Libertyville Township

Storm Water Management Program

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1.1 Introduction

This MS4 Storm Water Management Program (SWMP) has been developed by Libertyville Township for the purpose of meeting the minimum standards required by the United States Environmental Protection Agency (USEPA) under the National Pollutant Discharge Elimination System (NPDES) Phase II program. Federal regulations through the USEPA require that all Municipal Separate Storm Sewer Systems (MS4s), partially or fully in urbanized areas based on the 2000 census, obtain storm water permits for their discharges into receiving waters. Regulated systems include the conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, gutters, ditches, swales, manmade channels or storm sewers.

Storm water runoff naturally contains numerous constituents; however, urbanization and urban activities (including municipal activities) typically increase concentrations to levels that may impact water quality. Pollutants associated with storm water include sediment, nutrients, bacteria and viruses, oil and grease, metals, organics, pesticides, and gross pollutants. In addition to private construction sites, the following is a list of municipal activities that have the potential for generating pollutant:

Fixed Facilities Activities
Building Maintenance Repair
Parking Lot Maintenance
Landscape Maintenance
Waste Handling and Disposal
Vehicle Fueling and Storage Tank Filling
Equipment Maintenance & Repair
Vehicle Equipment Storage
Vehicle & Equipment Cleaning
Material Handling & Storage
Material Loading & Unloading
Minor Construction

Field Program Activities
Street Sweeping & Cleaning
Street Repair & Maintenance
Bridge & Structure Maintenance
Sidewalk Surface Cleaning
Graffiti Cleaning
Sidewalk Repair
Controlling Litter
Fountain Maintenance
Landscape Mowing/Trimming/Planting
Fertilizer & Pesticide Management
Controlling Illicit Connections
Controlling Illegal Dumping
Solid Waste Collection & Recycling

The SWMP describes the procedures and practices that are implemented by Libertyville Township to achieve the goal of reducing the discharge of pollutants within storm water runoff in order to comply with Federal standards. Compliance with this program is intended to protect water quality, thus contributing to the following amenities:

- Cleaner lakes and streams,
- Improved recreational opportunities and tourism,
- Flood damage reduction,
- Better aesthetics and wildlife habitat, and
- A safer and healthier environment for the citizens.

The SWMP addresses the primary program elements for all Libertyville Township activities, including:

- The manner in which Libertyville Township manages the planning, design and construction of projects performed within its limits.
- The manner in which Libertyville Township maintains its facilities and performs its day-to-day operations.
- The manner in which Libertyville Township works toward protecting the receiving streams from illicit discharges.
- The manner in which Libertyville Township provides public education and outreach.
- The manner in which Libertyville Township trains its employees in carrying out and reporting program activities.
- The manner in which Libertyville Township continually monitors and evaluates the program.

1.2 State and Federal Regulations

Federal environmental regulations based on the 1972 Clean Water Act (CWA) require that MS4s, construction sites, and industrial activities control polluted storm water runoff from entering receiving bodies of water (including navigable streams and lakes). The NPDES permit process regulates the discharge from these sources based on amendments to CWA in 1987 and the subsequent 1990 and 1999 regulations by the U.S. Environmental Protection Agency (USEPA). In Illinois, the USEPA has delegated administration of the Federal NDPES program to the Illinois Environmental Protection Agency (IEPA). At the state level, storm water requirements are mirrored after the federal NPDES storm water requirements, necessitating that storm water be treated to the maximum extent practicable. Illinois's NPDES program requires all construction sites disturbing more than one acre, industrial sites, and all designated Municipal Separate Storm Sewer Systems (MS4s) to obtain permit coverage. On December 20, 1999 the IEPA issued a general NPDES Phase II permit for all MS4 communities. Under the General Permit each MS4 community was required to submit a Notice of Intent (NOI) declaring compliance with the conditions of the permit by March 10, 2003. The original NOI described the proposed activities and best management practices that occurred over the original 5-year period toward the ultimate goal of developing a compliant SWMP. After the 5th year, the components of the SWMP should be implemented (refer to Section 4.1 for Performance Milestones). The IEPA reissued the General ILR40 permit on February 20, 2009 (effective April 1, 2009). The General ILR40 Permit can be found in Appendix 5.15.

Additionally, under the General ILR10 permit also administered by IEPA (see Appendix 5.16), all construction projects that disturb greater than 1 acre of total land area are required to obtain an NPDES permit from IEPA prior to the start of construction. Municipalities covered by the General ILR40 permit are automatically covered under ILR10 for 30 days after the IEPA receives the NOI from the MS4.

1.3 Organization of the SWMP

The SWMP identifies best management practices to be implemented in six different categories. These categories are:

- Public Education and Outreach,
- Public Participation/Involvement,
- Construction Site Runoff Control,

- Post-Construction Runoff Control,
- Illicit Discharge Detection and Elimination, and
- Pollution Prevention/Good Housekeeping.

Section 1: Overview of the SWMP - discusses the format of the document and the regulations associated with NPDES II through county, state and federal agencies.

Section 2: Program Management - discusses the logistics of the SWMP. This includes the organization, implementation, and responsible parties necessary to achieve overall compliance with the SWMP and NPDES Permit. It also identifies how Libertyville Township coordinates with Lake County, state agencies, and discusses the legal authority that the Township has to implement the Program components.

Section 3: The SWMP - addresses storm water pollutant control measures implemented by Libertyville Township per the six minimum control categories established by the USEPA.

Section 4: Monitoring, Program Evaluation and Reporting - describes the monitoring, evaluation, and reporting procedures associated with the program. The SWMP is a guide created to protect Libertyville Township's receiving streams from pollution and resultant degradation. This section assists in identifying best management practices and processes that may require improvement and refinement as the document becomes an effective tool.

Section 5: Appendices – including forms, references, exhibits and bibliography.

1.4 Watershed, Sub-Watersheds, and Receiving Streams

Libertyville Township's storm water runoff falls into several watersheds. These watersheds include the Bull Creek – Des Plaines River Watershed, Skokie River Watershed, Indian Creek Watershed, McDonald Creek Watershed and the Upper North Branch Chicago River Watershed.

Watershed: The land area that contributes storm water to one of the four major Rivers in Lake County.

Sub-Watershed: The land area that contributes storm water to one of the receiving waters tributary to a major River.

Receiving Water: A natural or man-made system into which storm water or treated wastewater is discharged, including the four major rivers in Lake County, their tributary stream systems and other Waters of the U.S.

The major Watersheds and receiving waters are presented on **Figure 1** *Map of Major Sub-watershed and Receiving Water*

Des Plaines River Watershed

The Des Plaines River watershed originates in Racine and Kenosha Counties in Wisconsin flowing south into Illinois. The Des Plaines watershed in Lake County drains an area of approximately 202 square miles or 129,577 acres. It is the largest of the county's four major watersheds. The topography of the watershed is dominated by a gently rolling landscape with numerous wet marshy areas. The Lake County portion of the watershed is divided into nine sub-watersheds.

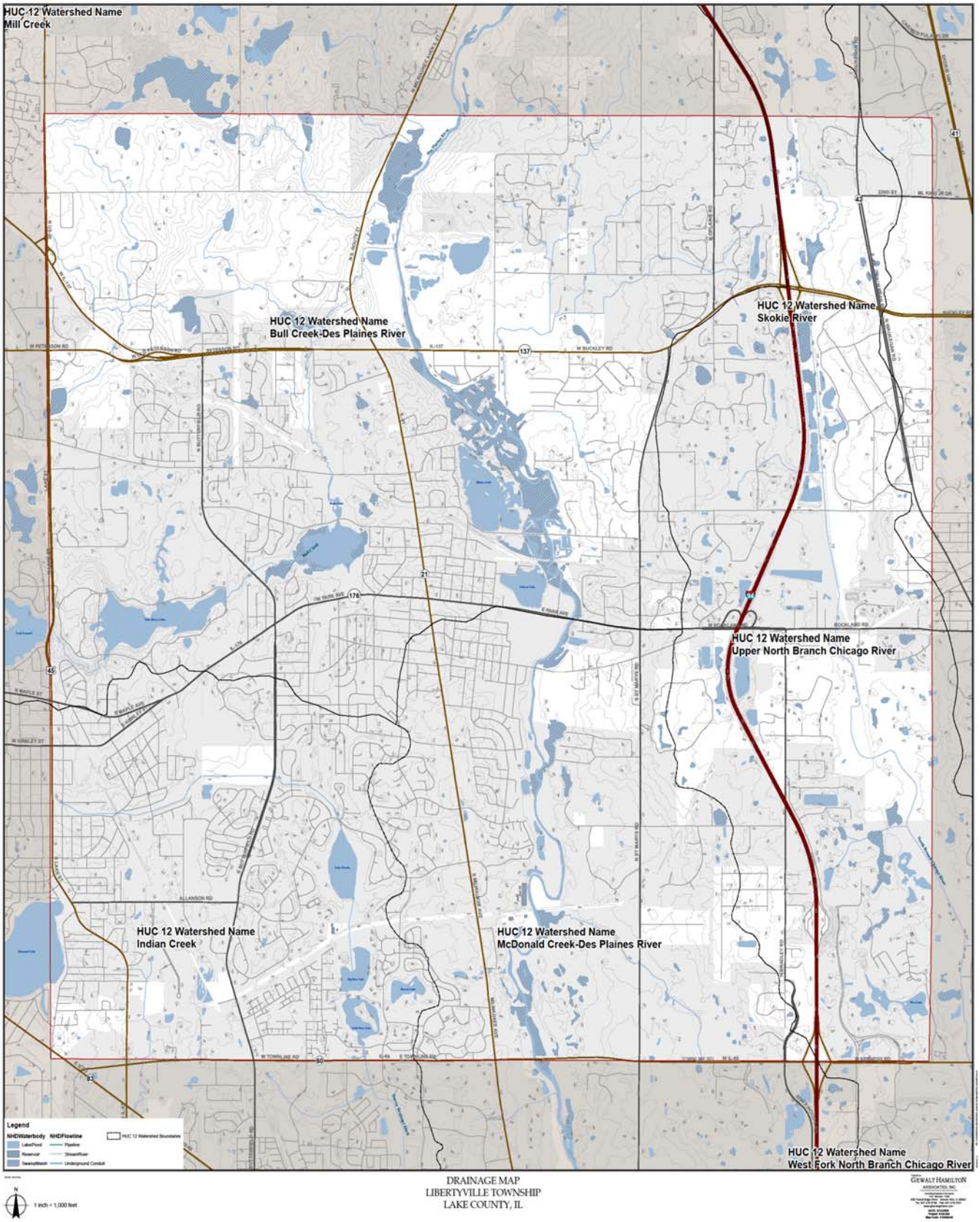
The Des Plaines River watershed wholly or predominantly includes the communities of Arlington Heights, Buffalo Grove, Deer Park, Grayslake, Gurnee, Hawthorn Woods, Indian Creek, Libertyville, Libertyville, Lincolnshire, Lindenhurst, Long Grove, Mettawa, Mundelein, Old Mill Creek, Riverwoods, Third Lake, Vernon Hills, Wadsworth and Wheeling. New development has centered on the many lakes in the watershed. Open space areas are concentrated along the Des Plaines River, where the Lake County Forest Preserve District has substantial holdings, which stretch uninterrupted from the Wisconsin-Illinois border into Cook County.

Watershed planning activities continue for the entire Des Plaines River watershed and planning sponsors include the Illinois Department of Natural Resources, U.S. Army Corps of Engineers, Lake, Cook and DuPage Counties. The Lake County Storm water Management Commission has completed watershed management plans for the Indian Creek, Bull Creek/Bull's Brook, and Squaw Creek sub-watersheds to date. As funding becomes available, future watershed planning efforts will be implemented.

North Branch of the Chicago River Watershed

The North Branch of the Chicago River Watershed encompasses 44.4 square miles in Cook County and 50.4 square miles in Lake County. The total watershed area is 60,658 acres, with 28,418 acres in Cook County and 32,240 acres in Lake County. Twenty-five municipalities comprise most of the watersheds area. Natural open spaces have been converted to agricultural, commercial, and residential uses. Flood damage has occurred and water quality and habitat have been degraded.

Figure 1: Map of Major Sub-Watershed and Receiving Streams



Section 2: Program Management

This Section describes the organizational structure of Libertyville Township and further discusses the roles and responsibilities of the various involved parties.

2.1 Organizational Structure

The Township's Supervisor and Board of Trustees are the policy and budget setting authority for Libertyville Township. The Township does not have an Engineering or Public Works Department. Engineering responsibilities are contracted out to a consulting firm. The following outlines the organizational structure in Libertyville Township:

Township Supervisor
Township Clerk
Township Assessor
Highway Commissioner
Trustees

Libertyville Township's approach to compliance with the NDPES Phase II program is outlined in detail in this SWMP. Compliance with this SWMP is considered compliance with the NPDES Phase II program.

The Township Supervisor, or designee, is the Storm Water Coordinator and is responsible for the oversight and implementation of this SWMP. The Storm Water Coordinator has many different responsibilities. He/she:

- Is the lead contact for coordination with County Officials, Lake County Stormwater Management Commission, the Illinois Environmental Protection Agency, contractors, the development community and other external regulatory agencies,
- Understands the requirements of ILR40, ensures that the SWMP meets the requirements of the permit and that the Township effectively implements the SWMP,
- Ensures that the Township complies with all minimum County Ordinance provisions,
- Is aware when a Township Project is required to be authorized under the ILR10 permit. In these cases the Storm Water Coordinator should ensure that the NOI is received by IEPA at least 30 days prior to the start of construction,
- Assists the development community in understanding when an ILR10 permit is required and whether construction sites comply with the general ILR10 and permit conditions, and
- Should understand the role illicit discharges play in the overall NPDES Phase II program. In general, an incidence of non-compliance must be filed with IEPA for illicit discharges exiting an MS4's outfall into a receiving water.

2.2 Coordination with Lake County Stormwater Management Commission

The Lake County Stormwater Management Commission (SMC) is a countywide governmental agency created by county ordinance under the authority of Illinois Revised Statute 55/5-1062. SMC's goals include the reduction of flood damage and water quality degradation. Another purpose of SMC is to assure that new development addresses non-point source pollution, does not increase flood and drainage hazards to others, and does not create unstable conditions susceptible to

erosion. To accomplish this, the SMC works cooperatively with individuals, groups, and units of government, as well as serving as the corporate enforcement authority for the Lake County Watershed Development Ordinance (WDO). SMC enforces the WDO in non-certified communities on behalf of the municipality. Libertyville Township is not a Certified Community at this time. All WDO reviews are processed by SMC. SMC utilizes technical assistance, education programs and watershed planning to increase public awareness of natural resources and the impacts of urbanization on storm water quality. In addition, SMC provides solutions to problems related to storm water and identifies effective ways of managing natural resources.

In 2002, SMC formed an Ad Hoc Municipal Advisory Committee (MAC) specifically to advise MS4 communities on the NPDES Phase II Permit program. Municipalities, townships, drainage districts, consultants, and county representatives comprise the MAC. SMC advised and assisted the MS4 communities in preparing their NOIs, but is not a permittee, as it does not own or operate any sewer systems.

The NPDES ILR40 General Permit allows the Township to take credit for activities being performed by a Qualifying Local Program (QLP) toward meeting its permit requirements. SMC is a Qualifying Local Program for MS4s in Lake County. As part of their ongoing services, SMC performs some functions related to each of the six minimum control measures. SMC has been providing services under four of the six minimum control categories since it began implementing a comprehensive, countywide storm water program in 1991. However, MS4s are required to provide additional services for each of the Minimum Control Measures with the greatest effort in the Illicit Discharge Detection and Elimination and Pollution Prevention/Good Housekeeping categories.

SMC sponsors informative workshops and roundtable discussions. It formed the Municipal Advisory Committee (MAC) to receive input on how SMC can best assist local governments during the permit application process and implementation period. Through these discussions, it was decided that each municipality (or MS4) submit its own "Notice of Intent" (NOI) to be covered under IEPA's statewide general permit. However, using the countywide approach, municipalities may take credit for the programs and ordinances developed by SMC as well as tailor specific local SWMPs for compliance with the Phase II rules.

As part of the countywide approach to comply with the NPDES Phase II program, SMC assists municipalities with the following:

- Supports NPDES II presentations to local boards,
- Develops model Notice of Intent (NOI),
- Provides countywide drainage system overview and receiving waters map,
- Provides general 5-year BMP Program for NOI,
- Develops specific BMP Measurable Goals and program development tasks,
- Serves as a clearinghouse for all support information and acts as a liaison to IEPA and USEPA,
- Supports an on-going Municipal Advisory Committee (MAC),
- Drafts a model of the Annual Performance Report and specific BMP Measurable Goals for the subsequent years,
- Provides model Illicit Discharge Ordinance language, and
- Provides SWMP Template.

SMC countywide services qualify for credit under four of the six Minimum Control Measures. Additionally, SMC developed a SWMP template for revision/adoption by the MS4 communities. This template is intended to be reviewed, revised and accepted by MS4 communities within the county, and describes a program intended to be in compliance with the ILR40 permit requirements. A general list below summarizes additional SMC services under the 6 minimum control categories:

A. **Public Education and Outreach**: SMC provides, through its Public Information Coordinator, various training workshops, homeowners workshops, brochures, training manuals, teacher/student education, videos, etc.

B. **Public Participation and Involvement**: SMC coordinates and participates in public meetings and committees, including the Municipal Advisory Committee (MAC), SMC Board of Commissioners, Technical Advisory Committee (TAC), citizen watershed planning committees, Watershed Management Board (WMB), and volunteer support.

C. **Construction Site Runoff Control**: SMC adopted the countywide Watershed Development Ordinance in 1992, which established the minimum storm water management requirements for development in Lake County. The WDO, which is enforced by SMC as well as by certified communities in the county, establishes standards for construction site runoff control.

D. **Post-Construction Runoff Control**: The Watershed Development Ordinance also establishes standards for post-construction runoff control.

The SMC Chief Engineer is the Enforcement Officer with respect to the administration and enforcement of the Lake County Watershed Development Ordinance (WDO). The Enforcement Officer has the responsibility to concur that projects meet WDO standards prior to the issuance of permits, and oversee site inspections during construction.

2.3 Coordination with Consultants

The Township may enlist the services of consultants to assist in the implementation of the SWMP (including, but not limited to, plan review, site inspections and enforcement), and the design of Township projects. The Township Supervisor has the responsibility of administering these contracts.

2.4 Coordination with the Public

Coordination with the Public occurs on several levels. The Public Education and Outreach Program of this SWMP is discussed in Section 3.1. The Public Participation and Involvement Program of this SWMP is discussed in Section 3.2. The Public has the opportunity to view and comment on the SWMP and related documents in the Township Office or through the Township's website.

2.5 Coordination with the IEPA

Libertyville Township is required to complete an annual report which describes the status of compliance with the IEPA General ILR40 permit conditions. The annual report must be posted on

the Township's website and submitted to the IEPA by the first day of June each year. Annual reporting to IEPA should consist of "implemented SWMP" for all tasks completed in accordance with this SWMP. Additional information should be provided for areas of enhancement or tasks not completed. A copy of the General ILR40 Permit is included in Appendix 5.15.

Records regarding the completion and progress of the SWMP must be kept by the community. Task sheets should be updated throughout the year, and kept in a binder with necessary supporting documentation. The binder must be available for inspection by both IEPA and the general public.

2.6 Coordination with the Development Community

Libertyville Township has a responsibility to assist the development community in understanding when an IEPA General ILR10 permit (Appendix 5.16) is required, and whether construction sites comply with both the General ILR10 and WDO permit conditions. The Township should understand the role illicit discharges play in the overall NPDES II program. In general, an incidence of non-compliance must be filed with IEPA for illicit discharges exiting a Township outfall into receiving waters.

2.7 Coordination of Contractors

The Township may hire contracted services. The Township also has a responsibility to educate contractors hired by the municipality in the requirements of this SWMP and applicable requirements of the ILR40 and ILR10 permits.

2.8 Coordination with Lake County Department of Planning, Building & Development

Within unincorporated portions of Libertyville Township, the Lake County Planning, Building & Development Department (LCPBDD) is the permitting authority and Enforcement Officer for the Lake County Watershed Development Ordinance (WDO) and the Lake County Unified Development Ordinance (UDO). The UDO covers all requirements of the WDO. All site development permits, watershed development permits and building permits are reviewed and issued by the LCPBDD.

2.9 Coordination with Lake County Health Department

The Lake County Health Department (LCHD) regulates the use of septic systems in Lake County for both residential and commercial properties through the Individual Sewage Disposal Program (ISD). The Health Department must review plans for new septic systems and/or additions or alterations to homes that affect on-site wastewater systems in unincorporated or incorporated areas of Lake County where sanitary sewer is not yet available. This review process is required by County Ordinance Article V and is intended to protect public health from nuisances and hazards associated with sewage disposal. Inspections are completed by staff sanitarians working with Lake County's Licensed Septic Contractors, to ensure the property owners that installations are completed in accordance with the Board of Health Ordinance Article V, governing Individual Sewage Disposal systems.

Section 3: The SWMP

This SWMP includes six components, each of which is necessary in an effort to reduce or ideally eliminate storm water pollution in receiving water bodies. These components include:

1. Public Education and Outreach
2. Public Participation and Involvement
3. Illicit Discharge Detection and Elimination
4. Construction Site Runoff Control
5. Post Construction Runoff Control
6. Pollution Prevention and Good Housekeeping

Section 3.1 describes Libertyville Township's efforts to educate the public about storm water pollution and storm water pollution prevention. The manner in which Libertyville Township incorporates public participation and involvement into the SWMP is explained in section 3.2. Section 3.3 describes Libertyville Township's approach for detecting and eliminating storm water illicit discharges. Construction and post construction runoff control is addressed in sections 3.4 and 3.5. Lastly, section 3.6 discusses Libertyville Township's responsibilities for the care and upkeep of its general facilities, associated maintenance yards, and municipal roads to minimize pollution. This final section also discusses necessary training for Township employees on the implementation of the SWMP.

3.1 Public Education and Outreach

Libertyville Township conducts public education programs that inform the community of potential impacts on receiving streams and the contributions the public can make to reduce pollutants in storm water runoff. Libertyville Township utilizes a variety of methods to educate and provide outreach to the public about the importance of managing pollutants that potentially could enter the storm water system. The program includes the following activities, which are discussed in greater detail in this section:

- Distribute informational sheets regarding storm water BMPs, water quality BMPs, and proper hazardous waste use and disposal,
- Include information on water quality and storm water in Libertyville Township newsletter distributed by Libertyville Township,
- Coordinate, publicize, and participate in bi-annual SWALCO events, and
- Maintain Libertyville Township's website which offers links to additional educational information, and ways to contact Libertyville Township personnel.

A. Distribution of Paper Materials

Libertyville Township actively pursues the acquisition of educational sheets prepared by the County Agencies, IEPA, USEPA, Center for Watershed Protection, Chicago Metropolitan Agency for Planning "CMAP" (previously Northeastern Illinois Planning Commission "NIPC"), University of Wisconsin Extension, and Solid Waste of Lake County (SWALCO), as well as other agencies and organizations. The Township maintains a list of available publications in the SWMP binder and on the website. The Township lists a telephone

number on all the outreach publications to encourage residents to contact the Township with environmental concerns.

Types of materials distributed include:

- Guidelines for Draining Swimming Pools Handout
- Protect Our Water Handout
- Informational sheets/pamphlets regarding storm water best management practices,
- Informational sheets/pamphlets regarding water quality best management practices,
- Informational sheets/pamphlets regarding construction site activities (soil erosion and sediment control best management practices), and
- Informational sheets/pamphlets published by SWALCO regarding proper hazardous waste use and disposal.

Publications are provided in the following manner:

- At take-away racks,
- At annual outreach events,
- In the Township Newsletter, and
- At scheduled meetings with the general public. These meetings are on an as needed or as requested basis and may be with the homeowners associations, businesses, or local schools.

B. Website

Libertyville Township's website includes links to storm water quality specific elements. These links provide information regarding water quality, solid waste, hazardous material, storm water, and general environmental health. The website is updated on a regular basis and tracked for hits. A significant amount of information is made available through links to other educational and informational sites.

This SWMP, the NOI, and any previous annual reports must be posted on the Township website. Each year's annual report must be posted on the Township website and submitted to the IEPA by the first day of June each year.

C. Outreach Events

When possible, Libertyville Township attends and/or sponsors outreach events and scheduled meetings with the general public. These events are held on an as needed or as requested basis. Audiences may include the homeowners associations, lake associations, businesses, and neighborhood groups.

D. Storm Drain Stenciling & Markers

Libertyville Township supports the efforts of private entities to stencil or apply stickers to inlets, and the purchase of factory stamped inlet grates. These efforts apply messages at storm drain inlets with the intent of assisting in educating the public about storm water

runoff pollution. The "Guide to Storm Drain Marking" (by SMC) is posted on the Township website.

E. Household Hazardous Wastes

The average garage contains numerous products that are classified as hazardous wastes. These substances include paints, stains, solvents, used motor oil, pesticides, and cleaning products. While some household hazardous waste may be dumped into storm drains, most enters the storm drain system unintentionally as a result of outdoor rinsing and cleanup. Improper disposal of hazardous waste can result in acute toxicity to downstream aquatic life. The desired neighborhood behavior is to participate in hazardous waste collection days, and to use appropriate pollution prevention techniques when conducting rinsing, cleaning, and fueling operations. The Township provides support to the initiatives of the Solid Waste Agency of Lake County to employ a range of tools to improve resident participation. The Township provides conventional outreach materials notifying residents about household hazardous waste and collection days.

In the event of a spill involving household hazardous waste, the local Police and Fire Department as well as Lake County officials are contacted for clean-up.

F. Solid Waste Agency of Lake County (SWALCO)

SWALCO provides solid waste management programs to Lake County in both incorporated and unincorporated areas. The programs are aimed at reducing reliance on landfills through source reduction, recycling, and energy recovery. In general, the programs help residents dispose of problem wastes such as household chemicals, electronic equipment, and yard waste. The recycling programs are targeted at both commercial and residential markets in order to divert as much solid waste as possible from reaching landfills. SWALCO also administers public information and education efforts including the "Earth Flag" and "Earth Flag Every Day" programs in the schools, promoting SWALCO events, and publishing various resources.

Typically, there is a spring through summer clean-up event that facilitates proper disposal of electronic devices, and a fall event for disposal of paint and solvents. At a minimum, the Township encourages participation in the event by publicizing these special collections in at the Township Hall and on the Township's website.

G. Septic System Maintenance

Failing septic systems can be a major source of bacteria, nitrogen, and phosphorus, depending on the overall density of systems present in a sub-watershed. System failure results in illicit surface or subsurface discharges to streams. Many owners do not properly care for septic systems until a visible issue arises. Subsurface failures, which are the most common, often go unnoticed. In addition, inspections, pump outs, and repairs can be costly, causing many homeowners to put off the expense until there is a real problem. Lastly, many septic system owners are not aware of the link between septic systems and water quality. The Township provides conventional outreach materials to increase awareness about septic system maintenance and water quality.

H. Vehicle Fluid Maintenance

Dumping of automotive fluids into storm drains can cause major water quality problems, especially because small amount of oil or antifreeze can severely degrade the quality of a small stream. Dumping delivers hydrocarbons, oil and grease, metals, xylene, and other pollutants to streams. These pollutants can be particularly toxic during dry-weather conditions when existing flow cannot dilute these discharges. The Township employs a range of tools to improve vehicle maintenance including posting outreach materials on the Township website and including information within the Township Newsletter.

I. Car Washing

Car washing is a common neighborhood behavior that can produce transitory discharges of sediment, nutrients, and other pollutants to the curb, and ultimately into storm drains. The Township utilizes many innovative outreach tools to promote environmentally safe car washing including:

- Outreach materials posted on the Township website,
- Outreach materials posted at the Township Hall,
- Outreach materials contained in the Township newsletter, and
- Brochures promoting nozzles with shut off valves.

J. Pool Dewatering

Chlorinated water discharged to surface waters, roadways, or storm sewers has an adverse impact on local storm water quality. High concentrations of chlorine are toxic to wildlife, fish and aquatic plants. The pH of the water should be between 6.5 and 8.5. Algaecides such as copper or silver can interrupt the normal algal and plant growth in receiving waters and should not be present when draining. Pool water should be prepared appropriately before draining down a pool. It is recommended that one of the following measures be used:

1. De-chlorinate the water in the pool prior to draining through mechanical or chemical with products are available at local stores,
2. De-chlorinate the water in the pool through natural means by allowing pool water to sit at least 2 days with a reasonable amount of sun, after the addition of chlorine or bromine. It is recommended that the chlorine level be tested after 2 days to ensure that concentrations are at a safe level (below 0.1-mg/l), or
3. Drain the pool slowly over a several day period across the lawn; or drain directly into the sanitary sewer using the following additional guidelines:
    a) Avoid discharging suspended particles (e.g. foreign objects blown into the pool like leaves, seedlings, twigs etc) with pool water.
    b) When draining your pool, do not discharge directly onto other private properties or into public right-of-way including storm sewer inlets.

The Township distributes a Pool Dewatering Fact Sheet (Appendix 5.9), stating the above information. Outreach efforts including information in the newsletter, other mail-outs, and adding information to the take-away racks occur each fall.

3.2 Public Participation and Involvement

The public participation and involvement program allows input from citizens during the development and implementation of the SWMP. The SWMP will be evaluated annually. Major highlights and deficiencies shall be noted annually and the plan revised accordingly on a minimum 5-yr basis, or as necessary.

A. Public Hearing

Prior to the acceptance of the SWMP, the draft document was presented to the Township Board during a public hearing on October 22, 2009. Comments on the SWMP are continually accepted through the website, phone calls, and other means. Comments are evaluated for inclusion and incorporated into the next revision of the SWMP as appropriate.

B. Complaints, Suggestions, and Requests

Calls are screened, logged, and routed to the appropriate individual for action. General program related calls are directed to the Township Supervisor, or designee. Construction activity, illicit discharge, storm sewer, and other related storm water runoff concerns are directed to the Township Highway Commissioner, Lake County Health Department or Lake County Planning, Building and Development Department. The Township maintains a website which enables and encourages public contact on these issues.

C. Watershed Planning and Stakeholders Meetings

Libertyville Township participates in, and encourages the participation of local stakeholders in Lake County SMC and other sponsored watershed planning events. The Township will adopt Watershed Plans per the direction, and in coordination with the Lake County SMC.

D. Illicit Discharge/Illegal Dumping

Libertyville Township utilizes the non-emergency phone number (847-816-6800) for residents to contact the Township with environmental concerns. Primary advertisement venues include the website and all related Township publications. Telephone calls received from residents are logged on the Indirect Illicit Discharge Tracking Form (Appendix 5.11). The Township Supervisor, or his designee, should transfer information from the tracking form to the Indirect Illicit Discharge Summary Form (Appendix 5.11) monthly. This tracking form should be reviewed with the Storm Water Coordinator annually to determine if trends can be seen and if there is additional outreach efforts needed.

Because Libertyville Township is not a certified community, tracking and reporting responsibilities are shared with Lake County.

3.3 Illicit Discharge Detection and Elimination[1]

Currently, illicit discharges (defined in 40 CFR 122.26(B)(2)) contribute considerable pollutant loads to receiving waters. The two primary situations that constitute illicit discharges are non-storm water runoff from contaminated sites, and the deliberate discharge or dumping of non-storm water. Illicit discharges can enter the storm sewer system as either an indirect or direction connection.

A. Regulatory Authority

Effective implementation of an IDDE program requires adequate legal authority to remove illicit discharges and prohibit future discharges. This regulatory authority is achieved through the Lake County Watershed Development Ordinance and the Illinois Board of Health Ordinance. Additionally, IEPA has regulatory authority to control pollutant discharges and can take the necessary steps to correct or remove an inappropriate discharge over and above Township jurisdiction.

i. Lake County Watershed Development Ordinance

Several provisions of the Lake County Watershed Development Ordinance (WDO) prohibit illicit discharges as part of the development process. These provisions are only applicable for regulated development activities as defined by the WDO in Lake County. Regulated developments are required to meet the soil erosion and sediment control standards of the WDO. Furthermore, the WDO requires that the applicant prohibit illicit discharges into the storm water management system generated during the development process.

The WDO allows SMC and LCPBDD to require inspection deposits, performance bonds, and to adopt and enforce violation procedures. These tools assist in achieving complaint construction sites. These items are further discussed in Chapters 3.4 and 3.5.

ii. Lake County Health Department

The Lake County Health Department's goal is to minimize the potential for human disease, discomfort, injury and annoyance by nuisances as defined in Board of Health Ordinance Article I.

The following items are investigated by the Lake County Health Department as nuisances in accordance with Board of Health Ordinance Article I:

- All decayed or unwholesome food offered for sale to the public.
- All diseased animals running at large.
- Carcasses of dead animals not buried or destroyed within 24 hours after death.

[1] Section 3.3 is a revision of the Lake Michigan Watershed storm water Outfall Screening Program Training Program (April 1994 by Lake County Stormwater Management Commisssion), and incorporates material from the Illicit Discharge Detection and Elimination: A Guidance Manual for Program Development and Technical Assessments (October 2004 by the Center for Watershed Protection and Robert Pitt, University of Alabama).

- Accumulations of manure, rubbish, refuse and human and industrial or noxious or offensive waste, except normal storage on a farm of manure for agricultural purposes.
- Privy vaults or garbage cans which allow flies to enter.
- The pollution of any well, cistern, spring, underground water stream, lake, canal or body of water by sewage or industrial wastes.
- Dense smoke, noxious fumes, gas and soot in unreasonable quantities or presence of gas, smoke, fumes or other toxic substance emitted from equipment of any premises in quantities sufficient to be toxic, harmful or injurious to health.
- All infestations of vermin which may be involved in the transmission of communicable diseases.
- To rent or lease quarters for human habitation which are declared unfit for human habitation by the Board of Health.
- Other nuisance issues that are investigated are indoor and outdoor air quality, mold, public sewer and drinking water issues, asbestos and radon.

B. Understanding Outfalls and Illicit Discharges

Understanding the potential locations and the nature of illicit discharges in urban watersheds is essential to find, fix and prevent them.

i. Identifying Outfalls and Receiving Waters

An Outfall (is defined at 40 CFR 122.26(B)(9)) is a point source (as defined by 40 CFR 122.2) where a municipal separate storm sewer discharges into a waters of the United States "receiving water." Open conveyances connecting two municipal storm sewers, or pipes, tunnels or other conveyances which connect segments of the same stream or other Waters of the United States are not considered outfalls. For the purposes of this manual, the following definitions shall be used:

Outfall: Storm sewer outlet, or other open conveyance point discharge location, that discharges into a Waters of the U.S, receiving water or another MS4.

Regulated systems include the conveyance or system of conveyances including roads with drainage systems, municipal streets, catch basins, gutters, ditches, swales, manmade channels, or storm sewers.

A storm sewer atlas and Outfall Inventory were compiled by Gewalt Hamilton Associates, Inc. (GHA) in June 2009. This investigation was completed with a GPS receiver (Trimble Unit) and ArcPad software. The storm sewer atlas and outfall inventory were supplemented by data provided by Lake County. These maps are used to help determine the extent of discharged dry weather flows, the possible sources of the dry weather flows, and the particular water bodies these flows may be affecting. The outfall locations have been numbered to facilitate detection and tracking of identified illicit discharges. The outfall inventory map is available from the Township Supervisor.

The outfall map should be revised annually to incorporate permitted outfalls associated with new developments. Outfalls shall be inspected annually for detection of non-storm water discharges and illegal dumping.

ii. Potential Sources of Illicit Discharges

Table 1 shows that direct connections to storm sewer systems most likely originate from commercial/industrial facilities. Thus, the focus on Chapter 3.3 is on the identification of illicit discharges from commercial/industrial facilities.

Table 1: **Potential Sources of Illicit Discharges to Storm Sewers**

Potential Sources	Storm Sewer Entry		Flow Characteristics	
	Direct	Indirect	Continuous	Intermittent
Residential Sources				
Sanitary Wastewater	√	X	√	X
Septic Tank Effluent	-	√	√	X
Household Chemicals	X	√	-	√
Laundry Wastewater	√	-	-	√
Excess Landscaping Watering	-	√	-	√
Leaking Potable Water Pipes	-	√	√	-
Commercial Sources				
Gasoline Filling Stations	√	X	-	√
Vehicle Maint./Repair	√	X	-	√
Facilities	√	-	√	X
Laundry Wastewater	-	√	√	X
Construction Site Dewatering	√	X	√	-
Sanitary Wastewater				
Industrial Sources	X	√	√	X
Leaking Tanks and Pipes	√	X	√	X
Misc. Process Waters				

√: Most likely condition. X: May Occur -: Not very likely

Source: *Adapted From: USEPA. January 1993. Investigation of Inappropriate Pollutant Entries Into Storm Drainage Systems: A User's Guide. Cincinnati, Ohio.*

iii. USEPA Exclusions

It is noted that not all dry-weather flows are considered inappropriate discharges. Under certain conditions, the following discharges are not considered inappropriate by USEPA:

- Water line flushing,
- Landscaping irrigation,
- Diverted stream flows,
- Rising groundwaters,
- Uncontaminated groundwater infiltration,

- Uncontaminated pumped groundwater,
- Discharges from potable water sources,
- Flows from foundation drains,
- Air conditioning condensation,
- Irrigation water,
- Springs,
- Water from crawl spaces,
- Lawn watering,
- Individual car washing,
- Flows from riparian habitats and wetlands,
- Dechlorinated swimming pool water, and
- Street wash water.

iv. Pollutant Indicators

Physical Indicators
Adapted from New Hampshire Estuaries Project and the IDDE Guidance Manual by the Center for Watershed Protection (CWP).

Odor

Water is a neutral medium and does not produce odor; however, most organic and some inorganic chemicals contribute odor to water. Odor in water may originate from municipal and industrial waste discharges, from natural sources such as decomposition of vegetative matter, or from associated microbial activity.

Table 2: Odor or Potential Illicit Discharges (adapted from CWP)

Odor	**Possible Cause**
Sewage	Wastewater treatment facilities, domestic waste connected into storm drain, failing septic system
Sulfide (rotten eggs)	Decaying organic waste from industries such as meat packers, dairies and canneries
Rancid/sour	Many chemicals, including pesticides and fertilizers, emit powerful odors that may produce irritation or stinging sensations.
Petroleum/gas	Industry associated with vehicle maintenance or petroleum product storage; gas stations
Laundry	Laundromat, dry cleaning, household laundry

Color

Color is a numeric computation of the color observed in a water quality sample, as measured in cobalt-platinum units. Both industrial liquid wastes and sewage tend to have elevated color values. Unfortunately, some "clean" flow types can also have high color values. A color value higher than 500 units may indicate an industrial discharge.

Table 3: Color of Potential Illicit Discharges (adapted from CWP)

Water Color	Possible Cause	Images
Brown Water – water ranging in color from light-tea to chocolate milk; it may have a rotten egg odor.	Human causes may be eroded, disturbed soils from constr. sites, animal enclosures, destabilized stream banks and lake shore erosion due to boat traffic.	
Yellow –	Human causes may include textile facilities, chemical plants or pollen.	
Gray Water – water appears milky and may have a rotten egg smell and/or soap odor. There may also be an appearance of cottony slime.	Human causes may be illicit connections of domestic wastewater; untreated septic system discharge; illegal boat discharge; and parking lot runoff.	
Green Water – ranging from blue green to bright green color and may impart odor. Conditions typically occur from May to October.	Human causes may be over-fertilizing lawns, boat discharges, septic systems, agriculture operations, or discharging poorly treated wastewater.	
Orange/Red -	Human causes may include meat packing facilities or dyes.	
Green Flecks – resembling floating blue-green paint chips or grass clippings. These *Blooms* and are potentially toxic.	Human cause is excessive nutrients. Fertilizers used on lawns can contaminate surface and ground water.	

Green Hair-Like Strands - bright or dark green, resembling cotton candy and often in floating mats.	Human causes are excessive nutrients from fertilizers or failed on-shore septic systems.	
Multi-Color Water – various or uniform color, other than brown, green or gray. For rainbow sheen see floatables.	Human causes include oil or hazardous waste spill, paint and paint equipment rinsed into storm drains or into failing septic systems.	

Turbidity

Turbidity is a measure of the clarity of water. Turbidity may be caused by many factors, including suspended matter such as clay, silt, or finely divided organic and inorganic matter. Turbidity is a measure of the optical properties that cause light to be scattered and not transmitted through a sample. The presence of turbidity is to be assessed by comparing the sample to clean glass sample container with colorless distilled water.

Turbidity and color are related terms but are not the same. Remember, turbidity is a measure of how easily light can penetrate through the sample bottle, whereas color is defined by the tint or intensity of the color observed.

Figure 2
Turbidity Severity Examples
(adapted from CWP)


Turbidity
Severity 1


Turbidity
Severity 2


Turbidity
Severity 3

Floatables

The presence of sewage, floating scum, foam, oil sheen, or other materials can be obvious indicators of an illicit discharge. However, trash originating from areas adjacent to the outfall is this section does not have an easily pinned source.

- If you think the floatable is sewage, you should automatically assign it a severity score of three since no other source looks quite like it.
- Suds are rated based on their foaminess and staying power. A severity score of three is designated for thick foam that travels many feet before breaking up. Natural foam breaks apart easily, can be brown, black or yellowish and may smell fishy or musty.
- Surface oil sheens are ranked based on their thickness and coverage. In some cases, surface sheens may not be from oil discharges, but instead created by in-stream processes. Petroleum sheens don't break apart and quickly flows back together.

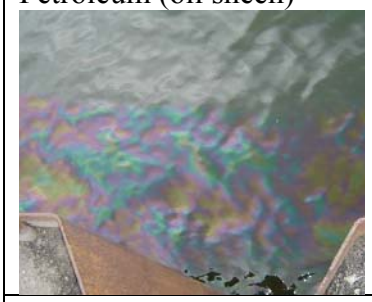
Figure 3
Natural Sheen versus Synthetic
(Adapted from CWP)

Sheen from natural bacteria forms a swirl-like film that cracks if disturbed

Synthetic oil forms a swirling pattern

Table 4: Floatables in Potential Illicit Discharges (adapted from CWP)

Floatables	
Sewage 	Human causes include connection of domestic wastewater, leaking sanitary sewers or failing septic systems.

Suds and Foam 	Common human causes of unnatural foam include leaking sewer lines, boat discharges, improper sewer connections to storm sewers and detergents from car washing activities.
Petroleum (oil sheen) 	Human causes may include leaking underground storage tank or illegal dumping.
Grease 	Common human causes include overflow from sanitary systems (due to clogging from grease) and illegal dumping.

v. Testing Indicators

Ammonia

Ammonia is a good indicator of sewage, since its concentration is much higher there than in groundwater or tap water. High ammonia concentrations (>50 mg/l) may also indicate liquid wastes from some industrial sites. Ammonia is relatively simple and safe to analyze. Some challenges include the potential generation of wastes from non-human sources, such as pets or wildlife.

Biochemical Oxygen Demand (BOD)

Biochemical oxygen demand is a measure of the quantity of oxygen used by microorganism in the oxidation of organic matter. Natural sources of organic matter include plant decay and leaf fall. Urban runoff carries nutrients from lawn fertilizers, pet wastes from streets and sidewalks, leaves, grass clippings, and paper from residential areas, which increase oxygen demand. Oxygen consumed in the decomposition process robs other aquatic organisms of the oxygen they need to live. Organisms that are less tolerant of lower dissolved oxygen levels will die off and the diversity of natural water systems contain bacteria will decrease. Usually, a low number generally means little pollution or little aerobic activity and vice versa.

Chloride

Chlorides in combination with a metal ion, such as sodium (Na) in small doses are essential to life. Too much of chloride has negative impacts on aquatic life. Fish and other aquatic life forms cannot survive in high levels of chloride. Chloride may enter surface water from sources such as: rocks containing chlorides, agricultural runoff, industrial wastewater, oil well wastes, wastewater treatment plant effluents, and road salts. The Illinois general use water standard for chloride is 500 mg/L for chronic (long-term) exposures (not to be exceeded by the arithmetic average of at least four consecutive samples collected over any period of at least four days). Many winter test samples exhibit elevated levels of chlorides, the result of road salt runoff after a snowfall.

Copper

Copper is an abundant trace element found in the earth's crust and is a naturally occurring element that is generally present in surface waters. Copper is a micronutrient for both plants and animals at low concentrations and is recognized as essential to virtually all plants and animals. At higher concentrations it may become toxic to some forms of aquatic life. Concentrations of copper in dry-weather flows can be a result of corrosion of water pipes or automotive sources (for example, radiators, brake lines, and electrical equipment). The occurrence of copper in dry-weather flows could also be caused by inappropriate discharges from facilities that either use or manufacture copper-based products. Usually a copper value of greater than 0.025-mg/L indicates an industrial discharge is present.

Industrial sources of copper include the following:

- Copper manufacturing (smelting),
- Copper metal processing/scrap remelting,
- Metal plating,
- Chemicals manufacturing,
- Analytical laboratories,
- Power plants,
- Electronics,
- Wood preserving, and
- Copper wire production.

In each of these industries, wastes containing copper would normally be discharged to a treatment facility. Sludge from the waste treatment facility, whether on-site (including lagooning) or publicly operated treatment facilities, would contain copper. If the sludge (or the treatment process) is not managed properly, copper could enter the storm sewer system.

Fluoride

Fluoride, at a concentration of two parts per million, is added to drinking water supplies in most communities to improve dental health. Consequently, fluoride is an excellent conservative indicator of tap water discharges or leaks from water supply pipes that end up

in the storm drain. Fluoride is obviously not a good indicator in communities that do not fluorinate drinking water, or where individual wells provide drinking water. Fluoride levels greater than 0.6-mg/L indicate a potable water source is connected to the storm water system.

Phenolics

Phenol is a very commonly occurring chemical and can be found in foods, medicines, and cleaning products, as well as industrial products and by-products. Generally, the appearance of phenols in storm water would indicate a misconnected industrial sewer to a storm drain or ditch. Exceptions would include runoff from treated wood storage yards (for example, treated lumber and telephone poles) and improper disposal (flash dumping) of cleaning products. A phenol value greater than 0.1-mg/L indicate an illicit discharge is present.

Industrial sources of phenol include the following:

- Chemical manufacturing (organic),
- Textile manufacturing,
- Paint and coatings manufacturing,
- Metal coating,
- Resin manufacturing,
- Tire manufacturing,
- Plastics fabricating,
- Electronics,
- Oil refining and re-refining,
- Naval stores (turpentine and other wood treatment chemicals),
- Pharmaceutical manufacturing,
- Paint stripping (for example, automotive and aircraft),
- Military installations (rework and repair facilities),
- Coke manufacturing,
- Iron production, and
- Ferro-alloy manufacturing.

Other sources of phenol include improper handling and disposal of cleaning compounds by institutions such as hospitals and nursing homes.

Phosphorus

Phosphorus is one of the key elements necessary for animal and plant growth. Phosphates (PO_4^{3-}) are formed chemically through the oxidation of this element. Phosphates exist in three forms, orthophosphate, polyphosphate, and organically bound phosphate, with varying formulations involving phosphorus. Ortho forms are formed naturally. Poly forms are used in detergents and in the treatment of boiler water. Organic phosphates may result from the breakdown of organic pesticides containing phosphorus. Rainfall causes varying amounts of phosphates and phosphorus to wash from farm soils and soils treated with certain pesticides into waterways.

Phosphates stimulate the growth of algae and aquatic plants that provide food for fish. This may cause an increase in the fish population, benefiting aquatic life forms. Excess phosphates, however, may cause an excessive growth in algae and aquatic plants, choking waterways and using up large amounts of oxygen, referred to as eutrophication. Phosphates are not directly toxic to humans or animals unless they are present in very high concentrations. Digestive problems, however, can result from high levels of consumed phosphates. The main concern related to phosphates is the potential for eutrophication. In Illinois there is no general water standard for phosphates but concentrations of 0.1 mg/L or more may indicate excessive human output of phosphorous from wastes.

Potassium

Potassium is found at relatively high concentrations in sewage, and extremely high concentrations in many industrial process waters. Consequently, potassium can act as a good first screen for industrial wastes, and can also be used in combination with ammonia to distinguish wash waters from sanitary wastes. An ammonium to potassium ratio of >1 or <1indicate waste water or wash water discharge respectively. A potassium value of >20-mg/l is a good indicator for industrial discharges.

Total Dissolved Solids (TDS)

Total dissolved solids comprise of inorganic salts (principally calcium, magnesium, potassium, sodium, bicarbonates, chlorides and sulfates) and some small amounts of organic matter that are dissolved in water. An elevated total dissolved solids concentration does not mean that the water is a health hazard, but it does mean the water may have aesthetic problems or cause nuisance problems. These problems may be associated with staining, taste, or precipitation. Most aquatic ecosystems involving mixed fish fauna can tolerate TDS levels of 1000 mg/L.

Total Kjeldahl Nitrogen (TKN)

TKN is the sum of organic nitrogen; ammonia (NH3) and ammonium (NH4+) in the chemical analysis of soil, water, or wastewater (e.g. sewage treatment plant effluent). To calculate Total Nitrogen (TN), the concentrations of nitrate-N and nitrite-N are determined and added to TKN. Illinois does not have a general use standard.

Total Suspended Solids (TSS)

Total suspended solids are solid materials, organic and inorganic, that are relatively low density and are too small to settle down. The greater the TSS in the water, the higher its turbidity and lower its transparency. Usually suspended solids include silt, plankton, mud and industrial wastes. High concentrations of suspended solids can lower water quality by absorbing light; therefore, warming it which then lessens the ability of it to hold oxygen necessary for aquatic life. The combination of warmer water, less light, and oxygen makes it impossible for some forms of life to exist. There is no established limit for TSS under Part 302 Water Quality Standards. However, effluent limit under Part 304 Effluent Standards is between 15 – 30 mg/L.

C. Indirect Connection Program

Indirect connections are subtle connections, such as dumping or spillage of materials into storm sewer drains. Flash dumping is a common type of indirect connection. Generally, indirect modes of entry produce intermittent or transitory discharges, with the exception of groundwater seepage. There are five main modes of indirect entry for discharges.

i. Groundwater Seepage

Seepage discharges can be either continuous or intermittent, depending on the depth of the water table and the season. Groundwater seepage usually consists of relatively clean water that is not an illicit discharge by itself, but can mask other illicit discharges. If storm drains are located close to sanitary sewers, groundwater seepage may intermingle with diluted sewage. Addressing seepage that is observed during the outfall screening process is described in more detail in this Chapter.

ii. Spills

These transitory discharges occur when a spill travels across an impervious surface and enters a storm drain inlet. Spills can occur at many industrial, commercial and transport-related sites. A very common example is an oil or gas spill from an accident that travels across the road and into the storm drain system. The Spill Response Plan is described in Chapter 3.6.B.

iii. Dumping

This type of transitory discharge is created when liquid wastes such as oil, grease, paint, solvents, and various automotive fluids are dumped into the storm drain. Liquid dumping occurs intermittently at sites that improperly dispose of rinse water and wash water during maintenance and cleanup operations. A common example is cleaning deep fryers in the parking lot of fast food operations. The Storm Drain Stenciling, Household Hazardous Wastes, Vehicle Fluid Maintenance and Pool Dewatering programs are designed to minimize dumping; these programs are described in Chapter 3.1. The procedure for handling a dumping incident is described in Chapter 3.6.B.

iv. Outdoor Washing Activities

Outdoor washing may or may not be an illicit discharge, depending on the nature of the generating site that produces the wash water. For example, hosing off individual sidewalks and driveways may not generate significant flows or pollutant loads. On the other hand, routine washing of fueling areas, outdoor storage areas, and parking lots (power washing), and construction equipment cleanouts may result in unacceptable pollutant loads. Individual washing activities are addressed through the Public Education and Outreach Program in Chapter 3.1 whereas observed or documented routine washing activities should be addressed through the Removal of Illicit Discharges Procedure in Chapter 3.3.

v. Non-target Irrigation from Landscaping or Lawns

Irrigation can produce intermittent discharges from over-watering or misdirected sprinklers that send tap water over impervious areas. In some instances, non-target irrigation can produce unacceptable loads of nutrients, organic matter or pesticides. The most common example is a discharge from commercial landscaping areas adjacent to parking lots connected to the storm drain system. This type of discharge is addressed by the Public Education and Outreach Program in Chapter 3.1.

D. Direct Connection Illicit Discharge Program

Direct connections enter through direct piping connections to the storm sewer system. Because direct connections exist regardless of whether or not a storm water event (e.g. rain or melting snow) is occurring, they are most easily detected during dry-weather periods. Inspection of storm water outfalls during dry-weather conditions reveals whether non-storm water flows exist. If non-storm water flows are observed, they can be screened and tested to determine whether pollutants are present. If the presence of pollutants is indicated, source identification can begin. Once the source is identified, it can then be corrected. A direct connection illicit discharge program consists of three principal components: 1) program planning, 2) outfall screening, and 3) follow-up investigation and program evaluation.

Program Planning involves the office work, planning, and organization required to conduct the subsequent outfall screening and follow-up investigative activities of the program. Program planning identifies the regulatory authority to remove directly connected illicit discharges and defines the outfalls and receiving waters in the township (both discussed earlier in this chapter). Program planning for the direct connection portion of the overall program also includes the identification of the staffing and equipment needed to conduct the outfall screening, and scheduling of the outfall screening activities (Chapter 3.3).

Outfall Screening consists of pre-screening to determine whether dry-weather flows are present and outfall inspection which includes field-testing and grab samples to determine whether pollutants are present in any observed dry-weather flows (Chapter 3.3).

Follow-Up Investigation and Program Evaluation are the steps necessary to determine the source of any identified pollutant flows and eliminate them. The major follow-up investigation and program evaluation components (Chapter 3.3) include:

- reviewing and assessing outfall inspection results,
- internal coordination,
- conducting detailed storm sewer investigations to identify pollutant sources (tracing),
- exercising the appropriate legal means to achieve enforcement of the program objective (removal of pollutants at the source), and evaluating the program to determine whether subsequent screening activities are necessary.

i. Program Planning

The program planning component is primarily office work related to assembling the necessary information and equipment for efficiently conducting outfall-screening activities. This component of the program addresses staffing, training, equipment needs, and scheduling.

Staffing

Personnel for an outfall inspection screening program are required for program administration, conducting the outfall screening, and any follow-up investigations. Typically, a two-member crew is required for the outfall screening and follow-up portions of the program. Based on the number of identified outfalls and program goals, it is anticipated that a two-member crew will be required to perform inspections for several weeks throughout the year.

Training

Applicable field personnel shall thoroughly read and understand the objectives of the IDDE subchapters of this manual and have completed a standard training session. It is recommended that applicable field personnel accompany a supervisor on at least two outfall inspections to learn the use of the Storm Water Outfall Inspection Data Form (Appendix 5.2). As a training exercise, new field personnel should independently conduct outfall screening activities until two outfall screening data forms are accurate and consistent with the supervisor investigator's forms.

Equipment Needs

General field equipment and specialized outfall screening equipment are required for IDDE programs. The method of collecting and managing inspection screening data is driven by available technology. Field Crews carry basic safety items, such as cell phones, surgical gloves, and first aid kits. It is recommended that an effort to keep up with applicable and appropriate technology be made. Working with equipment that can store data electronically will reduce the risk of error from poor hand writing, and smearing ink. Also, objectivity can be encouraged through technology be using devices that incorporate a template for inspections. Finally, keeping up with technology will keep field crews from growing accustomed to a single way of performing inspections.

Scheduling

Scheduling for pre-screening or outfall inspections is dependent on staff availability and weather. Pre-screening generally takes place during the late summer or fall months, ideally in August, September, or October. Other summer or fall months may be acceptable depending on weather conditions. This time period is generally warm, improving field efficiency, reliability, and consistency of field testing. This time period is also more likely to have the extended dry periods with little or no precipitation that are required for inspection activities.

In order to ensure that samples collected are representative of dry-weather flows, conduct pre-screening and follow-up inspections preceding a dry-weather period, a period of 72 hours of dry weather. A period of 72 hours is selected to allow local detention facilities to drain, and for groundwater flows to recede after precipitation events. However, some judgment may be exercised in evaluating the 72 hour period to sampling. For example, if very light rain or drizzle occurred and no runoff was experienced, it is likely that dry-weather conditions would exist, and outfall inspection can be conducted.

ii. Outfall Inspection Procedure

The identification of potential illicit discharge locations is a two part process consisting of pre-screening and follow-up inspections. Pre-screening is performed by a rapid inspection of all outfalls in a pre-determined area, such as along a receiving water. Follow-up inspections are required for those pipes found to have dry weather flow. Once probable illicit discharges are found, source identification and correction of any illicit discharges should begin per the removal procedure found in Chapter 3.3.D. Outfall inspection consists of the following tasks.

- Pre-Screening,
- Outfall Inspection Setup,
- Outfall Inspection,
- Outfall Assessment and Documentation, and
- Daily closeout.

Pre-Screening

Pre-screening consists of an annual inspection of outfalls, during dry weather flow conditions. Outfalls observed to have dry weather flow are documented. Pre-screening results should be logged in the Outfall Inventory Database. Outfalls with dry weather flows shall be scheduled for an outfall inspection.

Outfall Inspection Setup and Precautions

In this step, anticipation of potential problems that could affect the days screening activities is essential. During daily setup, safety issues associated with the screening process are of particular concern. Traffic control or difficult outfall access are common issues. Before performing an outfall inspection, field crews must ensure that all necessary equipment is available, operable, and calibrated appropriately.

Safety is the primary concern while inspecting upstream sampling locations. In general, the rule “if in doubt, don’t” is followed. A first aid kit is included in each vehicle to treat minor injuries. Obtain medical help for major injuries as soon as possible. Report all injuries, minor and major to appropriate persons.

Access to Private Property

In some cases, it may be necessary for field personnel to enter or cross private property to investigate discovered illicit discharges. A form letter should be prepared that includes a short description of the project, the purpose of the access to the property, and the name of a project contact person with a telephone number. Personnel should attempt to contact each home or business owner for permission to access the outfall prior to entering the property. Field personnel shall have identification indicating that they are township employees at all times. If the owner is not present, a letter should be left at the premises to facilitate return inspection. If permission to access property is denied, a public official should then contact the owner at a later date.

Avoid confrontational situations with citizens and attempt to answer questions concisely and without being alarmist. Field personnel should be coached on appropriate responses to questions from citizens. If a field crew feels uncomfortable or threatened, they should remove themselves from the situation and report the incident to their supervisor.

Traffic

All traffic control measures are to be in accordance with the requirements of the *Manual on Uniform Traffic Control Devices* and other internal policies and procedures as set forth by Lake County.

Confined Space Entry

Confined space entry for this program would include climbing into or inserting one's head into a pipe, manhole, or catch basin. In general, do not cross the vertical plane defining an outfall pipe or the horizontal plane defining a manhole, unless properly prepared for confined space entry. **IN NO CASE SHALL FIELD CREW MEMBERS WHO ARE UNTRAINED AND/OR UNEQUIPPED FOR CONFINED SPACE ENTRY ATTEMPT TO ENTER CONFINED SPACES.** Confined space entry shall be conducted only by trained personnel with appropriate rescue and monitoring equipment.

Outfall Inspection

An outfall inspection is required for outfalls determined to have dry weather flow, or with submerged outlets, based on the pre-screening efforts. Upon arriving at an outfall, the field crew should approach the outfall on foot to a proximity that allows visual observations to be made.

Outfalls are assessed to determine which one of the three following conditions applies:

- The outfall is dry or damp with no observed flow,
- Flowing discharges are observed from the outfall, or
- The outfall is partially or completely submerged with no observed flow or is inaccessible.

Scenario 1: No Observed Flow. Under Scenario 1, the field crew should photograph the outfall and complete applicable chapters of the Storm Water Outfall Inspection Data Form *(*Appendix 5.2). Use the flow chart, Figure 5**,** to identify applicable chapters of the form that must be filled out.

Scenario 2: Observed Flow. Under Scenario 2, the field crew photographs the outfall and completes applicable sections of the Storm Water Outfall Inspection Data Form *(*Appendix 5.2). Use the flow chart, Figure 5**,** to identify applicable sections of the form that must be filled out, including sampling/testing requirements. The intent is to gather additional information to determine if an illicit discharge is present. Determine the need for water quality testing with an independent outside lab. The Outfall Sampling Report (Appendix 5.3) should be completed for all outfalls requiring outside testing. Testing results are then used to identify potential sources.

Scenario 3: Submerged or Inaccessible Outfall. Under Scenario 3, if standing water is present in an outfall or if it is inaccessible, then complete available information from sections 1, 2, 3 and 5 of the Storm Water Outfall Inspection Data Form *(*Appendix 5.2), with appropriate comments being written in the "Remarks" section of the data form. Locating an upstream sampling point may be required if any of the following conditions exist at an outfall:

- The outfall discharge is submerged or partially submerged due to backwater conditions,
- Site access and safety considerations prevent sample collection,
- The outfall is from a facility providing water quality treatment (for example, detention basin outlet), or
- Other special considerations.

Determine the upstream sampling location using the Township's storm sewer atlas. Manholes, catch basins, or culvert crossings can be used for upstream sampling locations. Make reasonable efforts to locate upstream sampling points that are accessible and exhibit flow. If inaccessible, resolve the problem in the office with appropriate supervisory personnel.

Table 5: Other Outfall Inspection Hazards

Hazard	Prevention
Access	Avoid steep slopes, dense brush and deep water. Report unsafe locations and move on to next location.
Stuck	Avoid wading where bottom sediments are easily disturbed or depths are unknown.
Strong Gas/Solvent Odor	Do not select manhole for sampling
Bodily Harm From Manhole Covers	Use manhole hook and watch for pinch points
Slip	Proper Foot Gear and Use of Rope If Warranted

Falls	Use extended sample collection device; don't cross horizontal or vertical plane at end of outfall
Heat and Dehydration	Adequate Water Intake; Avoid Excessive Exertion on Hot Days
Sunburn	Sunscreen and Appropriate Clothing
Poisonous Plants/Animals	Identify and Avoid
Vicious Dogs	Avoid; Use Animal Repellent if necessary
Water Bodies	Flotation Devices
Ticks	Check Entire Body at End of Each Day
Mosquitoes	Apply Repellent

Outfall Inspection

An outfall inspection is required for outfalls determined to have dry weather flow, or with submerged outlets, based on the pre-screening efforts. Upon arriving at an outfall, the field crew should approach the outfall on foot to a proximity that allows visual observations to be made.

Outfalls are assessed to determine which one of the three following conditions applies:

1. The outfall is dry or damp with no observed flow,
2. Flowing discharges are observed from the outfall, or
3. The outfall is partially or completely submerged with no observed flow or is inaccessible.

Scenario 1: No Observed Flow. Under Scenario 1, the field crew should photograph the outfall and complete applicable sections of the storm water Outfall Inspection Data Form (Appendix 5.2). Use the flow chart, Figure 5, to identify applicable sections of the form that must be filled out.

Scenario 2: Observed Flow. Under Scenario 2, the field crew photographs the outfall and complete applicable sections of the Storm Water Outfall Inspection Data Form (Appendix 5.2). Use the flow chart, Figure 5, to identify applicable sections of the form that must be filled out, including sampling/testing requirements. The intent is to gather additional information to determine if an illicit discharge is present. Determine the need for an independent outside lab to conduct testing. Testing results are then used to identify potential sources.

Scenario 3: Submerged or Inaccessible Outfall. Under Scenario 3, if standing water is present in an outfall or if it is inaccessible, then complete available information from Sections 1, 2, 3 and 7 of the Outfall Inspection Data Form (Appendix 5.2), with appropriate comments being written in the "Remarks" section of the data form. Locating an upstream sampling point may be required if any of the following conditions exist at an outfall:

- The outfall discharge is submerged or partially submerged due to backwater conditions,
- Site access and safety considerations prevent sample collection,

- The outfall is from a facility providing water quality treatment (for example, detention basin outlet), or
- Other special considerations.

Figure 4: Characterizing Submersion and Flow
Center for Watershed Protection

 Submerged: More than ½ below water	 Partially submerged: Bottom is below water	 Fully submerged: Can't see outfall
 Outfall fully submerged by debris	 Fully submerged from downstream trees trapping debris	 Partially submerged by leaf debris "back water"
 Trickle Flow: Very narrow stream of water	 Moderate Flow: Steady stream, but very shallow depth	 Significant flow (Source is a fire hydrant discharge)

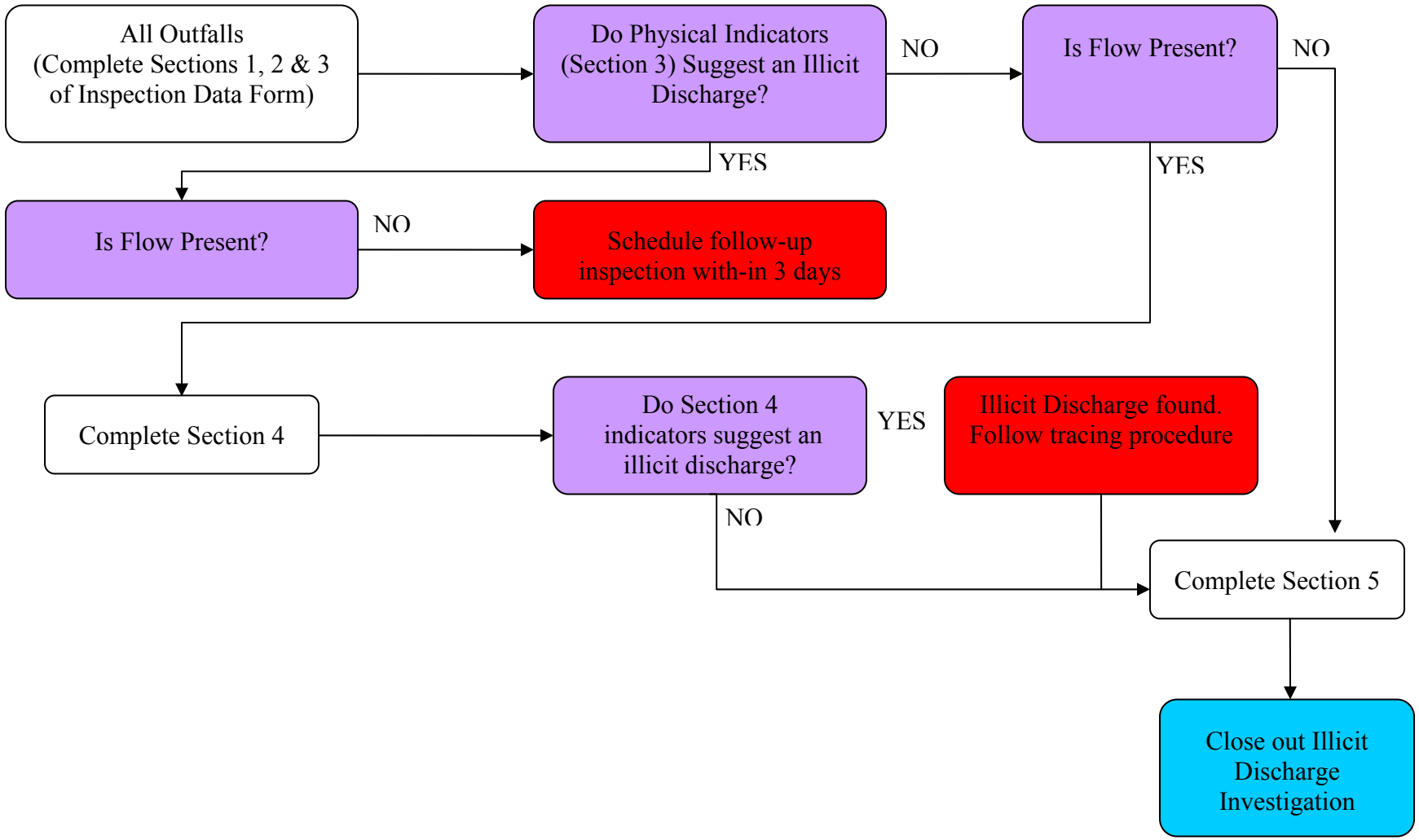
Outfall Assessment and Documentation

Complete the Storm Water Outfall Inspection Data Form (Appendix 5.2) for all outfall screening activities. All completed forms must be dated, legible, and contain accurate documentation of each outfall inspection. A separate data form must be completed for each outfall. It is recommended that non-smearing pens be used to complete the forms and that all data be objective and factual. Once completed, these data forms are considered accountable documents and are maintained as part of the Township files. In addition to standard information, the data form is used to record other information that is noted at the time the outfall inspection is conducted (e.g. observations of dead or dying plants, fish kills, algal blooms (excessive algae growth), construction activities, and other activities that might provide information regarding the potential for illicit connections or inappropriate discharges).

Daily Closeout

Scan and file copies of completed data forms in the office. Also, update the outfall screening scheduling and completion form and plan the next screening day's activities. Discuss any problems locating outfalls with appropriate supervisory personnel so that alternate sampling locations can be identified. Once a month, compile data from the Storm Water Outfall Inspection Data Form (Appendix 5.2) onto the Outfall Inspection Screening Summary Form (Appendix 5.4).

Figure 5: Outfall Inspection Procedure Flow Chart



iii. Follow Up Investigation and Program Evaluation

Follow up investigation is required for all outfalls with positive indicators for pollutant discharges. The outfall assessment results are reviewed to determine the magnitude of the dry-weather pollution problem and to determine the necessary steps to identify and remove the sources of any detected pollutants.

Outfall Screening Results Review and Assessment

Detailed investigations of the storm sewer system may be required upstream of the outfalls to locate sources of illicit discharges or improper disposal. The need for detailed investigations is based on evaluation of the data from the initial outfall screening. This element of the program serves to detect and remove pollutant sources. This is accomplished by reviewing the Outfall Inspection Screening Summary Form (Appendix 5.4) to determine if there are outfalls that require a follow up investigation. Target sewer system areas for detailed investigation, and conduct intensive field investigations upstream of the polluted outfall to identify potential sources.

Independent Verification

If the initial outfall assessment identifies potential illicit discharges, additional sampling is required. The results of the inspection and testing should be discussed with the Township Supervisor. Contract an independent laboratory to take and test a sample. Use the established procedure to coordinate the independent laboratory sample and testing.

Source Identification

The procedure for detailed storm sewer investigation and source identification has three major components: 1) mapping and evaluation, 2) storm sewer investigation, and 3) tracing.

Mapping and Evaluation

For each outfall to be investigated, a large-scale working map should be obtained (digitally or in paper form) that includes the entire upstream storm sewer network, outfall locations and parcel boundaries indicated. This map product is based on information from the storm sewer atlas and outfall map. Land use information is evaluated to determine the types of residential, commercial, and industrial areas that might contribute the type of pollution identified at the outfall.

If the contributing area is determined to be non-residential, the available Industrial/Business information should also be reviewed. The pre-treatment inspection typically indicates chemicals located on-site at each business. The business type and on-site chemicals are logged into the Industrial/Business Inventory. The Inventory is screened for probable pollutant matches. Make attempts to match detected indicators with upstream activities.

Storm Sewer Investigation

After conducting the mapping evaluation, a manhole-by-manhole inspection is conducted to pinpoint the location of the inappropriate discharge, into the storm sewer/conveyance system.

This inspection requires a field crew to revisit the outfall where the polluted dry-weather discharge was detected. The field crew should be equipped with the same testing and safety equipment and follow similar procedures as used during the outfall inspection.

After confirming that dry-weather flow is present at the outfall, the field crew continues moving to the next upstream manhole or access point investigating for dry weather flow. In cases where more than one source of dry-weather discharge enters a manhole, the field crew records this information on the screening form and then tracks each source separately. All sources are tracked upstream, manhole-by-manhole, until the dry-weather discharge is no longer detected. Finally, the last manhole where dry-weather flow is present is identified and potential sources to that manhole are accessed. This data is important for source identification.

The field crew should also determine whether there has been a significant change in the flow rate between manholes. If the flow rate appears to have changed between two manholes in the system, the illicit connection likely occurs between the two manholes. Changes in the concentration of pollutant parameters could also aid in confirming the presence of an illicit connection between the two manholes.

Tracing

Once the manhole inspection has identified the reach area, between two manholes suspected of containing an inappropriate discharge, testing may be necessary. If there is only one possible source to this section of the storm sewer system in the area, source identification and follow-up for corrective action is straightforward. Multiple sources or non-definitive sources may require additional evaluation and testing. The method of testing must be approved by the Township Supervisor prior to testing activities commencing. Potential testing methods include fluorometric dye testing, smoke testing, and/or remote video inspections.

iv. Removal of Illicit Discharges

Eight steps are taken to definitively identify and remove an inappropriate discharge to the storm sewer system. These steps are as follows:

Step 1. Have an outside laboratory service take a grab sample and test for the illicit discharge at the manhole located immediately downstream of the suspected discharge connection.

Step 2: Coordinate a meeting with Lake County Health Department, LCPBDD and/or Lake County SMC to discuss inspection and testing results and remedial procedures.

Step 3: The Township Supervisor (or the regulatory agency) shall send a notification letter to the owner/operator of the property/site suspected of discharging a pollutant. The letter should request that the owner/operator describe the activities on the site and the possible sources of non-storm water discharges including information regarding the use and storage of hazardous substances, chemical storage practices, materials handling and disposal practices, storage tanks, types of permits, and pollution prevention plans.

Step 4: Arrange a meeting for an inspection of the property with the owner/operator of the property where the pollution source is suspected. Most illicit connections and

improper disposal can probably be detected during this step. Notify the site owner/operator of the problem and instruct them to take corrective measures.

Step 5: Conduct additional tests as necessary if the initial site inspection is not successful in identifying the source of the problem. The Township Supervisor is responsible for determining the appropriate testing measure to pinpoint the source.

Step 6: If the owner/operator does not voluntarily initiate corrective action, the Township (or regulatory agency) issues a notification of noncompliance. The notification includes a description of the required action(s) a time frame in which to assess the problem and take corrective action.

Step 7: Conduct follow-up inspections after stipulated time frame has elapsed to determine whether corrective actions have been implemented to: 1) remove the illicit connection or 2) eliminate the improper disposal practice.

Step 8: If corrective actions have been completed (i.e. and the illicit discharge has been eliminated) the Township Supervisor (or regulatory agency) sends a notification of compliance letter to the owner/operator of the property/site suspected of discharging a pollutant.

If corrective actions have not been completed an additional internal meeting is held to determine appropriate steps to obtain compliance.

Table 5: NPDES-Identified Industrial Facilities

SIC Code	Description
	Facilities subject to storm water effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR Subchapter N (except facilities with toxic pollutant effluent standards that are exempted).
1000-1400	Mineral industry, including active and inactive mining operations, with exceptions, and certain oil and gas exploration, production, processing, or treatment operations or transmission facilities.
2400	Lumber and wood products except furniture (except 2434-wood kitchen cabinets)
2600	Paper and allied products (except 2650-paperboard containers and boxes from purchased paperboard and 2670-converted paper and paperboard products)
2800	Chemicals and allied products (except 2830-drugs)
2900	Petroleum refining and related industries (except discharges subject to 40 CFR 419)
3110	Leather tanning and finishing
3200	Stone, clay, glass, and concrete products (except discharges subject to 40 CFR 419)
3300	Primary metal industries
3441	Fabricated structural metal
3730	Ship and boat building and repair
	Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA
	Landfills, land application sites, and open dumps that receive or have received any industrial wastes, including those that are subject to regulation under Subtitle D of RCRA
	Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards, including, but not limited to, those classified as SIC codes 5015 (used motor vehicle parts) and 5093 (scrap and waste materials).
	Stream electric power generating facilities including coal handling sites
	Transportation facilities with vehicle maintenance shops, equipment cleaning operations, or

	airport deicing operations (except facilities with SIC codes 4221 through 4225) (only those portions of the station that are either involved in vehicle maintenance including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or that are otherwise identified as an industrial station.
	Construction activity including clearing, grading, and excavation activities except: operations that result in the disturbance of less than 5 acres of total land that are not part of a larger common plan of development or sale
THE FOLLOWING CODES REQUIRE A NPDES PERMIT IF CERTAIN ACTIVITIES ARE EXPOSED TO SW	
2000	Food and kindred products manufacturing or processing
2100	Tobacco products
2200	Textile mill products
2300	Apparel and other finished products made from fabrics and similar materials
2434	Wood kitchen cabinets
2500	Furniture and fixtures
2650	Paperboard containers and boxes
2670	Converted paper and paperboard products
2700	Printing, publishing, and allied industries
2830	Drugs
2850	Paperboard containers and boxes
3000	Rubber and miscellaneous products
3100	Leather and leather products (except 3110-leather tanning and finishing)
3230	Glass products, made of purchased glass
3400	Fabricated metal products, except machinery and transportation equipment (except 3441-fabricated structural metal)
3500	Industrial and commercial machinery and computer equipment
3600	Electronic and other electrical equipment and components, except computer equipment
3700	Transportation equipment (except 3730-ship and boat building and repairing)
3800	Measuring, analyzing, and controlling instruments; photographic, medical, and optical goods; watches and clocks
3900	Miscellaneous manufacturing industries
4221-25	Farm products warehousing and storage, refrigerated warehousing and storage, general warehousing and storage

v. Program Evaluation

Review the results of the screening program to examine whether any trends can be identified that relate the incidence of dry-weather flow observations to the age or land use of a developed area. Experience gained from the USEPA NPDES program indicates a lower chance of observing polluted dry-weather flows in residential and newer development areas, while older and industrial land use areas having a higher incidence of observed dry-weather flows. See Table 5 for areas that may be more likely to exhibit dry-weather flows. Examine the screening results to determine whether any such obvious conclusions can be made. If so, these conclusions may guide future outfall screening activities.

Outfalls with positive indicators of potential pollution are investigated to identify upstream pollutant sources. Identified illicit direct connections must be eliminated. However, new sources may appear in the future as a result of mistaken cross connections from redevelopment,

new-development or remodeling. Indirect or subtle discharges such as flash dumping are difficult to trace to their sources and can only be remedied through public education and reporting. Therefore, it is expected that to some degree they will continue, but ideally at a reduced magnitude and frequency. Although the outfall screening program will be successful in identifying and eliminating most pollutants in dry-weather discharges, the continued existence of dry-weather flows and associated pollutants will require an ongoing commitment to continue the outfall screening program.

The annual inspection screening will determine the effectiveness of the program on a long-term basis and show ongoing improvement through a reduced number of outfalls having positive indicators of potential pollutants. It is logical to assume that after several years of annual screening, the majority of the dry-weather pollution sources will be eliminated.

3.4 Construction Site Runoff Control

The LCPBDD and Lake County SMC are responsible for the Construction Site Stormwater Runoff Minimum Control Measure. The Memorandum of Understanding is located in Appendix 5.24. The LCPBDD is responsible for compliance within areas of Unincorpated Lake County. The Lake County Unified Development Ordinance covers the criteria that are required to meet the application development standards and practices.

As a Qualifying Local Program, SMC is responsible for compliance within non-certified communities and township road right of way. The Lake County Watershed Development Ordinance covers the criteria that are required to meet the applicable development standards and practices.

The LCPBDD and/or Lake County SMC follows an inspection and violation notification procedure to ensure compliance with the approved plan. Applicants that hydrologically disturb greater than 1-acre are also required to seek coverage under the statewide NPDES ILR10 General Construction Permit by filing a Notice of Intent (NOI) with IEPA and copying the County.

Libertyville Township is currently a non-Certified Community with respect to the provisions of the Lake County Watershed Development Ordinance. LCPBDD is responsible for the review, permitting, inspection and enforcement of the provisions of the ordinance. The Township assists in achieving compliance with these ordinances.

A. Regulatory Program

Applicants submit the completed forms, applications and supporting documentation LCPBDD for review and comment. After all applicable provisions have been addressed, a permit is issued. Each permit lists any additional conditions that are applicable to the development. Ordinance provisions include, but are not limited to, the following:

- Grading, soil erosion and sediment control plan,
- Established inspection duties for the applicant and procedures for inspections,
- Record keeping and reporting procedures,
- Security deposits to ensure faithful performance,
- Enforcement measures to achieve compliance, and
- A one year warranty period, for applicable developments.

As part of the permit review process, applicants that hydrologically disturb greater than 1-acre are also required to seek coverage under the statewide construction general permit by filing a Notice of Intent (NOI) with IEPA. A copy of the NOI must be submitted to the LCPBDD and Township prior to commencement of any site work, including demolition. During construction, applicants are required to submit to IEPA Incidence of Noncompliance (ION) forms, as necessary. After the site is substantially stabilized, the applicant is required to submit a Notice of Termination (NOT) to the IEPA.

B. Responsible Parties

i. Applicant

The applicant is ultimately responsible for ensuring compliant soil erosion and sediment control measures on-site during construction. General contractors, sub-contractors and other hired employees of the applicant can assist the applicant in maintaining a compliant site; however the applicant remains the responsible party.

ii. Planning, Building, and Development Director

The LCPBDD Director shall be responsible for enforcing the Watershed Development Ordinance, unless otherwise specifically stated. Further, it is his charge to enforce all laws and ordinances relating to building, electricity, plumbing, subdivision and zoning in connection with construction, repair, alteration, removal, use, occupancy and maintenance of all buildings and structures and the use of streets or parkways in connection therewith. It is also his responsibility to make or cause to be made all inspections needed for that purpose.

iii. Township Inspectors

Libertyville Township relies on Lake County to make necessary inspections. The Township assists Lake County staff as needed.

C. Minimum Construction Site Practices

Minimum construction site practices required include the following:

- The smallest practical area of land shall be exposed at any given time during development.
- Such minimum area exposure shall be kept to as short a duration of time as is practical.
- Temporary vegetation or, where appropriate, mulching or other nonviable cover shall be used to protect areas exposed during development.
- Sediment basins, debris basins, desilting basins or silt traps shall be installed and maintained to remove sediment from runoff waters from land undergoing development.
- Provision shall be made to effectively accommodate the increased runoff caused by changed soil and surface conditions during and after development.
- Permanent, final plant covering or structures shall be installed as soon as possible.
- The plan of development shall relate to the topography and soils of the site so the potential for erosion is minimized.
- Natural plant covering shall be retained and protected so far as is consistent with developing the site.

- The natural course of drainage and seepage of surface water shall not be altered so as to increase the natural flow of surface water onto adjoining properties at a rate beyond an increase that is incidental to the development of any single property. In the case of redevelopment sufficient measures shall be taken to ensure that the existing release rate does not increase. In all cases existing watershed boundaries shall not be altered due to development.

D. Site Plan Review

To build in Libertyville Township, the entity seeking to do so must submit the proper applications and permit fees to the LCPBDD and/or Lake County Health Department. The following procedure for site plan review is undertaken and enforced by Lake County officials in accordance with the Unified Development Ordinance:

Sec. 8.1.5.2, Application

Applications for Site Development Permits shall be made in-person in the LCPBDD.

Sec. 8.1.5.3, Staff Review and Action

LCPBDD staff shall review each Site Development Permit application and, within 30 days of receipt of a complete application, act to approve, approve with conditions or deny the application. Failure of the LCPBDD Director to act within the 30-day period shall constitute a denial of the application, unless the applicant agrees to an extension of time. If the applicant fails to provide information requested by the LCPBDD Director within 3 months of the request, the application shall be void, unless such time is extended by the LCPBDD Director.

8.1.5.4, Other Approvals Required; Permit Issuance Before Final Approval

a. No Site Development Permit shall be issued by the LCPBDD Director unless the development, including but not limited to subdivisions and planned unit developments, has been approved by all applicable county agencies

b. A request for commencement of grading activities may be made and the proposed grading activity may commence with written approval from the LCPBDD Director. The written approval will be in the form of a permit. The permit application will state the conditions and limitations of the proposed grading activities. No permit may be issued and no development activity may occur in a regulatory floodplain, wetland or in those portions of the site for which this Ordinance requires that state and federal permits be issued, except for Illinois Environmental Protection Agency sewer and water extension permits.

E. Site Inspection Procedures

In Libertyville Township, the following procedure is undertaken and enforced by LCPBDD officials in accordance with the Unified Development Ordinance.

Sec. 8.1.5.6, Inspections

The Planning, Building and Development Director may inspect site development at any stage in the construction process. For major developments, the LCPBDD shall conduct site inspections, and a minimum, at the end of the construction stages a through g listed below. Construction plans approved by the LCPBDD shall be maintained at the site during progress of the work. In order to obtain inspection in accordance with the following schedule, the permittee shall notify the LCPBDD at least 2 full working days before the said inspection is to be made. Recommended inspection intervals are listed below:

a. Upon completion of installation of sediment and runoff control measures (including perimeter controls and diversions), prior to proceeding with any other earth disturbance or grading,
b. After stripping and clearing,
c. After rough grading,
d. After final grading,
e. After seeding and landscaping deadlines,
f. After every 7 calendar days or storm even with greater than 0.5 inches of rainfall
g. After final stabilization and landscaping, prior to removal of sediment controls.
h. If a wetland mitigation area is constructed as part of the watershed development permit, it is recommended that a Certified Wetland Specialist at a minimum perform the following inspection:
   (1) Inspection by a certified Wetland Specialist after mitigation areas have been final graded and before seeding or plant installation.
   (2) Inspection by a Certified Wetland Specialist after plant installation.
   (3) At a minimum, annual inspections by a Certified Wetland Specialist during the 5-year monitoring period for wetland mitigation areas.

F. Complaints

The Township frequently receives phone calls regarding a development during the review and construction phases. Both site design and construction related phone calls are directed to the LCPBDD and/or Township Highway Commissioner.

G. Performance Guarantees

To build in Libertyville Township, the entity seeking to do so must disburse permit fees to the LCPBDD. Libertyville Township Highway Department also assesses a fee for a Road Permit in case of incidentals. If no damage to Township roadways occurs, then the fee is returned to the permittee. In Libertyville Township, the following procedure for performance guarantees is undertaken and enforced by the LCPBDD in accordance with the Unified Development Ordinance:

Sec. 8.1.5.5, Financial Assurances

a. For nonresidential development that meets the criteria of 8.1.2.6 of the UDO and for any development where the planning, Building and Development Director requires, the applicant shall file with the county a performance assurance satisfactory to the Lake County State's Attorney for an amount equal to one 130 percent of the total cost of improvements including the cost of landscaping, soil erosion and sediment control measures and all engineering costs and inspection fees, based on the consulting engineer's estimate of cost. Government entities such as townships, schools, park districts, etc., are exempt from this requirement.

b. A maintenance assurance if required by the county, shall be deposited wit the county prior to the release of any performance assurance held by the county for the time period and in the amount specified by the Planning, Building and Development Director to cover the cost of failure or repair of improvements installed on the site, including landscaping, wetland restoration/mitigation and soil erosion and sediment control measures.
c. A letter certifying the as-built conditions shall be submitted by the consulting engineer prior to the release of any performance assurance. In addition, the Planning, Building and Development Director may require deed restriction, covenants, easements or any other documents to ensure proper enforcement of the Site Development Regulations.
d. The assurance may be drawn at any time the permittee fails to comply with the requirements of this or any other county ordinance or with the approved Site Development plans or with the approved time frame for site Development activities.

H. Violation Notification Procedures

In Libertyville Township, Lake County is responsible for making inspections necessary to determine any violations. The Libertyville Township Highway Commissioner assists Lake County in reporting possible illegal activity and with inspections near storm sewers or drainage ditches. The following procedure for violation notification is undertaken and enforced by Lake County in accordance with the Unified Development Ordinance:

Sec. 13.2, Violations

Any violation of the UDO including, but not limited to the following, shall be subject to the remedies and penalties provided for in the UDO.

a. To use land or buildings in any way not consistent with the requirements of the UDO;
b. To erect a building or other structure in any way not consistent with the requirements of the UDO;
c. To engage in the development or subdivision of land in any way not consistent with the requirements of Article 10 of the UDO.
d. To transfer title to any lots or parts of a development unless the land development plan or subdivision has received all approvals required under Article 10 of the UDO and an approved plan or plat, if required, has been filed in the appropriate county office.
e. To submit for recording with a county office any subdivision plat, land division or other land development plan that has not been approved in accordance with the requirements of Article 10 of the UDO or that does not qualify for an exemption under the Plat Act;
f. To install or use a sign in any way not consistent with the requirements of Sec. 9.9 of the UDO
g. To engage in the use of a building or land, the use or installation of a sign, the subdivision or development of land or an other activity requiring one or more permits or approvals under the UDO without obtaining all such required permits or approvals;
h. To engage in the use of a building or land, the use or installation of a sign the subdivision or development of land or any other activity requiring one or more permits under the UDO in any way inconsistent with any such permit or approval or any conditions imposed thereon;
i. To violate the terms of any permit or approval granted under the UDO or any condition imposed on such permit or approval;
j. To obscure, obstruct or destroy any notice required to be posted or otherwise given under the UDO;
k. To violate any lawful order issued by any person or entity under the UDO; or

l. To continue any violation as defined above, with each week of continued violation to be considered a separate violation for purposes of computing cumulative civil or criminal penalties.

Sec. 13.3, Continuing Violations

Each week that a violation remains uncorrected after receiving notice of the violation from the county shall constitute a separate violation of the UDO.

Section 13.4, Remedies and Enforcement Powers, states that Lake County has the power to withhold permits, issue permits approved with conditions, and revoke permits as deemed necessary to correct a violation.

Sec 13.4.4, Stop Work

With or without revoking permits, the LCPBDD may stop work on any building or structure on any land on which there is an uncorrected violation of a provision of the UDO or of a permit or other form of authorization issued hereunder.

Sec. 13.4.7, Injunctive Relief

The county may seek an injunction or other equitable relief in court to stop any violation of the UDO or of a permit, certificate or other form of authorization granted hereunder.

Sec. 134.9, Abatement

The county may seek a court order in the nature of mandamus, abatement, injunction or other action or proceeding to abate or remove a violation or to otherwise restore the premises in question to the condition in which they existed prior to the violation.

For County permits, violation procedures are established and enforced by the County. The Township will support County efforts to achieve site compliance. These efforts may include withholding building or other local permits or providing police support on enforcing stop work orders.

Sec 13.4.10, Penalties

The county may seek such other penalties as are provided by Illinois law.

I. BMP Reference Information

Reference information includes, but is not limited to, the following sources:

- Native Plant Guide
- Lake County SMC's Technical Reference Manual
- Illinois Urban Manual
- SMC's soil erosion and sediment checklist, soil erosion and sediment control notes and typical construction sequencing

- Chicago Metropolitan Agency for Planning (previously Northeastern Illinois Planning Commission) Course Manuals
- IDOT manuals
- Center for Watershed Protection documents
- IEPA and USEPA publications.

J. Construction Site Waste Control

In Libertyville Township, the following procedure for waste control is undertaken and enforced by Lake County in accordance with the UDO.

Sec 4.2.2.4.c, Restricted Activities Within Protected Areas

The storage of trash and the dumping of liquids shall be prohibited within protected areas.

K. Development Tracking

Either SMC or LCPBDD maintain records of current construction projects and associated permits and inspections under their jurisdiction. The Township maintains a log of all construction projects in which they issue an access permit.

L. Pavement Projects

Pavement resurfacing and maintenance projects are determined through pavement evaluation studies that take place approximately every 5 years. Project work shall follow IDOT Standard Specifications and applicable provisions of the WDO. At a minimum, protect drainage structures with inlet filter bags during construction activities.

3.5 Post Construction Runoff Control

Post Construction Runoff Control in Libertyville Township is regulated by Lake County in accordance with the UDO. The UDO contains extensive policies and procedures for regulating design and construction activities for protecting the County's receiving waters. The design and construction site practices selected and implemented by the responsible party for a given site are expected to meet BMP measures described in IEPA's Program recommendations. All proposed permanent storm water treatment practices must be reviewed and approved by the LCPBDD.

Regulatory Program

The UDO includes numerous performance standards on grading, storm water and soil erosion/sediment control that must be met for all parties undertaking construction. LCPBDD is responsible for ensuring that development designs for Libertyville Township meet all applicable performance standards required in their respective ordinances. Long term operation and maintenance plans are required for development in accordance with the UDO. These documents must be recorded against the property.

A. Long Term Operation and Maintenance

The SWMP includes two long term maintenance plans. These sample maintenance plans are included in Appendix 5.12.

- The first plan is the recommended plan for existing detention and storm water management facilities, whether publicly or privately maintained. The intent of this sample plan is to provide guidance for the maintenance of facilities that do not have an approved plan. If an existing facility already has an adequate plan, this document would supersede the sample plan.
- The second plan is provided to applicants during the permit review period. This plan should be reviewed and enhanced by the applicant to reflect the sites specific design. Receipt of the signed and recorded maintenance plan is required prior to issuance of the permit or listed as a permit condition. Lake County is responsible for ensuring that the new developments provide an adequate maintenance plan during the permit review process.

B. Site Inspections

The Township's inspection procedure for site inspections related to construction activities are discussed in detail in Section 3.4 and includes information pertaining to post construction inspections. The Township may perform additional inspections based on an observed violation or citizen complaint.

This section focuses on post-construction inspections of previously developed sites, streambanks/shorelines, streambeds, and detention / retention ponds.

i. Previously Developed Sites

The Township attempts to inspect approximately 20% of all existing properties with storm water management facilities a year; resulting in a re-occurrence inspection interval of every 5-years.

- Previously accepted developments are inspected with respect to the approved maintenance plan. A letter indicating the maintenance activity highlights, deficiencies or additional enhancements to the plan should be provided to the responsible party.

- For older developments that do not have a maintenance plan, the Township inspects facilities with respect to the sample existing facilities maintenance plan. A letter indicating the maintenance activity highlights and deficiencies should be provided to the responsible party. The sample maintenance plan is provided with the letter and the responsible party is encouraged to implement an annual maintenance program.

ii. Streambanks and Shorelines

Annually inspect 20% receiving water streambanks/streambeds and detention basin shorelines in the spring and/or fall pending weather conditions. Observed erosion, seeding/re-seeding or slope stabilization needs are documented. Documented deficiencies should be reported to the Township Supervisor who evaluates and determines appropriate remediation activities. Remedial actions might include notifying the property owner or including maintenance activities in the Township's work program.

New developments are required to provide a maintenance plan for constructed detention/retention facilities. The recorded maintenance plan for developments permitted through Lake County should be used if available. Typical BMP for maintenance of these areas are similar to those for a construction site. SMC's streambank/shoreline stabilization manual is used as a starting point in choosing the appropriate BMP for remediation activities.

3.6 Pollution Prevention and Good Housekeeping

Libertyville Township is responsible for the care and upkeep of the general facilities and municipal roads. The Township employs contractors to perform specific activities. This section describes how the Township complies with Permit requirements by incorporating pollution prevention and good housekeeping storm water quality management into day-to-day Township operations. The Township provides ongoing education and training to ensure that all of its employees and contractors have the knowledge and skills necessary to perform their functions effectively and efficiently.

A. Inspection and Maintenance Program

The following outlines areas/items that require inspection and maintenance, as well as their recommended inspection frequency. It further details recommended maintenance activities and subsequent tracking procedures for each of the tasks. The following chapters describe areas/items that require inspection and their recommended inspection frequency. It further details recommended maintenance activities and subsequent tracking procedures for each of the tasks.

i. Drainageways

Drainageways include any river, stream, creek, brook, branch, natural or artificial depression, ponded area, lakes, flowage, slough, ditch, conduit, culvert, gully, ravine, swale, wash, or natural or man-made drainageway, in or into which surface or groundwater flows, either perennially or intermittently. Primary drainageways include Bull Creek, Des Plaines River and Skokie River.. Minor drainageways include roadside and sideyard swales, overland flow paths, pond outlets, etc.

Pond Outlets

The Detention/Retention Pond Checklist (Appendix 5.8) is used to determine inspection locations. Structures are added to the checklist after new developments are approved and accepted. Locations identified on the checklists are inspected both once every five years on a rotating basis, with approximately 20% inspected each year. Observed obstructions are noted and reported to the Township Highway Commissioner. During inspections, the water level is evaluated according to the following classifications:

Flood Height Classification

- Low – Normal Water Level (NWL)
- Medium – NWL to top of grate
- High – Top of Grate and above

Condition

- Good – outlet is unimpaired, not blocked
- Fair –outlet obstructions observed although outlet is discharging
- Poor – outlet is blocked or obstructed

Comments
Note structural defects or other observances.

Inspections continue until water level recedes to mid-pipe (Medium classification).
If maintenance work is required for a pipe culvert within the Township limits but in the State of Illinois right of way, the State's Maintenance Facility is notified. Similarly, Lake County is contacted for work within their right of way.

Driveway Culverts

Maintenance and replacement of driveway culverts is the property owner's responsibility. A minimum 12" diameter culvert is required per the UDO. Permits are required for culvert replacement; a soil erosion and sediment control plan may be required as part of the permit. The Township Highway Commissioner inspects the culvert when it is set to grade and prior to backfilling.

Catch Basins

Catch basin locations are identified on the Storm Sewer Atlas. The Township's goal is to annually clean approximately 20% of all catch basins, to a minimum sump depth of 2 feet. Spoil waste obtained from catch basin cleaning is disposed of in the spoil waste area at the Lake county Complex. Locations of cleaned catch basins and its condition, as well as the amount of material removed, are logged into the tracking database.

Catch basins found to have structural deficiencies are reported to the Township Highway Commissioner. Necessary remedial actions are completed by a contractor or incorporated into a capital project.

Storm Sewers

If catch basin debris is at the invert elevation of the downstream pipe (i.e. has completely filled the sump area), then the downstream storm sewer system is also cleaned. Likewise, if a water main break or other heavy flow occurs that flushes potential illicit discharges into the storm sewer system, the receiving storm sewer lines are inspected and then cleaned as necessary.

Other Inlet and Grate Cleaning

Cleaning of these areas occurs on an as-needed basis (e.g. complaints, incidences, standing water, etc). Spoil waste that is obtained from inlet and grate cleaning or vacuuming is disposed of at a proper disposal location.

Swales and Overland Flow Paths

Right-of-way Drainage Swales:
The Township Highway Commissioner documents observed or reported erosion or sediment accumulation. Areas of significant concern are incorporated into a maintenance program.

Privately Owned Drainage Swales (side/rear yard):

Observed or reported erosion or sediment accumulation in privately owned swales are referred to the Township Highway Commissioner for follow-up. The Township Highway Commissioner notifies the property owner on an as needed basis for appropriate remediation required.

ii. Landscape Maintenance

The Township maintains care and upkeep of its general facilities, municipal roads, and other public areas. Municipal staff is responsible for Litter and Debris control described in Chapter 3.6.A below. The Township annually selects and contracts with a landscape contractor. The landscape contractor is responsible for the remainder of the landscape maintenance program. The Township is responsible for ensuring that their landscape contractors are provided with training and/or other information to ensure that they adhere to the Township's SWMP.

Property owners contract individually with companies for all garbage and recycling needs. In addition to garbage and recycling, these companies also pick up yard waste and bulk items (couches, desks, etc.).

Private Residence Yard Waste

Yard waste and leaves from private residences are collected through contract. Yard waste is collected weekly throughout the growing season. Leaf collection typically starts in October and runs for approximately six weeks.

Fertilizers

The annual landscape contractor is required to be a licensed applicator for fertilizers. Weed killer and fertilizers are typically scheduled two and four times per season, respectively. Contractor specifications incorporate low impact products. The use of pesticides and fertilizers shall be managed in a way that minimizes the volume of storm water runoff and pollutants.

iii. Snow Removal and Ice Control

Libertyville Township provides snow plowing on unincorporated Township roadways. During snow removal and ice control activities, salt, de-icing chemicals, abrasives and snow melt may pollute storm water runoff. To address these potential pollutants, the following procedures for the "winter season" (November 1 through May 1) are implemented.

Roadway Ice Control

Use the minimal amount of salt, de-icing chemicals and additives necessary for effective control. Prior to November 1, preparation work to obtain seasonal readiness is completed. These tasks

include: inspecting and re-conditioning of spreaders and spinners, install these items onto snow removal vehicles, performing test operations, calibrating distribution rates per National Salt Institution Application Guidelines, and conducting better driver training. The completion of these preparatory tasks helps to ensure that only the necessary level of salt is applied.

Once the ambient temperature is below 20-degrees Fahrenheit, Libertyville Township Highway Commissioner considers the additional use of Calcium Chloride to improve the efficiency of snow melting efforts. If deemed necessary, it is applied to the salt material prior to spreading, at a rate of 7-Gal/CY; a computer controls the application rate. The Calcium Chloride dispensing system (including pump and sprayers) is primed for operation monthly to ensure proper working conditions.

Snow Plowing

Snow plowing activities direct snow off the pavement and onto the parkways. This reduces the amount of salt, chemical additives, abrasives or other pollutants that go directly into the storm sewer system. Snow blowing, plowing or dumping into drainageways is not allowed.

iv. Vehicle and Equipment Operations

All vehicle and equipment operations including fueling and maintenance are performed at the Lake County Complex.

v. Animal Nuisance Control

The local police department or Lake County Animal Control, upon receiving notification, collects "road kill" from right-of-way areas. The carcasses are disposed of in the garbage dumpsters.

B. Spill Response Plan

Spill prevention and control procedures are implemented wherever non-hazardous chemicals and/or hazardous substances are stored or used. These procedures and practices are implemented to prevent and control spills in a manner that minimizes or prevents discharge to the storm water management system and receiving waters. Libertyville Township relies on the local fire department for assistance with spill response. The following general guidelines are implemented, when cleanup activities and safety are not compromised, regardless of the location of the spill:

- Cover and protect spills from storm water run-on and rainfall, until they are removed,
- Dry cleanup methods are used when ever possible,
- Dispose of used cleanup materials, contaminated materials and recovered spill material in accordance with the Hazardous Waste Management practices or the Solid Waste Management practices of this plan,
- Contaminated water used for cleaning and decontamination shall not be allowed to enter the storm water management system,
- Keep waste storage areas clean, well organized and equipped with appropriate cleanup supplies, and

- Maintain perimeter controls, containment structures, covers and liners to ensure proper function.

i. Non-Hazardous Spills/Dumping

Non-hazardous spills typically consist of an illicit discharge of household material(s) into the street or storm water management system. Upon notification or observance of a non-hazardous illicit discharge, the Township Supervisor contacts the Police Department for assistance with the following procedure:

- Sand bag the receiving inlet to prevent additional discharge into the storm sewer system, as necessary. It may be necessary to sand bag the next downstream inlet.
- Check structures (immediate and downstream). If possible, materials are vacuumed out. The structure(s) are then jetted to dilute and flush the remaining unrecoverable illicit discharge.
- Clean up may consist of applying "Oil Dry" or sand and then sweeping up the remnant material.
- After containment and cleanup activities have been performed, the on-site personnel fills out the Storm Water Pollution Flier (Appendix 5.11) and distributes to adjoining residences/businesses. In residential areas, the hanger should be provided to residences on both sides of the spill and on both sides of the street.
- On-site personnel document the location, type of spill and action taken on the Indirect Illicit Discharge Tracking Form (Appendix 5.11).
- The on-site personnel provide the tracking form to their supervisor. The supervisor, or his designee, takes the information from the form and transfers it to the Indirect Illicit Discharge Summary Form (Appendix 5.11).
- If a person is observed causing an illicit discharge, the Township Supervisor is notified and appropriate citations issued by the Police Department.

ii. Hazardous Spills

Upon notification or observance of a hazardous illicit discharge, the Township Supervisor follows the following procedure:

- Call 911, explain the incident. The Fire Department responds,
- Township Police provide emergency traffic control, as necessary,
- The Fire Department evaluates the situation and applies "No Flash" or "Oil Dry" as necessary,
- The Fire Department's existing emergency response procedure, for hazardous spill containment clean-up activities, is followed,
- Township Supervisor documents the location, type of spill and action taken on the Indirect Illicit Discharge Tracking Form (Appendix 5.11), and,
- The information is transferred to the Indirect Illicit Discharge Summary Form (Appendix 5.11).

C. Employee Training

Libertyville Township will provide education and training to all of its employees to ensure that they have the knowledge and skills necessary to perform their functions effectively and efficiently. The purpose of the Employee Storm Water Training Program is to teach appropriate employees about the following:

- Storm water characteristics and water quality issues;
- The roles and responsibilities of the Township regarding implementation of the SWMP to consistently achieve permit compliance;
- Activities and practices that are, or could be sources of storm water pollution and non-storm water discharges; and,
- How to use the SWMP and available guidance materials to select and implement best management practices.

iii. Training Approach

Employees are encouraged to attend all relevant training sessions offered by County Agencies and other entities on topics related to the goals/objectives of the SWMP. Additionally, the Township will develop employee training programs with curricula and materials tailored to specific functional groups. The materials focus on storm water pollution prevention measures and practices involved in routine activities carried out by the various functional groups. Training materials primarily focus on revisions to the various programs (that were in place prior to the acceptance of the SWMP).

iv. Training Schedule and Frequency

The initial training program will be offered within 6 months of the acceptance of the SWMP. Digital and hard copies of the training materials will be kept and shared with applicable new employees as part of their job introduction. Revisions/enhancements to the SWMP will be approved by the Township Supervisor, or designee and then shared with applicable employees. The Township Supervisor, or designee will monitor the potential need for overall refresher material distributions and offer additional training as necessary.

Employees are encouraged to share information with other employees via email or other formats. Information may include:

- Updates and news which might enhance pollution control activities,
- Feedback from field implementation of best management practices, or
- New product information.

Section 4: Program and Performance Monitoring, Evaluation and Reporting

The SWMP represents an organized approach to achieving compliance with the storm water expectations of the NPDES Phase II program for both private and public activities within the Township. Land development, redevelopment and transportation improvement projects were required to comply with the provisions of the respective County Ordinances prior acceptance of the SWMP. Additionally, the Township had numerous written and unwritten procedures for various tasks. This SWMP documents and organizes previously existing procedures and incorporates new ideas to create one cohesive program addressing pre-development, construction, post-development activities and Township operations.

This chapter describes how the Township will monitor and evaluate the proposed storm water pollution prevention plan based on the above stated objective. As part of the Storm Water Management Program, the Township:

- Reviews its activities,
- Inspects its facilities,
- Oversees, guides, and trains its personnel, and
- Evaluates the allocation of resources available to implement storm water quality efforts.

This chapter describes how program monitoring, evaluation and reporting will be accomplished.

A. Performance Milestones

Previously established ordinances and programs implement many of the anticipated tasks. The following schedule describes general performance expectations.

- Within 6 months following the acceptance of the SWMP, applicable employees will receive training regarding the implementation of the SWMP.
- Within 1 year following the acceptance of the SWMP, program enhancement items within Chapter 3 will be implemented. Refer to Chapter 2.1 for a description of tasks associated with the implementation of the SWMP.
- Within 3 years following the acceptance of the SWMP, the Outfall Inspection Procedure will be completed for all pipes identified, during the pre-screening efforts, as having dry weather flow.
- Within 5 years following the acceptance of the SWMP, tracing and removal procedures will be completed for all pipes identified, during the Outfall Inspection Procedure, as contributing illicit discharges to receiving waters.

B. Program Monitoring and Research

The 2009 IEPA NPDES ILR40 General Permit requires upstream and downstream monitoring for water quality. Libertyville Township will obtain water quality samples on major rivers/creek at locations upstream downstream of the MS4 discharge. The samples will be sent to a private lab for testing. The following analyses are generally performed: pH, Dissolved Oxygen, Conductivity, Ammonia, Chloride, Fluoride, Biochemical Oxygen Demand (5 day), Phenolics, Total Phosphorus, Total Dissolved Solids, Total Kjeldahl Nitrogen, Total Suspended Solids and Metals (Copper and Potassium). Results are summarized and reviewed to detect changes between upstream and downstream sampling points.

The Township Supervisor will monitor research conducted by others regarding the effectiveness of various alternative storm water practices, procedures and technologies. The Township will continue to seek innovative storm water practices and technologies. Information and guidance obtained from local agencies will be incorporated into this SWMP as practical. This information will be used to provide insight into how the program may need to evolve.

C. Program Evaluation

The primary mechanism for evaluating the program and ensuring that the field staff has adequate knowledge is supervision by responsible managers. Management support tasks include observing and evaluating design, construction and field personnel as they implement the requirements of the SWMP on both municipal and private projects, and maintenance personnel as they conduct their assigned activities. These responsibilities were outlined in detail in Chapter 2: Program Management.

The following types of questions/answers are discussed annually.

- Are proper storm water management practices integrated into planning, designing and constructing both (the Township) and private projects?
- Are efforts to incorporate storm water practices into maintenance activities effective and efficient?
- Is the training program sufficient?
- Is the SWMP sufficient?
- Are the procedures for implementing the SWMP adequate?