



Town of Ocean Ridge

MS4 Permit No. FLS000018-004

Part V. – Monitoring Requirements; Sub-part A. – Assessment Program

Assessment Program Objective

The purpose of this assessment program is to provide information for the Town of Ocean Ridge to determine the overall effectiveness of its Stormwater Management Program (SWMP) in reducing stormwater pollutant loadings from its Municipal Separate Storm Sewer System (MS4) to receiving water bodies.

Assessment Program Components

As required by the MS4 Permit, the following parts make up this Assessment Program:

- A. **A Water Quality Monitoring Plan** – The water quality monitoring plan is intended to identify local sources where urban stormwater is adversely affecting surface water resources
- B. **A Pollutant Loading Estimate Plan** – The pollutant loading exercise is to estimate the Pollutant Loading from the MS4 contributing area, based on land uses and BMPs
- C. **An Evaluation and Response Plan** – The response plan is the plan of action to be taken based on the results from A. and B. and will be used to:
 1. evaluate trends in pollutants loading from the MS4
 2. evaluate trends in water quality (of discharge from the MS4)
 3. identify portions of the MS4 to be targeted for loading reduction/corrective action

Part A – Water Quality Monitoring Plan

Currently, the joint NPDES program in Palm Beach County collects ambient water quality data at several monitoring sites based on the location of major outfalls and TMDL's within the County. For the Water Quality Monitoring Plan, the Town of Ocean Ridge is proposing to use the ambient water quality data provided by the joint program from site LWL18.

Monitoring Locations

For the assessment program, the Town has selected the monitoring station located on Ocean Avenue, LWL18, which collects data for the joint program. The joint program offers one (1) sampling location within Town limits as shown in Figure 1. The Town has chosen to use LWL18 for the Assessment Program as it is assumed that when the tide is running out of the Lake Worth Lagoon, the water will run north towards LWL18. Thus, this sampling site should provide more accurate data as to any stormwater pollutants specific to the Town of Ocean Ridge's MS4. The following table identifies this monitoring station, along with relevant information about the location.



Figure 1. LWL18 Monitoring Station



MS4 Monitoring Stations Table

Monitoring Station Number	Location Description	Latitude/ Longitude	Receiving Water Body	Verified Impaired?	Adopted TMDL?
LWL18	This former DEP station (28010771) is located near the Ocean Avenue Causeway in the City of Boynton Beach, north of the Causeway, West of the ICWW and East of Mangrove Park and Boynton Beach Blvd.	263143.99 / 800313.2	Lake Worth Lagoon (Southern Segment)	No	No

Sampling Method

Palm Beach County Environmental Resource Management (ERM) performs the sampling at monitoring station LWL18. This site is sampled and initially analyzed in-situ by ERM staff using a multi-parameter water quality-monitoring instrument. Water samples are collected, preserved, and stored according to DEP's Standard Operating Procedures. Quality assurance / quality control measures include pre-cleaned equipment blanks, field-cleaned equipment blanks, field spikes, and the collection of duplicate samples.

Further analysis of samples from all ERM-monitored sites is conducted by an independent laboratory under contract with ERM.

Monitoring Parameters

The parameters samples at monitoring station LWL18 are shown in the table below. Since nutrients appear to be a major concern for impairments in water bodies in the State of Florida, total nitrogen and total phosphorous will be the parameters used by the Town for their Assessment Program. Trend graphs and historical data will be evaluated for this site.



MS4 Monitoring Parameters and Sampling Table

Monitoring Station #	Monitoring Parameters	Type of Monitoring	Collection Method	Sampling Frequency
LWL18	Arsenic	Ambient Water Quality	Grab Samples	Quarterly
LWL18	Cadmium	Ambient Water Quality	Grab Samples	Quarterly
LWL18	Chlorophyll-a	Ambient Water Quality	Grab Samples	Monthly
LWL18	Copper	Ambient Water Quality	Grab Samples	Quarterly
LWL18	Dissolved Oxygen	Ambient Water Quality	Grab Samples	Monthly
LWL18	Lead	Ambient Water Quality	Grab Samples	Quarterly
LWL18	Nitrogen, Ammonia	Ambient Water Quality	Grab Samples	Monthly
LWL18	Nitrogen, Nitrate-Nitrate	Ambient Water Quality	Grab Samples	Monthly
LWL18	Nitrogen, Total	Ambient Water Quality	Grab Samples	Monthly
LWL18	Phosphorous, Orthophosphate	Ambient Water Quality	Grab Samples	Monthly
LWL18	Phosphorous, Total Kjeldahl	Ambient Water Quality	Grab Samples	Monthly
LWL18	Salinity	Ambient Water Quality	Grab Samples	Monthly
LWL18	Specific Conductivity	Ambient Water Quality	Grab Samples	Monthly
LWL18	Temperature	Ambient Water Quality	Grab Samples	Monthly
LWL18	Turbidity	Ambient Water Quality	Grab Samples	Monthly
LWL18	Zinc	Ambient Water Quality	Grab Samples	Quarterly

The location of the monitoring station to be used in this Assessment Program is shown in Figure 2 below.



Figure 1. LWL18 Monitoring Station



Part B – Pollutant Loading Estimate Plan

The Palm Beach County MS4 permittee group will be developing pollutant loading estimates during the 3rd year of this permit cycle, using the SIMPLE protocol. In order to provide each permittee with pollutant loading estimates that reflect their respective MS4 areas, the group effort will provide the loading estimates “by MS4,” in addition to “by watershed” (as was done in past permit cycles). Prior to Year 3, the Town of Ocean Ridge’s will participate in this effort by reviewing its MS4 contributing areas to each receiving water, and will provide updated information on the area extents and the land uses located therein. In addition, any water quality best management practices (BMPs) that are in place within the MS4 area, will be identified, along with their geospatial extent. Information on the pollutant load estimates and event mean concentration values for various land uses is reported in the group’s Joint Annual Report (Year 3).

The group’s estimated pollutant loading results will be provided to each permittee for use in this assessment effort.

To determine a practical estimate of the current pollutant loading, the Town of Ocean Ridge will use the land use based pollutant loading estimates provided by the group as the starting point from which pollutant load reductions will be subtracted. The pollutant load reductions will be estimated based on the BMPs that have been put in place within the MS4 contributing areas. In this way, when future estimates are done, and potentially additional reduction measures or BMPs are put in place, the estimated pollutant loading will reflect the reductions.

Part C – Evaluation and Response Plan

Once the Assessment Program is approved by FDEP, presumably sometime during Year 2 of the permit cycle, Town of Ocean Ridge will extract sampling information for site LWL18 from prior joint annual reports for use moving forward. The first annual report on the Assessment Program will be concurrent with the Year 3 Annual Report Form (March 2020).

Water quality monitoring results will be available annually, and the most recent year’s data will be compared to that which came before, with respect to sampling site LWL18, which monitors the Lake Worth Lagoon just north of the Town’s MS4. A summary of the water quality monitoring data, with respect to our MS4 will be developed and included in Assessment Program Annual Report.

The pollutant loading estimates developed during Year 3 of the permit cycle will be reviewed and adjusted based on the Town’s Stormwater Management Plan (catch basin pollution control, public education, etc.), and if possible, compared with previous permit cycles, with respect to our MS4. A discussion of the comparison will be included in the Assessment Program Annual Report.

Receiving water trending reports/graphs for various parameters, as presented in the Joint Annual Report, will be reviewed, and a discussion will be included in Town of Ocean Ridge’s annual Assessment Report.

Based on the data from the water quality monitoring and the pollutant loading estimates, an effort will be made to determine if one portion of the MS4 should be targeted for additional loading reduction efforts, or additional pollutant control measures.