

July 15, 2021

Mr. Dennis Audette
Chairman
New Bedford Conservation Commission
New Bedford City Hall
133 William Street
New Bedford, MA 02744

RE: Nitsch Project #9972
Panagakos Development
Phillips Road
Stormwater Review
New Bedford, MA

Dear Mr. Audette:

This letter is regarding the stormwater review associated with the Notice of Intent (NOI) submitted for the proposed commercial building development located at the corner of Theodore Rice Boulevard and Phillips Road. In response to our comment letter issued on July 6, 2021, Nitsch Engineering received and reviewed the following documents:

- Plans entitled "Assessor's Map 136 – Lot 468, Phillips Road, New Bedford, Massachusetts," prepared by SITEC, dated March 26, 2021, revised June 15, 2021, and revised again on July 12, 2021;
- Stormwater Report entitled "Drainage Report – Proposed Commercial Building, Phillips Road, New Bedford, MA," prepared by SITEC, dated March 26, 2021, revised June 15, 2021, and revised again on July 12, 2021; and
- A letter entitled "Panagakos Development," prepared by SITEC, dated July 13, 2021.

For clarity, we have provided our initial comments from May 27, 2021 and July 6, 2021 in **blue font**, the SITEC response in black font, and our updated response is provided in **blue bolded font**.

GENERAL COMMENTS

1. The southeast corner of the lot near the loading delivery area appears to have contours that are not labeled. Please label these contours.

The contours have been labeled just beyond the subject property line for clarification.

The contours do not appear to have been labeled. To clarify, southeast of the loading delivery area there appear to be contours that drop off at a 3:1 slope towards the property line. Nitsch Engineering recommends at a minimum labeling the major contours in this area to clarify the grading.

This item has been addressed.

4. Rename the proposed inlets so that there is a CB#1 and a CB#2.

The catch basins have been renamed as requested.

The leader for CB#2 does not point to the location of the catch basin. Please address.

This item has been addressed.

8. The HydroCAD model shows the stormwater infiltration system has an 8-inch outlet pipe with an invert of 91.20 feet, which is consistent with the plans. Per the "Cultec Contactor 330xLHD Typical Cross Section Detail" the top of chamber is 91.54 feet. The invert for the outlet pipe appears to be too high to

work with the proposed system and header configuration. Nitsch Engineering recommends lowering the invert out of the system as necessary and maintaining a minimum 1% pipe slope to the discharge point or provide a manhole structure to allow for the crown of the outlet pipe to be higher than the top of chamber elevation. The infiltration system outlet pipe elevation shall also be checked to confirm a minimum of 2 feet of cover is provided.

The hydrocad model has been revised, along with the plan set and detail to address the concern. The invert has been revised to 91.00 with 4" pvc pipe connected to the 8" HDPE header. This will provide more than 2 feet of cover over the outlet pipe.

The 8" HDPE outlet pipe exits the system at an elevation of 91 feet and discharges to a riprap at an elevation of 90.9 feet. This results in a slope of 0.33 percent. Nitsch recommends lowering the discharge invert elevation to maintain a minimum slope of 1 percent.

This item has been addressed.

9. All work shall be outside the 25-foot wetland buffer zone, including the retaining wall and discharge points. Per the "Flared End W/ Riprap Detail" the riprap shall have a minimum length of approximately 12 feet. The riprap on the plans is shown to be approximately 4.5 feet to avoid the 25-foot wetland buffer zone, which contrasts from the detail. Nitsch Engineering recommends updating the detail to reflect the plan or relocating the discharge points to meet the 12-foot requirement per the detail. If the former option is chosen, please explain how slope stabilization in this area is adequate to prevent erosion.

All work has been moved outside of the 25 foot buffer zone. The detail has been revised and the rip rap length from the outlet of catch basin #2 has been increased to 9 feet. The 10 year flow rate to this catch basin is 0.3 cfs, resulting in a velocity through the proposed 10" HDPE discharge pipe of 4.5 fps.

Nitsch Engineering recommends labeling the riprap ramp on the plans or specifying the lengths in the detail.

This item has been addressed.

MASSDEP STORMWATER MANAGEMENT STANDARDS

12. The Applicant should provide an Illicit Discharge Compliance Statement as required per Standard 10 in the Checklist for Stormwater Report.

An Illicit Discharge Compliance Statement has been included with the revised report.

This item has been addressed. Nitsch Engineering recommends updating the Stormwater Standard No. 10 on Page 4 of the Drainage Report to reflect that an Illicit Discharge Statement has been provided.

This item has been addressed.

14. The Applicant shall provide calculations for the required recharge volume and the recharge volume provided. Additionally, the Applicant shall provide drawdown calculations confirming that the infiltration system will drain completely within 72 hours.

The required recharge volume is 0.018 Acre-feet. 0.084 Acre-feet of recharge is provided for the 2-year storm. The calculation for the complete drain drawdown within 72 hours has been added to the end of the hydrocad report.

Per Comment No. 15 below, the recharge volume shall be recalculated using a Rawl's Rate of 2.41 in/hr.

This item has been addressed.

15. The Drainage Report appears to use the Natural Resources Conservation Service (NRCS) Web Soil survey to obtain soil information for the HydroCAD model. The stormwater infiltration system appears to be within soil type 260A – Sudbury Fine Sandy Loam per the Proposed Conditions Drainage Plan which is a Hydrologic Soil Group B. Per the Massachusetts Stormwater Handbook, the infiltration rate for this type of soil is 1.02 inches per hour. The HydroCAD model appears to use an infiltration rate of 8.27 inches per hour which is indicative of a Hydrologic Soil Group A – sand soil. Nitsch Engineering recommends updating the infiltration rate to reflect Sandy Loam, or conduct test pits by a licensed soil evaluator showing that sand is present in the proposed stormwater infiltration area or perform field infiltration testing.

Test pit information used for this design, conducted by Field Engineering during a previous submittal for the subject property, has been added to sheets 3, 5 and 6 to confirm the soil conditions, water table and percolation rates. This information is also consistent with the soils encountered during construction of the recently constructed gas station, directly across the street on Theodore Rice Boulevard.

Per the test pit information provided, the soils appear to be a loamy sand which has a corresponding Rawl's Rate of 2.41 in/hour. Nitsch Engineering recommends updating the HydroCAD to use a Rawl's Rate of 2.41 in/hour.

This item has been addressed.

NITSCH/SITEC CORRESPONDENCE

1. Nitsch Engineering discussed the items concerning the Rawl's Rate (No. 14 and No. 15) with SITEC via phone on July 13, 2021. Test pit information on Sheet 5 was performed by Richard R. Riccio III, P.E. on January 13, 2006, and shows that water infiltrated the soils at a rate of 1 inch in 2 minutes. Based on this information, SITEC proposed using a Rawl's Rate of 8.27 inches per hour, which corresponds to NRCS Hydrologic Soil Group A, textural class – sandy soil. Per the Massachusetts Stormwater Handbook Volume 3, Chapter 1 – Documenting Compliance, there is a list of acceptable tests for determining saturated hydraulic conductivity including Guelph permeameter, falling head permeameter, double ring permeameter or infiltrometer, and Amoozemeter or Amoozegar permeameter test. The testing method used for the test pit information provided is unknown. Therefore, after discussions with SITEC, it was determined that the infiltration rate obtained from the field testing should not be used for stormwater design. The test pits show a sandy loam soil which has a corresponding Rawl's Rate of 2.41 inches per hour. Information from the NRCS Web Soil Survey also shows a sandy loam soil. Therefore, it was determined that a Rawl's Rate of 2.41 inches per hour was suitable for design on this site. SITEC updated their plans and HydroCAD model to reflect this change.
2. Per HydroCAD, the subsurface system dimension is 30.50 feet wide by 59.50 feet long. The plans appear to show the chambers as 60.4 feet long. Nitsch Engineering discussed the

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discrepancy with SITEC via phone on July 14, 2021, and SITEC was aware of the discrepancy and explained that they used the dimensions per the Cultec standard detail to dimension the chambers. SITEC asked to keep the 60.4 feet dimension and Nitsch Engineering takes no exception.

If you have any questions, please call us at (617) 338-0063.

Very truly yours,

Nitsch Engineering, Inc.

A handwritten signature in blue ink that reads "Brian Biagini".

Brian Biagini, EIT
Senior Project Designer

A handwritten signature in blue ink that reads "Jennifer Johnson".

Jennifer Johnson, PE, CFM, CPSWQ, LEED AP
Project Manager

BJB/jlj/ajc