



**DEPARTMENT OF PUBLIC WORKS**  
TOWN OF WAYLAND

*Entrusted To  
Manage The  
Public  
Infrastructure*

Thomas M. Holder  
*Director*

Joseph Doucette  
*Superintendent*

Don Millette  
*Superintendent*

Paul Brinkman  
*Town Engineer*

To: Sarkis Sarkisian, Town Planner

From: Paul Brinkman, Town Engineer

CC: Tom Holder, DPW Director  
Don Millette, Water Superintendent  
Joe Doucette, Highway Superintendent

Date: July 2, 2021

Subject: Request to Reduce Performance Bond Michael Road Extension Subdivision

The DPW is in receipt of a request from you regarding a formal request by the developer of Michael Road Extension Subdivision to reduce the performance bond based upon the current state of the project. Based upon this request and a review of the project on this date, I can offer the following comments.

The following table represents my review of the project in June of 2020. Items that are complete are highlighted in grey. The DPW and developer coordinated to establish completion on the list during the last 12 months. Some of the initially identified items were deemed complete based upon discussions with your office and the developer.

ITEM	ACTION
1. Siltation socks	Remove/dispose of plastic
2. Temporary Construction fencing (orange).	Remove/dispose of fencing
3. Silt fencing	Remove/dispose of silt fence and wood bits.
4. Sinkhole behind lot #7 at retaining wall.	Determine cause of sink hole and repair
5. Locate and confirm outlet from overflow catch basin from rain garden adjacent to lot #6.	Contractor to find and Town inspect
6. Verify removal of pine plantings from project. (ensure not outstanding item.) Verify planting of three trees.	Town Planner to provide correspondence

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7. Verify reduction in plantings in the rain garden.	Town to determine need/applicability of plantings in rain garden. Homeowners want to do some changes.
8. Removal of pervious pavement	Part of Conservation permit closeout.
9. Soil stabilization behind lot #3 and #4	Watch/improve to ensure soil stabilization is complete
10. Repair soil washout/tear behind lot #5	Install rap or similar to prevent washout of retaining wall.
11. Management of demo debris noted adjacent to lot #6	Speak with residents to identify responsible party
12. Identify 4" HDPE pipes, source and use.	Verify connectivity and use
13. Verify installation of infiltrators. (Plans show manholes for inspection. None seen at project site.)	Obtain record information, inspections, photos etc.
14. Confirm language of rain garden maintenance, etc and Home owners requirements.	Town to verify consistency of language of documents with intent and actual construction. Identify modifications required if any.
15. Close out conservation permit.	Meet requirements submit to Con Comm.
16. Place Stone Bounds on Conservation parcel	Hire surveyor and place bounds
17. Loam/seed edge of asphalt berm	Adjust front of lawns to meet back of berm.
18. Verify the elimination of the driveway sealing for 26 Michael	Town to communicate with owner. Obtain written notice from owner as to removal of requirement.
19. Develop/provide record drawings for project	Hire engineer/surveyor to pick up information and place on record plan
20. Close out Planning Board decision	Complete all requirements of decision
21. Close out Building Department permitting	
22. Adjust/verify required easements for stormwater management on new circle area.	Review documentation and adjust as needed. We know the easement for the water main extension is not required
23. Temporary Easements for old culdesac	Eliminate and update registry
24. Verify functionality/capacity of new stormwater management system	Determine ability of new system

Some items on the list were identified are not the purview of the DPW, but were placed on the list to facilitate closing out the project with all Town Permits in an orderly fashion. The developer is responsible to identify the individual requirements for each permit and meet all requirements as the departments require.

The most challenging item(s) to determine appropriate close out is the stormwater management system. The original plans required the implementation of a rain garden with infiltration wick and high level overflow, individual privately owned infiltration systems, and pervious pavement. The final project was substantially modified during construction, such that determining that specific elements were installed as required and are functioning effectively is difficult. Areas that are known changed are as follows:

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1. The pervious pavement was eliminated from the final project. A small strip of pervious pavement at the beginning of each driveway was proposed to manage runoff from the individual driveways. The DPW approved the deletion of the pervious pavement as the installation as designed would have proved very difficult. Also the specialized maintenance would have not been provided, such that the pavement system would fail.
2. The subsurface infiltration systems were not installed with access as proposed. The developer chose to allow for the construction to be modified. The DPW cannot assess the efficacy these systems.
3. Some roof leaders were installed that are not connected to the infiltration systems. The DPW observed some discharges from roof leaders that were managed through direct outflow from buried HDPE extensions.
4. The original rain garden wick system was incapable of providing adequate infiltration for the precipitation load. The system was substantially rebuilt to ensure collected precipitation is infiltrated within 48 hours. The reconstruction included a larger and deeper collection well and increased the stone external layer thickness.
5. The overflow and infiltrator/wick are the responsibility of the DPW to maintain.
6. The overflow pipe discharge is not visible. It is in the location of the as-built, but beneath a rip-rap stabilized slope.

The significant changes from the original design will result in changes to the ways in which the stormwater is managed by the system. The assessment of these changes could only be completed through a visual assessment of the operation of the system during differing precipitation events. During the past 12 months the DPW has attempted to observe differing precipitation events and assess the reaction of the system. In general precipitation collects in the rain garden area, first filling the infiltration well, more extensive events result in the rain garden flooding (as designed), filling until the elevation of water reaches the overflow catchbasin and directs the precipitation to the outfall between lots 6 and 7. The events were varied, but none had total precipitation greater than 2-inches in depth. The DPW notes that no ponding from the rain garden extended onto the pavement of the cul-de-sac. Also the rain garden typically drained within 24 hours and the infiltration well took another 24 hours to empty.

The DPW cannot state with certainty that the stormwater system will operate under all storm conditions anticipated, but in general it appears the system as installed should provide adequate stormwater management. It should also be noted the rain garden area is likely less "rain garden" than originally designed. Plantings were placed within the area, but the installation of the infiltration well allows for the drainage to dissipate quicker and reduce the likelihood of supporting wetland/raingarden plant types.

The DPW is also aware that the local homeowners are looking to place a number of new plantings within the cul-de-sac area. Special care should be made to NOT plant trees or other vegetation that have deep/expansive root systems. These would likely impact the well infiltrator and reduce its effectiveness. Additionally, they should not reduce access to the well which will require periodic maintenance by the DPW.

The DPW has reviewed the easements and maintenance agreements associated with the water main and stormwater management. The language contained in these documents are inconsistent and do not

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appear to reflect the actual implementation of the project. Several updates should be made. Additionally, the DPW is not aware of the formation of a Homeowners Association as required by the maintenance agreement. Also the water line was not extended as proposed and therefore the easement is not requirement. This should be eliminated to ensure the property is not unfairly burdened.

The DPW recommends the following be still held until the completion of the work.

ITEM	VALUE	REASON
Continue to monitor the rain garden system to identify issues associated with operation and capacity to manage large storms.	\$20,000	Assure the acceptance of the project does not place a liability to the Town.
Update Maintenance agreements	\$3,000	Lack of clarity will lead to inadequate maintenance
Update easements	\$2,000	Unrequired burden on the properties.
TOTAL	\$25,000	

A total of \$50,000 represents the difference between the unfinished work and the Holdback amount that the Board may consider releasing.