

Please note, all new and updated information for 2007 will be underlined throughout this report.

## GROUP MUNICIPAL STORM WATER DISCHARGE PERMIT

### 2007 ANNUAL REPORT

Section III, General Information  
Appendix A

University of Wisconsin-Madison

#### Parts E and F

**Describe in Appendix A how the municipality internally coordinates implementation of the requirements of the municipal storm water discharge permit between the municipality's agencies, departments and programs. Provide any documentation on how this was accomplished, such as meeting agendas, minutes, memos, etc.**

**Describe in Appendix A how elected and municipal officials and appropriate staff are kept apprised of the municipal storm water discharge permit. Provide any documentation on how this was accomplished, such as meeting agendas, minutes, memos, etc.**

Staff members of the following campus units are responsible for implementing the various requirements of the storm water permit:

- Environmental Services (AKA Grounds)
- Environmental Health (a division of University Health Services)
- Plumbing Shop
- Planning/Landscape Architecture Department
- Major Projects (includes architectural and engineering staff)
- Physical Plant Landscape Architect
- Eagle Heights/University Houses (EH/UH)(faculty and student housing)
- Athletic Department
- Recreational Sports (AKA Rec Sports)

- University Housing (dorms)
- Arboretum

The electronic version of the new permit has been shared with the Director of Planning and Landscape Architecture, the University's Civil and Structural engineer, the Physical Plant's Landscape Architect and the U.W. Environment, Health and Safety Department's Legal Counsel.

Meetings have been held with staff members from Grounds, Environmental Health, Plumbing Shop, Planning and Landscape Architecture, Capital Planning and Development (Major Projects), Physical Plant Landscape Architect, Eagle Heights/University Houses (EH/UH) and the Arboretum to discuss permit requirements that are pertinent to their respective departments. Data collection forms are sent annually to the staff of Grounds, Environmental Health, Plumbing Shop, EH/UH and the Arboretum.

Any data needed from departments not listed above is collected through e-mails sent to pertinent staff.

### Part I

**Describe in Appendix A how the requirements of the municipal storm water permit are incorporated into master planning activities, neighborhood plans, development plans or other comprehensive planning activities.**

Requirements of the storm water discharge permit are incorporated into all University projects through the following:

- **U.W.- Madison Policy** for development, adopted by the Campus Planning Committee in October 2003. This policy represents a significant commitment by campus staff to use sound storm water management practices in all campus development. The **2005 Campus Master Plan** incorporates this policy.
- Erosion/sediment controls are included in **all project specifications**, with reference to the WI DNR storm water best management practices. This includes all DSF (Dept. of State Facilities) managed projects, University delegated projects, In-House projects and Emergency projects (e.g., chilled water line break).
- The **Utilities Master Plan** project.

- **“Storm Water Runoff Management”**. This manual was put together (in 2005) by several campus graduate students for Facilities, Management and Planning staff. The manual includes: procedures for assessing storm water runoff, a discussion of best management practices that could be used on campus and a selection/discussion of potential mitigation sites for reducing storm water runoff volumes.
- The **“West Campus Storm Water Management Plan”**.
- The U.W. Arboretum **Storm Water Management Plan**. The plan was finalized in July 2006.

## 2007 ANNUAL REPORT

### Section IV, Storm Water Management Program Appendix B

University of Wisconsin-Madison

#### Part A – Public Education and Outreach

**4. Describe in Appendix B how any materials produced by Dane County on behalf of the municipality have been used and/or distributed. Provide examples.**

Copies of the pamphlet "In Dane, Only the Rain Goes Down the Drain.", developed by the I&E subcommittee of the Madison Area Municipal Storm Water Partnership, have been made available in the University Environment, Health and Safety Department reception area.

No materials produced in 2007 were used on campus.

**5. Describe in Appendix B any individual information and education activities undertaken for the reporting year, including any materials produced and their distribution. Provide examples. Include an assessment of the effectiveness of reaching targeted audiences and delivery of intended messages.**

The following information and education (I&E) articles were written and I&E activities undertaken by campus and arboretum staff in 2007. Please see attachments.

- **Fact sheet**, "Construction Activities", distributed electronically to all Building Managers on March 8<sup>th</sup> (see Attachment B-1).
- **Annual spring notices** placed in Wisconsin Week (UW-Madison newspaper) regarding pesticide use on campus, appeared in March 14 and April 9 editions (see Attachments B-2, 3).
- **Wisconsin Week article**, "Questions Remain on What Makes a Perfect Rain Garden", appeared in the October 31 edition (see Attachment B-4).
- **Inlet Decals**. Because the painted stencils aren't very durable (there is significant fading within a year of application), the campus has been applying a different type of inlet marker. For the past several years, the

- campus has been using a product called a das curb marker, manufactured by das Manufacturing, inc. The campus is using the Duracast style. Each marker has a clear protective urethane “dome” applied to the surface that protects the marker from mechanical and chemical abrasion and also enhances UV resistance. Decals are placed in high traffic (pedestrian) areas. Decaling in these locations has the potential of creating a high degree of awareness because of the large numbers of pedestrians (students, faculty, staff and visitors) that pass through these areas.
- Many **Education and Outreach programs** are offered at the Arboretum. Examples of these classes include:
    - .Rain garden classes.
    - .Friends of the Arboretum (volunteers) sell rain garden plants.
    - .Rain garden demonstration plantings.
    - .Participation in Madison’s rain garden tours.
  - The University of Wisconsin Extension offers many **Storm Water related courses** throughout the year through the Engineering and Professional Development program. These classes are open to University faculty, staff and the general public.
  - Faculty and staff are routinely involved in educational and outreach activities, such as **article writing, teaching and committee membership** in Madison, surrounding communities and at the national level.

The articles, fact sheets, classes, etc. are all designed to:

- raise people’s level of awareness regarding storm water management issues.
- encourage people to think about how their individual actions can lead either to degradation or to improvement in lake quality
- encourage a personal relationship with our lakes.

An I&E program that can achieve these outcomes, can be labeled a success.

#### Part B – Public Involvement and Participation

**4. Describe in Appendix B the opportunities and types of forums for public involvement and participation in permit related activities that occurred during the reporting year. Include an assessment of the effectiveness of efforts to involve the public and the level of participation.**

The 2007 Storm Water annual report will be distributed to the University Chemical Safety Committee, the Chairs of the Arboretum and Lakeshore Nature

Preserve Committees and other interested parties. The report is also posted on the University of WI-Madison Environment, Health and Safety Department web site at [www.fpm.wisc.edu/safety](http://www.fpm.wisc.edu/safety). Comments on the report and/or the campus storm water management program are always welcome.

The University solicits comments and advice from the public in all public information and training endeavors. In significant new developments, storm water management is a topic for discussion when developing Environmental Impact Statements. These statements are distributed widely for public comment and are also discussed at public hearings.

Two University committees – the Joint West Campus Area Committee and the Joint South East Campus Area Committee - are used as forums for discussion regarding development on the west and south east portions of the campus. Storm water management plays a significant role in many group discussions. Membership includes representatives from various University committees and departments, City Mayor's office, various City committees and departments, City of Madison Alders representing pertinent districts and various neighborhood organizations representing neighborhoods that are in close proximity to the University.

Arboretum staff have completed a storm water management plan for the Arboretum (completed in July 2006). City of Madison staff and the Friends of Lake Wingra were also involved in the plan's development.

Welcoming the public into the planning process has worked well for the University and the public. The participatory framework of meetings, hearings and reviews often results in solutions that everyone can feel a part of.

## Part C – Illicit Discharge and Elimination

**1. Describe in Appendix B the illicit discharge and elimination program developed to comply with the permit. Include information on the municipality's strategy to prevent, detect, and eliminate all types of illicit discharges; how priorities are established for field screening and the methodologies to be used for field screening; and procedures for responding to and rectifying illicit discharges to the MS4, including spills, improper disposal of waste or dumping. Also include an assessment of the effectiveness of detection and elimination of illicit discharges, prevention of improper disposal of waste and dumping, the handling of spills and any enforcement efforts involving these activities.**

A Illicit Discharge and Elimination program was submitted with the original storm water discharge permit in 1995. The following describes how the program is implemented.

Illicit discharge detection, investigation and elimination is a joint effort between the Physical Plant Plumbing Shop and the Department of Environmental Health.

Illicit discharges are reported to Environmental Health, Plumbing Shop, Central Answering and Response Service (CARS) and/or the Environment, Health and Safety Department. All discharges are reported to the DNR. If necessary, discharges are reported to the DNR and to the City of Madison if the discharge was to the City's storm sewer system.

Inspections are conducted of older buildings on campus to detect and remove illicit connections to the storm sewer system. Such inspections may include field sampling, dye testing or other methods of detection.

Environmental Health staff walked the lakeshore throughout the spring, summer and fall of 2007. All pipes that enter the lake were monitored; no unusual discharges were found.

Environmental Health staff conducted walk through inspections of the Agricultural campus several times throughout the summer and fall of 2007. Periodic inspections ensure the following:

- Storm inlets are clear of straw.
- Manure is properly managed.

- Farm equipment is washed indoors so that wash waters flow into the sanitary sewer.
- The berm around the horse barn yard is functioning properly. The berm contains rainwater and directs this water to the inlet located in the barn yard. This inlet drains to the sanitary sewer.

This year's inspections confirmed that animal wastes have been appropriately contained; no illicit discharges were noted.

Complaints were investigated in July 2007 regarding milky colored water flowing into Lake Mendota from the Elm Drive outfall. Environmental Health staff conducted a detailed inspection of all buildings along the storm sewer route. No obvious source was found and no one claimed to have spilled any such colored liquid.

A sample of the milky colored water was sent to the State Lab of Hygiene. The resulting infrared spectral characteristics of the unknown substance indicated a mixture of protein, oil and carbohydrates. These materials are present in many food substances including (but not limited to) milk, cheese and protein powder mixes. It was not possible to make a positive identification of the food source.

Follow up inspections of the Babcock Hall Dairy Plant were done with the Plumbing Shop to try to find the source of the discharge. No source of the spill was found. We will continue to look for any plumbing problems that may have led to the release into the storm sewer.

In August 2007, one sample each was taken from Curtis and Teal Ponds, located in the Arboretum. Samples were taken because of what appeared to be an oily sheen on each pond. Analysis resulted in no conclusions.

Outdoor spills are responded to by either or all of the following: University Environment, Health and Safety Department staff, University Police or, by the individual(s) responsible for the spill if the spill can be easily contained. If the spill cannot be easily contained, 911 is called and Madison's Hazardous Incidence Team will respond.

The program works well. If an illicit discharge is discovered, people know who to call; participants in the program can respond quickly to an incident. Prevention activities, such as the annual walk along the lakeshore and inspections conducted on older buildings help to avert potential illicit discharges

to the lake. University Police also have the power (UWS 18.03 (1) to enforce UWS 18.06 (1) which prohibits dumping on University lands and illicit discharges into storm sewers.

**4. Describe in Appendix B how the municipality facilitates public reporting of illicit discharges.**

The Illicit Discharge Notification form is used to report spills to the Madison storm sewer system, along with any necessary phone calls to City Engineering and the DNR. Copies of the form are sent to the DNR and the City's Engineering and Health departments. The DNR is always notified of any spills into the University storm sewer system; a report is kept on file. Major spills that would have a major impact on Lakes Mendota or Monona would also be reported to University Communications (262-3571, 27 Bascom Hall). This department would manage information collection and dissemination.

Parts D and E – Construction Site Pollution Control and Post-Construction Site Storm Water Management

**Describe in Appendix B, the procedures the municipality employs to incorporate timely consideration of potential water quality impacts from construction sites and that ensure implementation of the standards of ss. NR 151.11, 151.12, 151.23 and 151.24, Wis. Adm. Code, or equivalent local standards. Be specific of when in the review and approval process this is done, and how the municipality ensures compliance with the standards.**

**Describe in Appendix B, the procedures the municipality employs for the inspection of construction sites and enforcing erosion control standards and for inspecting the construction and installation of storm water best management practices and enforcement actions to ensure compliance with post-construction storm water management standards. Provide documentation of any enforcement actions that resulted in the issuance of a stop work order, citation or summons for a construction site where one or more acre is disturbed and/or for non-compliance with post-construction storm water management standards. Include the name and address of the landowner, the site name and location, date(s) of violation(s), type of violation(s) and the status of resolution of the enforcement action.**

Parts D and E are combined because the processes and personnel are similar for both stages of construction.

**Major Projects >\$100,000 and Small Projects (not delegated to the U.W.) \$30,000 to <\$100,000**

These are construction projects (development and re-development) that are managed by the Department of Administration (DOA) - Division of State Facilities (DSF). Construction site authority is granted to DSF by Chap. 16, Stats. Section 16.85(1) Stats. This statute declares the DOA shall “take charge of and supervise all engineering or architectural services or construction work.....performed by, or for, the state...”

Section 16.85(12) stats., gives DOA the authority to review plans and specifications for all U.W. System projects (including U.W. Hospitals and Clinics Authority). DOA is also empowered to periodically review the progress of all construction activities to ensure compliance with plans and contract specifications.

DOA requires compliance with the standards written into NR 151.11, 151.23, 151.12 and 151.24. Compliance is achieved through specifications and requirements contained in contracts for state construction projects. DSF has issued a Policy and Design Manual for architects and engineers that details storm water management and erosion control requirements for state construction projects (those in progress and post construction). The manual states that contract requirements pertaining to storm water management and erosion control apply to **all** construction projects, regardless of size. “Chapter 151.....includes rules and performance standards for site design and management and shall be strictly adhered to,” and “DSF expects the A/E to design the site-work in compliance with local codes and zoning requirements related to stormwater discharge, even if more restrictive than [the normal state requirements], with the concurrence of the project manager.”

State contracts empower DOA with the responsibility and authority to inspect construction sites to ensure compliance with contract requirements for stormwater management and erosion control. In 2006 DSF, with input from the DNR, re-wrote the General Conditions section of the Construction Contract. The new language **requires** contractors to strictly adhere to the NR151 standard.

## **Small Projects \$30,000 to < \$100,000 (delegated to the U.W.), U.W. Managed Projects <\$30,000**

The University's Planning and Design team is cognizant of the need to consider a project's impact on the quality of Madison's lakes and the need for strict adherence to best management practices for storm water controls, both during and post construction.

Projects in this category have contract or project specifications that delineate requirements for storm water management and erosion control, all contractors and University personnel are required to follow these specifications.

The Campus Planning Committee, in October 2003, adopted a campus development policy that applies to **all** projects – DSF and U.W. managed – “.....that ensures that the amount of runoff from newly developed and redeveloped areas be no greater than the amount that occurred under native conditions.”

### **Project Review Process for DSF and U.W. Managed Projects**

Project review for Major Projects is conducted by DSF and U.W. staff. The project review process consists of three phases – 35%, 65% and 100%. Early project review enables staff to catch and correct errors and problems before they become more difficult to remedy.

Contracts and project specifications for Small Projects (DSF or U.W. delegated) and U.W. managed projects (<\$30,000) are given a brief review; but, because of time constraints and a lack of adequate staff, these projects do not benefit from the thorough review that projects included in the paragraph above receive. The campus is working on solutions to correct this problem, including adding more staff.

### **Inspection and Enforcement**

Inspection of DSF managed project sites can be performed by three individuals – DSF Project Manager, DSF Field Rep and the U.W. Physical Plant LA (also appointed by DSF to be their Rep). The majority of the site inspections are conducted by the LA. Because DSF projects are managed by the state (and not the University), the LA has no enforcement power. However, if problems are

encountered, the LA will inform the DSF Project Manager who, in turn will inform the contractor.

Inspection of U.W. managed project sites is conducted by the LA. As above, any problems encountered will be brought to the attention of the campus Project Manager.

Please note, the Physical Plant Landscape Architect left her position in mid 2007. Replacement interviews were conducted in February 2008. It is anticipated that duties regarding plan review and construction site inspections will remain the same.

University staff have developed an inspection sheet - "**Erosion and Sediment Control Inspection Sheet**" - that is now used on all construction sites.

**List the name, title, address, telephone number, e-mail address and duties of all persons designated with the responsibility to ensure implementation of the standards of ss. NR 151.11, 151.12, 151.23 and 151.24, Wis. Adm. Code, or equivalent local standards, and the requirements of Subchapter III of Chapter NR 216, Wis. Adm. Code, Construction Site Storm Water Discharge Permits, where applicable.**

The list of duties is not included in this report; the individual titles should, in most cases, explain the responsibilities of the position. A position description will be provided if requested.

- Jim McMillan, DSF, Project Manager, Engineer - jim.mcmillan@wisconsin.gov - 608-266-3855 - 101 E. Wilson, 7<sup>th</sup> floor
- Katherine Kalscheur, DSF, Project Manager, Engineer – Katherine.kalscheur@wisconsin.gov – 608-267-0509 – 101 E. Wilson, 7<sup>th</sup> floor
- Phillip Michalski, DSF, Project Manager, Engineer – phillip.michalski@wisconsin.gov – 608-267-6941 – 101 E. Wilson, 7<sup>th</sup> floor
- Tammy Olson, DSF, Construction Quality Control – tammy.olson@wisconsin.gov – 608-270-2708 – DSF Beltline Office
- Eric Pedersen, DSF, Construction Quality Control – eric.pedersen@wisconsin.gov – 608-270-2711 – DSF Beltline Office
- Gary Brown, U.W., Director, Planning and Landscape Architecture, Facilities, Planning and Management (FPM) – gbrown@fpm.wisc.edu – 608-263-3023 – Room 856 WARF

- Daniel Okoli, U.W., Director, Major Projects, Facilities, Planning and Management (FPM) - dokoli@fpm.wisc.edu - 608-263-3159 - Room 919 WARF
- Steve Harman, U.W., Civil and Structural Engineer, Major Projects, FP&M – sharman@fpm.wisc.edu – 608-263-3031 – Room 985 WARF
- Angela Pakes Ahlman, U.W., Civil and Structural Engineer, Major Projects, FP&M - apakes@fpm.wisc.edu - 608-262-6384 - Room 957A WARF
- Julie Grove, U.W., Architect, Major Projects, FP&M – jgrove@fpm.wisc.edu – 608-265-0465 – Room 989 WARF
- Pete Heaslett, U.W., Engineer, Major Projects, FP&M – pheaslett@fpm.wisc.edu – 608-263-3012 – Room 950 WARF
- Pam Barrett, U.W., Architect, Physical Plant, FP&M - pbarrett@fpm.wisc.edu - 890-1079 - 115 No. Mills Street
- Chris Velie, U.W., Engineering Specialist, FP&M – cvelie@fpm.wisc.edu – 608-263-3018 – Room 985 WARF
- John Harrod, U.W., Director, Physical Plant, FP&M – jharrod@fpm.wisc.edu – 608-263-3077 – Room 201 Service Building
- Faramarz Vakili, U.W., Associate Director, Physical Plant, FP&M – fvakili@fpm.wisc.edu – 608-265-2757 – Room 201 Service Building
- Kris Ackerbauer, U.W., Assistant Director, Physical Plant, FP&M – kackerbauer@fpm.wisc.edu – 608-265-2758 – Room 201 Service Building

There are other DSF Project Managers, not listed above, who have the potential to manage University construction projects.

**Include in Appendix B an assessment of the municipality’s construction site pollution control program effectiveness and the municipality’s post-construction site storm water management program effectiveness in meeting the standards of ss. NR 151.11, 151.12, 151.23 and 151.24, Wis. Adm. Code, including enforcement efforts.**

The project planning and review process works very well. As previously stated, the University is strongly committed to considering not only the impact of individual projects on lake quality, but also, the incremental impact of all projects on lake quality.

Inspection frequency is somewhat limited by a lack of staff, U.W. and DSF. Our Landscape Architect does a great job of talking to contractors and assisting them in correcting erosion and sediment controls that have not been installed

accurately. Contractors frequently begin a project using the wrong approach to erosion control. When the LA observes this on her inspection rounds, she will help contractors choose the correct controls and explain why the recommended controls are necessary. However, she is the only staff assigned to the inspection task; it is difficult for her to oversee, daily, every job on campus. A similar problem exists with DSF. One Project Manager and one Field Rep is assigned to many projects. As a result, the DSF field rep may not get to his/her assigned U.W. project for days, sometimes longer. The U.W. is working on solutions to improve the inspection process.

DSF now requires all pre-construction meetings to include discussion of project specific erosion control BMP's. Erosion control issues are now also included as an agenda items at all progress meetings.

In the fall of 2006, all DSF Project Managers and Field Reps attended "Effective Construction Erosion Control", a seminar conducted jointly by the DNR, Dept. of Commerce and UW Engineering Professional Development. Topics included: regulatory overview, basic principles of hydrology and sedimentology, a review of common erosion control practices and why they are effective, etc.

No one on campus has enforcement authority for DSF managed projects. To date, DSF has never issued a stop work order for lack of or improper installation of erosion and sediment controls. The same can be said for U.W. managed projects.

## Part F – Municipal Pollution Prevention

**1. List in Appendix B an inventory of long-term storm water best management practices owned, operated, managed or maintained by the municipality. Include storm water basins, infiltration practices, treatment structures and other practices for long-term water quality treatment. For each best management practice, provide the name, location, type of practice and any maintenance activities undertaken for the practice during the reporting year. Also in Appendix B, provide a description of the maintenance procedures used and schedules for each long-term storm water best management practice and the approximate amount of solids collected (tons or cubic yards) from any structural control receiving maintenance.**

### **CAMPUS**

#### Oil/Sand Separators – Parking Ramps

- Ramp 6 – Helen C. White Library
- Ramp 7 – Grainger Hall
- Ramp 17 – Camp Randall Stadium
- Ramp 20 – Medical Sciences Center
- Ramp 29 - 21 North Park Street
- Ramp 36 – Steenbock Library
- Ramp 46 – Johnson Street
- Ramp 76 - University Bay Drive
- Ramp 79 – Clinical Sciences Center
- Ramp 83 – Fluno Center
- Ramp 95 - Health Sciences Learning Center (HSLC) (one level parking, located in basement underneath the building)

All future and existing parking ramps on campus will be or are equipped with oil/sand interceptors. The separator is designed to collect sand and oil, thus preventing these materials from entering the storm sewer. Gradually, the accumulated sand will plug up an inverted elbow on the outlet. Approximately every 3 years, or when needed, Roto Rooter pumps out the unit(s). The lower level drains begin to drain slowly when the interceptor becomes clogged with debris; this is a clue that the unit needs to be cleaned out.

In 2007 oil/sand separators were cleaned out in the following ramps:

- Ramp 7 - Grainger Hall - .1 ton
- Ramp 36 - Steenbock Library - .2 ton
- Ramp 95 - HSLC - .1 ton

#### Ramp 76 - University Bay Drive

An infiltration garden was installed on the north side of the parking ramp (completed in 2005). Storm water flows through the ramp's oil/sand interceptor and then into the native perennial garden to cool the storm water before it enters the storm sewer system.

#### Walnut Street Research Greenhouses (replacement buildings)

Flo-Gard™ + Catch Basin Insert Filters were installed in the storm inlets surrounding the Walnut Street Research Greenhouses (completed in 2005). These filters are designed to capture sediment, debris, trash and oils/grease from storm water before the pollutants reach the storm sewers.

#### Restoration of Recreational Sports Playing Fields (west campus)

In conjunction with the restoration of the Rec Sports playing fields, a series of four detention ponds were installed (in 2005) on the southern periphery, along Observatory Drive. Each will be a dry or a wet detention pond, depending on ground water elevations and seasonal precipitation. The ponds are referred to as a forebay system; the first ponds will receive the highest amounts of sedimentation and will require dredging more often. The first pond fills, then overflows via a weir into the next pond and so on. The design allows the heaviest particles and some of the suspended solids to settle out before the pond overflows into the next. Each pond will settle out more and more material as the water flows through the system. Finally, water flows from pond four into a pipe that takes the water to an underground detention area. Here, the water is cooled prior to its release into the lake.

#### Parking Lot 34 - Porous Asphalt and Bioretention Basin

Parking Lot 34 was reconstructed in the summer of 2007. Three quarters of the lot was reconstructed using conventional asphalt and one quarter of the lot was

paved with porous asphalt that will allow stormwater to infiltrate. New curb and gutter channels any remaining storm water into a bioretention basin.

#### Parking Lot 92 - Recharge Bed

A recharge bed was installed in the middle of Lot 92 in September 2006. This was a pilot project and was funded by UW-Madison Transportation Services. Plans are to install one recharge bed per year.

#### Wash Down Facility - Herrick Drive

In the fall of 2006, a wash down area was constructed behind the Biotron at the corner of Herrick and Linden Drives. The facility consists of a drainage swale with several sediment trapping devices along the flow path. Sediments will be captured not only from street runoff but also from washing down the Elgin and lawn mowers.

#### 1918 Marsh, Willow Creek, Nielsen Pond (West campus)

The above are inspected and assessed, at a minimum, on an annual basis. Problems found and any corrections taken are noted on a form that is then submitted to the campus storm water permit manager.

The project to repair and modify Willow Creek and the 1918 Marsh is temporarily on hold ( this project will likely include dredging the Marsh and the Creek).

Nielsen Pond repairs and modifications took place in 2006; the project primarily consisted of dredging and bank stabilization. Dredging operations removed 3,850 c.y. of sediment, 935 c.y. of parent material and 2,475 c.y. of unsuitable parent material (total = 7,260 c.y.).

#### Charter Street Power Plant Coal Pile – Storm Water Management Practices

A long, shallow trench, covered with a metal grate, collects runoff from the street before it reaches the coal pile. The trench is located on the northeast side of the plant at the head of the entrance to the coal storage area. Every two weeks, or as needed, the grate is removed and debris is shoveled out of the trench. Approximately 20 pounds of solids are removed every two weeks. The area

surrounding the trench is periodically cleaned; all debris is disposed of in the dumpster (including debris removed from the trench).

The DNR issued an NOV/NOC to the Madison campus and to DOA on May 8, 2007 (see Attachment B-6), alleging illegal discharges to the Madison municipal storm sewers on Mills and Spring Streets. In 2006 the Charter St. Plant initiated several new practices along with site modifications to address concerns raised by the DNR and several environmental groups regarding the University's managing of its coal pile and storm water runoff. Several additional site modifications were made in 2007, in response to the NOV/NOC. Changes that have been or will be implemented include:

- **Redirect drainage in the Spring Street area** to contain runoff within the area served by the sump and to prevent coal residue from entering the Spring Street storm sewers. A project was completed in early 2008, that removed the rail track closest to the building, re-graded and paved the area with blacktop and installed a trench drain to stop water from running off the property. **This drain flows into the sanitary sewer.**
- **A vacuum/brush sweeper has been purchased** to facilitate a thorough, daily, cleaning of the plant interior. When needed, sweeping is also done on parking lot 45, the exterior sidewalk surrounding the plant and the Mills Street gutter, if accessible.
- **Limit coal storage and transport activity to area served by the sump. The site is monitored daily to ensure this is done.** Staff has been instructed to avoid unloading coal when the containment area is full.
- **Maintain a separation distance of six feet** between the bottom edge of the coal pile and the retaining wall surrounding the coal storage area.
- **A 12' tall Jersey Wall will be installed** around the perimeter of the coal storage area in the Spring of 2008. The wall will eliminate the need to maintain the six foot separation around the coal pile.
- **Daily inspections of the periphery of the facility** are conducted to ensure that proper containment is maintained; corrective actions are taken as necessary.
- **The three storm inlets along the drive leading from the Charter Street entrance to the coal unloading area are now connected to the sanitary sewer.**
- **Records of cleaning activities and inspections** are filed with the Plant Superintendent.

## ARBORETUM

### Marion Dunn Pond – detention basin

In 2003/04, 3900 CY of sludge was dredged from the pond; an additional 3900 CY of native material was removed to deepen the pond. The Pond will be dredged at 20 year intervals.

### Secret Pond Trench (AKA Manitou Way Outfall Trench)

A storm water energy dissipater structure was installed in 2003/04 to reduce velocities and decrease sediment loads to Lake Wingra. Design plans are being created for a wet detention pond at the Manitou Way outfall that will provide 40% removal of TSS from the contributing Nakoma watershed. A research conveyance leading from the new pond to the West Wingra Marsh will allow evaluation of a variety of native species for suitability as conveyance plantings. Construction is to begin during 2008.

### Johannsen Pond – detention basin

This project is in bid phase. Construction will begin in 2008 to dredge and rebuild the pond. The commercial/industrial outfall will discharge to a newly constructed infiltration wetland that will be installed between the beltline and the pond. Emergency spill containment will also be added to all outfalls discharging to the system. Funding is provided through a DNR Urban Non-Point Construction grant.

### Curtis Pond – detention basin

Final pre-construction discussion is underway to decide the most appropriate design plan for Curtis Pond. The final plan will likely be decided upon in the fall of 2008.

### Pond 3 – detention basin

The UW and the City of Madison will collaborate in repairing Pond 3. Repairs and additions include dredging, replacing outlet structures, adding stone aprons at the outfalls, armoring the channel that feeds the pond to prevent additional erosion. The project will be done in two phases with completion expected in 2009.

### Pond 4 – detention basin

Repairs and modifications to Pond 4 will be funded with a DNR Urban Non-Point Construction Grant and assistance from the City of Madison. The construction project includes repairing the berm, expanding the size of the pond, dispersing outflows to prevent channelization of the marsh. The project will be completed in 2008.

#### Ho-Nee-Um Pond

The City of Madison will relocate the existing outfall in 2008 to combine with a re-sized Pickford Street box channel. The City will also dredge the accumulated sediment from the pond.

#### Greene Prairie

In 2007, the City of Madison relocated the existing Seminole Highway outfall that drains onto Greene Prairie, to instead drain onto a new wet detention pond adjacent to Dunn's Marsh.

#### Additional Activities and Information

Each of the six detention ponds were inspected three times in 2007; this includes an inspection following the August 19, 2007 three inch rainfall. Berms and culverts were inspected for functionality and structural integrity and storm drain outlets were inspected for functionality. Storm drains on city streets adjoining Arboretum property and drains located in the Arboretum were cleaned of debris as needed.

In 2006, five storm water erosion gullies were remediated. Repair work included the installation of rip rap and check dams. Seeding and restoration were done as needed.

In 2006, City of Madison Engineering was notified of the failure of the storm drain at Arbor Drive and Pickford Street. During storm events, water overtops the storm drain and low curb, thereby causing erosion of the slope that leads into Ho-Nee-Um Pond. The City has agreed to raise the curb to prevent this problem from recurring.

**2. Describe in Appendix B the procedures used and schedules for catch basin cleaning.**

## CAMPUS

Grounds Department crews begin the cleaning process. Street sweepers clean off the grates that cover basins located in the streets. Crews manually clean the grates of basins located in parking lots, patios and other non-street areas. If the basin is plugged, crews will clean to a depth of two feet. Should the drain be plugged beyond that point, crews will inform the Plumbing Shop and the Plumbing Shop will then call in Roto Rooter to clean out the line.

Once every two weeks Grounds crews clean the grates on all inlets, including those without catch basins. Plugged inlets, as stated above, are cleaned deeper.

Grounds crews inspect all inlets during rain events to ensure rain is entering the drains unobstructed.

## EAGLE HEIGHTS/UNIVERSITY HOUSES

A preventive maintenance schedule is in place for all storm inlets (located in parking areas, drive throughs and grassy areas). All inlets are inspected regularly for any obstructions. Roto Rooter is called in to clear any drains that staff is unable to clear. When possible, all inlets will be inspected ahead of any predicted heavy rain; inlets will be inspected again during a heavy rain to ensure rainfall is entering the drains unobstructed.

## ARBORETUM

There are no catch basins located in the Arboretum.

### **3. Describe in Appendix B the procedures used and schedules for street sweeping.**

The following information does not include the interior of EH/UH. That is, parking areas, Eagle Heights Drive and drive throughs.

### Approximate Number of Street Miles Swept

Arboretum  
6 street miles  
No solids collected

Campus  
384 street miles  
96 CY solids collected (does not include solids collected from parking lots)  
0 CY composted  
96 CY landfilled

## CAMPUS

Grounds crews begin sweeping sand from the streets as early as January, if weather conditions permit. Cleaning continues through the spring and summer, once per week to once every two weeks.

In the fall, leaves are vacuumed from the streets every morning. The streets are then swept once to twice per week.

## ARBORETUM

Arboretum Drive is brushed once in the Spring.

**4. Describe in Appendix B the municipality's procedures for roadway snow removal and de-icing. Provide information of what practice and procedures the municipality has implemented in consideration of water quality impacts from snow removal and de-icing. Include an estimate of the annual amount of salt and/or sand used for roadway de-icing.**

It should be noted, the sand use that is reported by the campus and Arboretum represents the 5% salt/sand mix. The campus will add more salt to the mix if weather conditions warrant. The salt use reported by campus represents the quantity of salt that is **added** to the mix. The Arboretum does not use additional salt. Salt and sand use for EH/UH represents the total for each product. Salt and sand are mixed on-site; weather conditions determine the amount of salt that is mixed into the sand.

Total Salt and Sand Use on Campus, EH/UH and Arboretum Streets for the 2006/07 Snow Season

	<u>Salt</u>	<u>Sand</u>
Campus	<u>104.7 Tons</u>	<u>99.9 Tons</u>
Arboretum		<u>8.3 Tons</u>
Eagle Heights/ University Houses	<u>20 Tons</u>	<u>200 pounds</u>

Arboretum, EH/UH and campus staff must comply with the University's Salt Best Management Practice (see attached). This policy is available on the Environment, Health and Safety Department's web site [www.fpm.wisc.edu/safety](http://www.fpm.wisc.edu/safety)

The salt and sand use totals for the campus are for the 2006/07 snow season. Totals for the Arboretum and EH/UH are for 2007. (Totals for EH/UH include amounts spread on all interior areas. EH/UH has one road; the rest of the property consists of parking areas, drive throughs and sidewalks.)

## **CAMPUS**

During night time hours, if conditions warrant, University Police call the Grounds Supervisor who, in turn, calls in the snow removal crew. Police are not involved in storms occurring during day time hours.

Depending on conditions, the crew will use either 100% sand or a salt/sand mixture. The mix typically consists of one part salt to two parts sand. If the situation warrants, the salt ratio can be increased.

All Grounds supervisors have attended the "Managing Snow and Ice Control" course that is offered by U.W. Professional Development.

### Snow Plowing Scenarios

- ½" or less – No plowing. Salt/sand mix is applied to streets.
- ½" or more – Plow, if necessary. Once streets are plowed, apply sand or salt/sand mix. Plowing and application may be simultaneous.
- Heavy snow that is continuing over several hours – Repeat, as often as necessary, plow, apply sand or salt/sand mix.

## **EAGLE HEIGHTS/UNIVERSITY HOUSES**

EH/UH personnel shovel and plow the interior areas only. The campus Grounds staff plow the exterior streets, i.e., University Bay Drive and Lake Mendota Drive.

Snow removal is a collective effort by all staff. Training in plowing operations and salt/sand management are included in orientation activities for new employees.

When to plow is a judgment call. The decision factors in safety and road access issues. Typically, plowing will not begin until the snow has ended; however, hilly areas are plowed, if necessary, to facilitate driving.

Walk areas are kept clear at all times, even with just a dusting of snow. All steps are salted and sanded.

Salt and sand are purchased from the county. Salt is mixed into the sand on site; the amount of salt used depends on the needs of the storm.

## **ARBORETUM**

Arboretum staff do their own plowing. A salt/sand mix (supplied by campus Grounds dept.) is applied to Arboretum Drive on hills, curves and intersections. To minimize amounts applied, applications are done once, after the storm has ended.

### **5. Provide in Appendix B the location of all off-site snow disposal locations and describe what practices and procedures are used to protect water quality from snow and ice melt from the disposal site.**

The snow disposal site is not located off campus; however, due to the snow piles high visibility, the site will be addressed in this report.

The University has found no other appropriate campus location for storing large quantities of snow. The campus has submitted a small project request to DOA for funds to build an improved snow storage area (see Attachment B-7). The snow pile melt site will be redesigned in order to provide a stable surface for snow pile storage and melt operations. The site will have an access road for dump trucks to queue up for dumping snow and exiting the area. The melting system should be designed to allow snow melt water and sediment to pass

through it from the melt coming through the inside of the pile. The snow melt will be collected and sent into drainage ditches and sediment basins.

Based on chloride monitoring conducted in previous snow seasons, the snow pile's impact to the 1918 Marsh and Lake Mendota is negligible.

**6. Provide in Appendix B the locations of all salt storage facilities.**

The salt storage facility for the campus is located at 515 Herrick Drive and for EH/UH at 2902 Haight Road. Salt storage at EH/UH is in compliance with TRANS 277 storage requirements; registration with the DOT will occur in the near future.

**7. Tons of Leaves Collected in 2007**

- |   |                     |
|---|---------------------|
| • Athletic Department                     | No leaves collected |
| • Environmental Services + Rec. Sports    | <u>95 Tons</u>      |
| • Eagle Heights Apts. + University Houses | <u>3.5 Tons</u>     |
| • Arboretum                               | No leaves collected |

**8. Describe in Appendix B the municipality's procedures for the collection of leaves, yard waste and grass clippings and/or instruction to citizens for on-site management of these items. Provide the location of sites used by municipality or citizens for the disposal of leaves, yard waste and grass clippings.**

The following units are responsible for mowing lawns and collecting leaves:

- Athletic Department
- Recreational Sports
- Eagle Heights + University Houses
- All remaining campus lawns (including Residence Halls) are mowed by Grounds.
- Arboretum

**CAMPUS**

Grass Clippings

All mowing units keep grass clippings in place, i.e., with the use of mulching or recycling mowers.

Leaf Collection

Approximately 90% of the total leaf drop at EH/UH is mulched and returned back to the soil. The remaining leaves are collected and taken to the EH/UH gardens; gardeners use the leaves for compost in their garden plots. All work is conducted by a contractor.

Leaves are collected in a central location by Recreational Sports; Grounds staff then take the leaves to the West Madison Agricultural Research Station for composting. The Station is located at 8502 Mineral Point Road.

Athletic lawns do not have many trees; therefore, no leaves are collected.

Grounds staff are responsible for collecting leaves on campus streets, Residence Halls lawns and lawns not managed by Athletics or EH/UH. Leaves are vacuumed from the streets every morning. This process is followed by street sweeping once to twice per week. Most leaves collected from the streets are composted; however, a small amount is landfilled due to a high dirt content.

In the fall, Grounds staff clear the lawns of leaves and grass simultaneously. Collected wastes are blown into a hopper and then taken out to Picnic Point for temporary storage. Once the growing season has ended, the only activity is to vacuum leaves, daily, from lawn areas and then transfer them to Picnic Point. Once enough leaves have accumulated at Picnic Point, they are transferred to the West Madison Agricultural Research Station for composting.

## **ARBORETUM**

### Grass Clippings

Grass clippings are left in place.

### Leaf Collection

Leaves are not collected in the Arboretum. Leaves that fall in the woods remain on the ground and leaves that fall in lawn areas are shredded by a mulching mower and left to enrich the soil.

**9. Describe in Appendix B the municipality's policies and procedures for the use and application of lawn and garden fertilizers on municipally controlled**

**properties. Include information on how these policies and procedures address pollution prevention efforts.**

**10. Describe in Appendix B the municipality's policies and procedures for the use and application of pesticides and herbicides on municipally controlled properties. Include information on how these policies and procedures address pollution prevention efforts.**

All units on campus and the Arboretum are required to follow the Pesticide Use Policy. This policy is available on the Safety Department's web site at [www.fpm.wisc.edu/safety](http://www.fpm.wisc.edu/safety). The following units are responsible for applying fertilizers, herbicides and pesticides:

- Grounds Department (all lawns, with the exception of Athletics, Rec Sports)
- Recreational Sports
- Athletic Department
- Residence Halls
- Lakeshore Nature Preserve
- Arboretum

### Campus

No herbicides or fertilizers are applied at EH/UH due to the proximity of the Lakeshore Nature Preserve Area and Lake Mendota.

Lawn areas in Athletics, Rec Sports and the remainder of campus (excluding Residence Halls and EH/UH) have been soils tested for phosphorus content.

Starter grade fertilizers (phosphorus containing) may be used by Grounds staff when sodding and seeding lawn areas. This fertilizer is incorporated into the soil prior to seeding or placing the sod. Slow release nitrogen sources are used in established turf. An aerator is used prior to fertilizing.

Fertilizers are used, when necessary, on the Rec Sports and Athletics lawn areas. Phosphorus containing fertilizers will be used where testing has indicated it's needed. Rec Sports aerates soils prior to all fertilizer applications; Athletics occasionally aerates soils prior to application.

Residence Halls staff are responsible for the financing of and contracting for fertilizer applications; however, the staff works with the Grounds department for decisions on product selection and application.

Herbicides are applied by Rec Sports and Athletics, when necessary, to rid the lawn areas of weeds. Herbicides used on the Residence Hall lawns are applied by a contractor under the direction of the Grounds department. All other campus lawns and gardens are scouted for weeds and receive herbicide applications only where necessary. Plantings on campus receive pesticide applications by Grounds staff only when required to preserve plant health.

The policy for woody plant removal in the Lakeshore Nature Preserve is to repeatedly cut plants as an alternative to applying herbicide to the stump at the first cutting.

### Arboretum

No fertilizers, insecticides, rodenticides or fungicides are currently applied in the Arboretum. Pesticide applications are limited to herbicides.

### **12. Include in Appendix B an assessment of the effectiveness of the municipality's pollution prevention efforts through the municipal pollution prevention program.**

The program works well. University staff are very aware that their methods of operation can have a deleterious impact on lake water quality. We are continually searching for ways to improve our operations and methods that will result in a steady improvement to our lake quality.

For example:

- Using phosphorus containing fertilizers only where testing shows it's needed.
- Frequent cleaning/inspections of storm inlets to ensure they will perform during storm events.
- Frequent street sweeping.
- Vacuuming leaves from the streets, daily, in the fall.

## 2007 ANNUAL REPORT

### Section VII, Additional Information Appendix E

#### Part D

#### **Budget and cost information.**

Program elements are funded by a variety of University accounts. University monies can only be used for University related purposes and may not be used for any expenditures related to University Hospital and Clinical services.

The various program elements that comprise the permit are not budgeted for. University staff do what they have to do to achieve the goals of the permit.

Annual expenditures have been determined by a summary of professional time (best estimate) and actual expenditures (e.g., labor cost for street sweeping).

<b>Program Elements</b>	<b>Total</b>
<u>Public Education and Outreach</u>	\$ 21,519.00
The total does not include group permit expenditures.	
<u>Public Involvement and Participation</u>	\$ 2,302.00
<u>Construction Site Pollution Control &amp; Post-Construction Site Storm Water Management</u>	\$ 67,268.00
<u>Municipal Pollution Prevention</u>	\$105,450.00
<u>My Time</u>	<u>\$ 17,610.00</u>
<b>TOTAL</b>	<b>\$214,149.00</b>