



## Department of Public Infrastructure

**Ronald H. Labelle**

**Commissioner**

## **CITY OF NEW BEDFORD**

**Jonathan F. Mitchell, Mayor**

**Water  
Wastewater  
Highways  
Engineering  
Cemeteries  
Park Maintenance**

October 1, 2015

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

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

The City of New Bedford Department of Public Infrastructure (DPI) is undertaking construction of a municipal salt shed for purposes of housing salt piles used during winter for de-icing application on public roads and paved areas in New Bedford. DPI as the applicant is proposing to develop a site for the salt shed on a parcel under the jurisdiction of the New Bedford Airport at 1484 Airport Road namely Map 123 on a portion of Lot 3. The salt shed being procured by DPI is a prepackaged kit manufactured by Calhoun (See attached brochure) and the outside dimensions of the structure footprint are 60 feet wide by 100 feet long. The basic design consists of a multiple arched truss frame anchored to a concrete wall foundation the top of which is covered with a high durability reinforced PVC fabric. The concrete wall foundation can be a permanent poured in place concrete foundation wall or it can be based on closely spaced concrete blocks placed over a graded structurally sound, well drained area.

This letter to New Bedford Conservation Commission is submitted as the revised Storm Water Report and project narrative.

### **SITE DEVELOPMENT:**

The proposed site is known to be a previously filled area where former tenant lease buildings have been demolished. DPI proposes to clear all trees and vegetation as needed and grub any unsuitable root ball and soft materials from the overall footprint of salt shed structure and asphalt pad area and excavate any unsuitable soils at depth that could cause settlement problems over time including the topsoil and subsoil horizons down to the C1 layer of coarse sand. DPI will then import, spread and compact appropriate sub-base materials suitable for supporting the salt shed structure, salt mix stockpiles and the expected heavy truck traffic into and out of the shed. DPI intends to raise the salt shed pad to sufficient elevation to avoid as much as possible the chance of flooding.

Upon achieving sub-base grade, DPI will, in accordance with Calhoun requirements, import, spread and compact dense graded processed gravel in six (6") inch lifts to 95% Proctor Density to a minimum depth of twenty four (24") inches creating a level pad with dimensions of 76 feet wide by 116 feet long intended to support a minimum soil bearing capacity of 2000 PSF as recommended by Calhoun. This design extends the dense grade material construction to six to approximately eight (8')

feet further all around the level pad to create an access and drainage way around the structure with appropriate pitch away from the level pad therefore the overall area of new construction will be at a level above the drainage way. The level pad supporting the shed structure will be constructed with no greater than two (2") inch variation from level.

Upon completing placement of the supporting structural concrete blocks and the pressure treated plywood lining as specified by Calhoun, the inside of the shed area will be paved to the inside edge of the concrete blocks which will provide an impermeable asphalt pad on which the salt and salt mix piles will be placed that will be approximately five (5) inches higher than the dense graded pad.

The outside perimeter of the shed structure will also be paved with a pitch away from the structure on the two sides and rear of the structure with run-off directed into the adjacent wetlands. The front of the structure will be similarly treated but a perimeter berm will be placed at each side of the apron in front of the garage opening and extended along the sides of the paved driveway to direct runoff on the driveway down to the edge of travel way. The overall drainage design for the site is based on ensuring that all covered portions of the salt shed are higher and dryer than any other extent of the support pad so that no rain would be allowed to runoff into the covered portion of the structure thereby expecting the salt piles to remain dry. Since the structure is located in a wetland captive area, all runoff from the structure and paved areas is expected to migrate into the adjacent wetlands. Given that the usage of the salt shed is predominantly wintertime where many of the precipitation events are in the form of snow there is an expectation that the most significant impact of flowing runoff will occur during the non-winter months when the salt shed will be closed and unused.

In general during non-operational times, the runoff waters from the structure and paved areas will be free of salt as the shed interior will be weather tight except for those times when the shed access door is open for use. During times of operational use the run-off waters from the structure and paved areas on the sides, rear and front of the structure with the exception of the actual shed opening are expected to remain free of salt. At the front of the shed opening and along the driveway and queuing area the trucks using the facility are expected to track some salt along the driveway in the process of entering and leaving the shed structure. For this reason the driveway is bermed along the perimeter so that run-off if present will migrate to the edge of travel way and co-mingle with the run-off drainage along Airport Road which is typically treated with salt and salt/sand mix.

In general during operational times freezing to near freezing temperatures are expected to prevail. It is noted that dry rock salt alone or when mixed with sand is not instantly dissolved upon exposure to precipitation especially if the temperatures are below freezing. As dry salt or salt and sand mix is spread it is noted that the salt must mingle with snow and/or ice in order to begin melting for effect. Given this fact it is assumed that trucks freshly loaded with dry salt or salt sand mix will leave the shed and have no direct salt dispersion impact at the driveway or roadway until spreading is initiated. Since this is a controlled function the expectation is that only the salt spread on Airport Road under normal salting conditions will be tracked onto the driveway at the salt shed and to a lesser extent the trucks leaving the shed may track some salt due to moisture that is on the tires when entering the shed. Overall this impact is expected to be minimal.

The design plan accompanying this letter details the proposed work associated with this project. Proposed contours depicted on this plan are based on instrument survey which included locating the wetland flags. A soil evaluation was performed to obtain direct information on the soils at the site beneath the proposed shed structure. The findings from the soil evaluation indicate that the C1 layer is coarse sand that will require some compaction in advance of placing the dense graded materials that will support the shed structure but there appears to be no unsuitable materials of concern after removing the topsoil and subsoil. The apparent water table is sufficiently deep that it should not inhibit the construction of this structural fill. The proposed paved asphalt pad will be constructed to be higher in elevation than the driveway and ramp into the drive-in opening of the structure in order to ensure that heavy rain does not easily enter into the entrance when it is open for use. The perimeter access way around the three closed sides of the structure will shed runoff directly into the adjacent wetlands over the re-graded sides of the fill therefore erosion protection measures will be included for the re-graded slopes in addition to the initial erosion and sedimentation control measures shown for the project site.

The following narrative elaborates upon the applicant's planned effort to meet the Storm Water Standards to the extent practicable. The following explanations coincide with the pertinent sections in the Stormwater Management Form accompanying this letter.

**Standard # 1:** The limited scope of this project will not create a new point discharge into wetlands or Commonwealth waters of untreated storm water.

**Standard # 2:** The preconstruction impervious area is based on the existence of previous structures 4,169.6 SF the total footprint area of four buildings founded on concrete piers and 2,811.6 SF in the driveway and queuing area with a sum of 6,981.4 SF. The post development impervious drainage area is based on the proposed 76 FT by 116 FT size of the asphalt pad (8816 SF) on which the salt shed rests and the proposed 2,788.7 SF of paved driveway and queuing area with a sum of 11,604.7 SF. Run-off from the salt shed structure and perimeter asphalt pad at the sides, rear, and front except at the garage door opening will be directed back into the captive wetlands surrounding the proposed salt shed site with little to no impact upon nearby buildings or properties. The immediately adjacent wetlands offers a large volume retention area and the existing conditions with respect to the natural topography and soil conditions indicate that the surrounding wetlands will provide substantial recharge by infiltration for at least the 2 year and ten year storm. The applicant believes that given the relatively small amount of additional impervious area of the salt shed structure the additional impact from a 100 year storm is believed to be inconsequential and that the intent of Standard #2 to prevent storm damage and downstream and off-site flooding is adequately met. The applicant will ensure that the re-graded slopes along the perimeter of the salt shed pad will be treated with erosion matting after seeding to ensure that a grassy slope comparable to the slopes of a retention pond are allowed to mature thereby minimizing bank erosion.

**Standard # 3:** Based on a soil evaluation performed on site, existing soil conditions exhibit excellent infiltration to groundwater table. Since virtually all of the runoff from the limited re-developed site will be directed back into the wetlands and allowed to recharge before reaching a drainage way greater than 300 feet away from the site, the applicant believes that this standard requiring minimizing loss of recharge is met. The recharge capacity of the local wetlands for a 10 year

storm is expected to be suitable to address runoff for most precipitation events and the displacement of recharge area resulting from the coverage of the salt shed is believed to be inconsequential.

**Standard # 4:** The runoff from this limited re-development consists of that which is generated from the shed cover and the exposed edge of the paved perimeter shed pad. With the exception of what vegetation may accumulate on the roof and pad, the runoff is expected to remain clean enough to be of no additional impact upon the adjacent wetlands than the normal vegetation growth and dying off cycle experienced in the wetlands already. The applicant believes that there will be no significant creation of suspended solids needing to be addressed. The applicant will embrace the long term pollution prevention measures and will ensure that no materials are stored along the perimeter of the shed. The applicant will implement good housekeeping practices and appropriate maintenance of the sloped areas surrounding the shed structure. The driveway and queuing area will be swept periodically in conjunction with street sweeping of Airport Road. Since this facility is expected to be opened predominantly during winter times for normal operations it will remain essentially unattended for the rest of the year except for deliveries of salt.

**Standard # 5:** Given that this project will result in a substantial but covered accumulation of road salt with the potential to act as a heavy pollutant load to the adjacent wetlands, the City proposes to construct the salt shed in strict accordance with all the manufacturer's recommendations. In addition the City will seek to apply Best Management Practices as documented within the salt storage and handling industry for operating and maintaining the salt shed system including long term storage practices, cleaning of the access road and driveway, and periodic inspections of the salt shed structure and covering. The applicant will ensure that when and if repairs to the structure and/or cover become necessary they will be executed in strict accordance with the manufacturer's recommendations. The applicant will also develop a contingency plan for dealing with a catastrophic loss of the salt shed structure due to fire, tornado, or accidental structural loss. The applicant will prepare in advance for a procedure for temporarily relocating the stockpiles of salt and/or salt/sand mix away from the wetland resource area. The applicant believes that Standard #5 will be met with these provisions.

**Standard # 6:** This standard is believed to be not applicable as the storm water discharge area of concern is believed to not be a critical area as defined in the Storm Water Handbook.

**Standard # 7:** The applicant believes this project to meet the definition of a re-development project but having a net increase in impervious area. It is noted that maintaining an impervious area on which the salt shed structure rests is a key element to protecting the environment and is considered a necessary and reasonable effort for meeting the requirements of the Storm Water Standard. Under normal circumstances where LID measures would be implemented to recharge excess runoff, in this case it is necessary for several reasons to isolate the salt stockpiles to keep them dry and ensure that no drainage mechanism is created that would permit salt to be dispersed into the wetlands. Therefore the applicant believes that Standard # 7 is met by taking whatever measures are needed to isolate the salt shed from the external environment and ensure that runoff from the displaced recharge area covered by the shed pad is allowed to return to the adjacent wetlands. The applicant believes that this project should be evaluated based on the strong improbability of any possible future development of lands immediately adjacent to the proposed salt shed.

**Standard # 8:** The project design plan depicts what erosion and sedimentation control measures are proposed to be implemented for construction related controls the applicant will ensure that these measures are maintained throughout the duration of construction.

**Standard # 9:** In addition to the minimum requirements listed in the Stormwater handbook, the applicant will develop a long term Operation and Maintenance plan for the salt shed facility that will include normal winter operation procedures for handling trucks during winter storm conditions and maintenance of the floor conditions during winter operations. The plan will also include procedures for closing the facility during non-use periods with periodic inspections of the shed structure and maintenance of the surrounding grass slopes and perimeter paved pad areas and measures to be taken in the event of encroaching vegetation.

**Standard # 10:** The applicant believes that Standard # 10 is not applicable as there is no projected illicit discharge that can be reasonably expected based on the anticipated operations to take place with the proposed salt shed facility.

In addition to the Storm Water Standards there were several concerns about the salt shed design that will be addressed with this report. The shed structure design has been developed through a relatively lengthy industry practice and appears to incorporate durable materials and a robust structural support system and hardware. The design will be reviewed to ensure that it meets Massachusetts Building Code and specifically that it is capable of sustaining snow loads, hurricane force winds and blizzard condition that could be expected in this area. DPI plans to perform annual inspection of the structure to verify continued integrity. In the event of a catastrophe resulting in the loss of the shed structure when salt is stockpiled, DPI will have a plan in place to load and transport the exposed salt and stockpile it elsewhere in the city away from resource areas.

Please refer to the design plan for other detail not mentioned in the above narrative. Also please note that prior to any construction, a silt fence and hay bale line will be placed in accordance with the design plan and other measures required by the Order of Conditions will be complied with.

Respectfully submitted,

David Fredette  
City of New Bedford Engineering Department

CC: Ronald Labelle, Commissioner DPI  
DEP Southeast Region  
MA Division of Marine Fisheries