February 24, 2016

Mr. John Radcliffe, Chairman
New Bedford Conservation Commission
133 William Street – Rm 304
New Bedford, MA 02740

RE: Response Letter
50 Duchaine Boulevard
New Bedford, Massachusetts

Dear Mr. Radcliffe,

On behalf of the applicant, Parallel Products of New England, please find revised Site Plans and Stormwater Report enclosed with this letter. An addendum to the previously submitted Drain Report has been prepared in response to the comment letter prepared by Nitsch Engineering dated February 10, 2016 in regards to their review of the Site Plans. Our responses to the comments provided by Nitsch Engineering are provided on the following pages.

We trust the attachments noted above and included herewith will provide the necessary documentation to address their comments. If you should have any questions, please feel free to contact us.

Very Truly Yours,

Thompson Farland, Inc.

Christian A. Farland
Christian A. Farland, P.E., LEED AP
Principal Engineer and President

cc: File, Client

Nitsch Engineering Comments

Comment #1:

In their response letter, the Applicant indicated that the existing drainage system was not surveyed because the majority of the existing closed drainage system will be maintained during the project and flow to the pipes will be reduced in the proposed condition. Closed drainage calculations should be provided to confirm this design approach. The calculations should include the existing drainage infrastructure to remain and the proposed closed drainage system.

Nitsch Engineering also notes that minimal cover is provided over culverts located beneath the northern driveways. Class V RCP is proposed in these areas, however ductile iron should be considered given that the pipes will be located directly under the pavement section.

RE: A survey of the existing closed drainage system was performed for those pipes and structures which are proposed to accept discharges from the proposed drainage system. We note that although overflow pipes from Infiltration Basins 3 and 5 are proposed to discharge to existing drain manhole structures, these overflow pipes will not experience any flow during the 100-year storm event. The outlet pipe from Infiltration Basin 4 is the only pipe which is proposed to discharge to the existing closed conduit drainage system during the 100-year storm event. Pipe capacity calculations were performed on all pipes down-gradient from the proposed discharges. The evaluation demonstrates that the existing pipes down-gradient from the discharges from Infiltration Basins 3 and 4 are capable of accommodating all flow during the 100-year storm event. The evaluation also shows that, due to the very shallow slope (0.0029 ft/ft) of the 12" pipe discharging from the existing manhole which the Basin 5 overflow is proposed to tie into, is not capable of accommodating the 100-year storm event and will likely result in some ponding on the driveway surface during very large storm events. Given that this is an existing pipe which is not affected by the proposed overflow discharge from Infiltration Basin #5 (no flow during the 100-year storm event), replacement of this pipe is not warranted for this partial re-development project.

Farland Corp. maintains that Class V RCP is an appropriate pipe material at the proposed location. We have proposed to provide additional cover over the pipes by proposing to lay the pipes flat, thus creating a flow equalizer between basins 1A and 1B and between basins 1C and 1D. As a result, the storage volumes in Basins 1A and 1B have been combined and modeled as one basin (Basin 1A). The storage volumes of Basins 1C and 1D have also been combined and modeled as a single basin (Basin 1C).

Comment #2:

Nitsch Engineering disagrees with the Applicant's response that peak flow mitigation can occur within the onsite wetland resource area. Our understanding is that the wetland located at the rear of the site is a jurisdictional wetland and not a stormwater facility. The peak run-off rate entering the onsite wetland is up to 20% higher in the proposed condition than the existing condition, which does not comply with the MassDEP Stormwater Management Standards. The onsite stormwater management system should be designed so that there is no increase in peak run-off rate to the wetland.

RE: Revisions to proposed Infiltration Basins 1C and 4 have been made to achieve a reduction of peak run-off rate entering both the onsite BVW resource area and the onsite stormwater basin resource area. As required by the Stormwater Management Standards, post-development discharge rates do not exceed pre-development discharge rates for the 2-year and 10-year storm events, and an evaluation of peak discharges from the 100-year 24-hour storm event demonstrates that the proposed design will not result in an increase in off-site flooding.

Comment #3:

As requested in our initial comment, the Applicant incorporated the existing depressions in the existing condition HydroCAD model. However, rather than using consistent infiltration rates for the existing and proposed conditions, the stormwater recharge in the existing basins was modeled as 1.02 inches per hour based on the soil texture in the A and B soil horizons. Under the proposed conditions, the Applicant is proposing to remove the sandy loam at the location of the proposed infiltration basins so that recharge will occur in sandy material that has an infiltration rate of 8.27 inches per hour. Since test pits were not performed in the existing basins, Nitsch Engineering cannot confirm the existing soil texture at the bottom of the existing basins. However, since some of existing basins are excavated down to approximately elevation 75, they may also recharge into the C horizon subsoil with a higher infiltration rate. We maintain the comment that the current approach to the calculations (using different existing and proposed infiltration rates) is not consistent with standard engineering practice. The same infiltration rate should be used for both the existing and proposed conditions.

RE: Farland Corp has revised the Pre-Development Drainage Model to conservatively model the infiltration within the topsoil layers of the existing depressions to be consistent with the sandy subsoil material encountered throughout the site. As a result of the revised model, post-development peak runoff rates remain below pre-development peak runoff rates.

Comment #7:

The Applicant provided additional information regarding the proposed pump systems to convey flow from the trench drains on the north side of the building to the stormwater basins. They indicated that the pumps and pump chamber have been designed to accommodate the 10-year storm event, while run-off from larger storm events will

surcharge the trench grates and cause ponding in the loading docks. As the Applicant notes, their model indicates that there will be approximately 7 inches of ponding in the loading dock and against the building during the 100-year storm. Nitsch Engineering does not endorse a design that could result in 7 inches of standing water accumulating against the building. However, we defer to the Applicant and Owner on this issue since this could be maintenance issue for the Owner.

RE: The building foundation will be designed accordingly.

Comment #10:

The Applicant revised the model to use the the Dynamic Storage Indication (Dyn-Stor-Ind) pond routing for the proposed conditions. While Nitsch Engineering agrees that the method is appropriate for the proposed conditions, we would request that the model messages and error report be included in the HydroCAD output to confirm that there are no HydroCAD issues created by using the Dyn-Stor-Ind routing setting.

RE: HydroCAD messages have been included in the hydrologic calculations. We note that the warning messages which are provided with this model are the result of the use of a pump outlet. The model produces warnings that the storm elevations in Basins 1A and 1C (down-gradient of the pump chambers) exceed the storage elevations within the pump chambers and the pump outlet at the bottom of the chambers. These are intended results.

Comment #11:

All requested details were provided on the revised plans with the exception of the curb opening detail.

RE: The proposed curb opening is simply a break in the Cape Cod berm. A construction detail for this is not warranted.