



ENGINEERING A BETTER TOMORROW

ENGINEERING | SITE WORK | LAND SURVEYING

March 5, 2020

Conservation Commission
New Bedford City Hall
133 Williams Street
New Bedford, MA 02740

**RE: Response Letter
Certificate of Compliance – Parallel Products (SE49-0771)
100 Duchaine Blvd. – New Bedford, Massachusetts**

Dear Members of the Commission:

We have enclosed a response letter, revised Site Plans, stormwater calculations in response to the comment letter prepared by Nitsch Engineering dated November 1, 2019, February 7, 2020 and Sarah Potter dated November 4, 2019, January 24, 2020 and in regard to their review of the Site Plans.

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,

FARLAND CORPORATION, INC.

Christian A. Farland

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

cc: File, Client

Sarah Porter Comments

Comment #1:

The schematic cross section of the wetland replication area does not provide the estimated seasonal highwater table elevation.

Based on elevations along the adjacent wetland and analysis of soils, the estimated seasonal high water table elevation is 76.0. The cross section has been revised accordingly.

Comment #2:

If the base elevation of the wetland replication area is at el. 76' then the amount of wetland replication proposed may be less than what is stated. Nitsch is going to calculate the amount of wetland replication area that is at el. 76'.

Based on the estimated seasonal high groundwater elevation, we anticipate that the area between el. 76 and el. 77 will become a wetland. If field conditions (i.e. soil observations) during excavation warrant further excavation to definitively achieve wetland hydrology, then the wetland scientist overseeing excavation will request that the area be dug deeper. In addition FC has revised the wetland replication area to enlarge the 76 contour to contain 6,700 S.F. thus providing a 1.64:1 replication ratio as requested.

Comment #3:

The amount of wetland impact has decreased to 4,095 s.f. from 4,910 s.f. for the wetland crossings. However, when comparing the plans of 01/10/2020 to the 9/13/2019 plans, the plan view and the cross section are the same and therefore it is not apparent where decrease in wetland impact has occurred.

The width of the rail wetland crossing from retaining wall edge to edge went from 20' to 18'. There was a discrepancy in the detail.

Comment #4:

The eastern open box culvert is at elevation 75.5 which is lower than the existing wetland at this location. Spot elevations in the wetlands should be provided at either end of both culverts to ensure the proposed culvert elevations are correct.

The open box culvert is going to sit on the existing grade therefore will not be lower. A note has been added to the plan.

Comment #5:

As commented in the K.P. Law letter of 11/14/2019 correspondence: because the wetland crossings will isolate areas of BVW by essentially building a wall with culverts, it is appropriate to ask the applicant to conduct an evaluation of impacts created to the wetland areas south of the crossing.

No significant adverse impacts are expected to occur in the wetland to the south as a result of the wetland crossing. Wetland hydrology (surface and subsurface) will not be significantly disturbed and the proposed culverts will ensure that small mammals, amphibians and salamanders can pass through along with allowing surficial flow to pass through.

Comment #6:

As commented in the K.P. Law letter of 11/14/2019 correspondence: there is no information on the sizing of the culverts and why they were selected. This is of utmost importance, especially considering the site is within a Zone X of the floodplain. As we are experiencing increased precipitation rates it will be important to ensure that the wetlands throughout drain as they do under existing conditions

The site is within a Zone X of the floodplain – “Areas of Minimal Flood Hazard”; therefore the area is not expected to flood in a 100-year storm event. Furthermore, there is no evidence of surficial flow within the wetland on either side of the proposed crossing and any flow that does occur during precipitation events may pass through the proposed culverts.

Comment #7:

Another comment from the 11/14/2019 K.P. Law letter: No geotechnical borings were supplied to determine if the roadway (railroad) would function as designed. These borings should be supplied and reviewed by a geotechnical engineer to ensure the roadway (railroad) will not fail and cause more impacts to the resource area.

Geotechnical reports were completed for the design of the railway, see attached as requested.

Comment #8:

Sheet 23 states that the temporarily disturbed wetlands (adjacent to the permanent wetland impacts from the rail crossings) will be restored with wetland soils/ seed mix as described on Sheet 17. Sheet 17 no longer has the note on it which pertains to the temporary wetland disturbance. The temporarily disturbed wetlands need to be seeded with a wetland seed mix and the specs should be provided for this seed mix. Additionally, at least a 6” depth of organic rich topsoil should be used to restore the surface of the temporarily impacted wetland areas prior to seeding.

The plans have been revised to include New England Wetmix from New England Wetland Plants, Inc. In addition we added 6" depth of organic rich topsoil shall be placed prior to seeding as requested.

Comment #9:

According to LEC, the soils to be used in the replication area consist of an organic rich topsoil. A definition of organic rich topsoil is needed. The response letter from Farland states the specs for the soil has been added to the plans. However, I could not find them.

LEC has provided a spec and FC has added it to the landscape plan as requested.

Comment #10:

The Planting tables for the wetland replication area, the riverfront area and the stormwater pocket wetland have been removed from the 1/10/2020 plan set. These need to be placed back on the plans.

FC has added the tables back to the plans as requested. Due to the size of the replication and stormwater feature we recommend the Conservation Commission Agent and Wetland Scientist meet to discuss on site prior to start of construction.

Comment #11:

There are numerous places where the 25' No Disturb Zone has been encroached upon. A list of the locations is as follows:

- *A portion of the eastern side of Photovoltaic Canopy #2 and the erosion controls encroach into the 25' No Disturb Zone. This area is currently forested.*

Proposed work has been pushed outside the buffer zone as requested.

- *A portion of the eastern side of the proposed side bunker building w/ roof mounted solar array and the erosion controls encroach into the 25' No Disturb Zone. This area currently has a walkway located within the 25' No Disturb Zone which would be removed for the proposed bunker building.*

The proposed work is going to be further away from the existing concrete walkway that exists, therefore we are considering this an improvement to the current conditions.

- *The edge of the entire proposed stormwater wetland is within the 25' No Disturb Zone. The stormwater wetland should be pulled back to allow for the 25' No Disturb Zone to remain intact. The only area where the 25' No Disturb should be disturbed is where the spillway is located.*

FC has revised the stormwater wetland as requested.

- *The erosion controls along the northern edge of the rail siding encroach into the 25' No Disturb Zone on Sheet 13.*

FC has designed the rail way to minimize the impacts to the wetland resources to the maximum extent practical. A redi-rock retaining wall has been located in this area to prevent wetland disturbance. The area in question is an area that has been previously disturbed, and the limit of clearing is at the wetland boundary therefore no tree clearing is taken place.

- *On sheet 14, the rail encroaches into the 25' No Disturb Zone in the vicinity of Wetland Flags TEC A 89 through TEC A 95.*

FC has designed the rail way to minimize the impacts to the wetland resources to the maximum extent. The curvature of the railway is regulated by federal regulations, therefore if we start the curve earlier or later the results will end up with more buffer zone disturbance.

Comment #12:

A wall is proposed along the northern edge of the rail siding on Sheet 13. A detail needs to be provided for this. In some areas only 2' separates the wall from the erosion controls which border the wetlands. As shown there does not appear to be enough room to install the wall footings without disturbing the wetlands.

The proposed RediRock retaining walls don't require footings so 2' is more than enough to be able to work and get the walls installed as depicted on the site plans. See attached detail.

Comment #13:

The stone slope protection detail shows rip rap, railroad ballast and geotextile fabric extending under the perennial stream. If this detail is accurate than a natural stream bed should be proposed while still maintaining the low flow substrate elevation.

This detail has been removed as its no longer needed.

Nitsch Engineering Comments

Comment #1 (Closed)

Comment #2 (Closed)

Comment #3 (Closed)

Comment #4

The project includes the construction of photovoltaic canopies in multiple areas. Some of these canopies are proposed over existing vegetated areas, including an existing stormwater basin on the south side of the building.

a. Additional information and details on the types of canopies proposed are needed to fully understand the intent. Please clarify the type of canopy and level of imperviousness.

b. We are also looking for clarification on what the intent is for the existing vegetated areas that will be covered. Even if the canopies have some openings, it seems unlikely that the vegetation will survive, and the stormwater basin will no longer function as intended. We recommend that the Applicant evaluate alternative locations for the canopy over existing paved areas.

Farland Response (01/10/2020): The canopies are labeled as rear canopy 1 and front canopy 2. They are both designed as open canopies with an approximate 1 inch spacing around each panel allowing rain to flow through the canopies. In addition, canopy 1 has no existing or proposed vegetation under it. The front photovoltaic canopy 2 is proposed over the existing vegetative areas, which is designed with no sides and has a minimum clearance of 13' at the low side and 22' at the high side. This design allows for vegetative growth.

Nitsch Response (01/24/2020): We concur that the canopy configuration appears to allow for vegetated growth beneath. However, the Applicant should address potential impacts to the function of the basin, including the potential for concentrated flow off of the panels that may cause erosion. The footings for the canopy also appear to be located within the basin and might reduce the capacity of the basin for stormwater mitigation. Additional detail is needed to determine the extent of these impacts and they should be included in the HydroCAD analysis as noted in Comment #10. Additionally, the western extents of the canopy are shown to encroach upon the 25-foot No Disturb Zone to the adjacent wetland.

The fact is that there will only be 3 columns inside the basin area that encompass a total of 21 S.F. out of the 4,062 S.F. of the basin (0.005%). Therefore, installation of the columns within the basin won't affect its function. Rain flows through the canopy similar and won't consist of concentrated flows, therefore erosion won't be an issue. Also, only 24% of the canopy is actually over the basin.

Comment #5 (Closed)

Comment #6 (Closed)

Comment #7 (Closed)

Comment #8 (Closed)

Comment #9

Additional detail is needed to clarify the intended stream substrate materials within and around the proposed culvert. A scour analysis should be performed to confirm the necessary depth, length/width, and material size for the anti-scour measures. The current limit of work shown on the plan does not include any area for installation of anti-scour measures at the upstream and downstream culvert openings.

Farland Response (01/10/2020): See Comment #7.

Nitsch Response (01/24/2020): The Applicant is proposing to maintain the existing stream in its current condition. However, depending on the temporary impacts to the stream during construction, restoration of the stream substrate materials may still be required. Additional detail regarding the protection and restoration of the stream should be provided in the cross-section detail on Sheet 22. The resource areas should also be indicated on the detail. Additionally, the Applicant should confirm the intent of the “Stone Slope Protection” and “Cofferdam Sedimentation Basin” details on Sheet 24. It is unclear if these are intended for the stream crossing; however, it references PennDOT materials and appears to place engineered materials on the Bank and within the stream.

The detail on sheet 22 is only a detail and not to scale. We did revise the detail as requested. The erosion control has been placed at the resource area limits to provide adequate area to work. Any disturbed areas will be brought to its original condition. Also, the stone slope protection and cofferdam sedimentation basin details have been removed. A 15'x30' filter bag has been added for dewatering and sediment control purposes.

Comment #10

The limit of work should be provided on the existing and proposed conditions subcatchment plans and the extents of stormwater analysis and HydroCAD modeling should include all proposed work at a minimum. If work is proposed within existing stormwater basins, the basin and its contributing drainage area should be included in the HydroCAD model. The design points for each subcatchment should also be shown on the Plans for clarity.

Farland Response (01/10/2020): FC has revised the Pre and Post-Subcatchment plans and HydroCAD calculations as requested. The limit of work is shown that is still getting directed to the westerly and easterly detention basins in which is a significant reduction from pre-development.

Nitsch Response (01/24/2020): The revised Pre and Post-Subcatchment plans and HydroCAD calculations are missing the following areas:

- The portion of the site to the south of the existing building where the new solar canopies are being constructed. This includes a subsurface infiltration system in the loading dock area and the stormwater basin that is proposed to be covered by the solar panels. There is also a note to remove*

and relocate a catch basin Stormceptor structure, but no clarification on where this should be located and if it will impact routing to the subsurface system.

The SCS Curve Number for the portion of the site noted above is remaining the same, therefore the proposed development of the canopies will have negligible affects to the subsurface infiltration system and stormwater detention basin. There is an improvement in water quality due to the Front Photovoltaic Canopy #1 having a solid rooftop versus the asphalt pavement in the existing conditions. The Stormceptor is being removed and relocated 8' to the west to avoid the proposed column. Hydrology patterns will remain the same. Subcatchments have been added to the Hydrocad file as requested.

• The railroad spur line that crosses through the woods. The Applicant should confirm the limit of tree removal and the land cover change through the full extent of the corridor, and provide measures to prevent erosion and increases in stormwater discharge to the adjacent wetlands.

The limit of tree removal is the erosion control. The total area crossing the woods is 7,550+/- S.F.. Land cover is currently wooded wetlands and uplands and will convert to a railway spur which consists mostly of stone. Due to this the overall curve number is reduced, therefore stormwater discharged is negligible. Its also important to note that the stone railbed also provides stormwater volume which has not been taken into account. Subcatchments have been added to the Hydrocad file as requested.

• The reconstructed portion of the paved driveway located directly west of Subcatchments S1 and S2. It appears that the re-grading in this area will change the direction of stormwater flow and this should be accounted for in the HydroCAD model. Additionally, water from this area should be treated prior to discharging into the adjacent wetland.

The total area of the reconstructed portion of the paved driveway is 9,300 S.F.. The total impervious area of the driveway is remaining the same, therefore there won't be any increase in stormwater runoff or untreated discharge to the abutting resource areas. The edge of pavement to the BVW ranges from 10-16'. To minimize the impacts to the resource areas we have added a retaining wall to the west and easterly side of the driveway.

• The existing stormwater basin and contributing watershed area where the wetland replication is proposed.

The existing stormwater basin and contributing watershed area where the wetland replication is proposed is being converted from a contractors yard with an average curve number of 86 to a grass area with an average curve number of 82.

Comment #11

The HydroCAD model within the Stormwater Report indicates a Hydrologic Soil Group (HSG) assumption of "A" soils. This is inconsistent with other language in the report that indicates "C" soils. The three test pits provided in the Details indicate fill but do not describe texture so they cannot be used to determine the HSG without additional information. The HSG assumption should be revisited based on all available information and should be made consistent throughout the Stormwater Report, including the HydroCAD model and recharge calculations.

Farland Response (01/10/2020): FC has been working on this site and abutting properties over the past 5 years and has performed several testpits in which all have been a Sandy "A" soil. We have also inspected all the stormwater basins and verified that all drain within 72 hours thus supporting are findings. Most importantly the HydroCAD pre and post development are consistent utilizing A soils.

Nitsch Response (01/24/2020): Understood. However, the Existing Conditions section of the Stormwater Report is still inconsistent with the HydroCAD report, and the soil test pit logs provided in the plans do not indicate the texture of the fill layer. This information should be provided and the assumptions made for the soils in the hydrologic calculations should be documented in the Existing Conditions section of the Stormwater Report.

Additionally, the Hydrologic Soil Group for the Constructed Stormwater Wetland is shown as "A" soils in the HydroCAD model, but should be modeled as "D" soils or impervious area, as there will always be water within the basin.

FC has revised the Existing Conditions section of the Stormwater Report so it's consistent with the HydroCAD report. Scarborough soils range from A to D soils. Considering the Sandy Gravel soils encountered on-site we have classified the soils as A in the pre-conditions and post-conditions. We believe as long as the Pre and Post development calculations are consistent its really irrelevant if they are A, B, C or D.

FC has revised the Constructed Stormwater Wetland as water surface (impervious area) with curve number 98 as requested.

Comment #12 (Closed)

Comment #13

The Applicant is currently proposing to use a constructed stormwater wetland to provide stormwater detention, treatment, and groundwater recharge. We agree that a stormwater wetland would provide excellent treatment and is a good fit for the context of the site as it is surrounded by wetlands; however, constructed stormwater wetlands are always wet because they contain a low-level permanent pool and, therefore, do not provide groundwater recharge. The basin currently modeled in the proposed conditions HydroCAD includes 8.27 inches per hour of infiltration. The Applicant should revisit the intended design and function of the stormwater wetland to ensure it aligns with the MassDEP Stormwater Handbook. This would include lowering the elevation of the bottom within a portion of the wetland to create a permanent pool and removing the infiltration assumption. Additional detail on the low and high marsh areas should also be provided to confirm it meets the guidance in the Handbook.

Farland Response (01/10/2020): FC has revised the constructed stormwater wetland as requested and removed the infiltration component. We have added an infiltration trench prior to discharging to the constructed stormwater wetland to achieve exceeding predevelopment runoff rates and volumes. Revised plantings and notes have been added to the plans as well. We feel it would be best to have LEC supervise the proposed locations during construction which can be coordinated with the Commission and/or consultant.

Nitsch Response (01/24/2020): The Applicant has revised the modeling of the constructed stormwater wetland to remove stormwater infiltration as requested. However, additional documentation is still needed to confirm the proposed stormwater system will function as needed to meet the MassDEP Stormwater Standards.

- The Applicant should review the design of the overflow from the wetland. Currently, the plans and HydroCAD indicate an overflow at Elevation 80 feet. This is located above all surrounding grades and would mean that the wetland basin and upstream sediment forebay would be full at all times. The elevation of this overflow should be made consistent with the top of the berm (elevation 78). A low flow outlet is also needed at Elevation 76 feet to allow the wetland to slowly discharge in between storm events.*

FC has revised the constructed stormwater wetland to have a top of berm at elevation 78, emergency overflow at elevation 77.75 and low flow outlet at elevation 76 as requested.

- The footprint of the basin should be optimized during the design of the outlet control to remove impacts from the 25-foot No Disturb Zone. The Applicant could consider converting the basin from a constructed wetland to an infiltration basin or other BMP type if that allows resource area impacts to be reduced.*

FC has revised the constructed stormwater wetland to pull as much work as possible outside the 25-foot No Disturb Zone as requested.

- The groundwater recharge calculation provided in the Stormwater Report should be revised to reflect the current design. The recharge volume provided by the proposed infiltration trench should be quantified and compared against the required recharge volume for the project.*

This redevelopment project is reducing impervious coverage by 18,800+/- S.F. due to existing concrete slabs being removed and buildings being placed over existing impervious areas. The required volume for the project was 2,873 C.F. and the Infiltration Trench provides 27,050 C.F. which is significantly more than what is required.

Comment #14

The sediment forebay sizing calculations provided by the Applicant indicate that the forebay provides 0.25 inches per impervious acre, while the Stormwater Management Standards require a minimum of 0.1 inches per impervious acre. While the Applicant is currently exceeding the required volume, there may be potential to reduce the footprint of the riprap silt trap and sediment forebay. As the basin is proposed within an existing wooded area and buffer zone, optimizing the footprint of the sediment forebay and constructed wetland to reduce vegetative clearing is recommended.

Farland Response (01/10/2020): FC has revised the forebay as requested, see revised calculations.

Nitsch Response (01/24/2020): The Applicant revised the forebay calculations to reflect the 0.1 inch per impervious acre MassDEP design requirement. However, they also added stone infiltration trenches for the roof area that is tributary to the basin (approximately 89,000 square feet), which will significantly reduce the volume of water going to the forebay. We recommend that the Applicant focus the sediment forebay sizing calculation on the area of the railroad tracks that is tributary to the basin (approximately 28,000 square feet). We also note that there is a significant area of riprap between the swale along the tracks and the forebay. Based on the incoming peak runoff rates, the Applicant should consider reducing the size of the riprap to be located immediately adjacent to the flared end and adjusting the size and location of the forebay to be located closer to the swale and flared end.

FC has significantly reduced the constructed stormwater wetland, forebay and rip rap area as requested.

Comment #15

The Operation and Maintenance Plan should include the proposed stormwater best management practices, including the constructed stormwater wetland and sediment forebay.

Farland Response (01/10/2020): FC has revised the O&M Plan to include the constructed stormwater wetland and sediment forebay.

Nitsch Response (01/24/2020): The O&M Plan was revised to reflect the stormwater wetland and forebay. However, it should now be updated to include the Stone Infiltration Trenches as well. In addition, the table Structural Sediment Control BMPs should reflect the BMPs within the O&M Plan, including the Constructed Stormwater Wetland and the Stone Infiltration Trenches.

FC has revised the O&M Plan as requested.

Comment #16

The Notice of Intent indicates that the project will permanently impact 4,936 square feet of Bordering Vegetated Wetland, 60 feet of Bank, 504 feet of Land Under Water, and 2,110 feet of Riverfront Area. As noted previously, the limits of the wetland resource areas (Bank, BVW, and Riverfront Area), all associated buffers, and the project limit of work line should be shown on all plans so that these impacts can be confirmed. Preliminary takeoffs by Nitsch indicate that the wetland impacts may exceed 5,000 square feet, so confirmation by the Applicant in terms of the location and quantities of fill area is needed.

Farland Response (01/10/2020): FC has revised the plans to reflect the impacts as requested. The BVW disturbance has been reduced to 4,095 S.F. and we have proposed a 6,750 S.F. replication area (1.64 to 1). The Riverfront Area has been reduced to 1,900 S.F. and the Bank and Land Under Water disturbance has been eliminated with the proposed bridge.

Nitsch Response (01/24/2020): We appreciate that the change to a span bridge will result in a reduced impact to the adjacent resource areas. However, due to the proximity of the new concrete abutments to the Bank, there appears to be the potential for temporary construction impacts to the Bank and Land Under Water. The Applicant should confirm if the construction of the concrete abutments will impact the stream during construction and possibly require dewatering/turbidity barriers/pumping. Temporary impacts should be quantified and provided in the Notice of Intent.

Regarding the impact area to BVW, we estimate that it is approximately 4,900 square feet, based on the Grading and Drainage Plan and the detail provided on Sheet 23.

FC doesn't anticipate any impacts to the stream during construction. The work will take place within the erosion controls depicted on the site plans. The revised plans indicate a dewatering area and dirt bag setup, if needed. The concrete embankment will sit on driven steel piles thus minimizing excavation for the footings. We have revised the detail sheets accordingly and also noted that any temporary disturbance to the Bank will be restored to match existing slopes and vegetation, with stabilization provided by erosion control matting if necessary.

The detail on Sheet 23 wasn't updated to reflect the width of the rail wetland crossing from retaining wall edge to edge which went from 20' to 18', thus the difference in impact area (4,095 S.F.).

Comment #17

The proposed wetland replication area is to be located within an existing cleared area that currently serves as a stormwater management facility. The Applicant should clarify if this basin is still actively providing stormwater management and how this function will be replaced elsewhere.

Farland Response (01/10/2020): The operations around the stormwater management facility will be removed and the area will be loamed and seeded, thus the system will no longer be needed.

Nitsch Response (01/24/2020): Understood. Is this work proposed under this Notice of Intent? If so, the extents of loam and seed restoration area should be provided on the plans and the area included in the stormwater calculations (see Comment #10).

FC has revised the site plans and stormwater calculation as requested.

Comment #18

Additional detail is needed for the wetland replication area and surrounding wetland. The proposed grades for the wetland replication area should mirror the grades in the surrounding wetland. However, based on the topographic detail provided on Sheet 14, this cannot be confirmed. It is unclear if the replication area will be hydrologically connected to the surrounding wetland. Additionally, the square footage of the wetland replication area should only include the lower elevations where the wetland conditions will be replicated, and not the sideslopes going down to the replication area.

Farland Response (01/10/2020): FC has revised the wetland replication area as requested and included additional spot grades. We have also included a cross section detail.

Nitsch Response (01/24/2020): The Applicant modified the grading and the bottom of the replication area is at Elevation 76, which is slightly lower than the grade of the surrounding wetland. The area of the replication area at Elevation 76 is 5,000 square feet, yielding a 1:1 replication ratio. The Commission requires a 1.5:1 replication ratio and there appears to be additional space to increase the size of the replication area.

FC has revised the wetland replication area to enlarge the 76 contour to contain 6,700 S.F. thus providing a 1.64:1 replication ratio as requested.

Comment #19

The Applicant is proposing two wetland crossings to maintain the hydraulic connection between the wetlands once the raised berm for the rail spur is constructed. Are these crossings also intended to provide a habitat connection? If so, are they adequately sized for that purpose?

Farland Response (01/10/2020): FC has provided 2'x4' open box culverts which are adequately designed for the hydraulic connection and habitat connection.

Nitsch Response (01/24/2020): The wetland crossing detail on Sheet 23 is not consistent with plans. This detail should be revised to reflect the proposed conditions, including the culvert dimensions and elevation and how these areas will be connected to the adjacent wetland resource areas. The detail should support the Applicant's response that the wetland crossing will provide connectivity for both the habitat and water within the wetland areas.

FC has revised the detail as requested.