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BOROUGH OF LEBANON STORMWATER CONTROL ORDINANCE AMENDMENTS

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MUNICIPAL STORMWATER MITIGATION PLANS

PURPOSE

The Stormwater Management rules, N.J.A.C. 7:8, establish design and performance standards for management of stormwater that address water quality, water quantity and recharge. These standards are to be met on the site of the proposed development and, to the maximum extent practicable, using nonstructural stormwater management strategies. Some development projects may have unique, site-specific conditions, such as soils or slope constraints, that prevent or preclude the strict compliance with the stormwater design and performance standards established by the Stormwater Management Rules and the Borough's Stormwater Control Ordinance, as amended.

Pursuant to N.J.A.C. 7:8-4.4, a municipality may grant a variance or exemption from the design and performance standards for stormwater management measures, provided the municipal stormwater management plan and stormwater management control ordinance includes a stormwater mitigation plan in accordance with N.J.A.C. 7:8-4.2(c)11 and the municipality submits a written report to the county review agency and the New Jersey Department of Environmental Protection Division of Watershed Management (DWM) describing the waiver or exemption and the required mitigation.

The municipal mitigation plan must identify the measures required to offset the deficit and any potential impact created with respect to the design and performance standard(s) that would result from the grant of a waiver or exemption at a project site. The plan must ensure that the mitigation is completed in the drainage area and for the performance standard(s) for which the waiver or exemption was granted for a project.

MITIGATION PLAN REQUIREMENTS

In order to select an appropriate mitigation project to address a requested waiver/exemption, an assessment of the impact that would result from the requested deviation from full compliance with the standard(s) in the drainage area affected by the proposed project is required. For example, a waiver for stormwater quantity requirements must focus on the impacts of increased runoff on flooding, considering both quantity and location. Stormwater quality mitigation must aim to prevent an increase

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in pollutant load to the waterbodies that would be affected by the waiver/exemption. Ground water recharge mitigation must support the enhanced Highlands RMP recharge requirements of 125% in the area that would be affected by the waiver/exemption. For the purpose of this discussion, the term “sensitive receptor” is used to refer to a specific area or feature that would be sensitive to the impact assessed above.

An Applicant for a development project that is requesting a waiver or exemption from the design and performance standards for stormwater management measures may choose one of the specific mitigation projects identified below in order to offset the effect of a requested waiver or exemption. Alternatively, the Applicant has the flexibility and responsibility to identify an appropriate mitigation project and a location to implement the mitigation project to offset the deficit that would be created by the grant of a waiver/exemption or to address a stormwater-based impairment. All mitigation projects are subject to the approval of the Borough Engineer.

Selection of an appropriate mitigation project for a requested waiver/exemption must adhere to the following requirements

1. The project must be within the same area that would contribute to the receptor impacted by the project. Note that depending on the specific performance standard waived, the sensitive receptor and/or the contributory area to that receptor may be different. If there are no specific sensitive receptors that would be impacted as the result of the grant of the waiver/exemption, then the location of the mitigation project can be located anywhere within the municipality, and should be selected to provide the most benefit relative to an existing stormwater problem in the same category (quality, quantity or recharge).
2. Legal authorization must be obtained to construct the project at the location selected. This includes the maintenance and any access needs for the project in the future.
3. The project should be close to the location of the original project, and if possible, be located upstream at a similar distance from the identified sensitive receptor. This distance should not be based on actual location, but on a similar hydraulic distance to the sensitive receptor. For example, if the project for which a waiver is obtained discharges to a tributary, but the closest location discharges to the main branch, it may be more beneficial to identify a location discharging to the same tributary.
4. For ease of administration, if sensitive receptors are addressed, it is preferable to have one location that addresses any and all of the performance standards waived, rather than one location for each performance standard.
5. It must be demonstrated that implementation of the mitigation project will result in no adverse impacts to other properties.
6. Mitigation projects that address stormwater runoff quantity can provide storage for proposed increases in runoff volume, as opposed to a direct peak flow reduction.

Stormwater Quantity Considerations

Mitigation project areas can include locations that will provide for additional storage and slower release of excess stormwater. Mitigation of stormwater quantity can be accomplished by increasing flood storage areas along the waterway, creating new best management practices (BMPs) to control previously uncontrolled runoff or by retrofitting existing stormwater structures to decrease the volume and peak of runoff.

Note that work in regulated areas, such as floodplains and wetlands must be performed in accordance with applicable regulations such as the Flood Hazard Area Control Act Rules and the Freshwater Wetland Act Rules.

Stormwater Quality Considerations

Mitigation for stormwater quality can be achieved either by directing the runoff from the water quality design storm into a natural area where it can be filtered and/or infiltrated into the ground, by constructing a new BMP to intercept previously untreated runoff or by retrofitting existing stormwater systems that previously did not provide sufficiently for water quality. Stormwater management measures that utilize green infra-structure techniques are the preferred alternative for water quality mitigation.

Existing forested and other vegetated non-wetland areas can also be used as a water quality mitigation area if runoff is discharged as sheet flow through the area in a nonerosive manner, and the vegetated area is restricted from future development. A discussion of the appropriate widths for these vegetative filters is provided in Chapter 9 of the New Jersey Stormwater Best Management Practices Manual (BMP Manual).

Groundwater Recharge Considerations

There are two requirements associated with the recharge standard. The first is that 100 percent of the site's average annual pre-developed ground water recharge volume be maintained after development and the second is that 100 percent of the difference between the site's pre- and post-development 2-year runoff volumes be infiltrated. To mitigate for groundwater recharge design requirements, either computational method can be utilized to determine the volume lost that needs to be provided by the mitigation project.

One method to accomplish ground water recharge mitigation is to discharge runoff as sheet flow across a vegetated area to allow for the infiltration of runoff. It should be noted that, if this measure is used, calculating compliance with the recharge standard is limited to the 2-year storm standard, given existing methods.

ADMINISTRATIVE REQUIREMENTS

An Applicant for a development project that is requesting a waiver or exemption from the design and performance standards for stormwater management measures may choose one of the specific mitigation projects identified below in order to offset the effect of a requested waiver or exemption.

The following information must be addressed by the Applicant for each waiver being requested from the performance standards:

- Impact from noncompliance. Provide a table quantifying what would be required for the project to achieve the standards, the extent to which this value will be achieved on site and the extent to which the value must be mitigated off site.
- Narrative and supporting information regarding the need for the waiver: The waiver cannot be due to a condition created by the applicant. If the applicant can comply with the Stormwater Management rules through a reduction in the scope of the project, the applicant has created the condition and a waiver cannot be issued. Demonstrate that the need for a waiver is not created by the applicant's project.

Provide a discussion and supporting documentation of the site conditions peculiar to the subject property that prevent the construction of a stormwater management facility that would achieve full compliance with the design and performance standards. Site conditions may include soil type, the presence of karst geology, acid soils, a high groundwater table, unique conditions that would create an unsafe design, as well as conditions that may provide a detrimental impact to public health, welfare, and safety.

Demonstrate that the grant of the requested waiver/exemption would not result in an adverse impact that would not be compensated for by off-site mitigation.

- Sensitive Receptor: Identify the sensitive receptor(s) related to the performance standard from which a waiver is sought. Demonstrate that the mitigation site contributes to the same sensitive receptor.
- Design of the Mitigation Project: Provide the design details of the mitigation project. This includes, but is not limited to, drawings, calculations, and other information needed to evaluate the mitigation project.
- Responsible Party: List the party or parties responsible for the construction and the maintenance of the mitigation project. Documentation must be provided to demonstrate that the responsible party is aware of, has authority to, and accepts the responsibility for construction and maintenance. Under no circumstance shall the responsible party be an individual single-family homeowner. Selection of a project location that is under municipal authority avoids the need to obtain authority from a third party for the construction and future maintenance of the project.
- Maintenance: Include a maintenance plan that addresses the maintenance criteria at N.J.A.C. 7:8-5.8. In addition, if the maintenance responsibility is being transferred to the municipality or another entity, the entity responsible for the cost of the maintenance must be identified. The municipality may provide the option for the applicant to convey the mitigation project to the municipality, if the applicant provides for the cost of maintenance in perpetuity.

- Permits: Obtain any and all necessary local, State or other applicable permits for the mitigation measure or project prior to final municipal approval of the project for which mitigation is being provided.
- Construction: Demonstrate that the construction of the mitigation project coincides with the construction of the proposed project. A certificate of occupancy or final approval by the municipality for the project requiring mitigation cannot be issued until the mitigation project or measure receives final approval.

MUNICIPAL STORMWATER MIGIATION PROJECTS

The following specific stormwater mitigation projects have been identified by the Borough as existing problem areas related to stormwater quality, quantity and recharge:

- 1. Old Railroad Avenue Right-of-Way:** A realignment of Railroad Avenue occurred as part of a residential development project known as Camelot Ridge that was approved in 2002. Prior to construction, Railroad Avenue included a 15-inch storm drain the discharged at a headwall to an open ditch along the south side of the old road bed, approximately 300 feet from the intersection with Cherry Street. Stormwater flow from the open ditch was picked up by another headwall and 15-inch storm drain and piped down Cherry Street to a direct discharge to the South Branch Rockaway Creek.

As part of the stormwater management plans for the residential development, two detention basins were constructed. In addition, a new 24-inch outfall pipe was installed along Railroad Avenue, which replaced the existing 15-inch storm drain. The 24-inch outfall pipe discharges into the open ditch near the point where the realignment of Railroad Avenue began, approximately 200 linear feet from Cherry Street. While the Residential Site Improvement Standards, adopted in 1997 were in effect, the design for the project did not include the water quality and groundwater recharge requirements.

Presently, the existing 15-inch headwall and culvert at Cherry Street experiences frequent surcharge flows from the ditch that remains in the old right-of-way and is subject to clogging. On multiple occasions sediment and debris has been deposited along Cherry Street. The Borough also had to replace significant sections of storm pipe on Cherry Street due to packed-in sediment.

This mitigation project contemplates enhancements to the existing ditch. It is anticipated that the ditch can be converted to a bio-retention swale in order provide additional stormwater storage capacity, water quality benefits and groundwater recharge. The mitigation plan should also include sediment control traps and headwall trash racks.



Figure 1 – Old Railroad Avenue right-of-way

- Holjes Sheppard Park and Sutton Place:** Stormwater runoff from the municipal building, Maple Street, the Lebanon Borough School, the Lebanon Reformed Church and the Fox & Hound restaurant (formerly the Lebanon Hotel) located off Main Street, is directed either by overland flow or direct connection to, an existing storm drain system and piped through Sutton Place, across Main Street to a headwall. The headwall outfalls to an unnamed tributary to the South Branch Rockaway Creek. Other than two small drywells at the Fox & Hound restaurant, there are no stormwater management controls in place.

The park is accessed from Main Street by an asphalt driveway known as Sutton Place. The park includes gravel parking areas and a gravel road with a secondary access to the Lebanon School. Presently, localized flooding is occurring near and around the main parking area and Sutton Place.

This mitigation plan contemplates the construction of a bio-retention swale and or basin along the north side of the gravel driveway and main parking area. It is anticipated that the project would provide stormwater storage capacity, water quality benefits and groundwater recharge. The project would also include reconstruction of the main parking area with porous asphalt. Runoff from small storm events would be directed from the existing conveyance system through the bio-retention system prior to release. The mitigation plan would include the reconstruction and realignment of the storm drain pipe that runs along Sutton Place, which presently goes under existing structures.



Figure 2 - Holjes Sheppard Park and Sutton Place

- 3. Main Street, Easterly End:** The north side of Main Street, at the east end of the Borough, abuts a commercial development, built in the mid-1980's, known as Round Valley Industrial Park. The development contains two warehouse type buildings, large asphalt parking areas and two detention basins. The basins discharge directly to an unnamed tributary to the South Branch Rockaway Creek. The development was constructed prior to ordinance requirements for flow quantity reductions, water quality and groundwater recharge.

The north side of Main Street in the vicinity of this commercial development contains a small roadside ditch. Surface flows from Main Street as well as some overland flow from the development are directed to the ditch. Periodic flooding and sediment deposit on adjacent residential properties has occurred.

This mitigation plan contemplates an enhancement to the existing roadside ditch. It is anticipated that the ditch can be converted to a bio-retention swale in order provide additional stormwater storage capacity, water quality benefits and groundwater recharge. These features would help to alleviate current problems by providing additional storage capacity as well as offset a lack of groundwater recharge and water quality measures missing from prior developments. The mitigation plan should also include sediment control traps and headwall trash racks.

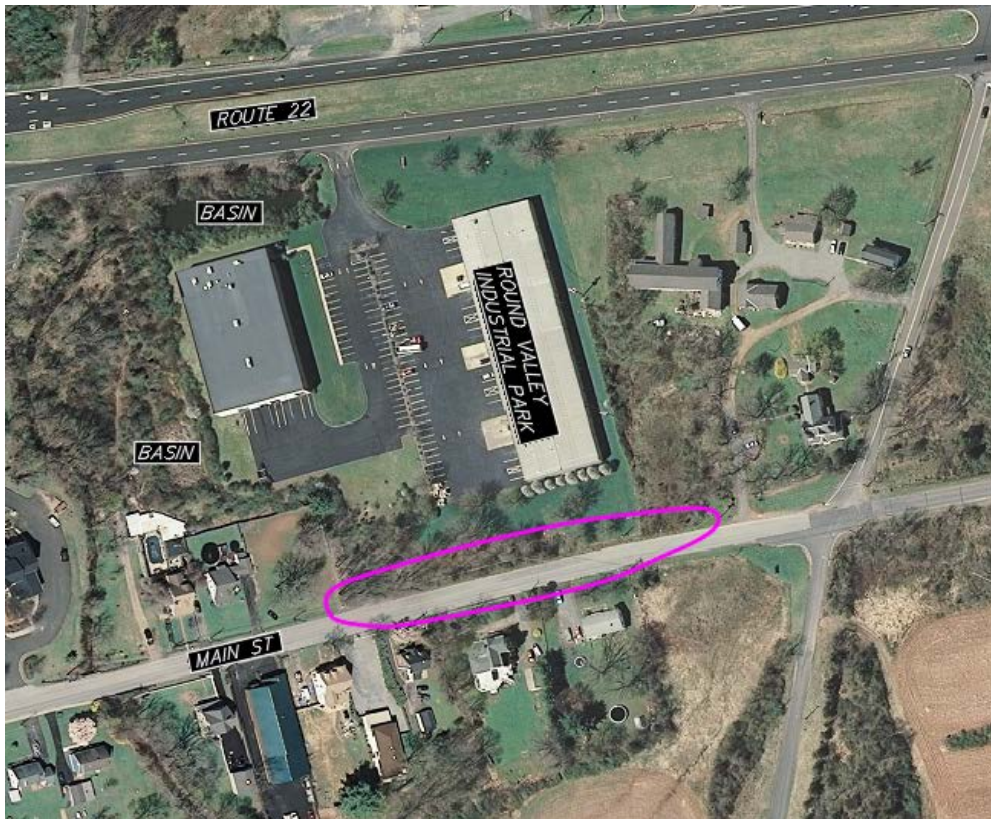


Figure 3 – East end of Main Street

- 4. Retrofitting of Existing Storm Drain Structures:** There have been several development projects within the Borough that occurred prior to the adoption of the Stormwater Management rules that became effective on February 2, 2004. These projects included stormwater management detention basins, located on privately owned property and the creation of new streets. These streets were dedicated to the Borough for roadway purposes and include block curb and drainage inlets that collect roadway runoff and direct the flows to the detention basin.

This mitigation plan contemplates retrofitting existing drainage structures along municipal roads that direct flows to these stormwater management basins with compliant curb pieces to control the passage of solid and floatable materials, if not already replaced. In addition, manufactured water quality devices will be placed within the conveyance system to provide TSS removal prior to discharging to the stormwater management basin. While it is recognized that the proposed use and location in the treatment train of manufactured devices may not be ideal, the municipality is constrained by the limited space within the right-of-way, gradient issues and other factors unique to each development.

The projects listed below under this mitigation plan will help to address water quality issues prior to runoff from the public streets being delivered to the existing stormwater management basins, which were typically designed with concrete low flow channels and low flow orifice devices.

- 4a Myrtle Avenue:** A subdivision project known as Valley View created an extension of Myrtle Avenue and included a detention basin on Lots 21.03 and 21.04 in Block 8. The roadway

extension includes inlets that collect runoff from a portion of the roadway and direct the flows to the detention basin. The detention basin outlets through steep slopes directly to the South Branch Rockaway Creek.



Figure 4a – Myrtle Avenue

- 4b Chestnut Place:** A subdivision project known as The Meadows created Chestnut Place, a cul-de-sac road off of Myrtle Avenue and included a detention basin on Lot 4.11 in Block 7. The roadway includes inlets that collect the entire cul-de-sac as well as a portion of Myrtle Avenue and direct the flows to the detention basin. The detention basin outlets through a culvert that runs under a residential dwelling and under Main Street to an unnamed tributary to the South Rockaway Creek.



Figure 4b – Chestnut Place

- 4c Clark Road:** A residential development project known as The Grist Mill created Clark Road, which connects Route 22 to Main Street and included a detention basin on Lot 35.01 in Block 5. Clark Road was ultimately dedicated to the Borough for roadway purposes. The roadway includes inlets that collect a portion of Clark Road that direct the flows to the detention basin. The detention basin outlets through a wooded area directly to a tributary to the South Branch Rockaway Creek.



Figure 4c – Clark Road