DEPARTMENT OF
ENVIRONMENTAL SAFETY,
SUSTAINABILITY & RISK

UNIVERSITY OF MARYLAND

STORMWATER POLLUTION PREVENTION PLAN

VEHICLE MAINTENANCE and POTABLE WATER DISTRIBUTION OPERATIONS

College Park, Maryland

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1.0 STORM WATER POLLUTION PREVENTION PLAN (SWPPP) - PURPOSE AND OBJECTIVES

The University of Maryland's State Discharge Permit No.01-DP-2618/National Pollutant Discharge Elimination System (NPDES) Permit No. MD0063801 requires the development and implementation of a SWPPP emphasizing storm water best management practices (BMPs) associated with campus vehicle and water supply maintenance activities. The purpose of this approach is to establish controls which can appropriately address different sources of pollutants from these activities.

The SWPPP has two major objectives:

- Help identify the sources of pollution that affect the quality of industrial storm water discharges, and
- Describe and ensure the implementation of BMPs to reduce pollutants in industrial storm water discharges.

1.1 SWPPP REVIEW AND REVISIONS

The University of Maryland (UM) will amend the SWPPP whenever there is a change in design, construction, operation, or maintenance, which may impact the potential for pollutants to be discharged from vehicle and water supply maintenance activities. The SWPPP may also be modified if, based on the results of visual inspections or monitoring data, the plan proves to be ineffective in controlling the discharge of pollutants.

In the event of any revision to the SWPPP, a plan revision form, included in Appendix A of this SWPPP, will be completed and retrained by the UM Department of Environmental Safety, Sustainability and Risk (ESSR).

1.2 SWPPP LOCATION AND PUBLIC ACCESS

The SWPPP, and all documents, forms, and reports as required by the SWPPP, will be maintained in the ESSR – Environmental Affairs offices. A copy of the SWPPP will be made available if requested by the regulating agency.

1.3 RECORD KEEPING

Records will be kept of all significant storm water pollution events (e.g., spills/releases), in-house inspections, follow-up responses to these inspections, and any significant changes in onsite activities associated with vehicle and water supply maintenance. These records will be maintained on-site for at least five years.

2.0 FACILITY DESCRIPTION

2.1 FACILITY LOCATION

UM's vehicle maintenance operations and potable water distribution system are located on the College Park, Maryland campus. UM is generally bounded by University Boulevard to the north and west, Paint Branch Parkway to the east, and Knox Road to the south. Route 1 (Baltimore Avenue, bisects the eastern portion of the campus. The campus consists of over 250 buildings on 1,400 acres of land. The campus consists of paved, unpaved and improved areas. Accordingly, a significant portion of the campus is considered impervious. The campus is located in a suburban area and is bound to the north, south and west by light commercial areas, and to the east by residential areas. A vicinity map is attached as Figure 1.

2.2 FACILITY SITE DESCRIPTION

UM's vehicle maintenance activities are located in an area east of Route 1 that consists of the Severn Building, Shuttle Bus and Facilities Maintenance shops. The Severn Building provides vehicles to the campus community and includes a gasoline fueling location and indoor repair bays. The Shuttle Bus facility consists of a bus parking area, a diesel fueling location and indoor repair bays.

These facilities are used to support UM's operations at the College Park campus. The campus uses a variety of vehicles to maintain buildings, transport faculty, students and staff, remove trash, delivery of food and goods and for removal of waste. These vehicles require minor routine maintenance.

The campus receives all of its potable water from the Washington Suburban Sanitary Commission (WSSC) which is distributed throughout the campus. The distribution system includes periodic flushing of fire hydrants for maintenance purposes.

A site map of the facility is attached as Figures 2.

2.3 FACILITY OPERATION AND STORM DRAINAGE SYSTEM

Vehicle maintenance operations conducted at UM are typical and include lubrication, and minor repairs. Operations at three of the four locations also include the direct fueling of these vehicles. The Severn Building and Shuttle Bus locations maintain above ground storage tanks equipped with leak detection systems.

The storm water drainage system at the UM consists of surface flow to catch basins located throughout the campus. The campus maintains a separate storm sewer system that consists of 19 outfalls. The outfalls discharge to Campus Creek, Guilford Creek, Paint Branch stream and unnamed tributaries. Water from these discharge points ultimately flow to the Anacostia River and to the Chesapeake Bay. UM does not treat stormwater prior to discharge

2.3.1 List of Significant Spills or Leaks of Toxic or Hazardous Pollutants to Storm Water

UM has no documentation or knowledge of significant spills or leaks of toxic or hazardous pollutants to storm water resulting from vehicle or potable water system maintenance.

2.3.2 Summary of Existing Sampling Data

UM does not monitor storm water discharges from the vehicle or potable water system maintenance. Under the terms of the campus NPDES Permit, UM conducts routine monthly discharge monitoring at permitted outfalls. These outfalls receive stormwater from a number of sources including stormwater runoff, boiler blowdown, condensate, etc. Therefore, sampling data is not available for discreet activities.

3.0 NARRATIVE DESCRIPTION

This narrative description of the Vehicle and Potable Water Maintenance operations includes, as required by the NPDES storm water regulations, a discussion of the following:

- Materials treated, stored, disposed, spilled or leaked in significant quantities
- Materials, equipment and vehicle management practices
- Material loading, unloading and access areas
- Existing structural and nonstructural control measures
- On-site industrial storm water discharge treatment
- Methods of on-site storage and disposal of significant materials
- Outdoor storage, manufacturing and processing activities including activities that generate significant quantities of dust or particles

The activities that take place at the facility are discussed in more detail in the following subsections.

3.1 MATERIALS TREATED, STORED, DISPOSED, SPILLED OR LEAKED IN SIGNIFICANT QUANTITIES

The purpose of this subsection is to describe significant materials that have been disposed, spilled or leaked in significant quantities in storm water associated with vehicle and potable water maintenance activities. ESSR has primary responsibility on the UM campus for emergency response related to hazardous material leaks and spills and also provides for the collection, packaging and disposal of controlled wastes. ESSR is not aware of any significant materials that have been disposed, spilled or leaked as a result of vehicle and water supply maintenance activities.

3.2 MATERIALS AND EQUIPMENT ASSOCIATED WITH VEHICLE AND WATER SUPPLY MAINTENANCE PRACTICES

The purpose of this subsection is to describe materials and equipment associated with vehicle and water supply management practices which are employed to minimize contact of hazardous materials with storm water discharge. Equipment and vehicle management practices are identified and described in detail in Section 5.0 of this SWPPP.

Hazardous materials including fuels, oils, organic solvents, spray paints, and paint thinner are used in the routine maintenance of vehicles. These materials are stored in containers such as 55-gallon drums, 5- and 10-gallon containers, and smaller cans that are kept closed when not in use. In each of the vehicle maintenance areas previously identified in this plan, maintenance activities and the use of hazardous materials are conducted within indoor (totally enclosed) maintenance bays. In the event of a minor spill, the spilled material may either be cleaned up by the assigned shop staff or by ESSR. In no case are hazardous materials used outdoors for maintenance purposes. Vehicle fueling is conducted outdoors regardless of weather conditions. Fuel may only be dispensed by trained shop employees. As in the case of a spill involving a hazardous maintenance product, in the event of a fuel spill, ESSR would respond to control and clean-up the material. If the spill exceeded ESSR's capabilities, the Prince Georges County Fire Department would be immediately contacted.

Waste oil is stored in aboveground storage tanks equipped with secondary containment. The Severn Building, Shuttle Bus and FM Fleet Maintenance Shops all maintain aboveground waste oil tanks. The tanks are properly labeled and kept closed when not in use. They are also inspected by ESSR on a monthly basis. Containers and drums of new oil are stored indoors away from open floor drains.

Vehicles are washed in Severn Building indoor automatic wash facility which is equipped with a grit trap and discharges to the sanitary sewer. Shuttle Bus washes buses outdoors since no bus wash facility is available on campus. They manually wash the buses with brushes and a biodegradeable detergent. The wash area is a paved, sloped area near a sanitary sewer manway. The downgradient area is bermed and washwater is directed to the sanitary sewer for disposal.

UM maintains a potable water distribution system on the campus that consists of fire hydrants and fire sprinkler systems. Water is provided by the Washington Suburban Sanitary Commission. UM does not obtain water from any on-site wells. Fire hydrants are located throughout the campus and the majority of buildings are sprinklered. These systems require periodic flushing for maintenance purposes. The potable water may contain Total Residual Chlorine (TRC) greater than UM is permitted to discharge to waters of the State. Therefore, flushing must be conducted in a manner that protects surface water bodies.

3.3 MATERIALS LOADING, UNLOADING AND ACCESS AREAS

In general, material loading and unloading takes place immediately adjacent to the vehicle maintenance bays at all four locations, except for fuels that are directly pumped by the transporter into or from the designated tanks. Gasoline and diesel fuel are pumped into aboveground tanks at Severn Building and Shuttle Bus, respectively. Diesel fuel is pumped into an aboveground tank within a large diked area to support the Heavy Equipment Shop. Waste Oil is pumped from the previously mentioned waste oil tanks directly into the transporter's vehicle.

3.4 EXISTING STRUCTURAL AND NONSTRUCTURAL CONTROL MEASURES

Structural control measures at the facility consist of methods for storm water management and are discussed in detail in Section 5.2 of this SWPPP. Nonstructural control measures, discussed in Section 5.1, include the identification of pollution prevention personnel, preventive maintenance procedures, good housekeeping practices, spill prevention and response, employee training, and inspection.

3.5 INDUSTRIAL STORM WATER DISCHARGE TREATMENT

Stormwater originating from vehicle maintenance and potable water distribution systems are generally, not treated at the UM campus. The exceptions include the collection of waste water from maintenance within the Shuttle Bus Shop bays into an oil/water separator prior to discharge into the sanitary sewer. UM does not plan to implement any additional storm water treatment.

3.6 METHODS OF ON-SITE STORAGE AND DISPOSAL OF SIGNIFICANT MATERIALS

Materials used at the site are stored in containers including polypropylene, plastic and steel drums, paper or cardboard boxes/sacks/bags, and metal or plastic containers. These containers are stored indoors at each vehicle maintenance location. Chemical waste generated at these locations consists of waste oil that is accumulated in steel drums and designated aboveground waste oil tanks. The

waste oil is shipped off-site to a commercial recycling facility on a routine basis. Other wastes include batteries, spent solvent and spent antifreeze. All of these waste streams are stored indoors or in secondary containment storage units and shipped offsite to permitted facilities for recycling and reuse. UM does not conduct onsite disposal of hazardous materials or waste. Furthermore, there are no plans to dispose of hazardous materials or waste onsite in the future.

3.7 OUTDOOR STORAGE AND MAINTENANCE ACTIVITIES

UM's vehicle maintenance operations are conducted indoors within vehicle maintenance bays. As previously described, hazardous materials are stored indoors or in tanks equipped with secondary containment. Vehicles are fueled outdoors and the Shuttle Bus, FM Fleet Maintenance Shop and FM Heavy Equipment Shop utilize waste oil tanks equipped with secondary containment.

Maintenance of the potable water system does involve occasional outdoor flushing of the fire hydrants. Section 5.3 identifies the Best Management Practices (BMP's) that will be followed to prevent adverse impacts to surface water from this activity.

3.8 POTABLE WATER DISCARGES

UM maintains an extensive life safety program through its Facilities Management Department. Life Safety staff are responsible for the maintenance of fire protection equipment including fire hydrants, fire pumps and fire sprinkler systems. These systems require periodic maintenance that involves flushing to remove accumulated solids and to ensure the equipment is operating at required pressures.

Life Safety maintains a mapped inventory of all fire hydrants, fire pumps and fire sprinkler systems, a schedule for maintaining these systems and the results of previous tests. Life Safety should be consulted for this information which is not being included in this SWPPP for efficiency purposes.

Approximately one-third of the campus fire hydrants are tested annually by allowing water to flow from at least one upgradient and one downgradient fire hydrant for approximately 15 minutes. During this time, measurements are taken at the hydrant being tested to verify it meets established standards. Similarly, fire pumps and sprinkler systems must be flushed and tested for shorter periods of time and at lower flow rates to ensure proper operation.

The equipment being tested is located throughout the campus and varies greatly in terms of their surroundings, proximity to a storm drain inlet and subsequent distance from a receiving waterway. Given these factors and the nature of Total Residual Chlorine (TRC), and its ability to volatilize quickly when exposed to air, UM has developed a menu of BMP options to mitigate stormwater impacts.

4.0 LIST OF POLLUTANTS WITH POTENTIAL FOR PRESENCE IN STORM WATER

The following is a list of hazardous materials that have a potential for coming into contact, as pollutants, with storm water.

- Waste oil from vehicles and use of aboveground waste oil tanks;
- Antifreeze and other fluids from vehicles;
- Fuel from Vendor delivery vehicles; and
- Total residual chlorine from fire protection equipment.

This list was derived from knowledge of campus operations.

5.0 STORM WATER MANAGEMENT CONTROLS – BEST MANAGEMENT PRACTICES (BMPs)

This subsection describes the storm water management controls, or BMPs, which are appropriate for the Vehicle and Water Supply System Maintenance operations. Many of the management practices included in this plan are based on BMPs that have been shown to successfully reduce pollutant loads throughout the country. The general premise supporting BMPs is common sense and awareness.

A general list of management control practices consisting of non-structural control measures and structural control measures has been generated. These are general BMPs which will be applied to all vehicle maintenance areas. A description of each of these BMPs follows below in Sections 5.1 and 5.2.

5.1 NON-STRUCTURAL CONTROL MEASURES

5.1.1 Storm Water Pollution Prevention Personnel

Storm water pollution prevention personnel will be identified by the Environmental Compliance Manager – Department of Environmental Safety, Sustainability and Risk (ESSR). The storm water pollution prevention leader is the ESSR Environmental Compliance Manager. The Environmental Compliance Manager will be responsible for identifying other pollution prevention personnel who will assist with the implementation and maintenance of the SWPPP, maintain pertinent records and participate in site inspections. Other pollution prevention personnel may include other ESSR and Facilities Management personnel.

5.1.2 Good Housekeeping

Good housekeeping is essentially the maintenance of a clean and orderly work environment. It is a good indication of the implementation of BMPs by well-trained personnel. A clean and orderly work area reduces the possibility of accidental spills caused by mishandling of equipment and should reduce safety hazards to personnel. Examples of good housekeeping practices employed by UM include:

- Neat and orderly storage of chemicals in a proper manner and area.
- Prompt cleanup/removal of spillage.

- Regular garbage and rubbish pickup and disposal.
- Maintenance of floors by use of brooms.
- Provisions for proper storage and inspection of containers, drums, and aboveground storage tanks.
- Prevention of accumulation of liquid and solid chemicals on the ground or floor in a building.

UM has adopted three major procedures to promote good housekeeping. These include: (1) improved equipment operation and maintenance, (2) proper material storage practices, and (3) routine inspection. A more detailed description of each one of these procedures follows below.

➢ Operation and Maintenance

Improved operation and maintenance procedures are designed to ensure that equipment is working well. Applicable UM personnel implement the following equipment operation and maintenance BMPs as part of the facility's good housekeeping program:

- Work surfaces, floors and ground surfaces are kept clean and dry by using shovels, brooms, shop vacuum cleaners, or other cleaning devices.
- Garbage and other solid waste material is regularly picked up and disposed of appropriately.
- Equipment is routinely inspected for leaks or conditions which could lead to discharges of pollutants or contact of storm water with raw or waste materials.
- Equipment, which is not working properly, is promptly taken out of service for repair.
- ESSR provides periodic information concerning spill prevention and cleanup procedures.

➢ Material Storage Practices and Routine Inspection

UM encourages proper material storage in order to prevent the release of materials and pollutants that may cause storm water runoff pollution. Proper storage techniques include:

- Store materials so that there is adequate aisle space to facilitate material transfer and easy access for inspections.
- When appropriate and/or otherwise required, post signs or placards on the periphery of the storage areas to indicate the hazards associated with the materials stored within.

- Store containers, drums and other containers indoors or in enclosed storage units and away from direct traffic routes to prevent accidental spills.
- Store containers according to the manufacturer's instructions to avoid damaging the containers from improper weight distribution.
- When possible, containers will be stored on pallets to prevent corrosion of the containers. Corrosion can result when containers come in contact with moisture on the ground.

➢ Material Inventory Controls

Improved material inventory practices can reduce the waste that results from overstocking and the disposal of out-dated materials. Careful tracking of all materials ordered may also result in more efficient materials use. The following material inventory BMPs are implemented at the four areas involved in Vehicle Maintenance operations:

- Safety Data Sheets (SDSs) are maintained for all products used for vehicle maintenance operations. SDSs are either in the Shop Manager's office or via the ESSR web site. An SDS is requested and maintained on file prior to the use of the product for which it was written.
- Containers are labeled to show the name and type of substance contained therein. When appropriate and/or otherwise required, containers will also be labeled as to the hazards of the materials stored therein, expiration date, suggestions for handling and first aid information.
- ESSR inspects all oil and waste oil tanks on a monthly basis and inspects Severn Building, Shuttle Bus and FM Shop operations for a variety of environmental issues on an annual basis.

5.1.3 Preventive Maintenance

Preventive maintenance involves examination of mechanical equipment and systems to uncover conditions that could cause equipment breakdowns, and correction of those conditions by adjustment, repair, or replacement of worn parts before the equipment or systems fail. The goal of this program is to uncover conditions such as cracks or slow leaks which could cause breakdowns or failures that result in discharges of pollutants to storm sewers and surface waters.

UM's preventive maintenance program provides a certain degree of environmental protection. These practices, described below, have been and will continue to be

elaborated upon to include storm water considerations. UM's preventive maintenance program includes the following activities:

- ***Identification of equipment and systems to which the program should apply by analysis for potential failures and release of hazardous substances***.

  The first step consists of identifying which systems or equipment may malfunction and cause spills, leaks or other situations that could lead to storm water runoff contamination. UM examined sources of potential storm water contamination during the source assessment phase. An example of certain types of equipment and plant areas that are included in the preventive maintenance program are the following: pipes, pumps, hydrants, hoses, oil/water separators, dikes, storage tanks and bins, process and material handling equipment, and vehicles.

- ***Periodic inspections and testing of such equipment and systems.***

  UM has identified which equipment and areas are involved in vehicle and potable water distribution and requires routine inspections and maintenance. The inspections include an examination for leaks, corrosion, support or foundation failure, or other forms of deterioration or leaks. The inspector will look for spots or puddles of chemicals and document if smoke, fumes or other signs of leaks are detected.

- ***Appropriate adjustment, repair, or replacement of parts and equipment***.

  UM will promptly repair or replace defective equipment found during inspections and testing. Maintaining spare parts for equipment that needs frequent repair is another practice that helps avoid problems and equipment down-time.

- ***Maintenance of complete records on deficiencies***.

  Records are maintained for scheduling tests and inspections in the preventive maintenance program. Tests results are recorded and correction action is taken when necessary.

5.1.4 Employee Training

Employee training is essential to the effective implementation of the SWPPP. The purpose of the employee training program is to inform personnel at all levels of responsibility of the components and goals of the SWPPP. Training will address each component of the SWPPP including how and why tasks are to be

implemented. Training topics will include spill prevention and response, good housekeeping, and material management practices.

UM has developed the above mentioned training programs. Below is a more detailed description of each type of training program.

- Spill Prevention and Response

  All employees, not just those on the spill response teams, are aware of what to do if a spill occurs. Specifically, all UM employees involved in vehicle maintenance activities are trained in the following measures:

  - Identifying potential spill areas and drainage routes, including information on past spills and causes.
  - Reporting spills to appropriate individuals, without penalty (e.g., employees are not penalized when they report such instances).
  - Specifying material handling procedures and storage requirements.
  - Implementing spill response procedures.

  UM has developed a Hazardous Material Contingency Plan for its College Park location. The purpose of the plan is to provide personnel with the proper information and tools so that they may respond to a hazardous material spill in a way that minimizes hazards to human health and the environment. The plan includes the following:

  - Facility description
  - Key personnel and emergency phone numbers
  - Outside emergency contacts
  - Emergency response primary objectives and procedures
  - Chemical incident response capabilities
  - Equipment list
  - Site maps

  This plan will be updated to include storm water considerations.

- Good Housekeeping

  UM vehicle maintenance personnel will also be trained on how to maintain a clean and orderly work environment. A good housekeeping training program will incorporate the following key issues:

  - Requirements for vacuuming and/or sweeping.
  - Prompt cleaning of spilled materials to prevent pollutant runoff.
  - Identification of locations where brooms and sorbents, and other good housekeeping and spill response equipment are located.

- Instruction on the securing of drums and containers and frequently checking for leaks and spills.

➢ Materials Management Practices

The training program will also address proper materials management practices. This will include practices such as neat and organized storage; identification of toxic and hazardous substances stored, handled and disposed; and a discussion of handling procedures for these materials.

5.1.5 Inspections

The purpose of the annual site inspection is to provide a basis for evaluating the overall effectiveness of the SWPPP. The main objective of the inspection is to allow UM to verify that the description of potential pollutant sources contained in Section 4.0 of the SWPPP is accurate, that the site maps as provided in Section 6.0 of the SWPPP are accurate or have been updated to reflect current conditions, and that controls identified in Section 5.0 to reduce pollutants in storm water discharges are accurately identified, in place and functional. The second objective of the inspection is to identify where new controls are needed so that UM may implement them and incorporate them into the SWPPP. Additional site inspections will be conducted by UM, if deemed necessary.

The annual inspection of vehicle maintenance areas will be conducted by the pollution prevention leader and/or other ESSR personnel. ESSR will also inspect oil storage tanks related to vehicle maintenance activities on a monthly basis to check for deterioration, spills, overfills and other conditions that may affect stormwater and the environment. Inspections of the water supply distribution system are conducted by Facilities Management – Life Safety Systems group.

Sample inspection checklists for the monthly and annual inspections are provided in Appendix B to this plan. All completed inspection checklists will be retained for a period of at least three years from the date of the report or collection of information.

5.1.6 Other Preventive Practices

Preventive practices involve close control of plan operations and equipment to prevent spills of chemicals from leaving their primary containment area. Eight preventive practices which UM will implement on an as-needed basis are listed and briefly described below:

- Monitoring

  Monitoring is the measuring of process parameters to determine operating conditions of a process or piece of equipment. Instrumentation is the method, measure, or equipment used for monitoring a particular process.

- Nondestructive Testing

  Nondestructive testing is the testing of a structure or vessel without it being altered, modified, or disassembled. Nondestructive testing involves the application of measuring methods to examine the structural integrity of tanks, pipelines, pumps, valves, and fittings.

- Labeling

  Labeling includes general labeling and warning signs. General labeling refers to marking such items as containers, vessels, tanks, pipelines, and equipment to inform personnel of the particular chemical being stored or handled and the potential hazardous involved. SSA currently employs Department of Transportation (DOT) and National Fire Protection Association (NFPA) labeling systems.

- Mitigation Cleanup

  Once a hazardous material release occurs and is contained, the material has to be cleaned up and disposed of to protect UM personnel from potential health and fire hazards and to prevent the release of the substance to surface waters. Mitigation cleanup measures include the practices used to physically, mechanically, or chemically remove a spilled material.

- Physical

  Physical methods for cleanup of dry chemicals or waste sorbents include the use of brooms, shovels, or vacuums. These practices are similar to those involved in the UM's vehicle maintenance good housekeeping practices.

- Mechanical

  Mechanical methods for removal of spills or leaks in a concrete containment area include the use of vacuum cleaning systems and pumps. Vacuum cleaning includes vacuum cleaners or vacuum trucks, and pumping could include pumping to a storage vessel or tank.

- Chemical - Chemical cleanup of hazardous material spills or leaks can be accomplished with the use of various sorbents found in the UM spill kits.

5.2 STRUCTURAL CONTROL MEASURES

UM currently employs three types of structural control measures within the Vehicle Maintenance areas to prevent pollutant contact with storm water. These structural control measures include: (1) Oil/Water Separators, (2) Direct connection to the sanitary sewer, (3) Redirection and Enhanced Aeration of Potable Water Discharges, and (4) Substance containment. Each of these is discussed in more detail below.

5.2.1 Oil/Water Separator

Oil/Water separators are designed to prevent oils from being discharged when combined with wastewater. The Shuttle Bus Shop maintains buses within indoor maintenance bays. The drains within the bays are piped to an oil/water separator which is maintained as part of UM's Oil Operations program. Water from the oil/water separator is discharged to the sanitary sewer.

5.2.2 Direct Sanitary Sewer Connections

In some cases, vehicle maintenance areas are directly connected to the sanitary sewer to prevent discharges to stormwater. The Severn Building operates a vehicle wash system that discharges wastewater through a grit trap before entering the sanitary sewer. Similarly, the drains in the vehicle maintenance bays, and, on a case-by-case basis, discharges from testing fire protection equipment are piped to the sanitary sewer.

5.2.3 Redirection and Enhanced Aeration

As discussed in Section 3.0, UM maintains fire hydrants, fire pumps and fire sprinkler systems throughout the campus. In some cases, discharges from this equipment is collected in stormwater management ponds, bioretention ponds and raingardens and is not considered a potential source of stormwater impact. In other cases, based on the specific location conditions, discharges from the equipment are diverted into planted areas, grassy areas or large paved areas. The discharge may be directed using firehose and hard elbows. In addition, aeration is maximized by the use of a hose hog that sprays the water as it is released. These approaches are used to enhance the volatilization of TRC from the discharge, minimize the disturbance of soil, and to prevent stormwater with elevated TRC from entering the storm sewer system

5.2.4 Substance Containment

Substance containment measures are used to physically contain or capture a release of solid, liquid or gaseous material. These containment measures provide a second line of defense by preventing a release of material from the primary containers to reach the receiving water. Containment will prevent both run-on and run-off. UM employs secondary containment for the oil and waste oil tanks that support the vehicle maintenance areas.

5.3 BEST MANAGEMENT PRACTICES (BMP'S)

5.3.1 BMP'S for Vehicle Maintenance Activities

In addition to those BMP's identified in Sections 5.1 and 5.2 above, the following BMP's identified in Table 5-1 have been identified for areas involved in vehicle maintenance activities.

TABLE 5-1

RECOMMENDED BMPs FOR VEHICLE MAINTENANCE OPERATIONS

Site Description	Recommended BMPs
Maintenance Bays	**Mitigation Control** • Use brooms or shovels for cleanup of dry materials. Sweep area after initial bulk cleanup. • Provide spill kit for emergency cleanup. A spill kit typically contains various absorbent materials including pads, pillows, and sorbent material (i.e. cat litter).
Hazardous Material Storage Areas (Inside bays, storage tanks)	**Employee Training** • Training for the proper use and storage of hazardous materials.
	Visual Inspection • Inspect hazardous material storage areas for any spills/leaks, open drums of chemicals, etc. • Inspect secondary containment systems for spills/leaks and cracks. • Inspect level of waste oil tank to prevent overfilling.
	Good Housekeeping • Prompt removal of any spills/leaks using spill kit or call ESSR (ext. 5-3960) • Store cans/drums of chemicals indoors. Containers are to be kept closed. **Substance Containment** • Replace or repair all secondary containment systems that exhibit evidence of leaks.

5.3.2 BMP'S for Potable Water Distribution System Maintenance

As previously described, the potable water supply system at the UM campus includes maintenance of building fire sprinkles and system fire hydrants. Approximately one-third of the hydrants require flushing each year to reduce the build-up of sediment. Fire sprinkler systems are tested at the time of installation to meet the Fire Marshal's requirements. BMP's for these systems are provided in Table 5-2.

TABLE 5-2

RECOMMENDED BMPs FOR POTABLE WATER SUPPLY MAINTENANCE OPERATIONS

Site Description	Recommended BMPs
Fire Hydrants, Fire Pumps and Sprinkler Systems	**Substance Control** • Discharge to grass and landscaped areas away from stormwater inlets to maximize retention time. • Discharge to stormwater management ponds, biorentention ponds, raingardens and other engineered stormwater control structures. • Direct discharges to the sanitary sewer. • Use hose hogs to create a spray during discharge to maximize volatilization of TRC. • Use hard fire hose and hard elbows to direct the discharge and to prevent soil erosion.

6.0 SITE MAPS

The SWPPP provides a description of potential sources which may add pollutants to storm water discharges, or which may result in non-storm water discharges from the facility. Site maps are attached to, and made an integral part of this SWPPP. In order to define the facility boundaries, layout, and surface drainage flow patterns at the UM campus, the following maps are included:

Figure 1 Site Map (Next Page - Courtesy of Department of Transportation Services)

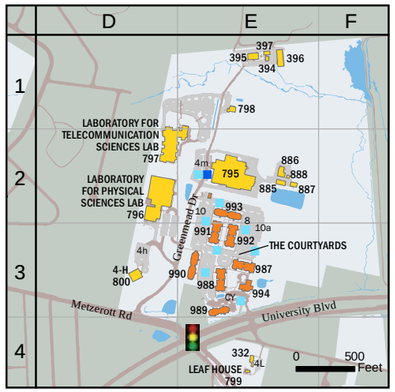
Figure 2 Topographic Map - http://www.essr.umd.edu/hw/topo/

UNIVERSITY OF MARYLAND

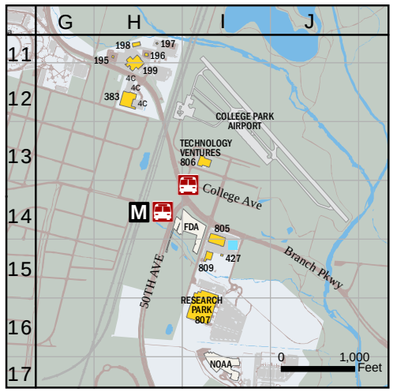
LEGEND

- Visitor Center
- Testudo
- Accessible Parking
- Visitor Parking Lots/ Garages
- Metro
- Shuttle UM
- Pay Stations for Visitor Parking
- Adele H. Stamp Student Union Center
- Campus Housing
- Key Places of Interest
- University Buildings
- Under Construction
- Smoking Areas

Inset 1- Northwest Sector



Inset 2- Metro and Research Park



VISITORS PARKING INFORMATION:

Visitor Parking is primarily available in the four parking garages and the Paint Branch surface lot, marked with a P on this map and on campus signs. These are equipped with digital pay stations and visitors must park in a numbered space and pay by space. Cash and credit cards are accepted; machines DO NOT GIVE CHANGE.

A limited number of pay by space parking with digital pay stations are also located around campus, including the Visitor Center lot. Allotted time allowed, hours of operation and costs vary by location.

Most other parking lots are for use by PERMIT HOLDERS during designated hours. Temporary permits designate where/when they are valid.

Accessible parking spaces are available in all Visitor lots at all times and are marked with a ■. Additional accessible parking spaces are located in other lots designated for faculty/staff/students (Permit Holders). A valid campus parking permit in addition to a state-issued disability permit is required before 4pm M-F in these lots, which are marked with a ■ on this map. Most faculty/staff/student lots are available for complimentary parking after 4pm.

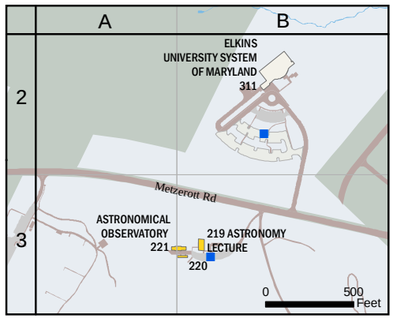
Visitors may NOT park in spaces designated for State vehicles, courier and zipcar parking.

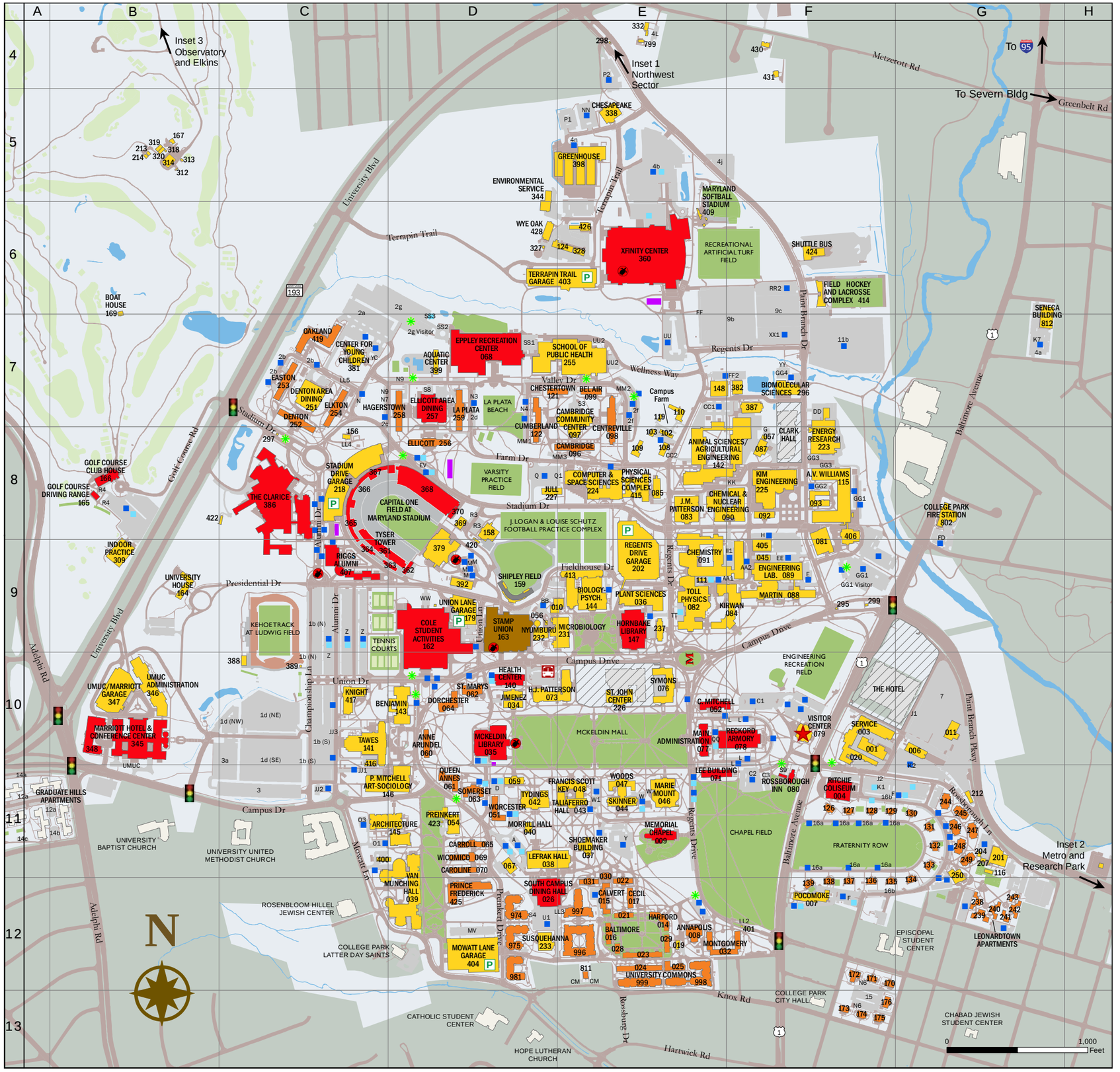
EMERGENCY:

Dial 911 from any campus phone or pick up the BLUE LIGHT Public Emergency Response Phones located all around campus.

Map courtesy of Conferences & Visitor Services
and Department of Facilities Management.
www.cvs.umd.edu
www.facilities.umd.edu
www.maps.umd.edu/map

Inset 3- Observatory and Elkins





APPENDIX A

SWPPP REVISION FORM

REVISION FORM

Revision Number	Date of Change	Name of Person Entering Change	Signature of Person Entering Change

APPENDIX B

SAMPLE NPDES INSPECTION CHECKLISTS

POLLUTION PREVENTION TEAM **University of Maryland** **Vehicle Maintenance Facility**	**Completed by:** _____ **Title:** _____ **Date:** _____

Leader: Environmental Compliance Manager

Office Phone: 53163

Responsibilities: Develop, maintain and direct UM stormwater pollution prevention, permitting, and compliance efforts.

Members: Environmental Chemist

Office Phone: 57535

Responsibilities: Conduct routine stormwater and RCRA compliance audits, provide emergency hazmat response services.

Member: Environmental Chemist
Office Phone: 53162

Responsibilities: Conduct routine stormwater and RCRA compliance audits, stormwater sampling; provide emergency hazmat response services.

Members: Hazardous Material Technicians
Office Phone: 54633

Responsibilities: Conduct routine stormwater and RCRA compliance audits, stormwater sampling; provide emergency hazmat response services.

UNIVERSITY OF MARYLAND
VEHICLE MAINTENANCE FACILITY
SITE INSPECTION CHECKLIST

Suggested Areas to Inspect:

- Loading and unloading areas
- Hazardous material storage areas
- Vehicle Maintenance areas

Visual Inspection Checklist	**Action Required (Y or N)**
Corroded drums or drums with plugs (that could fill up with rain water and overflow)	
Corroded or damaged tanks, tank supports, and tank drain valves	
Torn Bags or bags exposed to rain water	
Corroded or leaking pipes	
Leaking or improperly closed valves and valve fittings	
Leaking pumps and/or hose connections	
Broken or cracked dikes, walls or other physical barriers designed to prevent storm water from reaching stored materials	
Windblown dry chemicals	
Improperly maintained or overloaded dry chemical conveying systems	
Good Housekeeping Checklist	**Action Required (Y or N)**
Are outside areas kept in a neat and orderly condition?	
Is there evidence of drips or leaks from equipment or machinery onsite?	
Is the facility orderly and neat? Is there adequate space in work areas?	
Is garbage removed regularly?	
Are walkways and passageways easily accessible, safe, and free of protruding objects, materials or equipment?	
Is there evidence of dust on the ground from industrial operations or processes?	
Are cleanup procedures used for spilled materials?	
Is good housekeeping included in the employee program?	

Are good housekeeping procedures and reminders posted in appropriate locations around the workplace?	
Are there regular housekeeping inspections?	
Site Assessment Checklist	**Action Required (Y or N)**
Are there signs of poor housekeeping (cluttered walkways, upswept floors, uncovered materials, etc.)?	
Are there spots, pools, puddles, or other traces of oil, grease, or other chemicals on the ground?	
Is there discoloration, residue, or corrosion on the roof or around vents that ventilate; or drains in work areas?	
Do you see leaking equipment, pipes, containers, or lines?	
Are there areas where absorbent materials (kitty litter, saw dust, etc.) are regularly used?	
Do you notice signs such as smoke, dirt, or fumes that indicate material losses?	
Do you smell strange odors, or experience eye, nose, or throat irritation when you first enter the work area? These are indications of equipment leaks.	
Do storage containers show signs of corrosion or leaks?	
Are there open containers, stacked drums, shelving too small to properly handle inventory, or other indications of poor storage procedures?	
Are containers properly labeled?	

Comments:

Inspector_____ **Date:**_____