Chapter 3

Milestone 3
The Troy Brook Regional Stormwater Management Plan

Drainage Area Specific Water Quality, Quantity and Recharge Objectives

Completed by the
Rutgers Cooperative Extension
Water Resources Program
Under the guidance of Christopher C. Obropta, Ph.D., P.E.

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NEW JERSEY AGRICULTURAL EXPERIMENT STATION
RUTGERS COOPERATIVE RESEARCH & EXTENSION

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Introduction

The third milestone of the Troy Brook Regional Stormwater Management Plan, regulated by N.J.A.C. 7:8-3.5, is to set "drainage area-specific water quality, groundwater recharge and water quantity objectives" that are consistent with the goals of stormwater management planning at N.J.A.C. 7:8-2.3 (other planning agencies, commissions and governmental entities), and address each of the stormwater-related pollutant sources and pollutants ranked under N.J.A.C. 7:8-3.4 (Milestone 2, or the Characterization and Assessment).

The objectives stated here will address the elimination, reduction or minimization of stormwater-related impacts associated with new or existing land uses. The objectives do take into consideration environmental, social, and economic factors.

The objectives for major development will provide, at a minimum, the protection that would be achieved through the application of N.J.A.C. 7:8-5, Design and Performance Standards for Stormwater Management Measures. Reference to the applicable Design and Performance Standard from N.J.A.C. 7:8-5 will be noted along with the drainage area-specific design and performance standards that will constitute Milestone 4 of the Troy Brook Regional Stormwater Management Plan.

If a TMDL is established pursuant to N.J.A.C. 7:15 for a waterbody or waterbody segment in the Troy Brook Regional Stormwater Management Planning Area, drainage area-specific objectives will incorporate the planning established in the TMDL for stormwater sources of pollution. Waterbodies or segments of waterbodies that are listed on the Integrated List of Impaired Waterbodies, requiring compliance with the Clean Water Act for one or more designated uses, have been included in the objectives listed here.

The tasks that will fulfill the Troy Brook Regional Stormwater Management Plan requirement for Milestone 2 are outlined in Table 1.

Table 1: Milestone 2 of the Troy Brook Regional Stormwater Management Plan task requiement

TASK
Task 1: Identification of water quality objectives
Task 2: Identification of water quantity objectives
Task 3: Identification of area groundwater recharge objectives
Task 4: Identification of other SW-related objectives, if any
Task 5: Submit Revised Scope of Work, if necessary

Water Quality Objectives

1) Address Fecal Coliform loading to Sublist 5 Waterbodies

a) Goal: To reduce, eliminate or minimize loading of fecal coliform contamination to the following waterbodies

b) Site specific areas:
- i) Mountain Lake
- ii) Lake Intervale
- iii) Lake Parsippany
- iv) Rainbow Lakes

c) Methods to be evaluated:
- i) Placement of Buffers
- ii) Pet waste ordinances consistency
- iii) Geese deterrents
- iv) Catch basin cleaning
- v) Street cleaning
- vi) Planned sedimentation areas
- vii) Redesign of catch basins
- viii) Storm drain retrofit with treatment device inserts
- ix) Dredging of sediments from lakes

2) Address Total Suspended Solid Loading to the Troy Brook

a) Goal: To reduce, eliminate or minimize the transport of total suspended solids to impacted waterways

b) Site specific areas:

i) Area between Grecian Street and Smith Street

This area is downstream of Morris Corporate Park and contains a significant reach of cement channelized stream. The Troy Brook receives runoff from major highways such as Route 80, 46 and 287, as well as receiving runoff from high intensity development.

ii) Forge Pond

Forge Pond serves as a wet detention pond providing pollutant removal through sedimentation. However, the pond is the recipient of high loads of total suspended solids from upstream land use and erosion.

iii) Lake Intervale

Lake Intervale receives relatively higher velocity stream flow out of the Mountain Lakes area. Upstream erosion due to water velocity and land use is to be addressed.

iv) Troy Meadows

The Troy Meadows Natural Area is the final recipient of the waters of the Troy Brook before entering the Whippany River. Total suspended solids need to be reduced to protect important habitat and to keep the integrity of the waterways. Runoff from major highways, such as Route 46, Route 202 and 280 along with runoff from upstream high density development contributes to the sediment loading in the Troy Meadows Natural Area.

v) Parsippany Public Works

The Parsippany Public Works yard backs up to the Troy Brook west of Route 202. Use of the land and stream buffers need to be considered.

vi) Runoff from Routes 80, 280 and 46.

Significant pollutant loads are sent to the Troy Brook from these major highways.

c) Methods to be evaluated:

i) Erosion control measures
ii) Vegetative Filters
iii) Manufactured treatment devices
iv) Wet ponds
v) Catch basin cleaning
vi) Street cleaning

3) Address Nutrient Loading to the Troy Brook

a) Goal: To reduce, eliminate or minimize the transport of phosphorus and nitrogen to impacted waterways.

b) Site Specific Areas:

i) Forge Pond

ii) Manor Lake
iii) Morris Corporate Park detention basins
iv) Cherry Hill Road pond

c) Methods to be evaluated:

i) Placement of Buffers
ii) Geese deterrents
iii) Fertilizer ordinances
iv) Erosion controls

4) Address Loss of Biodiversity

a) Goal: To reduce, eliminate or minimize the impact on stream biota due to fluctuating water quality parameters.

b) Site Specific Areas:
i) Rainbow Lakes
ii) Lake Parsippany
iii) Mountain Lake
iv) Lake Intervale
v) Area of Waterview Park office complex
vi) Area of Smith and Littleton Roads
vii) Eastman's Brook at Smith Road
viii) Troy Brook at Beverwyk Road

c) Methods to be evaluated:

i) Reduction of TSS with placement of stream buffers
ii) Reduction of TSS with manufactured treatment devices
iii) Reduction of TSS by implementation of water quantity controls
iv) Catch basin cleaning
v) Street cleaning

Water Quantity Objectives

1) Address Areas of Flooding

a) Goal: To eliminate, reduce or minimize the effects of flooding of the Troy Brook

b) Site Specific Areas:

i) Route 202 (Parsippany Blvd.) between Tivoli Gardens and Senior Center
ii) Paris Street in Parsippany, on opposing bank from Public Works yard.
iii) Homer Street, Parsippany, flooding
iv) Cresent and Center Streets in Mountain Lakes
v) Culvert under Route 80
vi) Smith Road Bridge
vii) Ramp to Littleton Road
viii) Access road to Municipal Park from Route 46 near Route 80

c) Methods to be evaluated:

i) Increasing bridge opening to allow for a greater volume of water to pass downstream.
ii) Detention of water upstream
iii) Infiltration of precipitation to reduce volume of water reaching the stream at critical flooding times.

2) Address areas of Increased Stream Volume and Velocity

a) Goal: To reduce, eliminate or minimize the increase in stream volume and velocity that is related to land use and stream channel morphology that leads to flooding and streambank erosion.

b) Site Specific Areas:

i) Between Waterview Blvd. and Route 202
ii) In the area of Smith and Littleton Roads.
iii) Parsippany Blvd. in area of Halsey and Jefferson

c) Methods to be evaluated:

i) Upstream infiltration through impervious disconnection, vegetative swales, bioretention systems
ii) Restoration of natural stream morphology
iii) Restoration of floodplain

3) Address Recharge to Aquifer and Baseflow Maintenance

a) Goal: To reduce, eliminate or minimize the routing of stormwater that short circuits infiltration for the purposes of aquifer recharge or stream baseflow maintenance.

b) Site Specific Areas:

i) Area of Manor Lake, north of Waterview Blvd. in Parsippany and west of Conrail line in Mountain Lakes, north of Route 46.
ii) Area west of Cherry Hill Road, surrounding upper and lower ponds of Morris Corporate Center.
iii) Western Mountain Lakes, north of Route 46, in area of Crystal and Sunset Lakes.
iv) Parsippany, South of Rainbow Lakes, north and east of Route 80.
v) Area of South Beverwyck in Parsippany

c) Methods to be evaluated:

i) Upstream infiltration through impervious disconnection
ii) Vegetative swales
iii) Bioretention systems
iv) Subsurface discharge to drywells
v) Infiltration beds