NYSDOT's policy is that its tree staff is not certified for cutting or pruning trees or brush near any lines carrying electricity.

e) Coordination and Outreach

NYSDOT's first concern with hazardous trees is the safety of travelers, workers and landowners. A hazardous tree can be on a State right-of-way or on adjoining property. NYSDOT policy is to contact landowners and other agencies before tree removal whenever possible without compromising safety.

If you see a hazardous tree in any of the following situations, you or someone in your chain of command should contact a landowner or agency if the removal will occur:

- In or near the yard of a landowner;
- On or near a historic property or cultural resource;
- On an Indian reservation;
- On Forest Preserve land in the Adirondacks or Catskills;
- On local, State or National Park land; or
- In an area identified as habitat of the endangered Indiana bat (*Myotis sodalis*).

If you are uncertain about whether a tree falls into one of these categories, consult your supervisor. MECs or Regional Crew Coordinators are also available to help.

f) Invasive insects

The appearance of invasive insects, such as the Asian Longhorn Beetle (ALB) and Emerald Ash Borer (EAB) is becoming an increasing concern in planning and undertaking tree work on the right of way. See Appendix C of the *Handbook* for more information on guidance and best practices for addressing invasive insect infestation.

Responding to the Public when Vegetation Management Work is Underway:

Vegetation management work can become controversial. Members of the public can become concerned about tree removals, use of herbicides, frequency of mowing or litter pick-up. There are situations where vegetation management workers will need to provide information to members of the general public. These situations include:

- **General request for herbicide information from the public or adjoining landowner:** If a person asks about the application, please explain, in as simple language as possible, the type of application you are making and the reason for the application;
- **Herbicide applications made on right of way not owned in fee:** State regulations require that when NYSDOT applies on rights of way not owned in fee that we must provide, in advance of the application, a copy of the label or labels for materials to be used to each occupant in each dwelling on the property not owned in fee. If a dwelling has three or more families, staff should provide the information to the owner or owner's representative - instead of the occupant;
- **Herbicide applications made within 100 feet of a dwelling, multiple dwelling, public building or public park:** When applications are made in these situations, you must post signs notifying landowners and users. The format and spacing of signs is described in Part 325 of the NYSDEC regulations of herbicides; and
- **Removal of hazardous trees on or near private property:** NYSDOT has a right and duty to remove trees on the right of way or on private property that can threaten transportation users. However, it is strongly advised to contact the landowner before making such removals. If trees on NYSDOT right of way are being removed that are near houses, it is also strongly advised to contact nearby landowners before making a removal. However, if there is an emergency or a tree has become an immediate hazard, you must proceed with a removal - regardless of whether neighbors are nearby.

If the person is not satisfied with your explanation in any of these situations, please provide them with your supervisor's name and number, let your supervisor know to expect a call and please provide as much information about the concern as you can. If a concern is passed up the chain of command, it is good for the vegetation worker to document any information about the conversation while the experience is fresh in the mind.

Care of Vegetation:

The maintenance program does not typically undertake extensive landscape maintenance. However, in some cases, maintenance forces must care for vegetation. In these circumstances, use the following practices to promote the establishment of newly planted vegetation and to maintain its health and vigor:

a) Watering- This is crucial for newly planted vegetation, particularly in June, July, and August, so the root system gets moisture to sustain healthy plant growth. However, excessive soil moisture can also be harmful to plants; therefore, proper drainage is essential.
   The most common watering method is use of a watering truck. For certain highway plantings, however, a drip irrigation system may be preferable. Water newly planted trees at 5 to 20 gallons per tree and shrubs at 5 to 10 gallons each, ideally every other week. Frequent light waterings are often more effective than several heavy watering;

b) Weeding- Existing tree pits and plant beds often require periodic removal of weeds, which rob nutrients and moisture that would otherwise be absorbed by the plant. Weeds can be controlled through selective herbicides or by physically removing them by the root, which is labor intensive. Merely trimming weeds will not eradicate them. Following removal, weed regrowth can be controlled by synthetic weed-barrier matting material in combination with mulch;

c) Mulching- Mulch is good for weed control and plant health. It conserves soil moisture, allows the penetration of water, aids in the proper exchange of oxygen in the soil, reduces or controls weed growth, and is aesthetically pleasing. Mulch can be a natural product, such as wood chips, shredded bark, coco chips, or pea gravel, or it can be a manufactured product such as shredded tires;

d) Cultivating- Cultivating soil around a plant or in a plant bed breaks up soil, promoting the penetration of oxygen and water to the plant's roots. Cultivating is only needed when soil around plants is particularly dry, hardened, crusty or cracked. Care should always be taken to avoid harming the desired plant's roots during cultivation;

e) Remedial Measures- Damage resulting from insects or diseases can often be remedied by the application of insecticides, fungicides, or soil fumigants. However, accurate identification of the problem, knowledge about the needs of the plant of concern, and life cycles of the insect or disease are required before treatment.

   When trees are planted with support stakes, remove the stakes as soon as the tree is stable. This prevents the tree from being killed by the wires attached to the stakes;

f) Fertilizers- Use fertilizer to help establish new vegetation or to correct a nutritional deficiency in existing vegetation that is evident from observation, testing or analysis. Before making a decision to apply fertilizer, consider whether other organic alternatives are available.

   Consider vegetation type, the condition to be addressed and environmental considerations in determining a fertilizer application rate. Over-application of fertilizer can burn or damage existing

vegetation. In many parts of the State, rights of way are near sensitive watersheds. Staff should make sure application rates do not result in run-off from the fertilized area causing increased algae or aquatic plant growth in the adjoining waterway. Fertilizer run-off can clog waterways with increased aquatic vegetation and such vegetation can rob waters of dissolved oxygen needed for fish survival.

Apply fertilizer evenly over an area. Spreading fertilizer by hand is typically practical for areas less than a half acre in size. For larger areas, consider using equipment appropriate to the location and the area to be covered.

The best times to apply fertilizer are in the spring, between April 1st and June 1st and in fall from August 15th to October 1st.

Invasive Species Policy:
See also *The Environmental Manual* (TEM), Chapter 4.4.9.4, available at:
http://www.dot.ny.gov/divisions/engineering/environmental-analysis/manuals-and-guidance/epm

Federal and State mandates require NYSDOT to consider impacts of invasive species in all maintenance and construction activities. As part of this process, NYSDOT is developing a roadside inventory of priority invasive species and taking measures to control invasive species and prevent their introduction and spread.

Recent amendments to the Environmental Conservation Law have created Partnerships in Regional Invasive Species Management, or PRISMs, to develop partnerships and Regional approaches to controlling invasives. Regional Maintenance Groups are encouraged to support PRISMs in their Regions when resources permit.

In general, the NYSDOT's approach to managing invasive species statewide is to focus on four priority species:

- Japanese knotweed (*Polygonum cuspidatum*);
- Common reed or phragmites (*Phragmites australis*);
- Purple loosestrife (*Lythrum salicaria*); and
- Giant hogweed (*Heracleum mantegazzianum*).

Using its employees, volunteers and cooperating with PRISMs, the NYSDOT is inventorying these species along all major highway corridors such as interstates, expressways, parkways. Once an infestation is identified, appropriate action is taken based on available resources and local management priorities. See *The Environmental Manual*, referenced above, for details on sample inventory methods and BMPs regarding mowing, soil disposal, hand controls, biological controls, herbicide application, and site restoration to prevent the spread of invasive species.

Other locally significant invasive species, such as Oriental bittersweet in the Hudson Valley, may be inventoried and managed consistent with existing watershed plans, Area Management Plans, etc.

Invasive insects, such as the Asian long-horn beetle and Emerald ash borer, can kill trees in large quantities. NYSDOT forces are assisting in monitoring rights-of-ways and rest areas for signs of insect infestation. If infestations are found and trees must be removed, NYSDOT will coordinate its efforts with regulatory agencies and other forest land owners.

Noxious Species:
See Dangerous Roadside Plants at: http://www.dot.ny.gov/dangerous-plants

In recent years, there has been a noticeable increase in the variety and quantity of noxious species in New York State. NYSDOT strives to protect the public and Highway Maintenance Workers from noxious roadside vegetation. Educational initiatives are underway to increase recognition and avoidance of the most common noxious plants:

- Stinging nettle;
- Poison ivy and Poison oak;
- Giant hogweed;
- Wild parsnip and Cow parsnip; and
- Poison sumac.

When growth is identified where roadwork is to take place, treat the area with herbicide to eradicate the noxious vegetation before work commences. Samples of barrier salves and information on treatment have also been distributed by NYSDOT.

3.1.5 Roadside Environmental Issues

Wildlife:
Activities to enhance wildlife protection and traffic safety have included installation of:

- Cameras that monitor wildlife activity to supplement research on methods to reduce animal-vehicle accidents; and
- Fencing to keep small animals, such as turtles and salamanders, off the road.

Other recent wildlife management activities have included:

- Adding birdhouses to fences and walls within the right-of-way;
- Providing material to educate citizens about local wildlife; and
- Installing signing and parking areas to help citizens safely view wildlife near the roadside.

If a deer is hit and killed on a State right-of-way, NYSDOT must remove it in a timely manner for health and safety reasons. A Residency may remove a deer with its own forces or by retaining a contractor on the Deer Removal Work Order Contract.

When removing deer, State or contractor forces must do so in a manner that protects them and the traveling public from deer-borne ticks or diseases. Deer must be disposed of in a manner that does not affect health, safety or environmental quality.

Deer composting is a method of disposing of deer in a safe, sanitary manner. Several residencies are already using this method, and further research/experimentation is being conducted in conjunction with Cornell Cooperative Extension. For more information, see the Composting Road Kill fact sheet at: http://cwmi.css.cornell.edu/roadkillfs.pdf and NYSDOT Road Kill Composting Operation & Maintenance Manual at:
http://www.dot.ny.gov/portal/page/portal/divisions/engineering/environmental-analysis/repository/deer_c_manual.pdf.
See also *5.4- Waste Management- Specific Items and Topics- ANIMAL CARCASSES*

Litter Control:
Litter can be harmful to the environment and wildlife, pollute streams and wetlands, break mowing equipment, and depreciate aesthetics. NYSDOT uses various techniques to minimize litter along the

roadside, including:

- Removal of significant objects before mowing, such as tires;
- Installation of signs stating that littering is illegal, and the associated penalty;
- Placement of large rocks on the borders of rest areas to discourage littering; and
- Coordination of litter control work with local government agencies and the public.

To mobilize citizens concerned about litter, NYSDOT has an Adopt-a-Highway (AAH) and a Sponsor-a-Highway (SAH) program.

- In AAH, a person, business or group may choose a highway segment and remove litter at designated intervals each year. The person or group is recognized with a sign and may also undertake beautification or stewardship as part of their efforts.
- In SAH, litter control companies enter into a contract with NYSDOT to remove litter on a segment of one or more highways. The companies contact local businesses, individuals or organizations and ask them to sponsor a highway segment. For a fee, the company removes litter and the sponsor receives a sign recognizing the sponsor. SAH presently exists only in Regions 8, 10 and 11.

3.1.6 Environmental Stewardship

NYSDOT employees have unique opportunities to improve the NYSDOT's environmental stewardship of the transportation system. Many employees take personal interests in recreation, fish, wildlife, or nature study. Employees are also on the ROW regularly and are able to readily identify difficulties and opportunities.

The NYSDOT's Environmental Ethic encourages employees to suggest environmental projects and activities. To help deliver such projects and activities, the Office of Transportation Maintenance has developed the Green and Blue Highways Initiative.

Under this initiative, regional employees identify environmentally significant highway or transportation corridors. They survey the corridors to identify stewardship opportunities. Regional and residency staff develops a work plan to advance opportunities. On a follow up basis, Main Office, regional residency employees monitor work plans to determine progress.

This process offers the opportunity to plan, finance and measure environmental effort. It allows employees and managers to better identify and match environmental resources and needs.

3.2 Drainage and Stream Channel Maintenance

Discuss all planned culvert cleaning, scour protection, bank stabilization and clearing/snagging of stream channel maintenance projects with the MEC. Depending on the scope, discuss the projects with the MEC up to 6 months in advance so that permitting and/or other environmental issues can be addressed.

For emergency situations, contact MEC immediately. If the MEC is not available, contact the Regional Environmental Unit for assistance. Appropriate agency coordination will be conducted as the emergency response is in progress. There is no situation where agency coordination is not required.

In addition to this guidance, Chapter 6 of the *Highway Maintenance Guidelines* has been updated and will provide more details on some of the items which follow. The update is available at: http://www.dot.ny.gov/divisions/operating/oom/transportation-maintenance/repository/HMG%20Section6.pdf

To avoid or minimize environmental impacts, particularly to water quality and fisheries habitat, incorporate appropriate BMPs, including seeding/mulching, soil bioengineering and minimizing tree removal.

3.2.1 Erosion and sediment control BMPs

Effective erosion and sediment control measures must be used for all areas where maintenance activities involve clearing, grubbing, grading or excavating. These measures may include vegetative controls, such as seeding and mulching, and/or structural controls such as check dams, silt fence and sediment basins:

- Re-seed and mulch any disturbed areas at the end of the day. To reduce erosion, re-seed all exposed soil using a hand-held or shoulder-mounted cyclone spreader, or hydroseeder. Apply straw mulch (50-pound bale will cover approximately 45 square meters (500 square feet)) over the seeded areas to help the grass seed germinate and grow, and reduce erosion until the new vegetation is established. All other "positive" sediment control measures (such as silt fence, check dam, etc.) should be installed prior to commencing work and left in place and maintained until the site is stabilized. All areas vary in micro climate, soils condition and available water. A seed mix must be varied to take into account changing environments. Timely application is the single biggest factor in success. Same day seeding and mulching is the recommended approach. The following mixture will reduce erosion, establish quickly and not require care after application:

Recommended Grass Seed Mix			
% Seed	Common Name	Scientific Name	Per Manufacturer's Recommendation
35	Creeping Red Fescue	*Festuca rubra*	65 lbs. / acre 1 lb. / 650 sq. ft. Based on: 8'for slope 4' bottom; 8'back slope Apply 3 lbs. / 100 lf.
25	Tall Fescue	*Festuca arundinacea*	
15	Annual Ryegrass	*Lolium multiflorum*	
12	Perennial Ryegrass	*Lolium perenne*	
10	Kentucky Bluegrass	*Poa pratensis*	
3	White Clover	*Trifolium repens*	

- To reduce sedimentation in receiving waters, install temporary structural sediment control measures when cleaning culverts or cleaning ditches that discharge into streams, wetlands, lakes or ponds. See Section 209 of the NYSDOT Standard Specifications and the *New York Standards and Specifications for Erosion and Sediment Control* (the "Blue Book") for additional guidance regarding proper erosion and sediment control;
- When cleaning ditches, temporary check dams consisting of stone or pre-manufactured synthetics should be used wherever they are necessary and placed so that the crest of the downhill dam is at the same elevation of the toe of the uphill dam. In vegetated ditches, a simplified check dam can be created by leaving a 1 meter (3 foot) section of the ditch "uncleaned". All check dams should be left in place until the ditch is re-vegetated;
- Temporary sediment traps should be placed at the inlet of a culvert that drains into a stream, wetland or other water body. The sediment trap should be constructed by excavating an additional 0.3 meters (1 foot) below the ditch invert for a distance of 6 meters (20 feet);
- Turbidity curtains should be installed parallel to the shoreline where appropriate and should not be placed across streams. For additional protection at, or close to, very sensitive sites (eg: drinking water supplies, angler parking areas, swimming facilities, etc.), turbidity curtains can be temporarily placed at culvert outlets if water velocity is very low. Turbidity curtains are more effective with lower flow and deeper water applications;
- After the project site is stabilized, any accumulated sediment should be removed before

removing check dams or turbidity curtains; and

- To improve habitat and reduce erosion, consult with the MEC regarding incorporation of appropriate soil bioengineering practices, such as live willow cuttings/ stakes/posts and live willow wattles to stabilize disturbed and/or eroding stream banks.

3.2.2 Restrictive dates for drainage/stream work

In general, culverts and ditches should be cleaned, repaired or replaced only during periods of low water flow. Coordinate appropriate projects with the MEC:

- Work associated with Protected Streams is to be coordinated with the NYSDEC Bureau of Fisheries: www.dec.ny.gov/about/32834.html
- General period allowed for working in Protected Streams: May 15 – Sept. 30.
- General period the NYSDEC stocks Protected Streams: March 15 – May 15.
  NYSDEC Stocking Information by County:
  www.dec.ny.gov/outdoor/7739.html

General Work Restriction Dates Due to Fish Spawning Periods

Coldwater Species	Spawning Dates	Warmwater Species	Spawning Dates
		.	
Rainbow/Steelhead Trout	Jan. 1 – May 30	Smallmouth Bass	May 15 – June 30
Brown Trout	Oct. 1 – Dec. 15	Largemouth Bass	May 15– June 30
Atlantic Salmon	Oct. 1 – Nov. 30	Walleye	March 15 – April 30
Brook & Lake Trout	Oct. 1 – Dec. 15	Northern Pike	March 15 – April 30
Coho Salmon	Sept. 1 – Oct. 30	Muskellunge	April 15 – June 30
Chinook Salmon	Aug. 1 – Sept. 30	Yellow Perch	April 15 – June 30
Kokanee (Sockeye) Salmon	Aug 1 – Feb. 30		
Pink Salmon	Sept. 1 – Oct. 30		

3.2.3 Drainage structures maintenance (Also refer to Appendix A for further guidance *Ditch Cleaning*)

Vegetated ditches help improve the quality of stormwater that runs off a highway by slowing water velocities and trapping sediment, metals, nutrients, petroleum products, pesticides, bacteria and other contaminants:

- Maintenance ditch cleaning should be scheduled and conducted between June and October and should only be done in areas where the ditch's function is impaired. Avoid needless and repeated "overscraping" beyond the required capacity of the ditch. Ditch cleaning should be done to maintain original lines and grades as much as possible. Avoid making the ditch deeper than necessary;
- Avoid cleaning ditches during or immediately before rainfall events;
- When cleaning ditches, begin cleaning the ditch at the lowest elevation point and work "up hill" to the point of highest elevation, to reduce erosion and flooding;
- Limit disturbances to the bottom of the ditch, where the sediment has accumulated, with minor sideslope regrading as necessary;
- Clean, seed and mulch the ditch in one continuous operation to simplify maintenance and protection of traffic (M&PT);
- Dispose of removed sediment in an appropriate upland site. Do not sidecast the sediment beside the work area;
- For ditches on steep slopes, install check dams, as necessary, to slow water velocity and reduce erosion and sedimentation;
- All ditches cleaned should be seeded and mulched at the end of each work day;
- Laser levels should be used to minimize the quantity of soil disturbed and therefore reduce

erosion; and
- A Residency may use EN or DR moneys to acquire or rent hydroseeding equipment or supplies, so seeding and mulching occurs in a timely manner.

Culvert cleaning
- Remove sediment, stones, trees and other material from culverts and near culverts in a manner to ensure that the water does not become excessively turbid (cloudy with silt), harm fish, or interfere with recreation. The cleaned area should be no more than 15 meters (50 feet) from either side of the structure, though this may vary in extreme situations. In addition, the removal of accumulated sediment from streams may be regulated by the USACE and/or NYSDEC.
- In streams where fisheries habitat is a concern, leave some accumulated natural stream bed material inside culverts to allow fish to swim through the culvert during high and low water flow periods. Some culvert inverts are designed to be recessed in order to provide natural stream bottom habitat. Before cleaning, maintenance staff should be aware of those culverts which were embedded by design. You should check with your MEC before cleaning culverts in fish streams.
- Any removal of sediment from a stream in excess of 15 meters (50 feet) from a structure requires a pre-construction notification (PCN) sent to the USACE (for more information, see ***Machinery in streams*** section below). Coordinate all planned culvert cleaning projects with the MEC up to 6 months in advance.

3.2.4 Stream channel maintenance (Also refer to Appendix A for further guidance)
Scour protection
- All work in streams should be coordinated with the NYSDEC in accordance with the Memorandum of Understanding between NYSDOT and NYSDEC;
- Replacement of stone scour protection and bank stabilization is covered under USACE Nationwide Permit #3. Placement of new or additional stone requires a PCN sent to the USACE and must be coordinated through the MEC;
- At culvert outlets, stones placed for scour protection in the stream bed below the mean high water line should be limited to within 3 meters (10 feet) of the culvert's outlet (this does not apply to stone placed on the stream bank). Temporarily isolate the work area using gravel bags, pumps, geotextile fabric bags (dirt bags), turbidity curtains, or similar material;
- Scour protection should be placed so that it does not impede fish movement, stream flows or cause sediments to accumulate;
- Sediment must be removed from any water pumped from behind a cofferdam before the water is returned to the stream. To accomplish this, use temporary dewatering basins or dirt bags, or allow the water to flow slowly across a vegetated filter strip (minimum 30 meters (100 feet) width if less than 10 percent slope, 60 meters (200 feet) if greater than 10 percent slope). Pump outlet lines should be secured and baffled to reduce scour and erosion; and
- To avoid accidental stream disturbances, be familiar with protected streams in the work area. Some of these streams may appear to be ditches.

Removing in-stream bars, islands, and dead trees
- Removal of bars, islands and snags in excess of 15 meters (50 feet) from a structure requires a PCN sent to the USACE, with in-stream work date restrictions and erosion and sediment control conditions. Work must be coordinated through the MEC up to 6 months in advance;
- Removing in-stream bars, islands, and dead trees should only be done immediately upstream and downstream from bridges and culverts (no more than 15 meters (50 feet) in any direction), and only when they threaten the capacity or integrity of the structure or highway foundation. Whenever possible, work should be done from above the structure and comply with all of the Nationwide Permit General and Regional Conditions; and

- Removing islands with established woody vegetation will require an individual permit from the USACE and approvals from the NYSDEC and if within the Adirondack Park, APA. These projects should be coordinated with the MEC up to 6 months in advance to allow for environmental review.

Regarding stream widening or straightening

- All stream channel widening and/or straightening (channelizing) activities require individual permits from the USACE and approvals from the NYSDEC. Coordination with the MEC for these activities should occur up to 6 months in advance;
- In most cases, do not widen stream channels because this reduces the streams ability to transport its bedload material (sand, gravel or cobbles) by reducing water velocity. This causes more sediment (gravel, cobbles, etc.) to be deposited in the altered area, thus requiring more frequent maintenance. Conversely, in most cases, do not straighten stream channels as this will increase water velocity and cause additional erosion and scour; and
- All channel maintenance activities should strive to return the stream to its natural plan, profile and cross section dimensions. These dimensions can be approximated by looking for stable stream sections upstream and downstream from the structure. Record Plans may provide information for historic stream corridor alignment.

Machinery in streams

- Do not use any machinery in the stream channel unless absolutely necessary. Whenever possible, work should be done from above the structure and machinery should be kept out of streams. In-stream machinery work in excess of 15 meters (50 feet) from a structure requires PCN sent to the USACE Buffalo District (New York District requires a PCN for any in-stream machinery activities). NYSDEC may also require in-stream work date restrictions. Therefore, coordinate with the MEC any machinery use within streams up to 6 months in advance;
- If machinery must be operated in the stream, install temporary access pads composed of clean, washed stone fill that are fitted with turbidity curtains and remove after the work is completed. To support the pad base and assist with removal and to protect archeological sites that may be present along the access area, install geotextile fabric on the ground surface under the access pad and remove the pad after use without disturbing the original ground surface;
- If use of machinery in streams is necessary, to reduce damage to the stream bottom and mortality of aquatic life, conduct the work during low flow periods and use equipment that will minimize soil and sediment disturbance including rubber-tired equipment wherever possible; and
- If use of machinery in streams is necessary, avoid pushing gravel, soil or other debris within the stream as to cause unnecessary turbidity or down stream sedimentation. Make every effort to avoid unnecessary disturbance to the stream bed or banks while using machinery within the stream. Carry gravel and other material rather than pushing it through flowing water.

Stream bank (riparian) vegetation

Stream bank vegetation is very important in preventing erosion, protecting water quality, shading and cooling water temperatures, and providing valuable habitat. It will take at least 15 years for the riparian vegetation to recover if removed or destroyed:

- Do not remove vegetation from the stream bank unless it is absolutely necessary;
- Especially avoid removing large trees and undercut banks. If large, undercut trees must be removed, cut the trunks and leave the stumps and root systems in place;
- Reseed and mulch all disturbed areas and implement erosion and sediment control BMPs to protect the stream bank;
- Consult with MEC to incorporate soil bioengineering practices, such as live willow

cuttings/stakes/posts and live willow wattles, to stabilize disturbed stream banks; and
- Consult with MEC to incorporate rock vanes and other water current deflecting devices into bank stabilization projects.

3.2.5 Beaver dams - removing or modifying

It may become necessary to remove a beaver dam when impounded water from the dam threatens to flood highways, bridges or railroads, or interferes with proper drainage or maintenance activities. A permit is required from the NYSDEC Regional Wildlife manager for any disturbance to a beaver dam or lodge. A permit is also required for the taking (trapping or shooting) of any beaver outside of the regular trapping season. Permission from affected landowners should be obtained (permission is not required, however, under Section 45 of the state Highway Law) before removing a beaver dam located outside the ROW. Whenever a beaver dam is removed, water levels should be lowered gradually to prevent downstream flooding, plugging of culverts, or habitat damage from siltation. In addition, dam removal should be started early in the morning to allow the impoundment to drain throughout the day, and all dam material should be removed from the site since the beaver will likely return that night and reuse the material to repair the dam. When possible, it is recommended that dam removal occurs during late summer when water levels and potential to disturb other wildlife are low. Consult the MEC prior to any dam removal or modification.

Recent beaver dams: If the beaver dam was recently built (no vegetation is growing on it, no dead trees in the impoundment), an Article 11-0521 permit is required from the NYSDEC Regional Wildlife Manager to remove it for routine maintenance. If it is a new nuisance beaver complaint site, NYSDEC staff may want to visit the location, but a permit to remove a dam at a previously reported nuisance site can usually be obtained over the telephone. Since nuisance beaver often rebuild their dam, it may also be necessary to obtain an Article 11-0505 permit to trap the nuisance beaver (although it is preferable to have the beaver trapped during the regular trapping season when the pelt will be marketable and trappers are most likely to be interested). The NYSDEC Regional Wildlife Manager can also assist by providing lists of beaver trappers and issuing Article 11-0505 permits, if necessary. In most parts of the state, NYSDEC staff rarely denies requests for Article 11 permits and upon request, may issue an annual permit to remove nuisance beaver dams and destroy nuisance beaver to NYSDOT on a county-wide basis. If NYSDEC decides to issue a county-wide nuisance beaver permit, NYSDOT would still be required, at a minimum, to keep a record of the location of all nuisance sites, including any action taken (e.g., dam removed, beaver destroyed), and file an annual report as directed by the NYSDEC Regional Wildlife Manager.

Established beaver dams: Routine maintenance should not normally involve removing long-established beaver dams. However, if water levels become too high in long-established beaver impoundments, then an Article 11-0521 permit can be obtained and the dam can be removed or modified by removing the new material. Installing a practice, such as a trapezoidal-shaped fence (a.k.a. "beaver deceiver") and/or water level control structure upstream may be needed as well. See NYSDEC Nuisance Beaver Control Techniques Manual available at:
http://www.dec.ny.gov/animals/6992.html

Managing Nuisance Beavers Along Roadsides- A Guide for Highway Departments (Cornell University) is available at:
http://www.dec.ny.gov/docs/wildlife_pdf/beaver3.pdf

Special restrictions inside the Adirondack Park boundaries: In addition to the Article 11-0521 permit needed state-wide to remove a beaver dam for routine maintenance, inside the Adirondack Park, an APA Article 24 Wetland (General or Individual) permit is required if the dam is in, or within

30 meters (legally 100 feet) of a wetland. An APA General (Project 96G-1) permit may apply if the dam is recently constructed and lies within the ROW or within 15 meters (50 feet) of the highway, whichever is greater. If the general permit applies, notification to the APA is not required; all permit conditions, however, must be followed. Typical permit conditions include:

- No dynamite can be used;
- No machinery can be used in the wetland or stream;
- Any material removed must be placed in an upland location; and
- The water level behind the dam must be lowered gradually.

An individual Article 24 permit is required from the APA to remove a long-established dam.

Article 11-0505.6 of the ECL prohibits the disturbance of a beaver dam or lodge without a permit from the NYSDEC Regional Wildlife Manager. Article 11-0521.3 prohibits the taking of a beaver, outside the regular trapping season, without a permit. APA Article 24 requires a permit for disturbance to a beaver dam within or adjacent to wetlands.

3.2.6 Recharge basins

Certain recharge basins on Long Island are inhabited by Tiger salamanders, an endangered species. Contact the MEC to determine which recharge basins have restrictions on maintenance activities.

3.2.7 Disposal (excavated material)

See *3.5 - Waste and Spoil (excavated material) disposal* for information on placement of excavated material (spoil) from ditch and culvert cleaning and other maintenance activities on the ROW.

3.3 Maintenance and Repair of Highway Structures

3.3.1 Bridge washing over water

Maintenance washing of bridges is scheduled once every two years or so to extend the bridge's life, allow for easier detection of defects during inspections, and improve the appearance of the bridge (See NYSDOT Engineering Instruction EI 07-032). Streams classified as AA, AA(T), A, A(T), B, B(T), or C(T) are Protected Streams. In addition, streams designated (T) (trout) also include those more specifically designated (TS) (trout spawning). Coordinate all scheduled bridge washing activities with the MEC to determine NYSDEC stream classifications and potential work restrictions (See *3.2.2- Restrictive Dates for Drainage/Stream Work*).

Paint condition is an important factor in determining how, or if, to wash a bridge. A description of the paint rating categories, as taken from Form TP 350, Box 32 is:

Rating	Description
7	Paint is in good condition;
6	Paint generally in good condition, may require some touch-up painting;
5	Paint system generally showing signs of deterioration, but no corrosion is yet present;
4	Paint system in localized areas is in poor condition and minor corrosion is present requiring at least touch-up sandblasting and painting;
3	Paint generally in poor condition and corrosion is present but not yet serious. A 3-Rated bridge needs to be repainted;
2	Paint in poor condition and serious corrosion in localized areas; and
1	Paint in poor condition accompanied by extensive serious corrosion. Besides painting, extensive structural work is required.

Bridges over water with a paint rating of 4 or higher: Clean all loose sand, dirt, cinders and similar

material from the upper surface of the bridge deck by sweeping, vacuuming, etc. before washing. None of the swept material should enter a stream or wetland. If the collected material is less than 1 cubic yard, it can be placed (spoiled) on the road shoulders nearby. If more than a yard of material is collected, or if it contains highway trash, it should be sent to a permitted C&D or municipal landfill. See *5.1 - Waste Management*. Do not scrape off loose paint unless it is collected and disposed as a paint waste. See *5.1.1* and *5.4 - Waste Management (Hazardous Wastes and Specific Items and Topics).* Do not wash any steel surfaces where the paint is in poor condition and can easily be washed off by the water.

Bridges over water with a paint rating of 3 or lower: Clean the bridge deck as described above. Wash only the concrete surfaces of the bridge. Bridges with a paint rating of 3 or lower need repainting, and washing will only remove more rusted and flaking paint chips.
Special restrictions inside the New York City Watershed: In the NYC Watershed Area, special provisions apply to washing bridges that cross drinking water supply reservoirs or reservoir stems. If bridge washing is planned in this area (portions of Greene, Delaware, Schoharie, Sullivan, Ulster, Dutchess, Putnam and Westchester counties), contact the MEC for assistance.

***Protected bird species*:** Cliff swallows often build mud nests on the superstructure under bridges. These nests are about the size of a football with a 1 inch diameter opening. Cliff swallows are protected by the federal "Migratory Bird Treaty Act"; therefore, their nests cannot be removed during the nesting season (usually May - August).

Nests on bridges that are observed occupied by <u>any</u> bird species (including eggs and chicks) should not be disturbed or removed. Bridges should be surveyed before the nesting season and old nests should be removed (to discourage return nesting) prior to the scheduled bridge washing.

3.3.2 Superstructure and bridge decking maintenance and repair

Painting, paint removal, coating and sealing operations on bridges: EPA and NYSDEC regulate coatings including structural paint to limit the release of volatile organic compounds (VOCs) that contribute to ozone formation. Current bridge paint specifications which NYSDOT has adopted state-wide meet all the VOC requirements. NYSDOT ceased using lead-based paints in the late 1980s and developed comprehensive procedures for the removal of old lead-based paints. All open abrasive blasting paint removal operations require Class A Containment to prevent particulate release. If lead paint is removed from a bridge or structure using the Class A Containment Specification, air quality monitoring is necessary to determine the effectiveness of the containment. Contact the ESB Air Quality Section to schedule monitoring in conjunction with an applicable project.

Some of the constituents (such as xylene, toluene and glycol ethers) in paints have reporting requirements for spills/releases and when used above certain thresholds. See *4.4 - Spills of Fuels, Chemicals and Hazardous Products* and *4.5 - Emergency Planning and Community Right-to-Know*. Concrete sealants and rust coatings may also have constituents (such as methanol and glycol ethers) which also have reporting requirements.

Work over water/wetlands and sensitive areas: To protect aquatic habitat and comply with State and Federal water and waste regulations, concrete and abrasive dusts and wastes must not be enter streams or wetlands. Dusts and abrasives impair aquatic habitat and interfere with aquatic food chains and fish egg development. In addition, C&D disposal regulations require disposal only at locations that are not close to streams and wetlands. Collect waste concrete material, such as dusts and chippings removed from bridge surfaces and sidewalks, and dispose of as waste

pavement/concrete material. See *3.1.1 - Pavement and Concrete Maintenance*. In addition, collect all debris from welding or torch cutting that could generate paint debris from the bridge.

Disposal issues
Structure and pavement material - See *3.1.1 - Pavement and Concrete Maintenance* for discussions on structure and pavement material disposal.

Disposal of paints, coating, and sealant wastes solutions - See *5.4 - Waste Management - Specific Items and Topics (Paint, Unused Products, Paint Thinners* as applicable*).*

3.4 Temporary Access Roads

Building temporary access roads may be necessary for some maintenance projects such as maintaining scour protection, stabilizing stream banks or cleaning culverts. Temporary access roads should be located to minimize their impact on wetlands, streams, stream banks, protected plants, mature trees and historic properties. Constructing temporary access roads is not an exempt maintenance activity and may require State and Federal permits if located in or near streams or wetlands. A cultural resource survey may also be needed if there are potential historic properties within the area of proposed access road. Try to avoid contaminated areas as well as sensitive air and noise receptors. Discuss the plans, at least 6 months in advance, with the MEC and CRC before constructing temporary access roads, pads, or staging areas.

3.4.1 Erosion and sediment control

If the temporary access road must be placed in or near a wetland or stream:

- Re-seed and mulch all disturbed areas located above the mean high water line;
- Place geotextile fabric under the access road fill;
- Place turbidity curtains and/or cofferdams around the perimeter of the work area before building any access roads into a stream;
- Only clean, washed stone may be placed below the ordinary high water level;
- Sediment must be removed from any water pumped from behind cofferdams before the water can flow back into the stream;
- Utilization of temporary dewatering basins or geotextile fabric bags (dirt bags) may be necessary, or the water may be allowed to flow slowly across a densely vegetated (grassy) filter strip to remove the sediment (minimum 30 meters (100 feet) width if less than 10 percent slope, 60 meters (200 feet) if greater than 10 percent slope);
- Pump outlet lines should be secured and baffled to reduce scour and erosion; and
- When the work is completed, first remove the road material, geotextile and any accumulated sediment and then remove the turbidity curtain or coffer dam.

3.4.2 Dust control

Airborne dust needs to be controlled on temporary access roads to avoid nuisance and respiratory illness concerns of the public and employees and to prevent contributions to air quality standard violations for particulates. During dry weather, dust can be controlled by spraying water, solutions of salt (brine), calcium chloride, or “dust pallative” products (NYSDOT Technical Services maintains an approved list of products) on unpaved ground. Never spray used oil to control dust. Call the MEC with questions about whether specific products can be used.

3.4.3 Tracking of soil

Use temporary pavement or compacted, crushed stone to create stabilized construction access areas at work sites. These measures help to passively remove excess soil from vehicle tires and avoid

tracking soil onto public roads, and help minimize dust generated from work sites.

3.5 Waste and Spoil (excavated material) Disposal

3.5.1 Spoil

Many highway maintenance activities such as cleaning ditches and culverts generate excavated material or other spoil that can be placed on the ROW in an upland (well-drained) area away from wetlands and streams. Spoil material must not be placed:

- Within 30 meters (legally 100 feet) of wetlands, within 15 meters (50 feet) of stream bank or within the floodway, whichever is greater, or in flood plains;
- On forest preserve lands or on prime agricultural land;
- In the vicinity of historic resources or archeological sites;
- In visually-sensitive areas or in other environmentally-sensitive areas; and
- Outside ROW, unless appropriate permits are in place, e.g. APA.

Spoil areas should be graded and shaped to blend with the landscape and then re-seeded and mulched to prevent erosion. Disposing of spoil in or near environmentally-sensitive areas is not an exempt maintenance activity and may violate state and federal regulations:

- Place any spoil material in an upland area (away from streams or wetlands), and then seed and mulch the spoil pile. Sediment from ditches and culverts is considered uncontaminated and does not need to be tested unless it smells like fuel, solvents, or sewage, or is mixed with roadside trash. (See *5.1.4 – C&D (Construction and Demolition) Debris- Exempt C&D Debris and Spoil* or call the MEC for more guidance).

A good use for spoil is to flatten slopes so that guiderail is no longer required for operational and safety purposes. In planning and undertaking work that will result in fill, designers, traffic engineers and maintenance staff should look in advance for locations to flatten slopes when such work can be accomplished without environmental damage. Check with your Regional Traffic Safety Coordinator to verify safety of intended slopes within the right of way.

3.5.2 Open burning

Burning wood, leaves, rubbish, or garbage in an open fire or in a barrel is **prohibited** in most parts of New York by air quality regulations (6 NYCRR Part 215.2(e)). Sometimes after large, damaging storms, NYSDEC will issue emergency burn permits. Burn permit applications may be obtained from the Air Resources program staff at NYSDEC regional offices. These temporary permits -- usually for less than two weeks -- help speed cleanup by allowing storm debris such as tree limbs to be burned instead of landfilled.

3.5.3 Other wastes and waste issues

For additional disposal procedures for litter, dead animals, C&D, brush, and other materials collected along the ROW, see *5.4 - Waste Management- Specific Items and Topics*. For spills along the ROW, see *4.4 - Spills of Fuels, Chemicals, and Hazardous Products*.

3.6 Snow and Ice Control

Snow and ice control is one of NYSDOT's most widespread and visible activities. NYSDOT manages the use of salt and other deicing materials in an efficient manner to provide effective performance while minimizing impacts to the environment.

Pre-season and pre-storm meetings are held to discuss snow & ice control guidelines and residency storm management plans. Additionally, such meetings should be held with municipal contractors

and emphasize the need to consider environmental factors as well as traditional objectives such as safety, service, and budget considerations.

To minimize environmental impacts to water quality and roadside vegetation, NYSDOT employees and contractors incorporate appropriate BMPs outlined below:

3.6.1 Storage and handling of snow & ice control materials BMPs

See *4.3.5 - Storing and Handling of Products- Salt and De-icers Storage*.

3.6.2 Equipment preparation/maintenance BMPs

Calibrate spreading equipment for both solid (typically salt) and liquids (typically salt brine, calcium chloride, magnesium chloride or other snow and ice control liquid chemical solutions [IceBan/ MAGic solutions]) to apply the proper amounts of materials. The equipment that controls the spread pattern must be adjusted to match the required use and ensure proper placement. Critical system components include the automatic ground speed controller, the flight chain or belt, the gate opening, the chute, the liquid nozzles (if applicable), the spinner and the deflectors.

Periodic calibration checks to confirm that these proper settings have not changed must be conducted during the snow and ice season. For details on calibration and spread pattern adjustments, contact the Equipment Operator Instructors.

3.6.3 Plowing and/or spreading operation BMPs

The objective of plowing, spreading, and direct liquid application operations is to maintain an acceptable level of service on the highway while using the minimum amount of materials necessary to achieve this. Several steps to reduce the amount of anti-icer, de-icer and/or traction enhancing materials that are wasted during snow and ice control operations can be taken, including:

- Practice anti-icing by promoting a timely response to snow and ice events to prevent precipitation from bonding to the pavement. Pre-storm direct applications of approved anti-icing liquids in accordance to NYSDOT guidelines should be considered. This strategy will help prevent hard pack formation, and will require far less material and equipment use than trying to "burn through" packed or bonded ice afterwards;
- Do not overload the material spreader to avoid spillage;
- Plow off snow or slush before applying materials to decrease dilution and increase the effectiveness of the materials;
- Control spreading speeds to reduce bounce and scatter;
- Control spread patterns to concentrate material where it is most effective on the road;
- Using sand (abrasives) is not encouraged but may be considered for temporary traction control at limited locations such as steep hills, intersections, etc.;
- Supervisors and operators should become familiar with chemical application rate charts obtained in the *Snow and Ice Control Guidelines* (Chapter 5);
- Evaluate road and weather conditions and trends to ensure that proper type and timing of treatment is used;
- When re-applying material, consider the possibility of partial vs. full and spot vs. blanket treatments where appropriate;
- Consider pavement temperatures as opposed to air temperature when selecting treatment strategies;
- Follow established guidelines and apply the appropriate treatments at the right time;
- Identify locations where snow fence may reduce blowing snow situations along highways. Living snow fence is environmentally sound and should be considered as an alternative to

standard snow fence;
- Return unused materials to stockpiles and avoid heavy "end of beat" applications that empty the load; and
- Keep accurate records of materials usage to allow monitoring and improvement of operations.

For additional operational guidance refer to the most current versions of *NYSDOT Highway Maintenance Guidelines for Snow & Ice Control* and the *NYSDOT Equipment Operator Snow & Ice Manual*. Complaints about possible salt contamination should be directed to the Regional MEC.

3.6.4 Post storm/post season cleanup BMPs

After a storm, equipment should be cleaned to reduce corrosion damage and prepare for the next storm. Minimize wash water runoff from these activities and do not use detergents or soaps. Where possible, use indoor wash facilities with controlled floor drainage that will direct the wash water into an oil/water separator or sanitary sewer.

If snow must be loaded and hauled, select a pre-approved disposal site to ensure that the environment is protected.

Abrasives should be swept up from the highway environment wherever and whenever possible. Cleanup reduces the amount of abrasives left along the highway and will help prevent sand from clogging drainage systems, reduces air pollution and waterway siltation, and reduces skidding hazards on the highway. A pre-approved site must be used to dispose of spent abrasives.

3.7 Emergency Actions

All emergency actions in or adjacent to streams, wetlands, lakes, ponds or other water bodies, or historic resources require some form of environmental review and notification to regulatory agencies (although in most cases formal permits are not required) and thus should be coordinated through the MEC. To qualify as an emergency, the damage or threat to bridges, roads or other transportation facilities must present an immediate threat to life, health, property or natural resources and must be the result of a single event, not long-term neglect. The NYSDEC's Regional Supervisor of Natural Resources or Regional Permit Administrator (and APA inside the Adirondack Park) must be notified before beginning emergency work, if possible. If prior notification is not possible, NYSDEC (and/or APA) must be informed, first by phone and then in writing, within 48 hours after starting, and must approve all emergency work.

The written notification to NYSDEC should include:
- Description of the proposed action;
- A location map and plan of the proposed project; and
- Reasons why the situation is an emergency.

In addition, many emergency projects require authorization from the USACE and must be coordinated appropriately. Note: For large-scale disasters, batches of emergency projects may be approved with a single authorization at the discretion of the regulatory agencies.

All emergency work should be performed in a way that causes the least modification, disturbance, or damage to the course or bed of a stream and its banks, or any adjacent wetlands. No equipment should be operated in the water unless approved by NYSDEC. Lastly, when conducting emergency work, all general and special permit conditions must be followed, and if significant project modifications occur during construction, these changes should be coordinated with the MEC and/or the permitting agencies.

3.8 Spill Response within the ROW

3.8.1 Assistance to non -NYSDOT spills along the ROW

Anyone who discovers a reportable spill should call the NYSDEC's Spills Hotline at **1-800-457-7362** (See *4.4 - Spills of Fuels, Chemicals, and Hazardous Products*). Although the NYSDEC staff and their contractors respond to spills in emergencies, if the NYSDOT has facilities and employees nearby may also respond to certain spills along the highway. Appropriate Departmental personnel may provide technical guidance on excavation, backfill, or provide excavation support recommendations required of the NYSDEC's contractor within our ROW. In 1993, NYSDEC and NYSDOT signed a Memorandum of Understanding (MOU) between the two agencies that allow NYSDOT employees to do the following:

1) Set up traffic barricades to redirect traffic away from or around a spill site. NYSDEC spill response staff will indicate how far a barricade must safely be placed from a spill of a known or unknown hazardous substance;
2) Spread sand on spills of **known** petroleum products on state highways. **NYSDOT employees will not spread sand on spills of unknown materials or spills of known hazardous substances;**
3) NYSDEC will call a standby contractor to pick up contaminated sand, but if the amount of sand is small and a DOT facility is nearby, DOT employees may be asked to pick up the contaminated sand; and
4) When NYSDOT removes and disposes of petroleum-contaminated sand from a ROW spill event at NYSDEC direction, NYSDEC will assist in expediting any needed NYSDEC permits, locating disposal sites and authorizing reimbursements of NYSDOT disposal costs from the NYSDEC's Spill Compensation Fund.

The spiller is responsible for the cost of any cleanup. Be certain that any paperwork you sign lists the name of the trucking firm or the vehicle operator, not NYSDOT, as the "generator or spiller."

3.8.2 NYSDOT spills

For spills of which NYSDOT is responsible for the spill, see *4.4 - Spills of Fuels, Chemicals, and Hazardous Products*.

3.9 Additional NYSDEC Guidance

The NYSDEC Nonpoint Source Management Program has developed several Management Practices Catalogs (essentially BMPs) that provide useful information on many of these activities. For these Management Practices Catalogs, the MEC or the NYSDEC Watershed Management Section at 518-402-8250 can be contacted. The Catalogs include:

- Roadway and Right-of-Way Maintenance;
- Urban/Stormwater Runoff Management Practices for Nonpoint Source Pollution Prevention;
- Construction Management Practices Catalogue for Nonpoint Source Pollution Prevention;
- Hydrologic and Habitat Modification; and
- Leaks, Spills, Accidents Management Practices.

4 FACILITY-BASED OPERATIONS

This section discusses activities that typically happen at the NYSDOT Maintenance or Equipment Management facilities rather than highways rights-of-way.

4.1 Vehicle Washing, Floor Drains and SPDES

It is preferred for vehicles to be washed where the wash waters are controlled and treated to remove oils and sediment prior to discharge. Typically this involves washing vehicles inside specified "wash bays" where wash waters are sent through sediment/grit collectors and oil/water separators.

Discharges from floor drains to surface water and groundwater are regulated by the State Pollutant Discharge Elimination System (SPDES). SPDES permits issued by the NYSDEC are required for all discharges to surface waters. Direct discharges from floor drains to groundwater through leach fields, septic systems, or dry wells are not allowed.

NYSDOT handles floor drain discharges in three ways:

1) Consider whether a floor drain discharge is really necessary. If not, plug the floor drains with a plumber's plug or concrete. If the drain is permanently closed and no discharge can occur, a grit collector, oil/water separator, and SPDES permit would not be required;
2) Install a grit collector and oil/water separator and connect the discharge line to a municipal sewer system, if possible. This eliminates the need for a SPDES permit; and
3) Install a grit collector and oil/water separator and discharge the floor drain waters to surface water; a SPDES permit will be required.

Many NYSDOT facilities have SPDES permits for floor drain discharge to surface waters. These permits may require changes in vehicle parking patterns and restricting vehicle maintenance activities to areas away from the floor drains. To be sure that the SPDES permit conditions are met:

- Quickly clean up any spills of oil, grease or antifreeze with Speedi-dry or other absorbents before the spilled material enters the floor drains;
- Wash vehicles indoors with plain water only. DO NOT USE DETERGENTS which emulsify oil within the water preventing gravity separation and making the separators ineffective. Using detergents may also violate the SPDES permit conditions by introducing new chemicals; and
- Conduct monitoring according to the SPDES permit. SPDES permits typically require monthly or quarterly monitoring for specific parameters such as pH, oil and grease, "BTEX" (benzene, toluene, ethylbenzene and xylene), and MTBE (methyltributylether), a gasoline additive;
- If the facility is required to monitor floor drain discharge quality on a monthly basis and there has been no discharge for a month, check the box on the Discharge Monitoring Report that you have no discharge for that month. DO NOT run water into the drains to "create" a sample! This is unnecessary and also violates the SPDES permit by diluting any pollutants that might be in the oil/water separator, which gives a false picture of performance;
- Monitoring reports should be kept at the facility for three years, and be available for review if a NYSDEC inspector asks to see them; and
- Monthly monitoring is typically required for new SPDES permits, but you can petition the NYSDEC Regional Water Engineer to decrease that frequency to quarterly if you can show that you did not exceed the effluent limits or had no discharges for several months during the previous year. Any changes to the provisions of the SPDES permit require a permit modification from the Regional NYSDEC Permit Administrator.

Any questions about obtaining or complying with SPDES permits should be directed to the Facilities Engineer in the Transportation Maintenance Division.

NYSDOT's Transportation Maintenance Instruction, TMI 09-03, *Operation of Oil/Water Separators (OWS)/ Wastewater Controls from Vehicle Washing and Storage* is available at: http://axim22.nysdot.private:7779/portal/page?_pageid=39,547946&_dad=portal&_schema=PORTAL

SPDES point source permit requirements are in 6 NYCRR Parts 652 & 750-758.

4.2 Fuel and Petroleum Storage and Handling

Fuel and Petroleum Tank Storage and Management

Fuel is essential for NYSDOT vehicles to accomplish critical missions such as removing snow and ice, performing maintenance, responding to emergencies and other functions. Other State agencies also use NYSDOT fuel facilities to in their fleet vehicles. Other petroleum products at facilities support operations and equipment management.

Improper management can:

- Result in release of petroleum to the environment and pollute waterways and groundwater;
- Impact employee health and safety;
- Disrupt fuel availability; and
- Result in legal actions, fines and penalties.

Significant environmental damage can occur from petroleum spills and leaks in the quantities present at typical facilities. The EPA estimates a single gallon of oil can contaminate 1 million gallons of water. In addition to environmental damage, cleaning up leaks and spills is very costly and time consuming.

Requirements for managing and storing petroleum products result from many different regulatory and operational aspects, but are intended to achieve complimentary objectives. The Office of Operations Management Instruction, titled: ***Fuel and Petroleum Storage: Main Office and Regional Responsibilities*** describes the requirements and responsibilities of operating fuel storage facilities, and includes sample record forms and information. A checklist included as Appendix B of this document offers a quick guide to these regulatory requirements that require NYSDOT staff from different parts of the organization to work cooperatively to safely and efficiently install, operate, maintain and administer fuel storage and dispensing facilities. NYSDOT employees at the facilities handle daily operations, monitor inventory, and perform routine inspections. The Office of Operations Management – Facilities Unit (FACU) builds new bulk storage facilities, arranges for replacement and repair when necessary, and administers the program for tank registrations, periodic testing, and major inspections of system components.

Specific assigned tasks are listed below. For specific questions, see the management instruction, contact the group responsible or contact the regional MEC.

Responsibilities of Operations Management – Facilities Unit

a) Provide Overall Program Direction, to maximize capital equipment assets and infrastructure investment and provide equipment compliant with regulations;
b) Tank Systems Installation and Equipment (New and Major Equipment);
c) Ongoing Equipment: Purchase, repair and installation of durable equipment components;
d) Periodic Testing required by regulations: Develop policies, procedures and contracts for testing including tightness testing of USTs (that did not require and have not been upgraded to EPA standards), yearly testing of cathodic systems, and testing of vapor recovery systems with Stage II vapor control features;

e) Tank Registration;
f) Tank Closures and Remediation Activities as needed from tank closures and past activities;
g) Storage and Operating Guidance;
h) Purchase Fuels related to fueling of vehicles and equipment; and
i) Other administrative, funding, policy and procedures to support these activities.

Responsibilities of the Site/Residency/Regional Fuel Facility

a) Operate and Undertake Routine Maintenance of the system to include:
   i. Maintenance and repair of fire suppression and leak detection systems on newer installations;
   ii. Fire Suppression System Testing – Semi-annual inspection by independent authorized inspector;
   iii. Installation and repair of pumps, hoses and nozzles;
   iv. Supply and replacement of expendables (such as filters); and
   v. Coordination of site personnel for vendor services;
b) Facility Requirements: Identify facility deficiencies and needs (See Appendix B for checklist of environmental and related requirements) and reporting capital project needs to FACU;
c) Routine Inspection: Conduct and document ongoing inspections including monthly inspections for environmental regulatory requirements and weekly check of interstitial spaces on USTs;
d) Records: Maintain records of site inspections, deliveries, manuals, drawings, spills, inventory records and any other documentation of compliance and operation of the site;
e) Site Plans and Manuals – Maintain as-built plans and manuals for tank equipment at each site;
f) Inventory reconciliation and associated recordkeeping;
g) Fuel Delivery and Purchase: Accept, coordinate and monitor deliveries. Purchase heating fuels;
h) Signs/Communications: Installation of needed hazard communication signs, fire protection signs, product and capacity signs, registration postings and color coding. Maintain current material safety data sheets (MSDSs) within the hazard communication program for all products; and
i) Spill Prevention, Control and Countermeasures (SPCC), Response and Reporting.

Reporting petroleum products stored on site for emergency plans

See *4.5 - Emergency Planning and Community Right-to-Know*.

Petroleum spills

See *4.4 - Spills of Fuels, Chemicals and Hazardous Products*.

Regulations

Handling and storing petroleum in tanks is highly regulated by different, but supporting, areas: The primary areas are listed to assist in identifying where different provisions are located and include:

- *NYS Petroleum Bulk Storage regulations, 6 NYCRR Parts 612-614 for both aboveground and underground storage tanks (ASTs and USTs), respectively, storing any petroleum products. Requires registration; certain operating features and equipment; testing, monitoring and recordkeeping; labeling and color coding; and design installation requirements for new tanks systems.*
- *EPA Standards for USTs (40 CFR Part 280) for all USTs, except for on premises heating fuel. Requires USTs to have leak detection, corrosion protection and spill/overfill protection.*
- *EPA Spill Prevention Control and Countermeasures (SPCC) regulations, 40 CFR Part 112, require advance planning of spill prevention controls (such as secondary containment or other installed or equipment preventives), spill prevention procedures and spill response procedures. SPCC regulations apply to facilities storing more than 1,320 gallons of any oil products in any combination of aboveground tanks and containers of more than 55 gallons (or greater than*

42,000 gallons in UST that do not meet the EPA standards of Part 280) and may reasonably have the potential to discharge oil into waters of the US.

- *USDOT Hazardous Material Transportation regulations, 49 CFR Part 171- 180, regulate hazardous material shipping (petroleum products are "combustible or flammable liquids"(49 CFR Part 172.101)) including communication, emergency response information and training provisions. Part 177.834 requires the carrier to attend the unloading of a cargo tank (delivery to our tanks) with a qualified person at all times during unloading (and be alert and within 7.62 m and have an unobstructed view of the tanker and connections).*
- *OSHA requirements including: HAZCOM and HAZWOPER, and other safety requirements, 29 CFR Part 1910.1200 (HazCom) Part 120 (HAZWOPER), require communication of hazardous material health, safety and handling requirements and the training and procedures required for responding to emergency releases of hazardous materials.*
- Fire Code (NFPA) requirements also stipulate design and installation, testing/monitoring and hazard communications regarding storage of flammable/combustible materials and fire suppression systems.

4.3 Storing and Handling Products and Wastes

4.3.1 General principles

Good storage and handling practices can greatly minimize waste quantities and costs for disposal as well as reduce potential for employee exposure or environmental contamination. The following general steps are good practices that can significantly reduce handling, disposal costs, and future liability from NYSDOT activities:

Substitute. Substitute a less hazardous or less waste-producing product or process for those that would otherwise have generated a more hazardous or higher quantity of wastes. As well as potentially resulting in a non-hazardous waste for an indicated activity, such substitution may reduce or eliminate potential employee exposure concerns and additional regulatory burden. An example is substitution of a non-flammable, non-chlorinated cleaning product for a methylene chloride gasket cleaner.

Identify container contents and maintain data on its contents. Keep products in their original containers whenever possible. Otherwise, label containers with permanent markers, include the date when you first began filling it, and keep a record of what is stored in each one. Retain the material safety data sheets (MSDS) for the product. Also record any other information that relates to a waste, such as "also contains some water" or what activity the waste resulted from, such as "Safe-Strip cleaning solvent from epoxy pavement marking activities".

Whenever possible, return unused products to the supplier. Some suppliers and manufacturers will accept unused, expired products. This eliminates our need to pay for disposal in some cases.

Never mix dissimilar materials and wastes in the same containers. Mixing of different materials will likely require the resulting mixture to be analytically tested and may present increased disposal restrictions. Environmental regulations also place strict limits on the types of wastes that can be mixed together and generally prohibit mixing dissimilar wastes. These regulations do not allow a waste generator to dilute wastes with water in an attempt to make it nonhazardous. For example, if one gallon of a hazardous waste such as used toluene from painting operations is mixed with 54 gallons of rainwater, 55 gallons of hazardous waste for disposal is created!

Store drums in protected (dry) and temperature-compatible manner. Do not store product or empty drums upright and outdoors where they can collect rain or melting snow, allowing for

collection of water (and the potential need for testing of rainwater) in the drums and degradation (even when a lid is originally in place). Rather, store all drums under a roof if possible and store uncovered empty drums on their sides. Do not store materials that can freeze in unheated areas.

Don't let wastes or empty containers accumulate; dispose of them regularly. Dispose of wastes before knowledge of their contents is lost and before deterioration occurs. Keep an inventory of the waste you have on hand and contact the MEC to set up disposal contracts for both hazardous and nonhazardous wastes. Dispose of empty containers promptly before water or other contamination or deterioration occurs. See 5*.4 - Waste Management - Specific Items and Topics (Empty Drums and Containers)* for empty drum disposal.

4.3.2 Waste storage time limits and inspections

Nonhazardous waste (such as roadside trash) and other waste materials at the facility can be stored for up to 18 months. Note: Storage of >1000 tires requires a permit from NYSDEC.

Hazardous waste storage time limits are dependant upon the quantities generated.

- Large Quantity Generators (LQG) of hazardous wastes (generate > 1000 kg/month) can store for only up to 90 days;
- Small Quantity Generators (SQG) (generate $\geq$100 kg and $\leq$1000 kg/month and store less than 6000 kg on site at any one time) of hazardous wastes can store for 180 days (270 days if it must be shipped more than 200 miles);
- Conditionally Exempt Small Quantity Generators (CESQGs) (generate < 100 kg/month and store < 1000 kg on site at any one time) have no time limit for storage and have greatly reduced storage and disposal requirements. See CESQG in Section 5.4.

Hazardous wastes stored at other than CESQG must be inspected at least weekly for any signs of leakage or deterioration and comply with hazardous waste management requirements. A log record of the inspections must be kept. See *5.1.1.4- Hazardous Waste - Accumulation/Storage*.

When a partly-used product becomes a waste: Partly-used containers of paint and other products may be present at NYSDOT Residencies and facilities. The waste handling requirements and storage time limits begin to apply when the decision is made that these products are not likely to be used and should be disposed. For example, a partly-used drum of pavement-marking paint may be left over from a previous season. If the paint can still be used when the drum is reopened, then the drum contains a product, not a waste; if, however, the paint has become too dry to be useful, the drum then becomes a waste that must be disposed.

Disposal procedures: See *5 - Waste Management*.

4.3.3 Material Safety Data Sheets (MSDSs)

Suppliers and manufacturers are required to supply MSDSs for all products and they must be retained and available for all materials on site as part of the Hazard Communication (HAZCOM) Program. An unused unmixed product in its original container typically does not need to be tested prior to disposal if you have a MSDS that properly identifies the material.

4.3.4 Chemical tank requirements

Chemical storage tanks holding hazardous substances listed in 6 NYCRR Part 597 such as ethylene glycol (antifreeze), toluene (paint thinner), or hydrochloric acid require registration with NYSDEC. Registration is required for underground storage tanks of any size and stationary aboveground tanks of 185 gallons or more capacity. Operation, equipment and design standards of 6 NYCRR Parts

595-599 apply to covered tanks. Contact the PBS Manager in Operations Management – Facilities Unit for more information on chemical tank requirements.

***Petroleum product storage and handling**:* See *4.2 - Fuel and Petroleum Storage and Handling*.

4.3.5 Salt and de-icers storage

Salt and other anti-icing/de-icing materials should be handled and stored in a way that minimizes possible contamination of surrounding areas by wind-blown or waterborne "runoff".

Salt: Piles of salt should not be left exposed to the elements. Good management practices require that salt and mixtures of salt and sand be kept on an impermeable surface like asphalt or concrete and stored in salt storage buildings whenever possible. Under some circumstances, such as storage building maintenance or excess supply, temporary (typically, less than one season) "surge" piles may be utilized if placed on an impermeable surface and covered with adequate (weighted) tarping. For additional details on storage site characteristics, see the most current *NYSDOT Highway Maintenance Guidelines for Snow and Ice Control*.

Liquid anti-icer storage: Liquid Anti-Icer materials (Magnesium Chloride, Calcium Chloride Salt Brine, Liquids with agricultural additives, etc., which are not included under the Chemical Bulk Storage regulations) are stored in above ground storage tanks (typically 3,000 - 5,000 gallon) at many facilities. These should be placed on level, compacted sand bases and protected from traffic by barriers (i.e., bollards, guiderail, etc.). Drainage in that area should be graded so that any spills can be contained on site. Placards or stenciled lettering should be used to identify the tanks contents. Spill containment systems should be considered. For additional handling and spill containment information, refer to the most current *NYSDOT Highway Maintenance Guidelines for Chemical De-Icers*.

4.4 Spills of Fuels, Chemicals, and Hazardous Products

Spillage from NYSDOT operations of petroleum products and other products containing listed chemicals may require reporting if the spill reaches or exceeds reporting criteria. Reportable spills should be reported to the NYSDEC Spills Hotline (1-800-457-7362) within 2 hours of discovery. NYSDOT may also provide some response actions to certain spills that occur along the ROW.

4.4.1 Petroleum spill reporting

Spills of petroleum products (gasoline, fuel, used oil, etc.) are required to be reported to the NYSDEC Spills Hotline unless they meet **all** of the following criteria:

- Less than five (5) gallons is spilled and the spill is contained and under the control of the spiller;
- It is cleaned up within 2 hours of discovery; and
- The spilled material does not reach and contaminate any land, surface or ground water.

Special note: NYSDOT's Transportation Maintenance Safety Manual also lists important safety requirements for transporting gasoline and diesel fuel that will help avoid spills during the work.

Petroleum spill reporting requirements are included in the state's Petroleum Bulk Storage Regulations, 6NYCRR Parts 612-614.

4.4.2 Chemical spill reporting

Spills of regulated chemicals must be reported to the NYSDEC Spills Hotline (1-800-457-7362) and the National Response Center ((800) 424-8802) if the spill reaches or exceeds the listed "reportable quantities". The reportable quantity (RQ) pertains to the quantity of the specific chemical released;

the quantity of the chemical within a release of a mixture or product should be estimated to determine if the RQ was exceeded. (For example, the quantity of methanol released in a 100 pound release of concrete sealant (approximately 15 gallons) containing 22% methanol is 22 pounds). Many of these RQs are quite large in comparison to the quantities that are typically used in NYSDOT activities, thereby exceeding the federal RQ for those chemicals is unlikely.

NYSDEC also requires reporting (to the NYSDEC Spills Hotline) of releases that could impact land and water at lower reporting thresholds. The following table includes the federal RQs (49 CFR 172.101) and NYSDEC RQs to land/water (6NYCRR Part 597) for chemicals present in appreciable quantity in common products used by NYSDOT:

Chemical/Typical Product where present	Federal RQ (lb)	NYSDEC water/land RQ (lb)
Ethylene Glycol (antifreeze)	5000	1
Hydrochloric Acid (muriatic acid)	5000	100
Lead compounds (Lead paint removal waste from bridge rehabilitation)	10	10
Methanol (paints, sealants)	5000	1
Styrene (polyester paints)	1000	1
Sulfuric Acid (batteries)	1000	100
Toluene	1000	1
Xylene	100	1

Chemicals such as isopropanol, calcium chloride, magnesium chloride, most herbicides (including Escort, Krenite, Oust, Rodeo, and Roundup), propylene glycol, ethanol, and salt present in common products used in NYSDOT activities are not regulated and do not have reportable quantity notification requirements. Many chemicals are not listed, but this does not mean they are harmless and they still require appropriate cleanup.

The federal Chemical Spill Reporting Requirements are listed in EPA regulations, 40 CFR Part 302.4, "Designation, Reportable Quantities and Notification" (the reportable quantities are also included in Appendix A of the USDOT regulation 49 CFR part 172.101 (Hazardous Materials Table)). NYS includes chemical spill reporting requirements in the Chemical Bulk Storage Regulations, 6NYCRR Parts 595-598.

4.4.3 Spill containment and cleanup

Spills have the potential to expose people and contaminate the environment with hazardous materials. The Student Manual for Hazardous Materials Awareness and Communication Training is available from the Employee Health and Safety representative and describes NYSDOT's responsibilities and procedures for incidents involving hazardous materials. The recommended procedures and risks change with the circumstances of each spill. However, the following general procedure can be used for most workplace spills as applicable:

- Inform and remove unnecessary employees from the area;
- Determine the identity and hazards of the material and any personal protective equipment such as impermeable gloves required for handling;
- If the spilled material is flammable, remove any open flames or sources of ignition. Use non-sparking tools and grounding wires if needed;
- Stop additional material from spilling at its source if possible. For example, plug a leaking hole in a barrel or turn the barrel so that hole is on top;
- Plug any drains that may be impacted;
- Contain the spill by placing absorbent "socks" or sand to prevent the spill from running into

storm drains, bare soil, large surface areas, etc.;
- Pump large quantities to an empty drum that will hold the material. Collect smaller quantities and/or remaining liquid by absorbing liquid with absorbents or sand. Gently scoop or sweep up the residue and place in empty container; and
- Label all containers of spill collection and debris as soon as possible.

Note: Always be careful about exposing anyone to hazardous vapors/fumes that can be inhaled or from skin and eye contact. Do not try to clean up spills of unfamiliar materials if you don't have adequate hazard communication information.

Assistance to non-NYSDOT spills along the ROW: See *3.8 - Spill Response within the ROW.*

4.5 Emergency Planning and Community Right-to-Know

The federal Emergency Planning and Community Right-to-Know Act (EPCRA) of 1986 (which is also known as the Superfund Amendments and Reauthorization Act (SARA) Title III) includes several reporting requirements to let members of the local community know what chemicals are stored or used at facilities in their neighborhoods.

4.5.1 Hazardous chemical (including fuels) inventory reporting

Reports are required from facilities that store more than 10,000 pounds at any one time during the year (roughly 1500 gallons for fuels) of any hazardous chemicals for which material safety data sheets (MSDS) are required under the OSHA Hazard Communication Standard. The chemicals/products to be reported are not on a designated list, but are broad chemical categories - fire; sudden release of pressure; reactivity; acute health hazard; and chronic health hazard. Fuels and large quantities of paints and vehicle fluids stored at one location would be the likely products for which a DOT facility could exceed the reporting threshold.

The local fire department, County Local Emergency Planning Committee (LEPC), and NYSDEC must be notified within 90 days if a chemical or product is stored above this threshold (also, provide copies of notifications to the Regional Safety Representative). An inventory form, called a Tier II form, that includes the chemical/product names and maximum amount stored during the previous year must be submitted by March 1, of each year to these organizations. Reporting of petroleum materials stored in tanks has been completed for NYSDOT centrally by the Petroleum Bulk Storage Manager in the Facilities Unit (FACU). Call the Regional Safety Representative if you may have something other than petroleum products in tanks to report.

4.5.2 Toxic Chemical Release Inventory (TRI) reporting

Another community right-to-know regulation requires reporting when a certain chemical is used or generated at a quantity exceeding 5,000 pounds per year at a facility. Reportable chemicals are on a designated "Toxic Chemical List" and reportability considers all products in which they may be present. Several exemptions may apply to chemicals present in products used for certain activities including maintaining motor vehicles operated by the facility; use as a structural component of the facility; and routine janitorial or facility grounds maintenance. Use of the exemptions is discouraged for activities that are a significant part of the facility/agency mission. Annual reports have been completed for all NYSDOT facilities by the Main Office Operations Division and the ESB. Chemicals requiring reporting have been present in traffic marking paints and have included: methanol, glycol ethers, lead compounds, chromium compounds, styrene, and an epoxy paint hardener compound. Started 2009, NYSDOT claimed an exemption for these activities, since lead and chromium are no longer present in pavement markings. If you have additional questions about these requirements, contact the Hazardous Materials & Asbestos Unit of the ESB.

The federal requirements for hazardous chemical inventory and TRI reporting are in 40 CFR Part 370 and 40 CFR Part 372, respectively. Title 3 of article 37 of the NYS ECL expanded the TRI requirements to apply to NYS facilities and reduced reporting thresholds.

4.6 Environmental Audit

A 1998 amendment to the Environmental Conservation Law requires all State agencies to audit their facilities, operations and projects annually for compliance with environmental requirements. This formal process begins each April for activities that occurred during the previous fiscal year. Users are asked to enter audit information to the Environmental Audit System (EAS). EAS can be accessed through the IntraDOT site under *Applications*. The EAS User Manual and the New York State Environmental Guidance Manual are available on Environmental Science Bureau's IntraDOT site under Applications and the Environmental Audit sub-tab. New EAS users are required to submit the "Request for New or Modified Access to Systems and Data" form to Information Security. The form is available on the IntraDOT under the *Forms & Manuals* tab. Technical assistance and compliance information can be obtained from the Environmental Science Bureau or the Regional Environmental Audit Coordinators.

4.7 Ventilation and Exhaust Systems

Some operations and process ventilation that can release contaminants to the air may require an air permit from NYSDEC. Most NYSDOT activities, however, do not require air permits. Examples of activities that do **NOT** need air permits include:

- Parts cleaning stations where non-chlorinated cleaning solvent drains through a hole smaller than 16 square inches (4" by 4") into a keg or reservoir (note: chlorinated solvent use has additional requirements/concerns);
- Hand wiping or hand cleaning of parts or equipment by solvents;
- Hand-held welding, brazing and soldering equipment;
- Acetylene, butane and propane torches;
- Furnaces or space heaters (heat input capacity < 1 million BTU/hr) of the size typically used to heat NYSDOT maintenance facilities including space heaters that burn used oil. *Note: Used oil must be from NYSDOT facilities (*See *Used oil for space heating* in Section 5.4*)*; and
- Motor vehicle engine exhaust collection ducts to vent vehicle exhaust during maintenance and repair activities outside of the building.

Paint spray booths do require an air quality permit if it meets **any** of the following:

- More than 25 gallons of paint and solvents (combined) are used in a month;
- The paint spray booth is located in parts of New York where air quality is poor for ozone. These areas are: Long Island (Nassau and Suffolk Counties), the five boroughs of New York City, Westchester and Rockland Counties, and the seven southeastern towns in Orange County; or
- Exhaust gases from sanding and painting do not pass through filters or other emission control devices.

Even if a paint spray booth does not need an air permit, you must keep records on site for five years and make them available to NYSDEC if requested to show that spray paint activities do not exceed these limits.

For diesel vehicle exhaust, see *2.5 - Diesel Vehicle Operations.*

Except for paint spray booths, most activities at NYSDOT facilities are considered exempt or trivial

under NYSDEC's Air Quality Regulation, "Constructing and Operating Permits," 6 NYCRR Part 201 and thus exempt from NYSDEC registration and permitting provisions. Requirements for paint spray booths are given in 6 NYCRR Subpart 201-3.2(c)(17).

4.8 Open Burning and "Burn Barrels"

Open-air burning can release toxic compounds into the air, especially if synthetic materials such as plastics, garbage, or pressure-treated wood are burned. Burning wastes in fire pits or "burn barrels" without a permit is prohibited by the NYSDEC's air quality regulations in 6 NYCRR 215.2(f).

More information about the problems of "backyard burning" can be found at: http://www.epa.gov/msw/backyard/ or at: http://www.dec.ny.gov/chemical/32060.html
See also *3.5.2 Waste Disposal (excavated material) Disposal- Open Burning*.

4.9 Green Cleaning Products and Reporting

In January 2005 Gov. Pataki signed Executive Order No. 134 that required all New York State agencies to use the least hazardous cleaning products to reduce worker exposure to irritating or harmful chemicals while maintaining safe and attractive workplaces. E.O. 134 also requires each agency to annually prepare written reports that describe what cleaning products were used, evaluate how well they met the "green cleaning products" order, and document reasons why other products were selected. The Office of General Services (OGS) maintains lists of Green Cleaning Products at http://www.ogs.state.ny.us/purchase/GreenCleaningProducts.asp and also compiles individual agency reports each January. For additional information about how this Order applies to State-owned and leased properties, or view the annual reporting form, please check the OGS' website.

5 WASTE MANAGEMENT

This section discusses issues and recommended procedures for waste management and disposal. It applies to wastes from all NYSDOT operations, whether the activities are facility- based or occur along the ROW.

5.1 Waste Management - General Rules

"Solid Waste" is a broadly defined term. It includes any garbage, refuse, sludge or any solid, liquid, semi-solid or contained gaseous material which is:

- Discarded;
- Disposed of; or
- Burned or incinerated.

Further, ***"solid waste"*** includes any substances:

- That are accumulated, stored, or physically, chemically or biological treated in lieu of or before being disposed of, burned or incinerated; or
- Which have served their original intended use and is sometimes discarded.

A "***Generator"*** means any person whose act or process produces a solid waste or whose act first causes solid waste to be subject to regulation. NYSDOT is considered the "generator" of wastes that result from its construction, maintenance, and other activities.

NYSDOT generates many categories of wastes. It is NYSDOT's responsibility to properly categorize the wastes and ensure proper handling and disposal based on the waste. NYSDOT wastes include:

- ***"Construction and Demolition (C&D) Debris"*** is uncontaminated solid waste from construction, remodeling, repair and demolition of utilities, structures and roads; and uncontaminated solid waste from land clearing. NYSDOT generates C&D debris during many activities including roadway rehabilitation and related activities;
- *"****Non-Hazardous Solid Wastes****"* includes routine trash and garbage from support and administrative operations including general litter collection from along the roadside (with the separation of specialty wastes);
- "***Non-Hazardous Industrial-Commercial Waste"*** is any solid waste which originates at, is generated by, or occurs as a result of any industrial or commercial activity (and does not meet criteria of a hazardous waste. Many NYSDOT specialty wastes such as discarded (non-hazardous waste) chemical products, used vehicular fluids for disposal, and contaminated soil are classified as non-hazardous industrial waste; and
- ***"Hazardous wastes"***, are solid wastes that have a "characteristic" or are "listed" in defined criteria of 6 NYCRR Part 371. Criteria are as described in *5.1.1 Hazardous Wastes*. Certain wastes such as lead paint removal waste may be hazardous wastes.

A determination of whether a waste is a hazardous waste as described under the "Hazardous Wastes" subsection should be conducted for all wastes that could possibly be hazardous wastes. The hazardous waste determination may be conducted by using generator's knowledge of the waste and/or testing. The product's Material Safety Data Sheet (MSDS) or product label should indicate if an unused product would be a hazardous waste. Information such as ingredients, flash point, pH and disposal requirements are useful in making this determination.

Consideration must also be given to used materials where contaminants and/or changes to the

material could have been introduced during its use. This type of contamination may not be easily predicted by generator's knowledge and may require testing of the typical waste product. Examples could include metal contamination in waste oils, degreasing solvent, or antifreeze that could be added during the vehicle operation that were not present in the original product.

The requirements for handling and disposal vary significantly for the different categories of wastes. The surplus and waste material requirements are outlined in the following subsections in order of decreasing regulation, with hazardous wastes being the most highly regulated disposal category.

5.1.1 Hazardous Wastes

5.1.1.1 Background:

Regulatory Basis - The Resource Conservation and Recovery Act (RCRA) establishes a comprehensive framework to regulate hazardous wastes codified in EPA regulations 40 CFR Part 261-268. In New York State, NYSDEC has authority for the program with the regulations at 6 NYCRR Parts 371-376. The New York State regulatory citations will be used in this document. RCRA regulates hazardous waste from "cradle-to-grave". Generators are responsible from the point of generation through the final disposal. Overall inspection checklists, *NYSDEC State Inspection Checklist: Large Quantity Generators(LQG) and Small Quantity Generators (SQG)* are available under the Hazardous Waste Generators heading as self assessment tools at the EPA Web site: http://www.epa.gov/Region2/capp/cip/rcra.htm

Generator and Co-Generators of Hazardous Waste – A ***generator*** is the person whose act or process first causes a hazardous waste to become subject to regulation. Depending on ownership, act or process, a waste may have ***co-generators*** - - as shown by the following example with a NYSDOT funded bridge rehabilitation contract.

When a contractor removes lead paint from the bridge, he or she becomes a ***generator*** by creating hazardous waste, lead paint removal debris. NYSDOT, however, as bridge owner/operator is also a ***generator,*** since initiating the project created the waste.

Where one or more people meet the definition of ***generator***, they are jointly and severally liable for compliance with hazardous waste regulations. The parties may, by a mutual decision, have one party assume the duties of generator. If a violation occurs, anyone meeting the definition of generator may be held liable for violations.

Hazardous wastes are tracked on a site-specific basis, with unique EPA numbers issued to the site. Since each facility or contiguous piece of property is viewed as a separate generator, each residency and each bridge in New York are typically considered separate site generators. **Forms/Instructions** for Notification of Regulated Waste Activity [EPA Form 8700] **to request an EPA ID Number** can be obtained at the following EPA links:
Federal site: http://www.epa.gov/wastes/inforesources/data/form8700/forms.htm
EPA Region 2 site: (New York State facilities forms get mailed to EPA Region 2):
http://www.epa.gov/region02/waste/csummary.htm#id

5.1.1.2 Hazardous Waste Determination: Generators must determine if their wastes are hazardous wastes per Part 371, including the following classifications:

2a. Listed wastes - Commercial products, off-specification products, container residues and spill residues of chemicals that are specifically "listed" are hazardous wastes when discarded. These would include the commercial/technical grade formulation of the product or products for which a

listed chemical is the sole active ingredient. (Note: Products are not listed hazardous wastes merely because they contain a listed ingredient in a mixture). Certain process wastes from certain types of industrial/maintenance activities may also be "listed". Examples include spent degreasing solutions containing certain components such as chlorinated solvents. Polychlorinated biphenyl (PCB) contaminated articles, liquids, and materials are also regulated hazardous wastes in NYS. Note: Listed hazardous wastes also include acute hazardous wastes which have additional requirements including designation of a generator as large quantity if > 1 kg is generated within any month. Since acute hazardous wastes are not anticipated within NYSDOT activities, the additional requirements are not detailed.

2b. Characteristic wastes - Wastes that have certain "characteristics" (ignitability; corrosivity; reactivity; and/or toxicity) are hazardous wastes regardless of their origin:

- **Ignitable -** Defined for liquids as having a flashpoint below 140° F;
- **Reactive -** Can explode or react violently when exposed to air or water;
- **Corrosive -** Can dissolve steel or harm skin (Defined as pH < 2 or > 12.5); and/or
- **Toxicity -** Does the waste have toxic constituents that can be released upon disposal? This characteristic considers not solely that the constituents are present, but whether they have the tendency to leach out and release into the environment upon disposal as measured by a test termed the ***Toxicity Characteristic Leaching Procedure (TCLP***). The TCLP is an analytical test which determines the potential of a toxic constituent (currently 40 constituents: metal, pesticide, and organic chemicals) to leach and become mobile and contaminate groundwater/waters upon disposal. Metals such as lead and chromium are constituents on the TCLP list.. For example, lead-based bridge paint removal waste is typically a hazardous waste due to lead toxicity characteristic.

5.1.1.3 Accumulation/Storage: Generators may "accumulate" hazardous waste on site without a permit as long as they comply with certain hazardous waste management regulations for their accumulation unit(s) and for their facility (such as a contingency plan and personnel training requirements). The length of time a generator is allowed to accumulate their waste will vary depending on the generator's classification (based on quantity generated). EPA interprets the accumulation provisions as allowing generators to store their waste for the allotted time period and to treat their waste in the accumulation unit, provided the generator complies with the generator requirements of Part 372.2 and the provisions included by reference for personnel training, preparedness and prevention, contingency plans and emergency procedures, and the management of container requirements.

3a. Hazardous waste generator categories and requirements - Generators must determine how much hazardous waste they generate and maintain records to document the amounts. The categories are:

- Large Quantity Generators (LQG) are fully regulated and generate >1,000 kg in any month;
- Small Quantity Generators (SQG) have somewhat reduced requirements and generate between 100 kg and 1,000 kg/month and store less than 6,000 kg on site at any one time; and
- Conditionally Exempt Small Quantity Generators (CESQG) have significantly reduced requirements and generate < 100 kg/month and store < 1,000 kg on site at any one time. For additional information on CESQG requirements, see CESQG item in *5.4 Waste Management - Specific Items and Topics*.

The hazardous waste management regulation requirements for LQGs and SQGs will be discussed through the remainder of this section. *Note: For rough estimation purposes, 100 kg = approximately ½ drum.*

3b. General Storage and Handling - Requirements vary based on the amount of hazardous waste

generated at a facility. For other than CESQG facilities, the following requirements apply:

- **Labels/Markings**(372.2)**:** Any hazardous waste container must be labeled with the following information:
  - The words "Hazardous Waste" and
  - The date the waste in the container was generated. This date is the day when the first wastes are placed in the container;
- **Accumulation Time** (372.2) - Hazardous wastes must be shipped within 90 days for LQGs and 180 days (270 days if it must be shipped more than 200 miles) for SQGs from the date of generation;
- **Containers** (373-3.9) - Containers must be in good condition, not leaking, and must be compatible with the wastes stored within. Containers must be kept closed and stored in a manner to prevent rupture or leaks; and
- **Inspections** (373-3.9) - At least weekly, the containers (and containment systems, if present) must be inspected for any leaks and deterioration. This inspection must be documented with a log of date, inspector, wastes present and condition. Immediate action should be taken on any leaks or deterioration.

Since storing is allowed without a permit only at the site of generation, hazardous wastes can not be moved to other off-site storage locations except for the following exceptions:

- Regulations allow hazardous wastes from CESQGs to be accepted at other locations (i.e., for consolidation);
- Per an agreement with NYSDEC, bridge lead-based protective coating removal wastes may be relocated to the nearest NYSDOT residency if space limits prevent; or
- Storage at the job site.

5.1.1.4 Emergency Preparedness, Prevention and Contingency Plans, Personnel Training and Release Reporting: Generators must document preparedness, prevention and contingency planning for the site addressing plans, responsibilities and emergency response actions. The emergency and contingency planning and training documentation for SQGs are not required to be written in formal plans. Planning and readiness must include:

4a. Preparedness and Prevention (Part 373-3.3 required by reference in Part 372.2) - Preparedness and prevention planning is required to ensure maintenance and operation of the site to minimize the possibility of a fire, explosion or release of hazardous waste constituents to the air, soil or water. Specifically required are:

- Adequate aisle space for emergency personnel and equipment as needed in the event of a fire or spill and to provide for inspection;
- Telephone or other device to summon emergency assistance and internal communications or alarm system. Employees must have access either directly or through visual or voice communications to an alarm or emergency device (i.e., telephone) whenever hazardous waste is being poured, mixed, spread or otherwise handled;
- Fire control equipment and materials (including fire extinguishers and adequate water) and spill control equipment as needed to address the hazards posed by the waste; and
- Arrangements with local authorities including police, fire departments, emergency response teams, and hospitals to familiarize them with the site and develop agreements for assistance.

4b. Contingency Plan and Emergency Procedures (373-3.4) - The facility must have a contingency plan to minimize hazards from any releases of hazardous waste to air, soil, or surface water. The plan must:

- Specify personnel actions to be taken in the event of a release or emergency;

- Describe arrangements with outside authorities;
- List names, addresses, and phone numbers of all persons to act as emergency coordinator;
- List all emergency equipment at the facility; and
- Include an evacuation plan.

At all times, there must be at least one employee either on site or on call who can act as the emergency coordinator.

4c. Personnel Training (373-3.2(g)) - Facility personnel must be trained to perform duties in accordance with hazardous waste regulations. Personnel must also be trained to understand emergency procedures, emergency equipment, and any emergency systems.

4d. Release Reporting - Releases/Spills above the designated reportable quantities for Hazardous Substances under CERCLA (Comprehensive, Environmental Response Compensation and Liability Act) as listed in 40 CFR Part 302 must be reported to the NYSDEC Spills Hotline (800-457-7362) and the National Response Center (800-424-8802). For example, the reportable quantity for hazardous waste solid with the characteristic of lead toxicity, D008, is 10 pounds. See *4.4 - Spills of Fuels, Chemicals and Hazardous Products*. In addition, the carrier must report any release of hazardous waste in any quantity that have been discharged during transportation (including loading, unloading, and temporary storage) to USDOT on Form F 5800.1 within 30 days of the incident.

5.1.1.5 Waste Minimization: LQGs of hazardous wastes must have a program to reduce the volume and toxicity of the waste generated and must certify such on manifest signature. NYSDOT strives to minimize generation of hazardous wastes as a component of its objectives for waste reduction, reuse, recycling and environmental sustainability, summarized in *5.3 Waste Reduction, Recycling, Reuse and Environmental Sustainability*.

5.1.1.6. Shipping, Manifesting, and Notifications: All hazardous waste must be transported from the point of generation to a permitted Treatment, Storage and Disposal (TSD) facility. The following narrative details the requirements for a proper transfer to the selected TSD facility.

6a. Manifesting (372.2) and Shipping Paper Descriptions - Manifests are required to ship hazardous waste for off-site treatment, storage, or disposal. The manifest is a multiple-copy tracking document required by USDOT and EPA/NYSDEC. It tracks the chain of custody for the waste from when it leaves the generator to final disposition at a TSD or recycling facility. Each party involved in any or all aspects of shipping the waste signs the manifest and retains a copy, providing critical continuity between the generator and the TSD facility (Part 372). The manifest provides the communication in lieu of the shipping paper required per USDOT (49 CFR Part 172).

i. Manifest Content - The USDOT information that must be placed in the manifest (shipping paper) is as follows: Proper Shipping name (including technical name in parenthesis for any "not otherwise specified (n.o.s.) names") [per 49 CFR 172.101]; Hazard classes [49 CFR part 173]; Identification number [49 CFR 172.101]; Packing Group [49 CFR Part 173].

ii. Manifest Tracking and Retention - Once the chain is complete, the TSD facility returns a signed copy of the manifest to the generator. If a generator does not receive a copy of the manifest signed by the TSD facility owner or operator within 45 days of the date the waste was accepted by the initial transporter (60 days for a SQG), an exception report must be prepared. Manifest copies must be retained for a minimum of 3 years.
6b. Reportable Quantity (RQ) - Reportable Quantities above which releases must be reported have

been determined and are listed in 40 CFR Part 302 for materials that have been designated Hazardous Substances under CERCLA (Comprehensive, Environmental Response Compensation and Liability Act). For shipments of such designated hazardous substances in packages exceeding the RQ, the letters RQ must be entered on the shipping paper before or after the basic description. Note: The transporter must provide notifications, however, of releases of hazardous waste in any quantity that occurs during shipment.

6c. Land Disposal Restriction Notification - Hazardous wastes also have treatment standards per Part 376, above which land disposal is not allowed and which must be communicated to the TSD facility. For example, for lead paint waste, this typically requires "stabilization" at the TSD facility before disposal so that the waste is below the treatment standard for the lead and chromium as an underlying constituent of concern. The notification to the TSD Facility that a waste exceeds the treatment standard must accompany the shipment.

6d. Prepare Containers for Shipping and Placarding of the Shipment:

- ***Labeling and Marking*** - Before shipment, containers must be marked with the following:
  - Proper shipping name and ID Number;
  - "HAZARDOUS WASTE –Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the US Environmental Protection Agency;
  - Generator's Name;
  - Manifest Document Number;
  - Any hazard labels as required for the USDOT hazard class; and
  - Accumulation Start Date (The date that the waste was first placed in container (required for on-site identification, not shipment);
- **Placards** - Placards indicating the hazards of the cargo are required on each side and each end of a transport vehicle for bulk shipments (exceeding 119 gallon containers); for certain highly dangerous materials in any quantity; and when >454kg/1001 pounds of the aggregate weight of the containers of otherwise regulated hazardous material is present (in multiple containers on the shipment; and
- **Packaging** - All containers used in transporting hazardous wastes must meet the requirements of 49 CFR Parts 173, 178 and 179.

6e. Emergency Response Information and Phone Numbers - Emergency response information and emergency contact phone number must accompany each shipment of hazardous waste and be available to emergency response personnel to mitigate any incidents involving the hazardous waste during transportation. The information must contain the following information:

- The basic description and technical name of the hazardous material;
- Immediate hazards to health;
- Risks of fire or explosion;
- Immediate precautions to be taken in the event of an accident or incident;
- Immediate methods for handling fires;
- Initial methods for handling spills or leaks in the absence of fire; and
- Preliminary first aid measures.

The applicable page from the USDOT Emergency Response Guidebook is typically supplied to satisfy these requirements. In addition, an emergency response phone number that is monitored throughout the transportation process must be supplied for use in the event of an emergency involving the hazardous material during transportation.

6f. Security planning and training are new USDOT requirements (49 CFR 172.800 and 172.704).

These changes require hazardous waste generators and carriers to perform the following:
i. Security - As offerers of hazardous waste for transport, both NYSDOT and the Contractor are required to perform the following:

- **Security awareness training** - Each hazmat employee must receive training about the security risks associated with the hazardous waste transportation, methods designed to enhance security, response to security threats and contents of the site-specific security plan; and
- **Security Plan** - A written security plan must be prepared covering the following:
  - An assessment of the transportation security risks for shipment of the hazardous waste.
  - Personnel security;
  - Prevention of unauthorized access; and
  - Security en route.

ii. Transporters - The transporter (carrier) of hazardous wastes must have:

- Obtained an EPA identification number as a transporter;
- NYS waste transporter permit (Part 364);
- Any other licenses/transporter permits from any other states through which the waste will travel if any other states have requirements;
- Registration with USDOT as a hazardous material carrier if required under the Hazardous Materials Transportation Uniform Safety Act of 1990 (HMTUSA). Government agencies and their employees (but not our contractors) are exempt from this requirement for registration as a shipper of hazardous material. Carriers/persons must be registered if shipment met certain criteria (likely to be impacted in hazardous waste shipments) including:
  - Hazardous materials in bulk packaging/containers exceeding more than 13.24 cubic meters. Roll-offs of lead-based protective coating waste could be expected to exceed this criteria; and/or
  - Shipments in other than bulk packaging of 2,268 kg gross weight or more of a class of a hazardous material for which placarding of the vehicle would be required. A large quantity of drums of lead-based protective coating waste could exceed this criteria; and/or
  - A quantity of hazardous materials that requires placarding. Several drums of lead-based protective coating removal waste could exceed this quantity.

  Since hazardous waste transporters typically handle many different types and quantities of hazardous wastes, it would be expected that they would require registration.
- Security - As a registered carrier, the permitted waste transporter is required to perform the same security measures as described in 6f.i. above.

5.1.1.7 Annual Reports, Fees, Taxes and Records Retention: The following are reports, fees and related procedures required of generators of hazardous wastes in New York:

7a. Generator Annual Reports - Annual reports are required to NYSDEC for all large quantity generators, due March 1, for the preceding calendar year.

7b. Regulatory and Surcharge Fees (Hazardous Waste) - Hazardous waste program fees (regulatory and surcharge) are assessed upon large quantity generators that generated 15 tons or more of hazardous waste within the calendar year. The surcharge fees (approximately 4 times the original fees) were added to the base regulatory fees starting in 2004. The fees are typically assessed by NYSDEC based on manifest records with invoices sent to and paid centrally by Main Office Accounting with the correctness of the assessment determined by regional review. The combined fees start at $5,000 ($1,000 regulatory fee and $4,000 surcharge fee) for a facility generating 15 tons and increase with higher generations. These fees are in addition to disposal costs and the special tax that is assessed on waste generations.
7c. Special Assessment (Tax) - A quarterly assessment (Form TP-550) is required to be submitted to

the NYS Department of Taxation for any calendar quarter that hazardous waste disposals exceeded 1 ton or more, dependant on the disposal method. This assessment is in addition to the disposal fees and regulatory fees.

7d. Records Retention - All manifests, annual reports, land disposal restriction notifications and documentation of the hazardous waste disposal must be retained for at least 3 years. As the generator has cradle-to-grave responsibility which has no time limit, it is often advisable to retain documentation of proper disposal for longer time frames.

5.1.2 Non-hazardous industrial wastes

Some wastes that do not meet any hazardous waste criteria, but result from work activities are considered industrial-commercial wastes. Industrial commercial wastes are disposed of at municipal/commercial disposal facilities, similar to routine nonhazardous solid waste, at recycling facilities and/or at specialized facilities for that type of waste. Shipment, however, requires transport by permitted waste transporters, if transported in greater than exempt quantities (500 pounds/shipment). Examples of non-hazardous industrial wastes include:

- Paint and paint chips that do not contain any regulated RCRA metals or that do not fail the TCLP test. This also includes millings of traffic markings and adhering road material when markings are purposely removed from pavement;
- Non-hazardous used oil, non-hazardous waste antifreeze, and other waste vehicular fluids and filters that do not meet the criteria of hazardous waste;
- Contaminated soil such as soil contaminated with petroleum or other materials, but not at levels to be considered a hazardous waste;
- Friable (able to flake) asbestos (Special concerns apply. See *5.4 – Waste Management- Specific Items and Topics- ASBESTOS*)";
- Unused products containing chemicals (that are not hazardous wastes); and
- Empty drums/containers for disposal, not recycling.

NYSDOT may self-transport up to 500 pounds of non-hazardous industrial wastes in a single shipment without requiring the vehicle to be permitted. See *5.4 - Waste Management - Specific Items and Topics* for disposal information specific to each item.

5.1.3 Non-hazardous solid wastes

Routine garbage, office trash, and most litter collection are considered non-hazardous wastes. Most of the adopt-a-highway trash, excluding tires and other items that are industrial or possibly hazardous wastes, are non-hazardous solid wastes. These wastes should be sent to municipal or commercial landfills or trash burning plants, and no special haulers or manifests are needed.

5.1.4 C & D (Construction and Demolition) Debris

Uncontaminated solid waste from construction, remodeling, repair and demolition may be disposed of at permitted C&D debris landfills or may be disposed of at municipal solid waste landfills. Permitted C&D debris processing facilities may also be an economical disposal option for projects in metropolitan areas. Generally, where available, C&D debris landfills typically charge less than municipal or commercial solid waste landfills. Certain C&D wastes have additional disposal options outlined below under *Exempt C&D and Spoil*. Permitted C&D landfills can accept the following types of wastes:

- Uncontaminated bricks, glass, asphaltic pavement, concrete and masonry materials. (Pavement containing routine intact traffic markings or that has come into contact with petroleum products through normal vehicle use of the roadway are considered clean);
- Uncontaminated soil, rock and land clearing debris;

- Wood and wood products;
- Wall coverings, plaster and drywall;
- Plumbing fixtures, electrical wiring and components containing no hazardous liquids, non-asbestos insulation, plastics that are not sealed in a manner that conceals other wastes, roofing shingles and other roof coverings;
- Empty buckets/containers (10 gallons or less) with less than one inch of residue in the bottom
- Pipes or metal attached to, or embedded in, these waste materials; and/or
- Contact the NYSDEC Regional Solid Waste contact for information regarding authorized disposal or treatment facilities in the area.

Exempt C&D Debris and Spoil: Some types of C&D wastes (*Exempt C&D* or "fill") have additional disposal options as follows:

- Waste related to vegetation, including trees, stumps, yard waste and wood chips from these materials may be buried on ROW/NYSDOT property in an area that has been approved by Environmental staff. *(Note: Within the APA, this activity requires a permit from the APA.)* Regions or residencies may use mulch from trees, stumps or other vegetation waste to help control erosion, stabilize banks or protect new plantings, such as living snow fence, from being overrun by weeds. Mulch is also useful for starting or maintaining deer composting piles.

  In some parts of the State, the presence of invasive insects, such as the Asian Longhorn Beetle or the Emerald Ash Borer, may require special handling or disposal of vegetation wastes. Because of the dynamic nature of the spread of invasive insects, check with your MEC or Director of Regional Crews, to see if there are special handling or disposal requirements for vegetation wastes at your location;
- Recognizable uncontaminated concrete and concrete products (including steel reinforcing rods embedded in concrete), asphalt pavement, brick, glass, soil and rock may be buried on NYSDOT property (except for Nassau and Suffolk Counties) as above or off-site at a facility (except for Nassau and Suffolk Counties) that takes no compensation and operates only during daylight hours (i.e., facilities requesting fill at no charge). *(Note: Within the APA, this activity requires a permit from the APA);* and
- Recognizable (unprocessed) uncontaminated concrete and other masonry waste (including steel or fiberglass reinforcing embedded in concrete), asphalt pavement, brick, soil or rock that has not been in contact with a spill from a petroleum product, hazardous waste, or industrial waste, and is not commingled with any other solid waste may be handled at a registered C&D debris processing facility. Readily recyclable items such as steel beams, guiderail, posts and cables are not considered exempt C&D.

If other wastes get mixed into the materials listed above, the entire area may be considered an illegal landfill and cleanup and removal of <u>everything</u> may be required. More restrictive regulations for Nassau and Suffolk Counties and within the Adirondack Park require a permit for any landfilling, including placement of fill.

Placement of any materials must consider the environmental issues associated with the location of the placement as discussed within the general work and operational activities (See sections 2 and 3) and includes consideration of:

- Wetlands and floodplains (can not be placed in wetlands/buffer);
- Erosion Control;
- SPDES Phase 2 (Fill placement may disturb more than 1 acre);
- Property - owner approval;

- Local planning and zoning approval which owner must consider; and
- Cultural resource presence.

5.2 Specialty Waste Disposal (including drums and containers of products, chemicals, and other wastes)

Specialty wastes include hazardous wastes, chemical products (including partially- used products) or other materials that are not disposed of by routine trash collection and require a special waste contract for disposal. Disposing of specialty wastes is generally a two-step process:

a) ***Identify specialty wastes and if necessary perform laboratory testing*** - Known unused materials with sufficient information on their characteristics from material safety data sheets (MSDSs) or other information sources can be identified adequately for disposal. Examples include unused containers of toluene or paint with labels intact and MSDSs available. Sufficient information may also be available to identify used materials of known characteristics such as antifreeze where the waste had previously been tested and the process generating the waste has not changed; or fluorescent bulbs which are known to be hazardous due to mercury content. For waste of unknown or uncertain identity or where contamination could be added at unknown levels to the material upon use, testing may be required to adequately identify the waste for disposal. The NYSDOT has contracts with analytical laboratories and standard procedures for confirming suspected drum contents. The contracts with these labs are designed to characterize wastes for disposal and will meet regulatory standards without adding unnecessary testing. Call the MEC for assistance in inventorying, identifying and testing materials for disposal. The current lab contract is posted in the Manual/Guidance Section of the ESB Intradot site;

b) S*pecialty waste disposal contracts* - A specialty waste disposal contract can be developed to remove and dispose of specialty wastes as identified on the inventory. The contracts should include MSDSs and analytical results to assist the contractor in providing proper handling, recordkeeping and disposal of the wastes. It is generally most cost-effective to arrange for disposal of all waste materials within a DOT Region at one time, but smaller or periodic disposal contracts may be required if storage time limits or storage space are issues (See *5.1.1.3 Hazardous Wastes-Accumulation/Storage*). Contact the MEC and/or the Procurement Bureau ((518) 457-4401) in the Main Office for assistance in developing contracts; and

c) ***Laboratory Analysis Tests (Totals versus TCLP)-*** "Totals" testing measures the constituent component as a part of the entire sample, usual on a weight of constituent per weight of entire sample, such as milligrams per kilogram. The Toxicity Characteristic Leaching Procedure (TCLP) measures the component of the constituent that will leach out in a standard (EPA preparation method 1311) "extracting" solution (with specified timeframes, dilutions, etc. The constituent concentration is measured as the component of constituent in weight per volume of the resulting extraction solution, such as milligrams per liter. Since the objective of waste regulation is to consider the hazards of the waste upon disposal, some of waste characterization criteria (specifically, the characteristic of toxicity), consider the tendency of the hazardous constituent (such as metals, organic compounds and pesticides) to leach and become mobile and contaminate groundwater/waters upon disposal. A "theoretical" maximum TCLP concentration can be determined by material balance and mathematical calculations from the total concentration of a constituent which assumes that <u>all</u> of the constituent present is extracted into the leachate. For this theoretical maximum concentration conversion, the concentration in mg/kg is divided by 20 to determine the maximum possible TCLP concentration in mg/l. In determining what analytical tests to perform it is important to determine the form of the standards for which the results will be compared. Generally, for employee exposure and site assessment work (for soils that may remain on site) and non-hazardous contaminated soils, total concentrations are most frequently required. For RCRA metals contamination, TCLP results are needed to determine if it is regulated as a hazardous

waste.

5.3 Waste Reduction, Recycling, Reuse and Environmental Sustainability

The overall objective of the transportation system is "sustainable" development that balances economic, environmental and social needs and consists of a long-term, integrated approach to planning, design and decision making. Another objective is incorporation of environmental stewardship/ environmental enhancements into projects, because there is the opportunity (often simple and inexpensive) to do so. The Department Environmental Policy, Environmental Initiative and Solid and Hazardous Waste Reduction Policy support these goals on an agency-wide approach.

The Department's waste reduction and recycling goal includes two major objectives:

1. Reduce waste quantity and toxicity generated and pursue recycling of wastes generated from construction and maintenance operations; and
2. Maximize recycled material use within highway applications and support functions (such as use of reused materials as a substitute for raw materials) and minimize use of clean natural materials in projects (including balancing of cuts and fills).

The policies document the following principles:

- Wastes should be prevented or reduced at the source whenever feasible;
- Wastes that cannot be prevented should be recycled whenever feasible;
- Wastes that cannot be prevented or recycled should be treated whenever feasible;
- Disposal or other release into the environment should be employed as a last resort and should be conducted in an environmentally safe manner;
- Source reduction will include any practice which:
  - Reduces amounts of any hazardous substance, pollutant, or contaminant entering any waste stream or otherwise released into the environment (including fugitive emissions) before recycling, treatment, or disposal; and
  - Increases efficiency in use of raw materials, energy, water, or other resources, or protection of natural resources by conservation.

Practices can pertain to: equipment or technology modifications, process or procedure modifications, reformulation or redesign or products, substitution of raw materials, and improvements in housekeeping, maintenance, training, or inventory control. Examples of techniques that have been used by NYSDOT to reduce wastes include:

1) ***Recycling*** - DOT recycles waste materials such as used antifreeze and vehicle batteries;
2) ***Reuse*** - Whenever possible, DOT reuses asphalt and concrete pavements as a substitute for crushed stone in subbase and other engineering applications; and
3) ***Waste to energy*** - DOT routinely collects used motor oil that is burned for fuels or space heating.

5.4 Waste Management - Specific Items and Topics

This category discusses disposal procedures for specific wastes items and discusses specific waste topics, arranged alphabetically. If you have any waste disposal questions, contact the MEC.

ABANDONED DRUMS AND CONTAINERS IN RIGHT-OF-WAY (ROW): Abandoned drums or containers of unknown substances that are found along the ROW are handled similarly to spills of hazardous substances on the ROW (See *3.8 - Spill Response Within the ROW*). The NYSDEC spill response program has contractors who can safely remove the drum or container, test its contents, and dispose of it properly. If you find a drum or container of an unknown substance, note its location but DO NOT MOVE IT OR TAKE IT BACK TO THE RESIDENCY! Call the NYSDEC Spill Hotline at 1-800-457-7362 to report abandoned drums and for assistance. NYSDEC

may need assistance to locate where the drum can be found on the ROW. Some illegally disposed drums may be the result of criminal activity. State or local police investigators may want to look for evidence such as fingerprints, footprints, tire tracks, etc. Be careful and try not to ruin any evidence that may be helpful to police.

ACUTE HAZARDOUS WASTES: Acute hazardous wastes (P listed) are toxic or reactive in small quantities and are regulated as strictly as larger quantities of other wastes. They include cyanide, strychnine and dioxin wastes and are not anticipated from typical NYSDOT activities.

ADOPT-A-HIGHWAY and ROADSIDE TRASH/DEBRIS WASTE: Routine trash picked up along the ROW is considered non-hazardous waste and can be disposed of at municipal/commercial landfills or disposal facilities. Except for items that are possibly industrial or hazardous wastes, AAH groups should not separate roadside trash, garbage and debris. Some wastes that are industrial or possibly hazardous wastes need special handling and are listed as: abandoned drums and containers, medical waste including needles and syringes, tires, animal carcasses or anything that appears to be a hazardous waste. Call a Region or Residency Adopt-a-Highway contact or MEC if you have questions.

AIR CONDITIONING FLUIDS (Freon): See *REFRIGERANTS*.

ANIMAL CARCASSES (Road-Kill): Dead animals can be disposed in several ways:

1) Placed in wooded or heavily vegetated areas well off the shoulders in rural parts of New York.
2) Buried on NYSDOT owned property if:
   (a) No more than 10 animals are buried in a single pit;
   (b) At least 1 meter (3 feet) of soil is placed over the carcasses which cannot be placed within groundwater;
   (c) The burial pits are spaced at least 15 meter (50 feet) from each other, from any residence and from any surface waters; and
   (d) Burial is in a well-drained area, above the water table;
   (Note: the transportation agency is allowed to do such burial on their own property, but any other landowners could not bury carcasses from off-site without permits and compliance with landfill standards.)
3) At a municipal disposal facility or rendering plant that will accept them. *(Note: Many landfills have refused to accept carcasses)*;
4) Work Order Contracts (WOCs): Some parts of the State are covered by contractors who will pick-up and remove carcasses for a fee; and
5) Static Pile Deer Carcass Composting.

Composting deer carcasses is an effective alternative to the above methods. Complete details of the document entitled *Road-Kill Deer Carcass Composting, Operational and Maintenance Manual, Region 8 NYSDOT* can be found at:
http://www.dot.ny.gov/divisions/engineering/environmental-analysis/repository/deer_c_manual.pdf

The basic procedure is to select a well drained location with an impervious work surface and layer deer carcasses between layers of chipped tree limbs. To manage odor and discourage scavenging, care must be taken to completely cover all carcasses with a thick layer of wood chips and the compost pile should not be mixed.

ANTIFREEZE (COOLANTS): New antifreeze would not be a listed hazardous waste or fail any characteristic for hazardous waste. However, any contaminants such as chlorinated solvents,

benzene, or metals that could be introduced during use must be considered to determine if the waste antifreeze could be a hazardous waste. Generator knowledge and/or representative testing of the typical waste is required to determine if it is classified as hazardous waste. Used antifreeze should be collected in dedicated drums or tanks and clearly labeled. Disposal should preferably be by a commercial recycler who will reclaim the material.

ASBESTOS: Asbestos is a mineral that breaks into very small fibers and was used for many years in making fire-proofing, roofing, siding, flooring, ceiling tile and others building products. Friable and non-friable asbestos containing materials (ACM) shall only be handled or packaged for transport by NYS Department of Labor (NYSDOL) licensed certified personnel. Friable asbestos (able to flake) waste shall only be transported by a permitted waste transporter under a waste shipment record and disposed of at a permitted waste management facility approved to accept friable asbestos. Non-friable asbestos, however, may be transported and disposed of as C&D waste. Any renovations or demolitions involving buildings, bridges, and utility lines that could contain asbestos must be evaluated by licensed certified personnel. OSHA requires a visual inspection to identify materials you think may contain asbestos for future reference. If this inspection has not been performed at the facility, or if you think you have found asbestos waste along the ROW, contact the MEC for help and further instructions. (See also NYSDOT Safety Bulletin, SB-02-5, Asbestos)

BALLASTS - Polychlorinated biphenyls (PCBs): Some older fluorescent lamp (light) fixtures have ballasts with an oily insulating liquid that contain PCBs which must be disposed of as a PCB hazardous waste. PCB-free dielectric oil contained in newer ballasts can be handled and disposed of as used oil. Assume the ballast contains PCBs unless it is marked "does not contain PCBs". The ballast should be separated from the lampbulb and disposed of separately. Quotes for disposal should be obtained following Department purchasing procedures. (See *FLUORESCENT BULBS* for bulb disposal).

BATTERIES: Requirements vary for batteries dependant upon type and content and may require specialty recycling or disposal due to metal content or corrosivity. The federal Battery Act of 1996 required the phase out of mercury in alkaline batteries and required the development of recycling programs for nickel cadmium, lead and certain other batteries. Review information on the battery (or provided with it) and, unless supplier information indicates otherwise, handle by the following general guidelines:

- **Lead Acid Batteries**, typically vehicle batteries and small sealed batteries in electronic equipment, contain acid liquid and lead and must be recycled or disposed as hazardous waste. NYS law requires retailers/distributers to accept used automotive/truck/RV batteries back for recycling at no charge (two per month maximum without new battery purchase). Turn in the old batteries when new batteries are installed. Licensed waste transporter, manifesting of shipment, or inclusion of the battery quantities in site hazardous waste generation amounts and generator status calculations are not required;
- **Nickel-Cadmium** rechargeable batteries must be recycled or managed under the "Universal Waste Rule". The Rechargeable Battery Recycling Corporation (RBRC) at 800-8-BATTERY can provide assistance in recycling; alternatively, specialty waste disposal contracts could include the recycling of these batteries in their requirements;
- **Nickel Metal Hydride** batteries are not specifically required to be, but should also be similarly recycled. **Silver Oxide** and formerly available **Mercuric Oxide** batteries must also be recycled or disposed of as hazardous waste due to silver or mercury content, respectively; and
- **Alkaline batteries** and carbon-zinc batteries are now made with no intentionally added mercury and are considered acceptable for disposal as routine municipal waste.

BRUSH AND TREE (Clearing and Grubbing) Waste: See *5.1.4 - Waste Management - C & D (Construction and Demolition) debris - Exempt C&D.*

CESQG (Conditionally Exempt Small Quantity Generators) (hazardous wastes): Facilities that generate <100 kg hazardous wastes in any month and store less than 1000 kg on site at any one time have significantly reduced hazardous waste regulatory requirements as follows:

- **Waste Identification** (372.2) - Determine if wastes generated are hazardous wastes and determine quantities of generation;
- CESQG **do not require** an EPA ID number, annual reports, manifesting of shipment, accumulation time and storage requirements, training/emergency planning documentation, and land ban notification requirements (371.1(f)); and
- Hazardous wastes from CESQGs can be disposed at a permitted hazardous waste facility or municipal or industrial solid facilities that can accept that type of waste. (It is recommended, however, that CESQG quantities be disposed of at hazardous waste facilities and most protective secure options be selected). Since wastes from CESQGs can be accepted at other locations without requiring the recipient site to be a permitted facility, CESQG waste can be moved and consolidated at other locations (For other categories of hazardous waste generators, storage without a permit is only allowed at the site of generation unless special agreements are negotiated).

C & D (CONSTRUCTION AND DEMOLITION) WASTES: See *5.1.4 - Waste Management - C & D (Construction and Demolition) debris*

CONCRETE SEALERS: Unused concrete sealers typically have a flash point below 140^{o} F which would classify the product as an ignitable hazardous waste. The product upon use, however, with the volatile components evaporated, is no longer ignitable/flammable.

CONTAMINATED SOIL OR SEDIMENT: Contaminated soil is an industrial waste and requires disposal at municipal/commercial disposal facilities (such as sanitary landfills) reclamation facilities or at specialized facilities for the type of contamination present. The potential for contaminated soil to be a hazardous waste due to characteristics such as flammability or toxic metal content must also be considered. If you suspect that soil or sediment is contaminated, call the MEC to help arrange further investigation and possible testing. Soil or sediment may be contaminated if it is discolored or stained, or smells like fuel or sewage.

CULVERT AND CATCH BASIN CLEANINGS: Uncontaminated grit and sediment from culverts and catch basins is normally disposed of as C&D waste and is not considered contaminated unless it smells like petroleum, fuel, or solvents, or is mixed in with other wastes like roadside trash. (See *5.1.4 - C&D (Construction and Demolition) debris - Exempt C&D and Spoil* and *3.2- Drainage and Stream Channel Maintenance*). Contaminated cleanings should be handled as contaminated soil and sediments.

DEGREASERS: See *PARTS WASHER WASTES.*

DIAMOND GRINDING SLURRY: "Diamond grinding" is a process used to restore smoothness to concrete (or asphalt) pavement. Slurry consists of fines removed from the pavement and water, originating as the coolant from the abrading process. NYSDOT placement of concrete or asphalt slurry from diamond grinding is considered recognizable concrete/asphalt subject to the exemption provisions of the Construction and Demolition (C&D) debris provisions of 6NYCRR Part 360-7.1 (b) (1)(i) when placed on state property under the control of NYSDOT in a manner and location that is in compliance with all other environmental regulations. Letter of interpretation and supplemental

information may be found in the Appendix of TEM Chapter 4.4.20 – Contaminated and Hazardous Materials.

DISPOSAL PROCEDURES FOR EACH CATEGORY OF WASTE (including Drums and Containers of Wastes and Other Specialty Wastes): See *5.2- Specialty Waste Disposal Procedures* and/or specific waste item.

EMPTY DRUMS AND CONTAINERS: Drums and containers that have had all of the contents removed by common practices and have less than 25 mm (1 inch) product residue on the bottom and less than 3 % of the original product are considered "empty" and nonhazardous, even if the material they contained (such as solvents or coatings with flashpoints below 140^{o}F) would otherwise be classified as a hazardous waste (This does not apply to drums or containers that held acutely hazardous wastes which would require "triple cleaning"). "Empty" containers may be returned to the manufacturer, sent to a reconditioner or handled as scrap metal, cardboard, etc. They are exempt from waste transporter requirements when destined for such reuse. "Empty" containers are nonhazardous industrial wastes when otherwise disposed. Small containers of up to 10 gallon capacity are, however, considered C&D debris and can be disposed of as such.

The original product label and hazard warnings must be left on drums or containers until they are empty as described above and no longer pose the indicated hazard. Remove or obliterate the label and mark the drum "empty" as soon as the drum is empty by these criteria. The hazard markings must be removed from an empty drum meeting these criteria prior to removing from the facility.

EPA ID NUMBER (Hazardous Wastes): See *5.1.1 Hazardous Wastes- Background.*

FILL (Exempt C&D) - Brush & Tree (Clearing and Grubbing) Waste and Some Recognizable C & D Debris: See *5.1.4 - C & D (Construction and Demolition) debris - Exempt C&D.*

FREON: See *REFRIGERANTS.*

FLOOR DRAINS: See *4.1 - Vehicle Washing, Floor Drains and SPDES*.

FLUORESCENT BULBS: Mercury content makes typical spent fluorescent bulbs (lamps) hazardous wastes. Intact (not crushed or broken) fluorescent lamps may be handled as "universal wastes" allowing for somewhat reduced regulation (See *UNIVERSAL WASTES*). Some manufacturers are marketing lamps with lower mercury content; these lamps may not be hazardous wastes when spent. Unless the lamps are marked (or otherwise identified) as low mercury content lamps, assume they must be handled and disposed of as a universal or hazardous waste, with hazardous waste code, D009. Quotes for disposal should be obtained following Department purchasing procedures. Lamps marked or identified as low mercury must be evaluated to determine if they are a hazardous waste; manufacturer's data may be used to support a determination that particular lamps are not a hazardous waste. Note: Ballasts should be segregated from the lamp. It may be a hazardous waste due to PCB content (See *BALLASTS*). For more information on lamp regulation, see: http://www.dec.ny.gov/chemical/9088.html.

FUEL FILTERS: Used gasoline or diesel fuel filters are hazardous wastes because they are typically ignitable (waste code D001) or toxic for benzene (waste code D018). These should be stored in closed containers, separate from other wastes, and labeled, handled and disposed as hazardous wastes. However, if fuel filters can be drained of all free liquids, they can qualify as scrap metal and be recycled at a scrap metal facility, under the scrap metal exemption.

GREASE AND TAR: Collect grease and soft tar in separate containers with proper labeling. Include these containers for disposal by a specialty waste disposal contract.

HAULING HAZARDOUS AND INDUSTRIAL WASTES: See *WASTE TRANSPORTER PERMITS*.

HAZARDOUS SUBSTANCES IN EQUIPMENT: Some equipment contains hazardous substances that may require special handling and disposal. Examples include switches or thermometers that contain mercury, or ballasts and light fixtures with PCBs (See *UNIVERSAL WASTES* and *BALLASTS*). Call the MEC with specific questions.

HERBICIDES: Herbicides are regulated pesticides. See *PESTICIDES*.

HYDRAULIC FLUID: Hydraulic fluids such as brake fluid, transmission fluid and power steering fluid are chemically different from motor oil, but for regulatory purposes can be handles as used oil and may be mixed with and recycled along with used oil. The recycler or disposal firm should be consulted, however, on their specific requirements. The fluids also must not be contaminated with any solvents or other materials that could make them hazardous wastes.

LIGHTING WASTES: See *BALLASTS* and/or *FLUORESCENT BULBS*.

LITTER FROM THE ROADSIDE: See *ADOPT-A-HIGHWAY WASTE*.

MANIFEST: See**:** *5.1.1.6- Shipping, Manifesting, and Notifications.*

MEDICAL WASTE (Used Syringes or Needles): Used hypodermic needles and syringes are sometimes discarded at rest areas or along ROW. Used needles and other "sharps" can poke workers, and some bloodborne diseases like hepatitis can be transmitted if the virus is present. (The AIDS virus is unlikely to live more than an hour outside a human host, but should also be considered a risk.).

CAREFULLY place the syringe in a container and label with a biohazard sign (or use red containers). Disposal should be at a local hospital or other facility that can accept medical waste. As with "Abandoned Drums", notify NYSDEC for assistance if large quantities are found. (See also Safety Bulletin, SB-91-1, Infectious waste and agents).

METAL ARTICLES FOR RECYCLING: Materials including source separated metal materials (steel beams, guiderail, posts and cables, etc) traditionally incorporated as substitute to raw metal in the manufacturing process are encouraged to be recycled and are exempt from regulation as solid waste when recycled per 360-1.2(a)(4)(viii).

OIL FILTERS: Used oil filters are a non-hazardous waste if used oil is removed from the filter. The filter may then be preferentially recycled as scrap metal or otherwise disposed of as non-hazardous waste. For the oil to be considered "removed", filters must be gravity hot-drained by:

- Puncturing the filter and hot draining; or
- Hot draining and then crushing the filter; or
- Dismantling and hot-draining; or
- Other equivalent hot draining method that will remove used oil.

EPA recommends hot draining occur at or near engine operating temperature for at least 12 hours.

The drained oil is combined with other used oil from the site for recycling. See *USED OIL*.

PAINT: Most unused paints, including waterborne, have a flashpoint below 140 ^{o}F and therefore require handling and disposal as an ignitable waste (waste code D001). If the paint contains lead or chromium, the potential for the waste to have a toxicity characteristic for lead or chromium (codes D008 and D007, respectively) must also be considered.

PAINT REMOVAL WASTE (Lead-Based Bridge Paint): Paint removal waste from abrasive blasting or other removal methods for old lead based paint from bridge rehabilitations is typically considered a hazardous waste for lead toxicity. The following outlines and consolidates the information for handling, shipping and disposal of lead paint waste as a hazardous waste:

- *Hazardous Waste due to the Characteristic Lead Toxicity, Waste Code D008;*
- *USDOT Shipping Description: RQ Hazardous waste, solid, n.o.s. (D008); 9; NA3077; PG III;*
- *Constituents of Concern: Lead and Chromium;*
- *Treatability Group: Non-wastewater;*
- *Treatment Standard: 0.75 Lead mg/l and 0.60 mg/l Chromium by TCLP test;*
- *Reportable Quantity: 10 pounds;*
- *Placard for shipments exceeding 1001 pounds or bulk - Class 9;*
- *Markings on container:*
  Hazardous waste, solid, n.o.s. (D008); NA3077
  HAZARDOUS WASTE –Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the US Environmental Protection Agency
  Generator's Name: NYSDOT Region_ EPA ID # (for bridge) ____.
  Manifest Document Number (fill in actual manifest # when shipped) Accumulation Start Date (When waste was placed in container (required for on-site identification, not shipment);
- *Hazard Label on containers: Class 9;*
- *USDOT Emergency Response Guidebook Guide: 171, Substances (Low to Moderate Hazard); and*
- *NAICS (industrial classification code) included in EPA ID number requests:* ***23731*** *Highway, Street, and Bridge Construction (or 237310 same title) for NYSDOT typical construction/TMD sites NAICS code.*

(DRIED) PAINT CHIPS AND FLAKES: Dried pavement marking paints and other non-lead dried paint are non-hazardous industrial wastes, requiring disposal at a municipal landfill. These dried paints include markings purposely removed/milled from the road surface, but would not include the paint markings incidentally present on an entire removed section of roadway which would qualify as C&D debris. Testing of typical dried yellow pavement marking paints (waterborne and epoxy), however, has indicated that, although lead and chromium have been present in products in the past the dried products are under regulatory levels for hazardous waste. *Note: Landfills, however, may be unwilling to accept paint waste or may require additional testing. Dried paint wastes may also be collected, stored and disposed of by the specialty waste disposal contract.*

PAINT THINNER: Most paint thinners are organic solvents that would be listed or ignitable wastes. Store and handle them as hazardous wastes.

PAINT WASH WATER From PAVEMENT Marking Equipment (Waterborne pavement marking washwaters): Washwaters from cleaning of pavement marking equipment and activities must be disposed of as a specialty waste or, with approval of the servicing facility, discharged to the public sanitary treatment works. (It may not be discharged to stormwater or floor drains).

PARTS WASHER WASTES: Ignitability may make spent solvents from parts washers a hazardous waste. The solvent in Safety Clean parts washers typically has a flashpoint below 140^{o}F

and would be an ignitable waste on disposal. The solvent in the Zep Parts washers has a flashpoint exceeding 140^{o}F so would not be expected to be ignitable. Any contaminants such as metals that could be added through use must also be considered. Typical spent filters (bag and cartridge filters) from the Zep parts washers have been tested for contaminants including metals that could be introduced during its operation and were under regulatory limits and are therefore determined to be a non-hazardous waste.

PESTICIDES (Includes Herbicides and Insecticides): Keep all pesticides in original, labeled containers, and keep pesticide labels and Material Safety Data Sheet (MSDS) on file at the facility and with staff who are applying the pesticides. When herbicides are transferred to tanks, injection units, backpack sprayers or small spray bottle containers, such containers must have the herbicide label on the container or on the person making the application, in the case of backpack sprayers and small spray bottle containers. Save partly-used containers for next use. Pesticides that cannot be used must be disposed of by a specialty waste contract. Follow instructions on disposing of the container that are found on the pesticide or herbicide label.

It is possible to purchase many of the herbicides used by NYSDOT in reusable or returnable containers. Two issues that may limit the use of reusable and returnable containers are that they come in specific sizes and some vendors require purchasing a minimum quantity that may be greater than the amount of materials used at a location. (See also *EMPTY DRUMS AND CONTAINERS*).

PETROLEUM CONTAMINATED SOIL: Soil materials contaminated by petroleum products, including (but is not limited to) gasoline, heating oil, diesel fuel, kerosene, jet fuel, lubricating oils, motor oils, and other fractions of crude oil are require disposal as industrial waste (See *CONTAMINATED SOIL AND SEDIMENT*).

REFRIGERANTS: Refrigerants such as Freon are used in air conditioning systems and contain chlorofluorocarbons (CFCs) which pollute the air. Freon and other refrigerants must be removed and recycled by workers with EPA-approved training. Maintain records that show the name of the recycling facility that removed the refrigerants.

REGULATORY and SURCHARGE FEES (hazardous waste): See *5.1.1.7 – Annual Reports, Fees, Taxes and Records Retention*.

SHOP RAGS (or Shop Towels): When rags are used to clean up known nonhazardous waste materials such as non-hazardous cleaning solvents or hydraulic fluid or motor oil, the rags would NOT be a hazardous waste. However, if rags are used to soak up a material that is a hazardous waste (toluene or chlorinated solvents for example), the rag itself could be a hazardous waste. Hazardous waste rags are not regulated as hazardous wastes if they are sent out to be cleaned and returned for re-use.

All used rags, shop towels, and clothing soiled with parts cleaner, gasoline or diesel fuel, used oil, etc. should be stored and managed in fire-proof or fire-resistant containers and must not be so saturated that they can drip any free liquid. Since NYSDOT does not typically use chlorinated solvents or hazardous waste cleaning solvent or other listed materials, it is likely that rags for disposal would be non-hazardous industrial wastes. Any rags, however, that were used for potentially hazardous waste materials could be hazardous wastes requiring disposal as specialty hazardous wastes and should be kept separate from non-hazardous waste rags. More information is available on the NYSDEC website at: http://www.dec.ny.gov/chemical/292.html or by contacting the MEC.

SOIL AND ROCK, EXCESS*:* Excess soil and rock may result from maintenance and construction activities. Provided these materials are uncontaminated, in accordance with 6 NYCRR 360-1.15(b)(7) they are not considered waste when used as fill material. These materials may be used for NYSDOT activities or sold ("placed in commerce") to a consumer and the consumer is responsible for its use/placement.

SOLVENTS and DEGREASERS: See *PARTS WASHER WASTES* OR *PAINT THINNER*.

SORBENTS (Speedi-Dry or Sorbent Pads): When used to clean up spills from known nonhazardous sources such as hydraulic fluid or non-flammable (non-chlorinated) parts washers, the used sorbent is NOT a hazardous waste and may be disposed of as routine non-hazardous waste. Sorbents used to clean up known hazardous wastes, however, would be a hazardous waste. When sorbents are used to clean up spills from unknown sources, they could be hazardous wastes and should be tested. Call the MEC to arrange for testing and/or disposal as specialty wastes.

SPECIAL ASSESSMENT (Tax): See *5.1.1.7 – Annual Reports, Fees, Taxes and Records Retention.*

SPILLS ON THE HIGHWAY: See *3.8 - Spill Response within the ROW* and *4.4 - Spills of Fuels, Chemicals, and Hazardous Products*.

STORAGE OF WASTES: See *4.3 - Storing and Handling Products and Wastes* and *5.1.1.3- Accumulation/Storage*.

STREET SWEEPINGS (Shoulder Maintenance): Routine street sweepings are not considered contaminated and may be handled like fill or sent to a C&D (construction and demolition) or municipal waste landfill. Street sweepings should be handled as contaminated soil if they smell like petroleum or solvents, or contain considerable roadside litter such as paper, cigarette butts, plastic, etc. Contaminated street sweepings must be sent to a municipal landfill. Note: Additional requirements apply in Nassau and Suffolk Counties. See *7- Special Places & Special Rules – Long Island Landfills*.

SURCHARGE FEES (hazardous waste): See *5.1.1.7- Annual Reports, Fees, Taxes and Records Retention.*

SWITCHES: See *HAZARDOUS SUBSTANCES IN EQUIPMENT*.

TOXICITY CHARACTERISTIC LEACHING PROCEDURE (TCLP): See *5.1.1.2- Hazardous Waste Determination* and *5.2- Specialty Waste Disposal- c. Laboratory Analysis Tests*.

TIRES: Waste tires and scrap tires collected along state highways may be stored for up to 18 months. A permit is required from the NYSDEC to store more than 1,000 tires. Waste tires can be sent to a landfill, recycler or trash-burning incinerator, but some landfills do not accept scrap tires because they are bulky and tend to "float" to the top of the waste pile. Some cement kilns or burn plants can burn tires for fuel. Check with the local waste hauler or landfill to see how to dispose of waste tires in your area.

TRANSPORTING WASTES: See *WASTE TRANSPORTER PERMITS*.

TREATED WOOD: The preserved wood industry with EPA has initiated a voluntary phase out of arsenic (CCA) treated wood preservatives in residential consumer applications. There are now alternative waterborne treatments (such as Alkaline Copper Quat, Copper Azole and Sodium Borates) and other materials available for many uses. For NYSDOT applications that may offer basically the same issue, it is recommended that substitutes be used.

EB00-022- Disposal of Treated Wood, March 2003, describes disposal requirements for treated/preserved wood, which remain unchanged from requirements before the phase-out. Treated wood including CCA-treated wood may be disposed of in construction & demolition (C&D) debris landfills and municipal solid waste landfills which are authorized to accept construction and demolition debris. CCA-treated wood should never be burned or shredded for mulch**.** Arsenic-treated (*e.g.*, chromated copper arsenate [CCA]) wood products disposed by the end user are exempt from classification as a hazardous waste by a specific exclusion at 6 NYCRR Part 371.1 (e) (2) (viii). In addition, extensive TCLP testing of pentachlorophenol ("penta") and creosote treated wood by industries and NYSDOT has conclusively demonstrated that treated wood products are not a hazardous waste and such generator knowledge can be applied.

UNIVERSAL WASTES: Certain common hazardous wastes that were considered to be low risk have been designated as "universal wastes" with reduced regulation. Universal wastes include spent batteries, certain unused pesticides, fluorescent bulbs containing mercury and mercury thermostats. Manifests are not required for shipment (although permitted waste transporters are required for transport of >500 pounds/shipment) and wastes may be accumulated on site for up to 1 year. Small quantity handlers (up to 5,000 kg at one time) do not need an EPA ID number.

UNUSED PRODUCTS: See *5.2 - Waste Management - Specialty Waste Disposal*.

UNKNOWN DRUMS AND CONTAINERS FOUND IN ROW: See *ABANDONED DRUMS AND CONTAINERS IN ROW*.

USED OIL (Waste Oil): Used oil destined for recycling or burning for energy recovery is not regulated as a hazardous waste. "Used oils" include spent motor oil, hydraulic oil, cutting oil, transmission fluid, fuel oils, gear oil and greases. Collect used oil in clearly labeled tanks or drums. Do not mix any other materials such as solvents, antifreeze or gasoline with the used oil. (If any hazardous wastes such as solvents, degreasers, etc. are mixed with used oil, the entire volume may be classified as a hazardous waste). Send used oil to an authorized recycler or fuel blender using a permitted Waste Transporter.

USED OIL for Space Heating: Used oil may be used for on-premises space heating without requiring air permits (parts 225 and 201) and comprehensive fuel/waste analysis programs if: (i) the maximum operating heat input is less than one million Btu per hour; and (ii) waste oil is generated on site (or by owner*). (The facility becomes a used oil facility (not merely a generator) requiring a permit by Part 360-14 (and much more requirements including a Used Oil Quality Control Plan) if they accept used oil from other commercial/industrial generators*.)

WASTE TRANSPORTER PERMITS: NYSDOT trucks and employees can haul, without a permit, up to 500 pounds of industrial wastes, including petroleum-contaminated soil and materials, used oil and tires in a single shipment. Hazardous wastes from a conditionally exempt small quantity generator (<100 kg/month) may also be self-transported without a permit. A "Part 364" Waste Transporter Permit issued by the NYSDEC is required to haul larger quantities of petroleum-contaminated soil and materials, hazardous wastes and industrial wastes such as used tires.

Information on permit requirements or applications can be obtained by calling the NYSDEC's Division of Compliance Services at (518) 402-8707.

6 STATE ENVIRONMENTAL QUALITY REVIEW (SEQR)

The SEQR law was implemented in 1978 to help improve the environment by including environmental factors along with social/community and economic considerations whenever state or local governments make decisions. Under the provisions of this law, NYSDOT established its own implementing regulations in 17 NYCRR Part 15 for NYSDOT projects only. All non-NYSDOT projects must comply with NYSDEC SEQR (6 NYCRR Part 617). SEQR classifies actions based on how they could affect the environment, placing more stringent requirements on major actions and exempting small, minor actions.

Most of NYSDOT's maintenance activities are classified as exempt or "Type II" actions that require little documentation and no regulatory processing. To classify a project as Type II it must be listed in 17 NYCRR Part 15.14(e) and not exceed the applicable threshold in 15.14(d). Exempt acts may include **maintenance or repair which involves no substantive changes in existing structures or facilities**, such as maintaining pavement, shoulders, roadsides, drainage systems, stream channels, bridges (including painting or repair by contract), equipment, rest areas, traffic control, pavement markings, and snow and ice control. Other exempt acts include maintenance of waterways including repairing and replacing riprap, bank protection, shore maintenance, excavating silt to restore channel dimensions, removing debris from existing channels and emergency actions. For more information about work in waterways, including environmental permits and BMPs, see *2 - General Work on the ROW.*

Type II actions include activities that have a very minor effect on the environment, such as "in kind" replacement, reconstruction, restoration or minor expansion of existing structures and facilities; installing highway traffic control devices, pavement markings, lighting or signs; safety improvements to existing highways such as removal of roadside obstacles, grooving, installing impact attenuators, guide rails, at-grade protection devices, fencing or glare screening; and resurfacing or spot repair of deteriorated pavements, facilities and structures.

Some actions, known as "Non-Type II" have a larger impact on the environment and some documentation or processing may be required if the proposed project meets or exceeds one of the following:

1) Activities that affect archeological sites or other historic resources or their setting (this could include cutting down mature trees that contribute to the setting of an historic building or work on a historic bridge or parkway);
2) More than minor alterations of wetlands, floodplain areas, agricultural lands, unique natural areas, or affecting water resources such as lakes, rivers and streams;
3) Physically altering more than 2.5 acres of designated open space or recreation areas;
4) Significant changes in traffic volume, vehicle mix, patterns or access;
5) Acquiring or having an effect on occupied dwellings, businesses, abutting property or established human activities;
6) Inconsistency with locally adopted plans; or
7) Activities that require an indirect source air quality permit.

Non-Type II actions may require completing an Environmental Assessment Form and publishing a "Negative Declaration" reasonably elaborating why there will be no significant environmental impact. An Environmental Impact Statement (EIS) may be necessary for larger, Non-Type II projects such as relocating or building a new maintenance residency, especially if the new facility is located in or near a sensitive environmental or community resource area.

Contact the MEC with specific questions about maintenance activities under SEQR or would like more information about SEQR

More information about SEQR is given in NYSDOT's regulations 17 NYCRR Part 15 and The Environmental Manual Chapter 4.1.2.

7 SPECIAL PLACES & SPECIAL RULES

The requirements and suggestions in this Handbook apply throughout New York State, but additional environmental rules apply in specific places. Primary special area requirements that can significantly impact NYSDOT work are described briefly here. Call the MEC if you need more details or have specific questions.

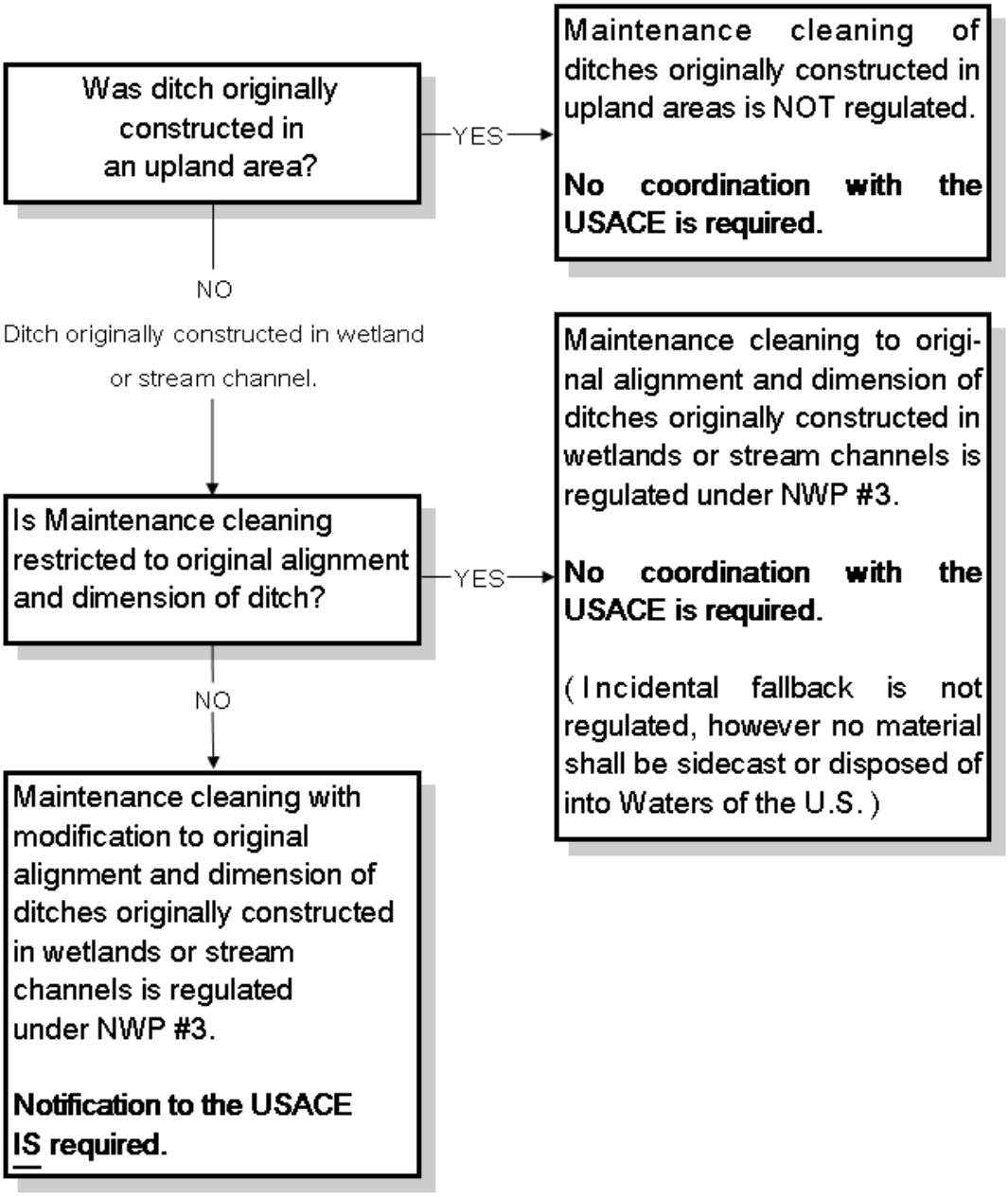
Adirondack Park Agency - Regions 1, 2 and 7: The Adirondack Park Agency (APA) Guidelines apply to many routine NYSDOT maintenance activities. See the MEC if you need a copy or have specific questions.

Long Island landfills - Region 10: More restrictive regulations landfills in Nassau and Suffolk County require a permit for any landfilling, including placement of fill. Recognizable uncontaminated concrete, steel, wood, sand, dirt, soil, glass, and C&D debris must be disposed of at an authorized lined disposal facility or taken to an authorized C&D debris processing facility.

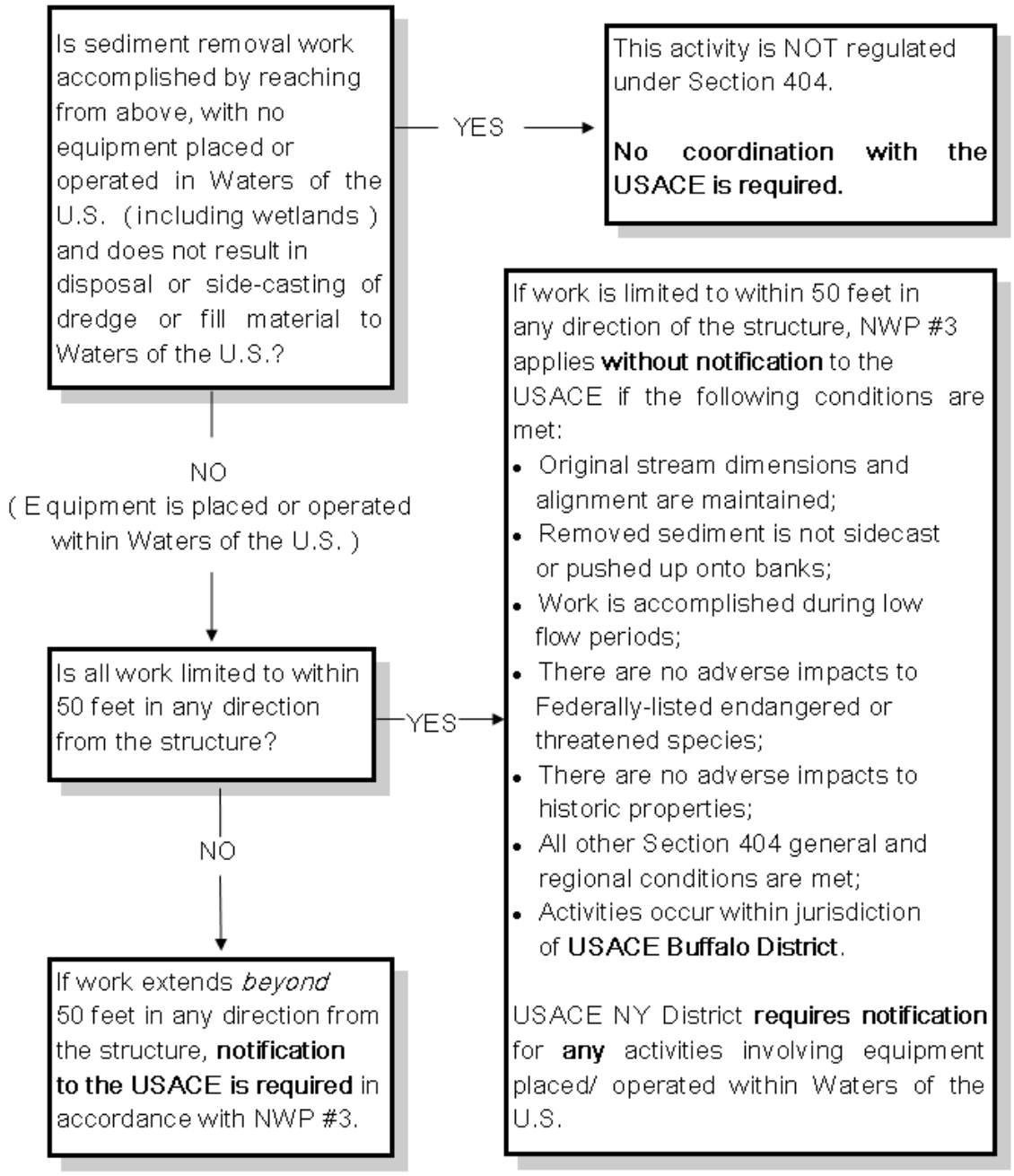
Land Use Permits in the New York City Watershed - Regions 1, 8 and 9
The New York City Department of Environmental Protection (NYCDEP) requires a Land Use permit for some NYSDOT activities on land owned by NYC. Maintenance activities that are likely to require a land use permit include selecting both staging and spoil areas. Contact the MEC when you are planning these activities.

APPENDIX-A. USACE SECTION 404 NATIONWIDE PERMIT # 3 MAINTENANCE- DITCH CLEANING, CULVERT CLEANING AND BANK STABILIZATION & SCOUR PROTECTION

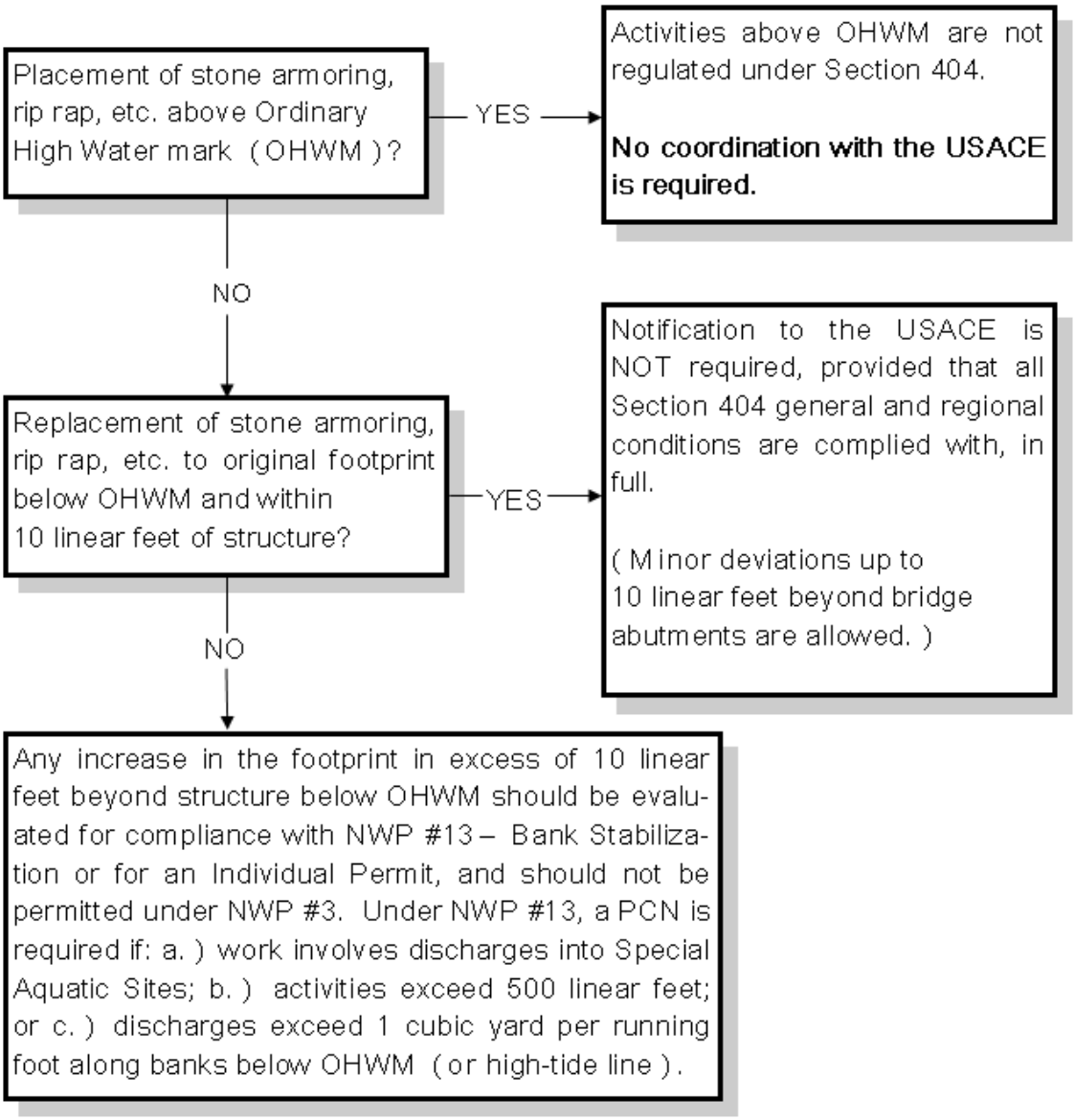
DITCH CLEANING



CULVERT CLEANING



BANK STABILIZATION & SCOUR PROTECTION



It is recommended that cofferdams used in association with projects qualifying for NWP #3 consist of gravel bags, concrete jersey barrier, wood or metal sheet piling or water-filled bladders. Cofferdams shall be removed in their entirety when work is completed. Notification to the USACE is NOT required in these cases.

APPENDIX B – CHECKLIST FOR PETROLEUM BULK STORAGE, HANDLING AND ASSOCIATED ITEMS

Item	Yes/no
A. Registration and information	
1. Does the facility have petroleum bulk storage registration?	
2. Is registration information correct?	
3. Is the registration certificate displayed?	
4. Are accurate as-built drawings available?	
5. Are manuals and operational information available?	
6. Are all fill ports correctly color coded?	
7. Are valves in place and operational?	
8. Is the Fire Code "communications" sign prominently displayed at the fuel distribution island?	
9. Has the fire suppression system been inspected semi-annually on gas tanks?	
10. Are out of service tanks properly closed?	
B. Aboveground Storage Tank (AST)	
1. If AST installed after December, 1986, does it have: Welded steel; Protective surface coating (painting) of exterior surfaces; Cathodic protection, if AST rests on ground; and Impermeable barrier beneath the tank with the ability to **monitor for leaks?**	
2. Does product level gauge accurately show level in tank or is a high level alarm (or high level liquid pump cut off controller) installed and operating?	
3. Does AST have required markings?	
4. Is inspection of tank and containment performed at least monthly?	
5.A Does the facility require a SPCC (Spill Protection Control and Countermeasures Plan)? 5.B If answer to 5.A is yes, is the SPCC in place?	
C. Underground Storage Tanks (UST) Federal requirements	
1. Are leak detection/monitoring systems in place?	
2. Does the tank or tanks have spill protection?	
3. Does the tank have overfill protection?	
4. Is tank and piping constructed with corrosion-resistant material, or is cathodic protection present and functional?	
D. UST State requirements	
1. Has five year tightness testing occurred?	
2. Is secondary containment present on tank or tanks?	
3. Is a label plate present on the UST fill port?	
4. Is inventory monitoring performed or records kept?	
5. If tanks and piping metal, is annual cathodic testing conducted?	
E. Spill Prevention and Response Items	
1. Are supplies available for spill response?	

Explanation of Inspection Checklist Items (continued on back page)

A.1	**Registration**: Required for facilities with > 1100 gallons total petroleum storage in tanks (above and underground (exclusive of heating fuel tanks <1100 gal for on-premise heating)). Note: small tanks on racks should also be included in the registration
A.2	**Registration information:** Are all tanks at site, all removed tanks or upgrades correctly described?
A.3	**Registration certificate displayed:** Displayed preferably at tanks or otherwise in main office on site
A.4	**As-Built Drawings/Plans: <u>For UST</u>** - As-built drawings/plans must show size and location of tanks and piping system. Plans must include a **statement** by installer that system has been **installed in compliance** with NYS Standards for New/Substantially Modified Petroleum Storage Facilities, 6 NYCRR Part 614. **<u>For AST</u>** - Drawings/plans needed for SPCC and compliance with AST regulations.
A.5	**Manuals and operational information:** **<u>tank information</u>** includes: tank capacity and dimensions; manufacturer principles of design and operation; tank manufacture design standard; products (including additives) acceptable for storage in the tank (compatible with all tank

	materials); procedures to operate, maintain and test tank and associated equipment. **Associated Installed Systems information** includes manufacturer, operational and testing procedures or other (may be separate or part of O&M manual) including: leak detection system; inventory monitoring; cathodic protection; fire suppression
A.6	**Fill port colors:** (Diesel = Yellow; Unleaded gasoline = White w/black cross; Kerosene = Brown)
A.7	**Shutoff valves** required for remote pumping units at motor fuel dispensers (shear valve in supply line to close automatically if dispenser dislodged from pipe). **Shutoff valve** Solenoid or equivalent required for gravity-fed motor fuel dispenser (so liquid cannot flow out if piping nser hose fails) **Check valves** required for backflow prevention on for pump-filled tanks with remote fills. **Operating valve** required on every line with gravity head. **Dike drain valves** required for secondary containment (ASTs) and must be locked in closed position
A.8	**Fire Code Sign** must state: IN CASE OF FIRE, SPILL OR RELEASE: 1. USE EMERGENCY PUMP SHUTOFF 2. REPORT THE ACCIDENT! FIRE DEPARTMENT TELEPHONE NO.___ NEW YORK STATE DEC SPILL HOTLINE NO. (800) 457-7362 FACILITY ADDRESS ___
A.9	**Semi-annual fire suppression inspections**
A.10	**Out of service tanks:** Tanks no longer in service must be emptied, manways locked (bolted) securely, gauge openings and pump lines must be capped/plugged to prevent unauthorized access. If tank temporarily closed, all registration, testing and inspection are still required.
B	NYS AST requirements applicable to all petroleum ASTs at facilities requiring registration
B.1	**Aboveground storage tanks (AST)**: Design standards for metal tanks include: UL Nos. 58 and 142; API Standards No. 620 and 650; CAN4-S601-M84; or CAN4-S630-M84)
B.2	**Product level measures:** Shows level in tank or **high-level alarm** (or high level liquid pump cut-off controller)
B.3	**Markings:** Tank identification number, design and working capacity must be clearly marked on tank and gauge.
B.4	**Monthly tank and containment inspections**
B.5A B.5B	**SPCC plan:** Required if facility has more than 1,320 gallons aboveground petroleum stored in tanks and containers larger or equal to 55 gallons.
C	EPA requirements applicable to all petroleum USTs of any size with the exception of heating fuel USTs for on premises heating (all other petroleum USTs included except as outlined by each provision)
C.1	**Leak Detection:** Identify and correct malfunctioning, missing or non conforming leak detection systems. USTs meeting new construction standards to be monitored for leaks at least weekly. If tank is double wall, monitor interstitial space. If monitoring by automatic sensing device, check status weekly (power light on, alarm light off). If monitoring is electronic (continuous), check electronics monthly. If another secondary containment system is used, automatic tank gauge or monitoring wells inside secondary containment (vault or excavation liner) may be used. Facility must record all monitoring and keep records for at least one year. Manual Tank Gauging is limited to tanks < 1000 gal and tank must be taken out of service for at least 36 hours/week. *Exception: USTs solely for emergency power generation are deferred from the EPA requirements for leak detection (but other requirements all apply); NYS regulation, however, requires periodic tightness testing on tanks not otherwise monitored.*
C.2	**Spill protection:** May include "spill buckets" or catchment basins to hold spilled product.
C.3	**Overfill protection:** May include: automatic shutoff devices, overfill alarms, or ball float valves to prevent overfill.
	Spill/overfill protection not required if tank receiving material in less than 25 gallon increments (e.g., used oil)
C.4	**Corrosion protection:** Corrosion resistant material or, if metal, cathodic protection present
D.1	**5 year tightness testing:** Tanks greater than 1100 gallons that have not been upgraded (did not require leak detection by EPA regulations (heating fuel or emergency power generation), must be periodically tested.
D.2	**Presence of secondary containment**
D.3	**Label plate on fill port** must include: Manufacturer's statement: "This tank conforms with 6 NYCRR Part 614;" standard of design by which tank was manufactured; petroleum products and % of volume of petroleum additives which may be stored permanently and compatibly in the tank or reference to a list available from manufacturer which identifies products compatible with all tank materials; the year in which tank was manufactured; tank dimensions, design and working capacity and model number; name of manufacturer and facility tank ID (from registration).
D.4	**Inventory monitoring and record keeping:** Daily inventory records required to detect leaks and apparent losses/gains reconciled during any 10 day period. If tank has **metered dispenser** (motor fuels), then records must be kept of sales, deliveries etc. Stick readings need to be taken to the closest 1/8 ". If tank **unmetered** (heating oil), then inventory losses must be detected in an alternative manner. Acceptable options include an annual standpipe analysis or tank test or monitoring for inventory losses during the off season.
D.5	**Annual cathodic protection test:** USTs with cathodic protection systems must be monitored at least annually
E.1	**Supplies for spill response:**

Appendix C – Invasive Insect Control Practices for NYSDOT Vegetation Management

The requirements and suggestions in this Handbook apply throughout New York State, but additional environmental rules apply in specific places. Primary special area requirements that can significantly impact NYSDOT work are described briefly here. Call the MEC if you need more details or have specific questions.

OVERVIEW

This appendix describes the role of the Office of Transportation Maintenance (OTM) in responding to invasive insects on rights of way or adjoining land. "Invasive insects" includes species such as the Emerald Ash Borer (EAB) or Asian Longhorn Beetle.

Invasive insects typically take several years to kill a tree, by killing leaves or by attacking the cambium, the layer inside the bark that supplies nutrients to leaves and branches. With this timeline, there is no need to remove trees from a roadside in advance of an infestation.

NYSDOT's first tree removal obligation is to remove trees that are a hazard to the traveling public. Requests to remove trees to control invasive insects must be considered based on a Region or residency backlog of other high priority hazard tree removals, resources available, and other required work.

The New York State Department of Environmental Conservation (NYSDEC), New York State Department of Agriculture and Markets (NYSDAM) and United State Department of Agriculture (USDA) regulate invasives by various means. Among the most important measures is to quarantine an area infested with invasive insects.

Maintenance Practices

1. **Roadside monitoring:**
   a. NYSDOT, working with regulatory agencies, will continue to provide training, appropriate to the level of infestation threat, to maintenance managers and workers on identifying: invasive insects; tree species targeted by insects; and when invasive insects are present in trees or brush.
   b. If time permits, Residencies are encouraged to note the number of right of way trees susceptible to certain invasive insects, for example ash trees which can be infested by EAB. This will help develop an estimate of needed resources needed if a subsequent decision is made to remove infested trees or trees that may shelter invasive insects.
2. **Suspected infestations** If workers or managers discover a suspected infestation, they should report it to the Region's MEC, who, in turn should report it to the regional NYSDEC office. If NYSDEC confirms the infestation, the MEC should report it to the OTM Roadside Program Manager.
3. **Hazardous Tree Work Planning and Work Practices:**
   a. NYSDOT's first obligation is to remove hazard trees from highway rights of way. Trees infested or made hazardous by invasive insects will be prioritized based their relative hazard rating.
   b. An insect life cycle affects the most effective time to remove an infested tree. With EAB, for example, winged insects die by late fall and only larvae are present in winter and early spring. NYSDOT will consider an insect's lifecycle, where possible, in scheduling removal of infested trees.

c. Wood chippers that chip to under an inch long by one inch wide by one inch thick kill larvae and can slow infestations. NYSDEC may require chippers making small chips in some infestations.
d. Stumps remaining after removal of a tree infested with invasive insects require treatment to avoid resprouting and growth that will shelter insects in the future. The preferred treatment is a cut stump treatment with a small amount of herbicide immediately after the tree is cut. If herbicide use is not possible and resources permit grind the stump with a stump grinder.

4. The State High Voltage Proximity Act, OSHA regulations and ANSI standards for line clearance apply to all tree removal operations.
5. **Wood waste.** NYSDOT or its contractor:
   a. **Will not** move any wood which contains living EAB in any stage of its development. If EAB is discovered, coordination with NYSDEC and NYSDAM is required.
   b. **Will advise** people who receive wood after a tree is cut, or wood disposed of from a NYSDOT facility, that they may not move:
      i. Fire wood (of any species) more than 50 miles from its source, and will confirm the wood's source;
      ii. Any ash (genus *Fraxinus*), in any form, living or dead, that is within a quarantine area out of that quarantine area;
      iii. Bark mulch or wood chips of any tree species, larger than 1 inch in two dimensions that is within a quarantine area out of that quarantine area.
   c. **May** continue to dispose of wood near the site of tree removals, as long as disposals are consistent with NYSDOT internal controls, right of way safety and items a and b above.
6. **Equipment Cleaning:** Before leaving a site infested with invasive insects, staff shall remove as much waste as possible, given site conditions, access to cleaning equipment and season. If waste cannot be completely removed, staff shall clean equipment as thoroughly as possible on site and finish work when they return to their Residency or crew location.
7. **Public Education and Outreach:** Outside agencies may request use of NYSDOT facilities, such as rest areas, to provide information to the traveling public on invasive insects. NYSDOT will cooperate with these requests to the extent possible.
8. **Studies by Outside Agencies:** Some outside agencies study invasive insect infestations, including setting traps along roads and highways. Regions are encouraged to cooperate with these agencies. If Highway Work Permits are required, consider issuing Region-wide permits.