



Wade Trim Associates, Inc.  
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November 13, 2023

City of Marshall  
323 West Michigan Avenue  
Marshall, MI 49068

Attention: Mr. Eric Zuzga

Re: Blue Oval Battery Park Stormwater Site Plan Resubmittal

Dear Mr, Zuzga:

In a letter dated November 9, 2023, Progressive AE, Inc. (Progressive AE) provided conditional approval on the revised Permanent Stormwater Plan Set and the Stormwater Impact Analysis report that were submitted on November 3, 2023, for the proposed Marshall MEGASITE in Marshall, Michigan. Conditions for approval require a plan resubmittal. Conditions are being addressed as follows:

- a) The design for the ponds meets the requirements of the City of Marshall Stormwater Management Plan and the Calhoun County and Battle Creek Area Stormwater Management Program Technical Reference Manual for detention and release from the site. The overflow spillway is also designed to meet the requirements of the City of Marshall and Calhoun County (un-restricted, developed 100-year storm event) with the exception that, after the spillway, the pathway to the Kalamazoo River via Culvert #2 is sized for the 100-year restricted (with detention basin in-place) storm event. In this instance, a path to the Kalamazoo River at that rate is unreasonably large for this redundant storm event. Wade Trim should continue to work with Michigan Department of Transportation (MDOT) and Amtrak and make adjustments to the plan as needed to satisfy their approval requirements. Changes affecting the stormwater conveyance on site should be sent back to the City of Marshall and Progressive AE for further review.

**Response: No design changes are anticipated at this time related to this comment.**

- b) On Drawing C103.1, we ask that the following items be addressed:
  - i) Re-draw the profile so that it is in the same East\West orientation as the plan view to avoid confusion.  
**Response: The profile orientation has been changed on sheets C103.1A – C103.1E**
  - ii) Draw the profile at the same scale. We note that additional sheets may be needed to accomplish this.  
**Response: Sheet C103.1A has been added for the profile.**
  - iii) Add Culvert #1 to the profile.  
**Response: Culvert 1 was added to the profile on sheet C103.1A.**
  - iv) Evaluate the elevation of the railroad tracks shown as it appears that elevation changes quickly at stations 29+00 and 48+00, which seems unlikely to us.  
**Response: The profiles were developed from the available topographic data which is Lidar data and not field surveyed. Creating profiles from Lidar data results in**

**apparent elevation changes along the rail line that likely do not exactly reflect real-world conditions. However, survey data was taken at the culvert crossings and more accurate data outside of that area does not appear necessary to evaluate the design criteria that applies to the railroad.**

- c) The system includes infiltration of the pre-developed 2-year storm event based on the elevation of the top of the Outlet Control Structure. That is supported by a gravel-wrapped underdrain. The infiltration rate used to size the outflow of this underdrain system is 40-feet per day or 20-inches per hour. This rate is excessive given that the gravel is topped by sand. A reasonable infiltration rate for sand should be used for this calculation. In addition, Page 9 of the Stormwater Impact Analysis Report describes various rates of infiltration for the bottom of the basin to infiltrate the 2-year storm event, ranging from 10-inches per hour to 0.25-inches per hour. An estimate of the anticipated infiltration rate and time for draining of the 2-year storm event should be provided.

**Response: The revised underdrain calculation is provided in Appendix I of the Stormwater Impact Analysis Report using 8 in/hr for the infiltration rate. The underdrain was increased in length to 2,400 LF on sheets C103.0 and C106.3.**

- d) The Outlet Control Structure has its lowest point designed to retain the 2-year storm event. The volume provided at elevation 900.8 is 3,671,540-cubic-feet. The amount required to be retained is 2,954,070 cubic feet. The applicant should review the design elevation to determine if reducing the elevation will benefit storage and outflow during larger storm events.

**Response: While this scenario could be evaluated, it is not necessary given that the current design is compliant with all applicable design criteria. This design change would result in changes to flow rates from the basin for all storm events, resulting in changes to calculations related to the culverts and plunge pools. Therefore, the evaluation is not being considered for this submittal to allow for the culverts to potentially be installed in 2023.**

- e) We note that the Deep Storm Network submittal is not approved as part of this submittal package. Evaluation and approval of drainage ditches, drainage pipes, and stormwater inlets will occur separate from this approval.

**Response: Noted. No design changes are anticipated at this time related to this comment.**

- f) Easements and maintenance agreements need to be completed.

**Response: Noted. No design changes are anticipated at this time related to this comment.**

Very truly yours,

Timothy Dunaway, PE  
Senior Technical Lead  
Wade Trim Associates, Inc.