

Township of East Vincent
Attn: Cindy Shank
Building Code Official
262 Ridge Road
Spring City, PA 19475

May 13, 2024

Re: Spring City Elementary School – Building Additions & Renovations
Land Development Review
East Vincent Township, Chester County, Pennsylvania
pH No. 2186.011

Dear Mrs. Shank,

Princeton Hydro is pleased to provide East Vincent Township with this summary of our review of the recently submitted Spring City Elementary School – Building Additions & Renovations Land Development Application. We have reviewed the plans for their compliance with the Township Stormwater Ordinance. Our review includes comments related to the application's compliance with various stormwater management related requirements.

The following documents were provided to us by the applicant's engineer for the purpose of our review:

- Plans entitled, "Final Land Development Plans Spring City Elementary School – Building Additions & Renovations for Spring Ford Area School District East Vincent Township – Chester County - Pennsylvania" dated September 15, 2023, Revised to March 18, 2024, prepared for Chester Valley Engineering Inc., Sheets C-1 to C-21, prepared by Jeremy R. Maziarz, PE of Chester Valley Engineers, Inc.
- Report entitled, "Post-Construction Stormwater Management Report for Spring City Elementary School – Building and Renovations East Vincent Township, Chester County, Pennsylvania CVE Project No. 21811-2000 prepared for Spring Ford Area School District prepared by Chester Valley Engineers, Inc." dated September 15, 2023 and revised to March 28, 2024, prepared by Jeremy R. Maziarz, PE of Chester Valley Engineers, Inc.

Introduction

The applicant proposes to construct four (4) building additions (culminative total of building addition is 7,103 sq ft). The applicant also proposes to replace and expand the eastern parking lot, reduce the size of the western playground area, improve walkways, and mill and overlay a portion of the loop driveway and remaining western playground. The project proposes to use two (2) infiltration beds to address the requirements of the East Vincent Township Stormwater Management Ordinance. One of the subsurface infiltration beds is proposed below a playground (with an asphalt surface) and the second is proposed below a grassed area.

Based on our review of the site topography and regional topography, the project site drains to both the Schuylkill River and the Stony Run. The site is in an area not mapped to be underlain with carbonate geology. The pre-development drainage areas delineated by the applicant's engineer include only the areas to be disturbed by the proposed improvements and were divided into three (3) overall sub-areas, #001, #002 and #003. Study area

#001 drains to an existing stormwater management basin located in the northwest portion of the site, study area #002 is located along the southeast property line, and study area #003 is conveyed to the existing storm drain system along South Wall St.

The proposed improvements will be managed by the existing stormwater management facility and the two (2) proposed subsurface infiltration beds.

1.0 General

The following general comments are provided with respect to the site's proposed stormwater management system and associated site improvements:

- 1.1 On sheet C-9, the discharge pipe from SWM# 100 is shown coming out of the bottom of the manhole.
- 1.2 The applicant shall provide testimony on how the proposed shelter near the entrance of the school is included in the stormwater calculations.
- 1.3 The applicant shall provide testimony about the flow path for the runoff to reach existing stormwater infrastructure if BMP 200 overflows.

2.0 Groundwater Recharge, Volume Control, and Water Quality

In accordance with §23-305 and 23-306, the application must incorporate stormwater control including volume control management of the net increase in the volume of runoff generated by the proposed development during the two-year storm. The project's ability to meet the volume control requirement is a key component in the project's stormwater management compliance.

A total of six (6) test pits were performed throughout the site, with one being located at SWM #100 (TP-1) and two located at SWM #200 (TP-4 and TP-5). The soil investigation was performed by David Blackmore & Associates, Inc. (DBA) in August 2023. Groundwater was not encountered in these pits, but the associated infiltration testing yielded field infiltration rates of less than 0.20 in/hr., which are generally deemed unsatisfactory for infiltrating BMPs. As such, the engineer has elected to utilize the managed release concept (MRC) guidance published by the PADEP, as is allowable per §23-306 1A, to satisfy the infiltration requirements of the municipal code.

Based upon review of the Stormwater Management Report, the following comments relate to the stormwater Groundwater Recharge, Volume Control and Water Quality design:

- 2.1 In accordance with Version 1.2 of PADEP's design guidance on MRC (August 2020), non-vegetated MRC BMPs are required to have pretreatment. The plans must be revised to provide the pretreatment of runoff prior to entering both SWM #100 and SWM #200.
- 2.2 The drawdown time calculated for SWM #200 assumes the average of the infiltration rates found at IT-4 and IT-5. However, assessing the BMP using the limiting infiltration test (IT-4) would yield a more conservative estimate of the drawdown duration. Moreover, doing so would more accurately reflect the impact of successive storm events on the BMP and receiving soil, which would be taxed with an increased antecedent moisture condition. As such, the drawdown time for both the 2-year and 100-

year (maximum) storm would exceed the allowable durations. Additional means to comply with groundwater recharge standards must be investigated.

- 2.3 §23-306 1J(2) states that all infiltration practices shall be set back 50 feet from buildings and features with subgrade elements. Does the school building have any subgrade elements?
- 2.4 §23-311 6A states that all roof drains that discharge to infiltration systems shall have leaf traps and clean outs to prevent clogging by vegetation. Do the proposed and existing roof drains scheduled to discharge into the infiltration systems have these protections?
- 2.5 §23-306 1.B. states that for all regulated activities, the volume of a minimum of one inch of runoff from all regulated impervious surfaces shall be infiltrated. According to the stormwater report, Study Area #003 does not infiltrate the one inch of runoff from the impervious surfaces. The design shall be revised to infiltrate the one inch of runoff from the impervious surfaces in study area #003.

3.0 Stormwater Peak Rate Control

In accordance with §23-308, the applicant shall comply with peak flow rate control requirements for all regulated activities including those that involve the new development and redevelopment. The project proposes to use two infiltration beds to meet the peak flow rate control requirements.

Based upon review of the Stormwater Management Report, the following comments relate to the stormwater Peak Rate Control design:

- 3.1 The proposed basin, SWM #100, discharges into the existing stormwater basin and based on the drainage area maps provided, the runoff from the proposed building addition will discharge into the existing basin via a roof drain. However, the existing stormwater basin was not included in the hydrologic calculations. § 23-308 requires states that post-development peak discharges cannot be higher than pre-development peak discharges. SWM #100 will create additional storage volume for the drainage area and therefore, it may be logical to assume that post-development peak flow rates will be lower than pre-development peak flows. However, adding stormwater infrastructure can alter the timing of flows and sometimes, result in higher peak flowrates as compared to pre-development conditions. The applicant shall verify that the post-development peak discharges exiting the existing stormwater basin do not bring the existing stormwater basin out of compliance. It is recommended that the engineer include the existing basin in the HydroCAD model.
- 3.2 The applicant shall provide testimony about where the stormwater runoff from the existing courtyard is collected. This courtyard will be eliminated by one of the proposed building additions.
- 3.3 The applicant shall provide testimony for the necessity of the 4" plug is the proposed BMP #100. The applicant shall describe when the plug will be removed and how the applicant will ensure that the plug will re-installed after it has been removed.

4.0 Operation and Maintenance

In accordance with §23-402 1F, the following documents shall be prepared and submitted to the municipality for review and approval as part of the SWM site plan in accordance with the requirements for Part 7 of the East Vincent Township Stormwater Ordinance for each BMP and conveyance included in the SWM site plans:

- An Operations and Maintenance Manual
- An Operations and Maintenance Agreement
- Any easement agreements needed to ensure access, inspection, maintenance, operation, repair and permanent protection of any permeant BMP(s) and conveyances associated with the regulated activity.
- Any written deed, deed amendment or equivalent document (if needed) to be recorded against a subject property, as shown on the SWM site plan maps or plan sheets, or recorded plan sheets for the purpose of protecting and prohibiting disturbance to a BMP or conveyance; and
- Written approval, easement agreements, or other documentation for discharges to adjacent or downgradient properties when required to comply with § 23-301, Subsection 7 and Part 7 of this chapter.

Based upon review of the Land Development Application, the following comment relates to the Operations and Maintenance of the design:

- 4.1 The applicant shall provide all documentation required for the Inspection, Operation, Maintenance Requirements found in §23-402 1F. All documentation shall include proposed and existing stormwater infrastructure.

5.0 Erosion and Sediment Control

In accordance with §23-303, the applicant is required to receive a letter of adequacy from the local conservation district or other approval from PADEP in compliance with Title 25 Chapter 102 of the Pennsylvania Code of an Erosion and Sediment Control Plan for construction activities for projects where the area of disturbance exceeds one acre. This project proposes to exceed one acre of disturbance.

Based upon review of the Land Development Application, the following comment relates to the Erosion Control and Sediment Control design:

- 5.1 Applicant shall provide letter of adequacy from the local conservation district or other approval from PADEP in compliance with Title 25 Chapter 102 of the Pennsylvania Code of an Erosion and Sediment Control Plan.
- 5.2 Applicant shall provide copies of photographs referenced on sheet C-12 (Erosion & Sediment Control Plan).

Summary and Conclusions

In summary, we have provided comments which illustrate that there are critical remaining issues with the project's compliance with the stormwater ordinance.

This concludes Princeton Hydro's review of the materials submitted to the East Vincent Township for Spring City Elementary School – Building Additions & Renovations. We reserve the right to provide further comment should it become necessary. Please do not hesitate to contact me with any questions. We appreciate the opportunity to provide East Vincent Township with these services.

Sincerely,

A handwritten signature in blue ink, appearing to read "Sean Walsh".

Sean Walsh, PE
Senior Project Manager, Engineering