

September 13, 2021

Mr. Kevin Krulik, P.E., P.S., AICP
Lebanon City Engineer
401 S Meridian Street
Lebanon, IN 46052



RE: IMI Lebanon
CBBEL Project No. 200087.00022

Dear Mr. Krulik:

We have received the Stormwater Review Memorandum for the above-referenced project from David Eichelberger and Kerry Daily with CBBEL, Indianapolis dated August 23, 2021 and have completed revisions to the plans and drainage calculations. The responses to the comment letter are listed below.

1. The allowable release rates from the 10.24-acre site are 1.54 cfs for the 10-year storm event and 2.56 cs for the 100-year storm event. The designers have provided detention storage for new impervious areas and to re-establish previously provide storage in the detention basin, but the project design should still meet the allowable release rate requirements of the Standards. ***There were several limitations with the existing site conditions, the agreed upon detention/drainage design, and the constraints required to provide the necessary product for IMI that does not allow for strict conformance to the required 1.54 cfs (0.15 cfs/acre) and 2.56 cfs (0.25 cfs/acre) allowable release rate. Per an electronic meeting on Thursday, May 27, 2021, the detention/drainage design was agreed upon based on the following items:***
 - ***CRE will calculate the amount of volume the 1998 detention basin provided by using the surface area of the 1998 basin per Google Earth imagery and using the current top of bank and edge of water survey shots***
 - ***CRE will calculate the amount of impervious area in existing conditions and the amount of impervious area in proposed conditions***
 - ***If the impervious area in proposed conditions are equal to or less than existing conditions, then CRE will provide equivalent volume to the 1998 detention basin***
 - ***If the impervious area in proposed conditions are greater than the existing conditions, then CRE will provide the 1998 detention basin volume plus the additional runoff volume generated from the extra impervious area***
 - ***CRE will design a detention facility and outlet structure where the release from the pond will be so that the detained volume***

The proposed outlet control structure and detention pond was sized as large as possible to provide the required volume per the methodology listed above, meet the maneuverability requirements necessary for IMI concrete plant product and meet the majority of other drainage requirements per the manual (minimum freeboard, minimum normal pool area, etc.). One challenge with requiring strict adherence to the allowable release rates would require increasing the pond size. Increasing the pond size would not provide the necessary space that IMI would need for the concrete plant to function properly. Additionally, the amount of added impervious area is minimal (0.14 acre) and would only generate a small increase in site runoff. This additional site runoff is being attenuated to a degree by the proposed wet extended detention

pond as well. There were also elevation challenges that limited strict adherence to the allowable release rates. The existing structure that is being replaced is actually being raised slightly to a rim elevation of 952.00. It was CRE's goal to limit the 100-year elevation to not surcharge the rim elevation of this structure and to flood the site in normal conditions. Another challenge was orifice size utilization. The original design showed a 2.5" diameter orifice to control low flow and water quality conditions. Per email from Kerry Daily dated Thursday, September 9, 2021, CRE was instructed to utilize orifices no smaller than 6" in diameter. Standard design practices would simply swap any orifices smaller than 6" out with a 6" orifice and retain the orifice invert elevation. CRE swapped the low flow and water quality orifice out for a 6" diameter size and also modified the size/elevation of the high flow orifice to maximize the 100-year water surface elevation to not surcharge the structure described above. This effort resulted in a pond design that actually complies with the 10-year allowable release rate and nearly complies with the 100-year allowable release rate. This design also allows the City of Lebanon to modify the outlet structure if it is determined that utilizing the 6" orifices are negatively impacting the downstream facilities even though there are no anticipated negative downstream impacts. CRE feels that this design provides the best balance between meeting the required volume as originally established, providing IMI with a functioning product, minimizing negative drainage impacts to the site, meeting other requested drainage requirements (i.e. minimum 6" orifice size) and nearly meeting the allowable release rate requirements while providing significant drainage/detention benefit to not only the site itself but also Fishback Creek as the downstream facility.

2. All input data for the detention model should be included in the Stormwater Report. The report should also include the Curve Number and Time-of-Concentration calculations for the pre-development and post-development basins.
The input data for the detention model is included on pages A-1 of Appendix A and pages C-2 through C-8 of Appendix C. Pre-developed and post-developed curve number calculations are included in Section 2 of the Stormwater Report. Times of concentration were assumed to be five minutes for pre-developed and post-developed conditions.
3. The Stormwater Report should include a schematic for the detention model identifying all nodes, junctions and links. The designers should review the link data in the model as the lengths and elevations do not agree with the pipe data in the plans.
The Stormwater Report has been revised to include a schematic of the drainage model on Sheet C-1 in Appendix C.
4. It should be confirmed that the existing wetland area at the site is not accounted for in the detention storage calculations.
The existing wetland was incorporated in the drainage modeling calculations as a storage node. Per phone conversation with Kerry Daily on Thursday, September 2, 2021, it was indicated that the existing wetland area could be counted towards drainage storage so long as it is placed within a drainage easement. The plans and O&M Manual exhibits have been updated to include the existing wetland in an easement.
5. The proposed project requires two post-construction measures in series.
Verbiage was added to the drainage report in Section 3 to discuss utilizing the existing wetland would provide water quality benefits as a second BMP. 29% of the site drains through two post-construction BMPs being the existing wetland area and the proposed detention pond. Also, less than 1 acre of impervious area is being added to the project (only 0.14-acres of impervious area

added) site as most of the site was already impervious area in existing conditions. Since less than one acre is being added, one BMP (the proposed detention pond) would be adequate to treat the 0.14 acres of impervious being added.

6. An emergency flood routing plan should be provided to ensure all developed conditions stormwater from the site discharges to the detention basin and not to adjoining properties.
The plans have been revised to include a Flood Routing Plan (Sheet 501).
7. The storm sewers should discharge into the detention basin one-half foot above the normal pool elevation. The plans should also include a detailed cross-section of the outlet at Fishback Creek to ensure this pipe is one-half foot above the stream bottom.
The Storm Plan and Profile (Sheet 601) has been revised to include the existing ditch elevation to show that the outlet is a minimum 6 inches above Fishback Creek. Response.
8. The following comments concerning the project's Storm Water Pollution Prevention Plan (SWPPP's) should be addressed:
 - a. SWPPP Item A8: The IDEM Rule 5 permit should be listed as a required State water quality permit.
SWPPP Item A8 has been revised to list the IDEM Rule 5 NOI as a required State water quality permit.
 - b. SWPPP Item A14: The response for this item should include the predeveloped 10-year discharge for the site.
SWPPP Item A14 has been revised to include the pre-developed 10-year discharge for the site.
 - c. SWPPP Items B3 – B8: The responses for these items should include the specific measure utilized for each item.
SWPPP Items B3 through B8 have been revised to include the specific measure utilized for each item.
 - d. SWPPP Item B8: Details should be provided for the outlet protection measure.
SWPPP Item B8 has been revised to note that End Section riprap apron dimensions/details are included on the Erosion Control Plan (Sheet 700) and Miscellaneous Details (Sheet 800).
 - e. SWPPP Item B14: The response for this item should include the required frequency of site inspections.
SWPPP Item B14 has been revised to note that inspection frequencies for each stormwater quality measure is included under the "Monitoring and Maintenance Guidelines" Section included on the Erosion Control Details (Sheet 701) in the second column.
 - f. SWPPP Item C4: The response for this item should note the plan sheets with locations of post-construction measures and the plan sheets with details for the post-construction measures.

SWPPP Item C4 has been revised to note the plan sheets with locations of the post-construction measures and the plan sheets with details for the post-construction measures.

- g. SWPPP Item C5: An Operations and Maintenance (O&M) Manual for the post-construction stormwater quality measures should be developed for the project and submitted for review.

A draft Operations and Maintenance (O&M) Manual has been included in the resubmittal.

If you have any questions or comments concerning this project, feel free to contact me at (317) 780-1555 ext. 113.

Sincerely,



Michael Kalberg
Project Engineer
CrossRoad Engineers, P.C.
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Beech Grove, IN 46107