Nitsch Engineering

2 Center Plaza, Suite 430
Boston, MA 02108-1928
T: 617-338-0063
F: 617-338-6472
www.nitscheng.com

July 17, 2018

Mr. Craig Dixon
Chairman
New Bedford Conservation Commission
New Bedford City Hall
133 William Street
New Bedford, MA 02744

RE: Nitsch Project #9972
Tarkiln Hill Road &
Kings Highway Improvements
New Bedford, MA

Dear Mr. Dixon:

This letter is in regard to the proposed road and drainage improvements along Tarkiln Hill Road and Kings Highway in New Bedford, Massachusetts. Nitsch Engineering has reviewed the following revised documents for compliance with the Massachusetts Department of Environmental Protection (MassDEP) Stormwater Management Standards:

- Response to comments letter prepared by the Department of Public Infrastructure, dated July 12, 2018;
- Attachment "D" containing Recharge and Water Quality Volume Calculations;
- Storm and Sanitary Sewer Analysis for piping between existing drain manhole 162 and drain manhole 31;
- Plan entitled "Notice of Intent Submission Plan, Tarkiln Hill Road, Proposed Drainage Plan," prepared by City of New Bedford Department of Public Infrastructure, revised through May 31, 2018;
- Plan entitled "Notice of Intent Submission Plan, Wetland Replication, Grading Plan," prepared by City of New Bedford Department of Public Infrastructure, dated December 31, 2017;
- Plans entitled "New Bedford Kings Highway Improvements, sheets 75-80," prepared by CDM Smith, no date;
- Plans entitled "New Bedford Kings Highway Improvements, sheet 82," prepared by CDM Smith, no date; and
- City of New Bedford, Massachusetts Stormwater Management Rules and Regulations, by reference, dated December 7, 2016.

The proposed project was submitted in two components designed by two different entities. Road Improvement plans, which include geometric alterations as well as stormwater management improvements, were designed and prepared by CDM Smith. The Stormwater Report was also prepared by CDM Smith. Offsite stormwater improvements and wetlands alterations and mitigation were designed by the New Bedford Department of Public Infrastructure. Not all of the plans and supporting information submitted for the first review was submitted for the second review.

Below are our comments on the proposed project, regarding stormwater management only:

1. The project meets the definition of a redevelopment project as defined by Standard 7 of the Standards.

2. The wetlands mitigation area is located approximately 5,500 square feet south of the proposed wetlands alteration. It is proposed to be 7,200 square feet. The wetlands mitigation area is somewhat disconnected from the existing wetlands in that area as there is a strip of upland proposed between the existing wetland area and the proposed mitigation area. It does appear to accept flow from an existing culvert, which will not provide continuous flow. We previously recommended a test hole be performed in the vicinity of the mitigation area to confirm seasonal high groundwater elevations and ensure the proposed wetland will thrive. The Applicant has responded that a test hole was excavated in the vicinity of the wetlands replication area on April 9. A plan showing the location of the boring was submitted.

However, a test hole log was not submitted so we cannot comment on the results of the test hole and whether this area is appropriate for replication.

3. Sizing calculations were not provided for the proposed 4-foot x 3-foot box culvert. DPI references sizing calculations were included as Attachment D. However, Attachment D does not include sizing calculations for the 4-foot x 3-foot box culvert. Storm Sewer analysis calculations were submitted for a 3-foot diameter pipe in a different portion of the project. This analysis shows the piping system surcharging. Typically, pipes are sized to show free flow conditions. It is unclear which design storm the analysis has been provided for. We recommend that the sizing calculations be submitted for the 4-foot x 3-foot culvert. We also recommend that the piping associated with the SSA calculations be resized to prevent a surcharge of this system.

4. The bioretention basins treat less than (1) acre out of the six (6) acres within the project area. Some level of treatment is provided for an additional 24 acres outside of the project area. However, this level of treatment includes either street sweeping, deep sump catch basins, or a combination of the two which provides far less than 80% Total Suspended Solids removal rate. Therefore, the adequate water quality treatment provided on this project is limited to a very small percentage of the project area. We recommend that the Applicant explore additional ways to include additional water quality treatment.

5. We recommend the Applicant consider including a structural water quality device to provide additional stormwater treatment. A structural device would not necessarily involve more land area as many of these devices are located below grade.

6. In the response to comments letter, the Applicant has explained that BMP 1 has approximately 1.5 feet of separation between the bottom of the swale and seasonal high groundwater. This letter also explains that the bottom of the media for BMP 2 is approximately 1.2 feet lower than seasonal high groundwater elevation. Therefore, during wet months, portions of the soil media will be inundated by seasonal high groundwater. The Guidelines require two (2) feet of separation between the bottom of the facilities (including soil media and underdrains) and seasonal high groundwater. Due to the nature of the project, there is no ability to alter the elevations of these facilities. However, they do not comply with the Guidelines.

7. The project includes a net increase of 29,800 square feet of impervious surface. This increase results in an increase in peak flows to the existing wetland NBS(3) for all storm events. The Standards indicate that additional impervious surface must be treated as new development and meet Standard 2 regarding increase in peak flows. The Applicant's response indicates that this is to be expected. In order to meet Standard 2, additional mitigation will be necessary.

8. The Applicant has indicated that the drainage calculations have been updated so they are consistent with the stage-storage data shown on the plans. However, additional calculations were not provided so we cannot verify that this has been completed.

9. The peak inflow for BMP#2 is lower than the outflow. The Applicant has indicated that the drainage calculations have been revised. However, additional calculations were not submitted. Therefore, we cannot verify that this has occurred.

10. We recommend the plans that were prepared by DPI and CDM be more closely coordinated. For example, we recommend that the plans and numbering of structures be coordinated for clarity. It is unclear where the limit of work for each 'project' begins and ends. The Applicant has stated they will not be revising the plans. The Applicant should verify that the location of structures that are shown in each set of plans is identical. We do not think these structures are shown consistently between the two

sets of plans.

11. The Long-Term Maintenance Plan refers to the Draft Department of Public Utilities Standard Operating Procedures regarding maintenance. The Applicant has provided a link to the City of New Bedford Stormwater Management Rules and Regulations. These Regulations describe that an Operations and Maintenance Plan is required for all projects and it describes the contents of the Operations and Maintenance Plan but does not provide an Operations and Maintenance Plan for the submitted project.

12. The Operations and Maintenance Plan should include catch basin cleaning since street sweeping and the deep sump catch basins are part of the proposed treatment train in the TSS removal sheets. The Applicant has indicated that the Operations and Maintenance Plan has been updated. However, the Operations and Maintenance Plan has not been resubmitted, so we cannot verify this change was made.

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

Very truly yours,

Nitsch Engineering, Inc.

Scott D. Turner, PE, AICP, LEED AP ND
Vice President, Director of Planning

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