

Appendix A

Proposed Revised OLSD Stormwater Management Plan

OAK LODGE SANITARY DISTRICT

PROPOSED PROGRAM
for
STORM WATER MANAGEMENT



Submitted by:

OAK LODGE SANITARY DISTRICT

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OAK LODGE SANITARY DISTRICT

STORM WATER MANAGEMENT PROGRAM

1.0 INTRODUCTION

1.1 District Demographics

Oak Lodge Sanitary District is located in the north Clackamas County area between the cities of Gladstone and Milwaukie. The District's jurisdictional boundary encompasses approximately 6.2 square miles and is bounded on the west by the Willamette River, on the south by the City of Gladstone, on the north by the City of Milwaukie, and on the east by the geological formation known as Oatfield Ridge. The District serves an estimated population of 32,000 with sanitary sewer and surface water management services. Oak Lodge Sanitary District serves a mature community, which is approximately 80% developed. Most development occurring within the District's boundaries is in-fill, with a few small subdivisions and minor partitions. The District implements its Surface Water Management Program within its jurisdictional boundary but not within areas also encompassed within a city. Therefore, the area to which this management program applies is approximately 5.5 square miles.

1.2 Program Goals and Objectives

The goals of the proposed management program are to protect the public's safety, health, and property through applied surface water management techniques, to prevent and/or reduce the discharge of pollutants in storm water runoff to the maximum extent practicable (MEP), and to protect, and maintain the natural functions and values of the area's surface waters through the employment of accepted best management practices. The District will endeavor to apply the following objectives in the implementation of its surface water management program:

- Emphasize the use of non-structural methods as a preferred alternative in controlling runoff and pollution at the source.
- Emphasize the value of protection of ecological integrity of rivers, streams, wetlands, lakes, and riparian corridors.
- Integrate both water quantity and quality in addressing the community's needs for surface water management with an emphasis on natural systems as a preferred alternative.
- Provide for public involvement, public information, and public education as tools for improving surface water management through heightened awareness and activity impact on watershed protection, aquatic habitat protection, and riparian habitat protection.
- Comply with local, state, and federal regulations regarding the protection of water quality.
- Provide for surface water management program funding at a level that balances community needs and values.

- Provide for program expenditures and on-going assessment mechanisms, which seek to maximize benefits.

2.0 WATERSHEDS

2.1 Description of Watersheds in Jurisdiction

There are two watersheds lying wholly within Oak Lodge Sanitary District’s jurisdictional boundary, and four drainages that are contributory to larger watersheds within the region. The two watersheds lying wholly within the District’s jurisdiction are designated as River Forest Creek, encompassing a 796-acre drainage area, and Boardman Creek, encompassing a 1,312-acre drainage area. The four drainage areas that are contributory to larger watersheds are the Willamette Direct encompassing 589 acres; Wallace Road Basin encompassing 15 acres that drain to Kellogg Creek; Gladstone Basin encompassing 321 acres that drain to Rinearson Creek; and Kellogg Creek, encompassing 533 acres. All of these watersheds, or portions of watersheds, ultimately discharge to the Willamette River.

2.2 Adjacent Upstream Jurisdictions

The tributaries to the Willamette River generally drain from east to west. Thus, upstream jurisdictions include Clackamas County and the City of Gladstone.

2.3 Adjacent Downstream Jurisdictions

Oak Lodge Sanitary District contributes drainage to the lower Kellogg Creek watershed within the City of Milwaukie/Unincorporated Clackamas County, and to the Rinearson Creek watershed within the City of Gladstone.

3.0 SOURCE IDENTIFICATION

3.1 Storm Sewer System

Oak Lodge Sanitary District encompasses an area that drains approximately 3600 acres. All of this area drains to the Willamette River either directly, or through local streams, creeks, and a lake. This drainage system consists of a combination of roadside ditches, natural drainage swales, storm sewers, and natural drainage channels such as creeks and streams.

3.1.1 Major Outfalls

The District has identified 11 major outfalls within its service area. The U.S. Environmental Protection Agency (EPA) defines a “major outfall” as one which is 36-inches in diameter or greater and drains more than 50 acres of residential area, or one which is 12-inches in diameter or greater and drains more than 2 acres of area with industrial activity. Table 1 lists those major outfalls by location, drainage basin, outfall diameter, drainage area, and land use types in the drainage area.

3.1.2 Minor Structural Controls

The District maintains approximately 61 pollution control manholes as structural controls. These pollution control manholes were installed in conjunction with storm sewer capital improvements constructed since 1993 when the District began its Storm Water Management Program. They range in size from 48 to 72 inches in diameter. These structural controls will be inspected annually and cleaned every 4 years, or earlier if sediment buildup approaches the sump capacity.

4.0 PROPOSED MANAGEMENT PROGRAM

The Storm Water Management Program of the Oak Lodge Sanitary District proposed for the second five-year term of the Clackamas County Co-Applicants' Municipal Separate Storm Sewer System (MS4) Permit has evolved from the planning process undertaken initially, to an implementation program. The planning process resulted in development of the District's Surface Water Management Program Master Plan dated October 1997, and the South Boardman Basin Preliminary Engineering Analysis dated August 1999. Those documents recommended various structural and non-structural controls according to the following three objectives:

- A. Reduce damage to public and private property and hazards to public safety during floods;
- B. Improve water quality by reducing discharge of pollutants into surface waters; and
- C. Protect and enhance aquatic habitat along the creeks and wetlands within the District.

Through a public involvement process consisting of public meetings and extensive review by the District's Surface Water Management Citizens Advisory Committee (SWM CAC), District staff prioritized the structural projects into a long-range Capital Improvements Program (CIP) which the District has begun to implement. OLSD evaluates its SWM CIP on an annual basis.

In order to improve water quality cost-effectively, the conveyance projects will incorporate trapped catch basins and pollution control manholes; regional detention facilities will incorporate treatment swales or wet ponds where feasible; and culverts conveying streams under roads which require additional capacity will be replaced with structures allowing fish passage whenever possible and financially feasible. Projects involving sediment removal from, or modification of, stream channels to increase flow and/or detention capacity will incorporate, where practicable, native vegetation planting to provide riparian habitat, bank stabilization, and stream shading.

Other non-structural measures of the Surface Water Management Program are described below and have been developed according to the requirements of 40 CFR 122.26 (d)(2)(iv). These program elements will be developed, tested, and reviewed by the District with input from the SWM CAC and general public as appropriate over the next five years. In addition, the District will participate in intergovernmental coordination efforts which enhance the development,

testing, and review process of the SWM program. Specific efforts will involve participation in the annual Oregon Storm Water Summit, and in the Clackamas County Co-Permittee coordination meetings.

The proposed management program for Oak Lodge Sanitary District is dependent on resource availability and best management practices. The proposed program follows the federal regulations, in order, 40 CFR 122.26(d)(2)(iv) (A through D). The program describes a number of practices designed to reduce the potential for discharge of pollutants to the municipal separate storm sewer system (MS4). The proposed program includes a variety of activities ranging from public education/information, to public involvement, to intergovernmental cooperation. Also included is a summary of anticipated staff, equipment, and resources available to the program.

4.1 Commercial and Residential Areas: Control Measures to Reduce Pollutants in Storm Water Runoff [40 CFR 122.26(d)(2)(iv)(A)]

4.1.1 Maintenance Activities and Schedule for Structural Components

A. Conveyance System Components

The conveyance system components maintained and/or repaired by the District include storm sewers, culverts, inlets, ditches, and swales. The system components will be cleaned on an as needed basis to provide proper function in controlling flow and improving storm water quality. The cleaning activities will include removal of litter and deposited debris.

Record-keeping. Records of maintenance activities will be maintained on file at the District office.

A storm drainage map of system components has been developed and will be revised as necessary to reflect changes. OLSD is developing a computerized management system that utilizes the Geographical Information System (GIS) combined with a maintenance management database to improve maintenance management activities.

B. Catch Basins and Pollution Control Manholes

Catch basins and pollution control manholes will be cleaned and/or repaired on an as needed basis to provide proper function in reducing pollutants in storm water runoff. The schedule for cleaning will be derived from priorities established by District staff.

Record-keeping. Records of maintenance activities will be maintained on file at the District office.

4.1.2 Planning Procedures to Develop, Implement, and Enforce Controls From Areas of New Development or Redevelopment

A. District/County Planning and Development Review: General

i.) Comprehensive Plan. Oak Lodge Sanitary District is a sanitary district organized and operating under Oregon Revised Statutes. The principle act for Oak Lodge Sanitary District is ORS 450. Oregon statutes do not provide for sanitary districts to develop Comprehensive Plans as defined by state statute. Clackamas County is responsible for development of a Comprehensive Plan for the area served by Oak Lodge Sanitary District. Periodic review occurs on a five-to-ten year cycle. Clackamas County last updated the Comprehensive Plan in August 2005.

All counties in Oregon are required to develop Comprehensive Plans under ORS 215.050. Comprehensive Plans in Oregon are required to address state-wide planning goals and policies including those related to land use, natural resources and energy, transportation, housing, public facilities and services, and open space and parks. Clackamas County's Comprehensive Plan provides a general discussion of public facilities and systems within its jurisdictional responsibility, the unincorporated portion of the County. Oregon Revised Statutes, Chapters 197 and 215, require the County to provide opportunities for citizen participation and to establish a citizen's committee to assist the County in implementing and evaluating its citizen involvement program. Clackamas County adopted several Zoning and Development Ordinances to protect riparian areas and improve water quality.

Watershed protection is incorporated through the planning process for natural resources. Goals of the Comprehensive Plan related to water resources are:

- Maintain an adequate amount of surface water and maintain and improve water quality to insure its continued use for domestic water supply, aquatic habitat, and recreation.
- Minimize erosion and hazards to life, and/or private and public property.
- Protection of open spaces.
- Protection of river and stream conservation areas.
- Floodplain management.
- Maintain or improve the quality and quantity of groundwater.
- Maintain or improve the quality of rivers and streams.
- Protect and enhance wetlands as a valuable source of groundwater recharge, wildlife habitat, and storm water drainage control.

In addition to Clackamas County's Comprehensive Plan, Oak Lodge Sanitary District has adopted ordinances designed to protect and enhance the water resources within its jurisdictional boundary. These ordinances, codified as Oak Lodge Sanitary District Rules and Regulations for Surface Water Management, include a variety of regulations related to planning and development review. Included are the following:

- Discharge prohibitions.
- Erosion control planning, permitting, and inspection.
- Water quantity and water quality standards for new development and redevelopment.
- Protection of riparian zones.

*ii.) **Public Facilities Plan.*** Clackamas County is responsible for maintaining a Public Facilities Plan in conjunction with the Comprehensive Plan. The Public Facilities Plan was adopted in 1988. The Plan describes existing conditions, geography, topography, infrastructure including sanitary sewer and surface water, and an assessment of infrastructure needs. The Plan is designed to be updated through the required Comprehensive Plan periodic review process. As the wastewater and stormwater service provider in the District, OLSD participates in the public facilities activities required by the comprehensive plan.

*iii.) **District/County Planning Procedures.*** Clackamas County is the responsible land-use planning agency for the area within the jurisdiction of Oak Lodge Sanitary District. Clackamas County reviews all construction projects for development and redevelopment through the County's land use and building permit process. For development within the District, Staff from the County Planning Department review all land use building permit applications taking into account OLSD comments. Oak Lodge Sanitary District staff receive and review building permit application information, then acknowledge and approve the building permit application. OLSD responses to the development/land use action are entered into the record.

All land use/building permit applications are reviewed in accordance with the County's Zoning and Development Ordinance (ZDO) and OLSD ordinances. The County's planning staff reviews land use zoning, and any overlay districts or zoning such as the Willamette River Greenway or natural resource overlays that may be contained in the Comprehensive Plan. Oak Lodge Sanitary District staff comment on applications through formal written response addressing surface water management and sanitary sewer related requirements. Generally the District delineates requirements for erosion control planning and implementation, streamside and wetland buffers, storm water drainage and on-site detention requirements, sanitary sewer requirements, and other parameters that may be included in the District's ordinances or its Master Plan.

District staff is responsible for processing erosion control plans and permits, reviewing and approving any required infrastructure development, reviewing and approving sanitary sewer and surface water management facilities, and conducting all inspections related thereto. The inspection process is designed to assure development in conformance with requirements, prevention of illicit connections to either the sanitary sewer or surface water management systems, and erosion control to prevent excess sediment transport and deposition in surface waters. OLSD will utilize the DEQ Erosion and Sediment Control Manual, and the DEQ Construction Site Inspectors Booklet as guidance documents.

B. District/County Planning: Specific to Surface Water

- i.) Surface Water Management Program Master Plan.* Oak Lodge Sanitary District developed a Surface Water Management Program Master Plan through a consulting contract with Montgomery Watson. The Plan was completed in 1997 and addresses a wide array of surface water management related issues including public involvement and education, watershed characteristics, natural drainage features inventory, existing conveyance systems, soils and groundwater, wetlands, water quality, hydrology, capital projects, source controls, and financing.

The Plan is a comprehensive planning level assessment of existing conditions and potential solutions designed to meet defined goals and objectives. Included within the Plan is a hydraulic model and aerial survey to be used to evaluate options and impacts. Additional pre-design engineering work has been done in specific basins and in specific project impact areas to further quantify conditions and impacts. The goal of project development is to effectively manage storm water quantity and quality to achieve the environmental goals outlined in the Plan, including flood and pollution reduction.

- ii.) Drainage and Pollution Control Facilities.* The Surface Water Management Program Master Plan includes capital improvements for public drainage and pollution control facilities. The capital improvements identified in the plan incorporate a variety of structural and non-structural components to improve surface water management. The improvements include trapped catch basins, pollution control manholes, sediment trapping structures, drywells, and the use of drainage swales, detention facilities, and storage areas.

Through the building permit review process, the District encourages the use of on-site retention/detention facilities to improve management of surface water. New public drainage system construction incorporates pollution control and quantity management wherever such controls are deemed appropriate and effective.

C. District/County Development Review: Specific to Water Quality

- i.) Development Standards.* Specific review of development and redevelopment proposals regarding protection of surface waters through storm drainage systems are accomplished by implementation of Oak Lodge Sanitary District ordinances and Clackamas County ordinances.

Oak Lodge Sanitary District's ordinances are designed to protect and enhance surface waters through a variety of regulatory approaches. These include the following:

Rules and Regulations for Surface Water Management (Ordinance 1003), Chapter 3, Discharge Regulations, which prohibits introduction of pollutants, non-storm water, spills, waste, and any other material that violates NPDES permit criteria or water quality standards into the MS4. This chapter also addresses pretreatment of runoff, sampling, and monitoring as may be appropriate to control pollutants.

Rules and Regulations for Surface Water Management (Ordinance 1003), Chapter 4, Environmental Protection and Erosion Control Rules, which provides for erosion control, on-site detention, maintenance, inspection, and water quality protection.

Rules and Regulations for Surface Water Management (Ordinance 1003), Chapter 5, Additional Surface Water Management Standards, which provides for water quantity and quality standards including transmission of storm water and riparian corridor protection.

Rules and Regulations for Surface Water Management (Ordinance 1003), Chapter 9, Enforcement, which provides a mechanism for enforcement of the District's Rules and Regulations for Surface Water Management.

Legal Authority for Oak Lodge Sanitary District. As a special district established under Chapter 450 of the Oregon Revised Statutes, Oak Lodge Sanitary District ordinances have the same force and effect as any other law in the State of Oregon.

ii.) Erosion Control Standards. Sediment control for construction activities is discussed in detail in Section 4.4. Erosion control is regulated by the District's Rules and Regulations for Surface Water Management, Chapter 4. The District responds to all new development or redevelopment applications stating the requirements for erosion control, including plan submittal and approval, and permitting as required. OLSD will utilize the DEQ Erosion and Sediment Control Manual, and the DEQ Construction Site Inspectors Booklet as guidance documents.

4.1.3 Practices for Operating and Maintaining Public Streets and Highways

Oak Lodge Sanitary District does not have authority or responsibility for street and highway maintenance. Those responsibilities lie with Clackamas County and the State of Oregon, Department of Transportation. Clackamas County Dept. of Transportation and Development is responsible for County and public roads, and Oregon Department of Transportation is responsible for State Highway 99E, known as McLoughlin Boulevard. While both ODOT and Clackamas County operate under a separate MS4 permit, OLSD monitors the street maintenance activities to coordinate effectiveness measures.

4.1.4 Procedures to Assure Flood Management Projects Assess Impacts on Water Quality

There are no flood management projects within the jurisdictional boundaries of Oak Lodge Sanitary District. Filling and dredging projects over 50 cubic yards are regulated under Section 404 of the Clean Water Act by the United States Department of the Army, Corps of Engineers; and the State of Oregon, Division of State Lands. Because the District is approximately 80% built out, there are no vacant lands available to build significant flood management projects.

4.1.5 Program to Monitor Pollutants in Runoff from Closed or Open Landfills

There are no known closed or open landfills within the District.

4.1.6 Program to Reduce Pollutants in Discharge Associated With the Application of Pesticides, Herbicides, and Fertilizers

Oak Lodge Sanitary District uses a variety of materials and methods to provide education as a program to reduce pollutants in discharges associated with the application of herbicides, pesticides, and fertilizers. The District does not utilize such chemicals in its own maintenance operations wherever they may become a contributor to surface water runoff pollution. All chemicals maintained or stored by the District are protected to the maximum extent practicable. The District has Material Safety and Data Sheets (MSDS) available to any person requesting them.

Educational information is transmitted to the public through a variety of mechanisms including, but not limited to:

- District Newsletter
- Brochures
- Informational Signs
- Staff Presentations
- Video Presentations
- Site Meetings

4.2 Program to Detect and Remove Illicit Discharges from the Municipal Storm Sewer System [40 CFR 122.26(d)(2)(iv)(B)]

4.2.1 Program to Prevent Illicit Discharges

Section 3.01.2 of the District's Rules and Regulations for Surface Water Management adopted as Ordinance 1001 in May 1993, describes activities which are prohibited with respect to discharge to the public storm water system, including illicit discharges. The ordinance is enforced by an ongoing program of complaint investigations and inspections. Complaints of storm water pollution are investigated by staff. The District's prompt response and use of its comprehensive maps of the municipal storm sewer system usually result in finding the source of the illicit discharge. Once the source is found, the District works with the property owner to stop the discharge and install measures to prevent future discharges. (Examples include assisting a homeowner to route basement drains from the storm sewer to the sanitary sewer system and working with an auto sales and maintenance business to construct an enclosed car washing bay connected to the sanitary sewer system in order to stop car wash water from draining to parking lot catch basins.)

The District has an ongoing inspection program for all sanitary sewer and storm sewer connections resulting from new development and redevelopment activities. District

personnel trained as Oregon Plumbing Code inspectors witness the installation and testing of sanitary sewer laterals. In addition, only the District may install a service lateral tap on the District's sewer mains in order to ensure a proper and watertight connection. District personnel also inspect storm sewer detention systems and piping to confirm proper connection to the municipal storm sewer and installation of required water quality and quantity control devices.

The District regulates the connection of new discharges through the development review process described in Section 4.1.2.

4.2.2 Program Descriptions and Procedures to Conduct On-Going Field Screening Activities

District staff will inspect all major outfalls during the permit cycle. The inspections will occur during the dry weather period, August through mid-October. Other minor outfalls will be evaluated for potential illicit connections and inspected, if deemed necessary. Additional sites comprised mainly of residential areas may be examined to evaluate differences between residential, commercial, and industrial areas.

During the inspection, outfalls with running water will be examined visually. Some sites will be selected for further examination including pH, temperature, total chlorine, detergents, total copper, and phenols. These sites will be chosen based on land use type and will be comprised primarily of commercial and industrial areas. Additional laboratory testing will be conducted if it is believed an outfall may have contributions from illicit connections.

Record-keeping. Records of field screening activities will be maintained on file at the District office. The file will contain the original field data forms, pertinent field notes, and any applicable laboratory data reports.

4.2.3 Procedures to Investigate Illicit Connections

During the field screening procedures, outfalls suspected of illicit connections will be noted and investigated further. Additional investigation may include the following:

1. Laboratory analysis for suspected contaminant groups.
2. On-site inspection, smoke testing, dye tracing, and/or television inspection.

All citizen complaints and staff observations regarding a possible illicit connection will be investigated. The District will continue its public education and outreach program to explain illicit connections, effects on surface water, and process for correction. OLSD will conduct any investigation in accordance with the EPA Manual for illicit discharge investigations.

Legal Authority. Oak Lodge Sanitary District believes its Rules and Regulations for Surface Water Management, contained in its Ordinance 1001 and all amendments thereto, provide adequate legal authority to comply with the requirements contained in 40 CFR 122.26(d)(2)(iv).

Record-keeping. Records of activities will be maintained on file at the District office. The file will contain names of facilities investigated and work completed to eliminate illicit connections.

4.2.4 Procedures to Prevent, Contain, and Respond to Spills

A. Prevention

Procedures to prevent spills from residential and commercial areas are found in the District's informational and educational programs described in Section 4.1.6.

Procedures to prevent spills from industrial facilities are through the Oregon DEQ Hazardous and Solid Waste Division. DEQ requires a spill containment plan for permitted industries.

B. Response and Containment

Procedures to respond and contain chemical/hazardous waste spills are contained in the Emergency Response Plan developed by Clackamas Fire District #1. Emergency response to chemical and hazardous waste spills within the Oak Lodge area is under the authority and administration of the Fire District Hazardous Materials Team. All emergency calls reporting a hazardous chemical spill are forwarded to them. In the event of spill or major pollution incident, DEQ will be notified by OLSD personnel.

Record-keeping. Records of activities will be maintained on file at the District office. The file will contain a description of the spill including date, suspected material, source, cause and any resultant water quality problems.

4.2.5 Program to Promote, Publicize, and Facilitate Public Reporting

Oak Lodge Sanitary District will utilize educational activities as a program to promote, publicize, and facilitate public reporting of the presence of illicit connections and the dumping of waste materials into the public storm sewer system. Information about illicit connections and where to report them may take a variety of forms and will be transmitted to the public using mechanisms listed in Section 4.1.6 above, as appropriate.

4.2.6 Educational and Public Information Activities to Facilitate Management of Used Oil and Toxic Materials

Oak Lodge Sanitary District has a program of public education and information. This program utilizes a variety of mechanisms to educate and inform the public about issues

affecting surface water management as discussed in section 4.1.6 above. Dissemination of information regarding the proper disposal of waste oil and toxic materials may take a variety of forms including all those listed in section 4.1.6. Oak Lodge Sanitary District may include information dissemination in any of these forms on the following:

- Waste oil recycling
- Household hazardous waste disposal
- Solid waste and recycling programs
- Effects of illicit disposal on water quality

4.2.7 Controls to Limit Infiltration and Cross-Connections

Oak Lodge Sanitary District has an on-going infiltration/inflow abatement program for the sanitary sewer system. This program investigates the condition of sanitary sewers and appropriateness of connections through smoke testing, air testing, television inspection, flow metering, dye testing, and other applicable techniques. The District seeks to correct all points of infiltration and inflow as soon as is reasonably practical.

The District utilizes the planning process and connection inspections to help provide assurance that cross-connections in development and redevelopment do not occur. The program to field screen MS4 outfalls is another method that can be utilized to investigate potential illicit connections including those that may contain sewage or other wastewater sources. (Refer to sections 4.2.1, 4.2.2 and 4.2.3.)

4.3 Industrial Sources: Monitoring and Controlling Illicit Discharge

4.3.1 Procedures for Inspections

A. Identifying Priorities

An inventory of potential industrial and commercial dischargers within the District will be updated during the permit cycle. A system for prioritizing inspections of identified dischargers will be developed during the permit cycle. Priorities for inspection and monitoring will be determined based on watershed criteria and water quality issues.

Record-keeping. Records of activities will be maintained on file at the District office. The file will contain copies of DEQ issued General Permits when provided, names of facilities investigated, and work completed to eliminate illicit connections. The District will maintain a map that shows the location of these facilities.

B. Procedures for Inspections

Inspections of identified industries will occur only for facilities with discharges to the municipal storm sewer system. Facilities with a discharge through a private system directly to a surface water body will be the responsibility of Oregon DEQ. If a water

quality problem is observed from a private system, the District will notify DEQ of the situation.

In addition, all citizen complaints and staff observations regarding a possible illicit connection will be investigated. The District will continue a public education and outreach program to explain illicit connections, effects on surface water, and process for correction.

4.3.2 Monitoring Program

Storm water inspections may be included as part of facility inspections related to industrial discharges to the sanitary sewer system. District staff will determine if any on-site activities could contribute pollutants to the municipal storm sewer system.

Industries investigated and determined to have an illicit connection will be required to eliminate the connection. Also, if required by State regulations, the District will require that the industry comply with the Oregon DEQ regulations related to industrial NPDES permitting.

Legal Authority. Oak Lodge Sanitary District believes its Rules and Regulations for Surface Water Management, contained in its Ordinance 1001 and all amendments thereto, provide adequate legal authority to comply with the requirements contained in 40 CFR 122.26(d)(2)(iv).

Record-keeping. Records of activities will be maintained on file at the District office. The file will contain copies of DEQ issued General Permits when provided, names of facilities investigated, and work completed to eliminate illicit connections. The District will maintain a map that shows the location of these facilities.

4.4 Construction Sites: Implementing and Maintaining Structural and Non-Structural Best Management Practices [40 CFR 122.26(d)(2)(iv)(D)]

The District has been responsible for administering the Erosion Prevention and Sedimentation Control Program for construction sites within its jurisdictional boundaries since October 1993. Sections 4 and 9 of the District's Rules and Regulations for Surface Water Management provide the general policies and procedures and the enforcement mechanisms, respectively, for the Program. The latest version of the Erosion Prevention and Sediment Control Plans Technical Guidance Handbook provides the technical basis for the program in terms of erosion control measures.

The Program consists of two components: Plan Review and Field Inspection. All applicants for Clackamas County building permits must submit a construction site erosion prevention and sediment control plan to the District in order to obtain a permit from the District. When an erosion control application is submitted, District staff reviews the District contour map of the site and the applicant's site plan showing the erosion prevention and sedimentation control measures

to be used. The applicant's proposed measures are reviewed against the measures recommended in the Technical Guidance Handbook and modified, if necessary. The approved measures and plan are returned to the applicant with a permit letter.

Erosion control inspections at construction sites consist of a minimum of one (1) initial, one (1) final inspection, and one (1) quarterly inspection. District inspectors schedule additional visits as needed depending on the potential for erosion based on slope and soil exposure. For the initial visit, the field inspector assesses the location and may require stricter measures as necessary, or may waive certain measures which provide no benefit based on the actual size of the disturbed area, the slope and type of soil, the presence or potential for surface water movement, the presence of natural or man-made containment barriers, the potential for soil drag-out into the streets, and the final destination of the sediment. A final inspection is performed and the Erosion Control Permit closed when the excavation and grading is finished at the site and the soil has been stabilized to a point where erosion potential is negligible. This two-part program of application review and field inspection with the ability to modify measures in the field has resulted in effective erosion prevention and sedimentation control within the District.

Not all construction site erosion control plans reviewed by the District require a full Erosion Control Permit. The criteria used to determine when to issue an Erosion Control Permit are based on the project disturbing more than 500 square feet of soil and on the project having a slope greater than 2%. Oak Lodge Sanitary District issues Erosion control permits and monitors construction activities on sites of 1 acre or less. Construction activities causing disturbances of 1 acre or more in size fall within the jurisdiction of the DEQ 1200C program.

The District does not provide individual training for construction site operators in erosion prevention and sediment control, but participates in regional education efforts. The District also makes available to those who apply for erosion control permits copies of the Erosion Prevention and Sediment Control Plans Technical Guidance Handbook and information about erosion prevention training courses offered by other entities in the Portland Metropolitan region.

4.5 Storm Water Management – Staff and Equipment [40CFR 122.26(d)(2)(iv)]

Oak Lodge Sanitary District has adequate staffing to perform the duties associated with the main sections of the Storm Water Management Program. These include system maintenance, field-screening, inspection for illicit connections, monitoring, educational programs, review of building permits and development standards, and inspection of sites for compliance with erosion control standards.

The District has available all of the equipment necessary to inspect and maintain the storm water system, conduct site inspections and perform field testing for determination of water quality.

The following is a description of the resources available that may be applied to the Storm Water Management Program:

- Planning and Engineering .5 FTE
- Operations .25 FTE

- Maintenance 2.0 FTE
- Support Services 0.5 FTE
- Administration .5 FTE

Equipment used for Oak Lodge Sanitary District's Storm Water Management Program may include the following:

- A variety of utility vehicles
- A combination high-pressure sewer cleaner/vacuum truck
- A high-pressure sewer cleaner
- Dye testing equipment
- Smoke testing equipment
- Small and large diameter closed circuit television equipment
- Flow monitoring equipment
- Sampling equipment
- Portable pumps
- Portable generators
- Oil booms and absorbent pads
- Miscellaneous communication equipment
- Miscellaneous hand tools

5.0 ADEQUATE LEGAL AUTHORITY

Oak Lodge Sanitary District believes its Rules and Regulations for Surface Water Management, contained in its Ordinance 1001 and all amendments thereto, provide adequate legal authority to comply with the Storm Water Management Program requirements contained in 40 CFR 122.26(d)(2)(iv).

6.0 PROPOSED MONITORING PROGRAM [40 CFR 122.26(d)(2)(iii)(D)]

6.1 Program Goals and Objectives

The overall goal of the proposed management plan is to protect, and improve surface water quality in the urban area through the implementation of best management practices designed to minimize pollutant contributions from storm water. The monitoring portion of the program will aid in the long-term evaluation of the Storm Water Management Program by identifying areas with water quality problems and developing baseline data for evaluation of long term trends.

6.2 Monitoring Programs

6.2.1 Dry Weather Field Screening – Investigation of Illicit Connections

Dry weather field screening and investigation of illicit connections will occur as described in Sections 4.2.1, 4.2.2, 4.2.3, 4.3.1, and 4.3.2.

6.2.2 Wet Weather Field Screening – Investigative Procedures

Major outfalls will be inspected during the permit cycle. Oak Lodge Sanitary District will rely on site inspections where the observer will make qualitative field observations. Field observations may include color, relative turbidity, presence or absence of visible pollutants such as oil and grease, debris, and any other visually noted characteristics. Priorities for inspection and monitoring will be determined based on watershed criteria and water quality issues.

6.2.3 In-Stream Baseline Monitoring

Oak Lodge Sanitary District proposes to conduct baseline monitoring of one or more of the significant drainages within its jurisdiction. The selected site(s) will be sampled at an appropriate location depending on the characteristics of the watershed. The selected site(s) will be monitored at a frequency judged to be appropriate to achieve the established goal of the selected site(s) monitoring program, no less than quarterly. The following parameters will be analyzed: total suspended solids (TSS), total dissolved solids (TDS), COD, BOD₅, oil and grease, fecal coliform bacteria, total phosphorus, total Kjeldahl nitrogen (TKN), pH, and temperature. Flow at the site will also be estimated at the time of sampling. OLSD will utilize the *DEQ 2004 303(d) List/Delist Data Submittals Minimum Data Requirements* as the protocol for quality assurance/quality control for sample collection and analysis.

Baseline water quality monitoring will occur at the River Forest Inlet and Outlet; at the Boardman Creek Outlet; at the Kellogg Creek Outlet, and at roving sites at the 11 major outfalls identified in Table 1 (or at locations of interest).

6.2.4 Rainfall Data

Oak Lodge Sanitary District will maintain a file with daily and monthly rainfall reports for a station located at the wastewater treatment facility.

7.0 ASSESSMENT OF CONTROLS [40 CFR 122.26(d)(2)(v)]

The Storm Water Management Program uses indirect measurements in an attempt to measure pollutant loading reductions from the municipal separate storm sewer system. Indirect measurements include, where appropriate, the record keeping activities shown in Table 2 and Appendix A-1 attached. Appropriate information from the record keeping activities will be summarized in the District's Annual Report for the SWM Program, which will be submitted to DEQ.

OLSD will engage in an annual adaptive management review as required by Schedule D(2)(a) of the MS4 permit. This permit section requires OLSD to annually review the effectiveness of this SWMP, assess improvements to the SWMP, and modify (if necessary) the SWMP to optimize reductions in stormwater pollutants to the maximum extent possible through an iterative process.

8.0 FISCAL ANALYSIS [40 CFR 122.26(d)(2)(iv)]

Oak Lodge Sanitary District is a sanitary district formed and operating under Oregon Revised Statutes. The District's principal act is ORS 450. Oak Lodge Sanitary District began enactment of a surface water management program in July 1993. At that time, the District adopted Ordinance No. 1001, codified as Oak Lodge Sanitary District Rules and Regulations for Surface Water Management. This ordinance and subsequent revisions provides the regulatory framework for developing and implementing a surface water management plan and program with the District's jurisdictional boundary. Also included in the ordinance are provisions for the assessment and collection of fees and charges associated with operating the program. Monthly service charges are collected from each developed property within the District as incurred charges for the provision, operation, maintenance, repair and replacement of surface water management services. Additional fees are assessed for new and redevelopment plan review, and compliance determination. The revenue generated by these fees and charges is applied to the cost of providing the various services and activities contained in the surface water management program including capital facility construction. All revenue generated by the fees and charges associated with the surface water management program are retained within the program. All expenses generated within the surface water management program are funded through program generated fees and charges.

Table 1

Oak Lodge Sanitary District

Storm Water Management Program

MAJOR OUTFALLS

NO.	LOCATION	Basin	Diameter (Inches)	Area (Acres)	Land Use Type
1.	Courtney at Arista	N. Fork Kellogg	36"	61.4	Residential
2.	Courtney at Rupert	N. Fork Kellogg	36"	131.8	Residential with McLoughlin Blvd. Commercial
3.	McLoughlin Blvd., east side, north of Park	N. Fork Kellogg	4' x 5' box culvert	423.3	Residential with McLoughlin Blvd. Commercial
4.	River Road at Anspach	River Forest Basin, Creighton Subbasin	36"	102.9	Residential
5.	15100 SE Woodland Way S. of Oak Grove Blvd.	River Forest Basin, N. Fork Subbasin	36"	167.3	Residential with McLoughlin Blvd. Commercial
6.	Risley Ave. at Risley Park	River Forest Basin, Risley & Concord Subbasins	42"	166.3	Residential and McLoughlin Blvd. Commercial
7.	NW Corner of 3701 SE Naef Rd. Property	N. Boardman Basin, Concord, Vineyard and N. Naef Subbasins	60"	267.4	Residential, McLoughlin Commercial, and Naef Rd. Industrial
8.	Naef Rd. east of Blanton	N. Boardman Basin, Sun and Naef Subbasins	30"	139.2	Residential, McLoughlin Commercial, and Naef Rd. Industrial
9.	4111 SE Roethe Rd.	S. Boardman Basin, Roethe Rd. Subbasin	36"	84.6	Residential and McLoughlin Commercial
10.	4707 SE Boardman Ave. east of McLoughlin Blvd.	S. Boardman Basin, Putnam H.S. Subbasin	36"	98.5	Residential
11.	17833 SE McLoughlin Blvd. south of Boardman	S. Boardman Basin, McLoughlin Subbasin	36"	68.1	McLoughlin Blvd. Commercial

Table 2

Oak Lodge Sanitary District

Storm Water Management Program

ASSESSMENT of CONTROLS: Summary of Indirect Measures

Program Section	Record-Keeping Activity for BMP	Parameters for Recording
4.1.1 (A)	Conveyance System Cleaning	Length and date cleaned, estimated volume of removed material
4.1.1 (B)	Catch Basin Cleaning and Pollution Control Manhole	Sediment depth, date cleaned, estimated volume of removed material
4.1.2 (C)	Plan Review	Review of development and erosion control plans, recommended structural controls for new developments and redevelopment
4.2.2	Field Screening of Major Outfalls	Major outfalls monitored, field screening data sheets
4.2.3	Illicit Connection Investigations	Water quality sample results, facilities investigated, lengths of sewer lines investigated, illicit connection descriptions
4.2.4 (B)	Spills	Spill reports include date, material, source, cause, and resultant water quality problems
4.2.5	Public Reporting	Record calls received and action taken, if necessary, as service requests
4.2.6	Public Education	Maintain file on newsletter articles, hangers or brochures that pertain to surface water quality, record of catch basin stenciling by volunteers, meeting records involving public participation
4.3.1	Industrial Inventory	Maintain and update file on industries that have a NPDES general storm water permit
4.3.2	Monitoring Industries	Maintain a file of inspection reports and corrective action recommendations
4.4.3	Erosion Control	Maintain a file of erosion control plans and inspection reports

Appendix D of the Interim Evaluation Report contains more detailed description of the OLSD Best Management Practices and performance measures for each BMP.