Department of Public Infrastructure

Ronald H. Labelle
Commissioner

Water
Wastewater
Highways
Engineering
Cemeteries

CITY OF NEW BEDFORD
Jonathan F. Mitchell, Mayor

October 28, 2015

John Radcliffe, Chairman
Conservation Commission
133 William Street Room 304
New Bedford MA 02740

Dear Mr. Chairman, Commission Members, and Conservation Agent,

This cover letter addresses the concerns mentioned in the Nitsch Engineering letter dated October 20, 2015 regarding the 1484 Airport Road Notice of Intent for the proposed Salt Shed Project.

Item # 1 Concerning the Sizing of the Retention Swale: With respect to the sizing of the proposed retention swale DPI has taken the approach to utilize rainfall data that has been collected by the New Bedford Airport from a rain gauge on the airport field. The calculations being provided are different in that we chose this approach because of the proximity of this information and the readily available tabulated data produced by NOAA in their Partial Duration Series Precipitation Frequency spreadsheet documents.

DPI chose the highest value for rainfall occurrence in each of the three recurrence intervals namely the 2 year, 10 year, and 100 year twenty four hour storm event. The retention swale was chosen as the most effective way to provide a retention facility that would be easiest to maintain over a long term with simple mowing in belief that the retention area need only provide a means for slowing high volume flows to avoid possible sheet flow conditions into the surrounding wetlands. It is noted that the swale surrounds three sides of the proposed salt shed facility and is intended to handle the flow from the salt shed roof which will cascade down from each side of the shed and off the perimeter asphalt pad area into the swale. The only portion of runoff from the north side of the structure expected to make it into the swale is the small areas of the perimeter walk to each side of the bermed driveway. All the runoff on the driveway is expected to drain toward Airport Road

The swale in post development situation is sized to handle the expected precipitation from a two year storm without topping the outer berm of the swale throughout the duration of the event except perhaps in a worst case situation with the maximum precipitation of nearly 4 inches of rain in a 24 hour period. In a ten year storm the swale is sized to accept the first third or so of the expected flow volume before topping the outer berm of the swale. In a precipitation event where the rainfall is steady and soil infiltration is taken into consideration for the bottom area, the swale could be expected to fill in approximately 11 hours and if rain continued into a worst case situation with the maximum precipitation of about 6 inches of rain in a 24 hour period the flow

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would top the swale but flow would be attenuated and somewhat controlled as it passed over the top of the lengthy outer berm of the swale.

The hundred year event was also analyzed and based on the current proposed sizing, the swale would be expected to accept the first quarter of the 24 hour flow volume. When the swale is filled the length of the swale outer berm will provide attenuation of flow and mitigate rapid sheet flow into the wetlands except perhaps in a situation of a down pour of greater intensity when the swale is already at capacity.

Item # 2 Concerning Construction Details: The latest revised drawing is believed to exhibit all pertinent details needed for this project including the Salt Shed structure section which also depicts the proposed paving scheme, paving berm, the typical section through swale, and the straw wattle.

Item # 3 Concerning the 25 –Foot Buffer: The salt shed was relocated closer to Airport Road in order to minimize the encroachment into the 25-foot buffer area off the southmost corner of the structure pad. DPI believes that the current revised encroachment is of a minor nature being less than 15 SF in area. The proposed work within this area will be associated with restoration grading where the work will consist of blending into the original existing grades at this location with no expected change in grading or vegetative cover.

Item # 4 Concerning Pre & Post Development Calculation: An analysis was performed to calculate the pre-development and post development storm water hydrology in an effort to address Standard # 2. The analysis was not typical and did not make use of the TR-55 method however some information was taken from the handbook entitled Urban Hydrology for Small Watersheds. The Pre & Post Development computations are provided as a stand-alone document entitled Runoff Calculations Pre & Post Development 1484 Airport Rd Salt Shed Project.

Item # 5 Concerning BMP Sizing Calculations & Recharge: The answer provided for Item # 1 as well as the analysis provided with the Runoff Calculations for Pre & Post Development are believed to address the concern over BMP sizing and recharge. With respect to addressing Standard # 4 concerning Total Suspended Solids it is noted that almost all of the expected runoff to enter the retention swale will be generated from the salt shed roof and the remainder from the roof support structure (concrete blocks) and the relatively small remaining area in walkway along the perimeter of the shed. The suspended solids issue is expected to be minimal as there will be no chance for roadway materials to mix with the runoff from the roof. The roof is anticipated to be self maintained in that rainfall will tend to keep it clean of vegetative debris and dust. There is reason to believe that the concern for total suspended solids is minor and for this project can be ignored.

Item # 6 Concerning Treatment of Dropped Road Salt in Driveway: The trench drain was removed from a previous design version because upon further review of actual expected conditions within the salt shed and typical operations for delivery of salt as well as loading of trucks it was found unnecessary to be concerned with dropped road salt. The main reasoning is that the salt within the shed is dry and expected to be loaded dry into the sander trucks entering

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the shed. Except for a potential accidental release the salt in the truck is not expected to be dropped onto the driveway. The smaller quantities of salt attached to the truck tires will likely be tracked in and out of the shed but since Airport Road is treated with salt and salt/sand mix we question the need to be concerned for what may be tracked upon the 40 foot length of driveway between the shed and Airport Road. The second point to be made is that salting operations are generally associated with precipitation at either freezing or near freezing conditions. If salt had to be collected for treatment it is believed to be near impossible to do so given the typical conditions to be expected during operations where salt may be tracked on the driveway.

Item # 7 Concerning Test Pit for Soil Conditions: It is noted that upon conducting the soil evaluation there was clear indication that the water table is in a well drained coarse sand layer. The presence of numerous large deciduous trees at surface is also one indicator of a well drained soil making recharge a reasonable expectation.

Item # 8 Concerning Light Industrial Use: With respect to the declaration that the site is subject to land use with higher potential pollutant load, we concur and reiterate that as long as the salt and/or sand/salt mix remains dry under a weather tight cover, the salt will have little chance to migrate as a pollutant. This will be highly dependent on the construction of the salt shed. Therefore DPI intends to ensure that manufacturer's recommendations and specifications are followed stringently for construction as well as maintenance of the salt shed structure. DPI will also follow industry standards with respect to how the product is handled inside the salt shed to ensure that the chance of migration of the salt is minimized if not eliminated by working in accordance with best management industry practice.

Item # 9 Concerning Site as Mixed New and Re- Development: We concur with the site being a mix of new and re-development. Revisions to the plan have addressed the needs for further compliance with the Guidelines with respect to the increase in impervious area.

Item # 10 Concerning Erosion and Sedimentation Control Plan: A stand alone narrative has been provided to describe the measures for erosion and sedimentation control for this project.

Item # 11 Concerning Long Term Operations & Maintenance Plan: The Operations and Maintenance Plan has been revised to include twice yearly mowing of the retention swale and quarterly cleanings of debris and trash in the swale.

Item # 12 Concerning Illicit Discharge Statement: The Illicit Discharge Statement has been provided as a stand-alone document.

Item # 13 Concerning Storm Water Management Checklist: The revised Storm Water Management Checklist has been provided.

Item # 14 Concerning Watershed Plans for Review: With respect to watershed plans DPI believes that the proposed development of this project site is small enough to not merit the need for review of the local watershed. The only changes to the original site are very localized with the construction of a raised pad for the purpose of placing a salt shed structure. The approach taken to

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analyze the hydrologic drainage was also very localized. The topography of the immediate site to be affected by this project was evaluated and it is noted that there is no formal drainage on Airport Road there being some blind drain catch basins further away along the roadway apparently taking advantage of the coarse sand sub-soils. The surrounding area is notably flat with the project site being an actual high spot shared with the airport facilities across from Airport Road. There is little water runoff entering the project site as it is relatively high compared to the surrounding wetlands therefore the review of the surrounding watershed is mostly irrelevant.

We trust that these responses will adequately address the itemized issues highlighted in the Nitsch Engineering letter of October 20, 2015. If you have any questions concerning this submission please feel free to contact me at 508 979-1550 x128.

Respectfully submitted,

David Fredette
City Engineer

CC: Ronald Labelle, Commissioner

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