



# DLHowell

Civil Engineering & Land Planning  
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December 30, 2020

Westtown Township  
Attn: John Altshul, Township Manager  
1039 Wilmington Pike  
West Chester, PA 19382

RE: Westtown Thornbury Elementary Building Extension  
Preliminary/Final Land Development Application  
Cedarville Engineering Review dated December 4<sup>th</sup>, 2020

Dear Mr. Altshul

Enclosed is the revised Preliminary/Final Land Development plan for your review. The plan has been revised in accordance with the review letter prepared by Cedarville Engineering Group, LLC. dated December 4, 2020. The following explains how each comment has been addressed.

**EROSION AND SEDIMENT CONTROL COMMENTS (WESTTOWN TOWNSHIP CODE, CHAPTER 80, EROSION, SEDIMENT CONTROL AND GRADING):**

1. Section 80-5.D – A written description of soil erosion and sediment and control measures (with appropriate plans and specifications), in accordance with standards and specifications of the USDA Soil Conservation Service, Chester County Conservation District and township ordinances, including, without limitation, retention basins or other control measures necessary to limit the rate of stormwater runoff to comply with the requirements of §80-6C hereof.

An Erosion and Sedimentation Narrative and Report shall be included as part of the submission. Calculations supporting the size of compost filter sock proposed shall be provided with the Report.

**DLH Response: An Erosion and Sedimentation Narrative and Report has been included with the revised submission. Within this report, calculations for the sizing of the Compost Filter Socks are provided.**

**STORMWATER MANAGEMENT COMMENTS (WESTTOWN TOWNSHIP CODE, CHAPTER 144, STORMWATER MANAGEMENT):**

2. Section 144-301.C.(2) – The applicant has received a letter of adequacy or approval for the erosion and sediment control plan review by the municipality and the Conservation District (if required), and has received all other local, state and federal permit approvals required for the project involving the regulated activity.

Section 144-302 – Permit requirements by other governmental agencies.

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The following shall be provided:

- The total area of Limit of Disturbance shall be shown on the plan.
- A Letter of Adequacy and NPDES Permit shall be forwarded to the Township. Receipt of the referenced letter and permit shall be required prior to plan recording.

**DLH Response: The total Limit of Disturbance is provided on the revised applicable plan sheets (PCSM and E&S Sheets). Upon receipt of the letter of adequacy, the applicant will forward a copy to the Township.**

3. Section 144-301.U(1) – Where a development site is traversed by perennial or intermittent water courses, riparian buffers shall be provided conforming to the line of such watercourses. The riparian buffer shall be created to extend a minimum of 75 feet to either side of the top of the band of the channel, unless a wider riparian buffer is required by the provisions of Pennsylvania Code Chapter 102, as amended, in which case the greater of the two shall apply.

Section 144-301.U(3) – The buffer shall be maintained with appropriate native vegetation as defined in the appendices of the Pennsylvania Stormwater Best Management Manual, dated December 30, 2006.

Excavating, placing fill, building structures, or making any alterations that may adversely affect the flow of stormwater within any portion of the riparian buffer shall be prohibited unless the proposed work is associated with a regulated wetlands mitigation program.

Section 144-301.U(4) – The buffer must be defined through a deed restriction. The riparian buffer as defined above shall be shown on the plan. Areas of the riparian buffer that encroach on the subject tract shall be clearly shown, defined by easement, and shall be subject to deed restriction incorporating the restrictions referenced above.

The riparian buffer as defined above shall be shown on the plan. Areas of the riparian buffer that encroach on the subject tract shall be clearly shown, defined by easement, and shall be subject to deed restriction incorporating the restrictions referenced above.

**DLH Response: The 75' Township Riparian Buffer from the Goose Creek has been added to the revised plans. In addition, an easement has been added to follow the boundaries of the riparian buffer.**

4. Section 144-305.A – The post-construction total runoff volume shall not exceed the predevelopment total runoff volume for all storms equal to or less than the two-year, twenty-four-hour duration precipitation (design storm). The water quality and runoff volume to be managed shall consist of any runoff volume generated by the proposed regulated activity over and above the predevelopment total runoff volume shall be captured and permanently retained or infiltrated on the site. Permanent retention options may include, but are not limited to, reuse, evaporation, transpiration, and infiltration.

The following shall be addressed:

- The Knee Wall Elevation as shown on the Outlet Structure Detail shall be revised to reference an elevation sufficient to allow the Infiltration Bed to infiltrate the volume shown in Appendix D of the Report.
- Calculations shall be provided clearly showing how the 1,694 cubic feet of storage volume was obtained for the proposed rain garden. The routing calculations provided in Appendix C indicate a volume of 1,175 cubic feet between the bottom of the rain garden and the top of the riser. If voids in

the amended soils are to be used as credit, supporting calculations shall be provided demonstrating how the additional volume was obtained.

**DLH Response: The elevation for the knee wall has been corrected in the revised report. In addition, the design for the bed has been revised to provide the infiltration volume calculated below the lowest orifice. There is no exfiltration modeled within the infiltration bed in the revised design. Exfiltration is modeled in the rain garden. A note has been added to the NPDES Runoff Volume analysis worksheet located in Appendix D of the revised report.**

5. Section 144-306.I.(2) – Provide field tests such as double ring infiltrometer or other hydraulic conductivity tests (at the elevation of the proposed infiltration surface) to determine the appropriate hydraulic conductivity rate. Standard septic/sewage percolation tests are not acceptable for design purposes.

The Deep Test Elevation for infiltration test number 9-23-3 as shown under the Infiltration Test Data Table shall be revised as necessary to be consistent with the Stormwater Infiltration Test Data provided in the calculations.

**DLH Response: The Data Table on the PCSM plan sheet has been revised to indicate the proper test elevation at test pit number 9-23-3.**

6. Section 144-306.M – During site construction, all infiltration practice components shall be protected from compaction due to heavy equipment operation or storage of fill or construction material. Infiltration areas shall also be protected from sedimentation. Areas that are accidentally compacted or graded shall be remediated to restore soil composition and porosity. Adequate documentation to this effect shall be submitted to the Municipal Engineer for review. All areas designated for infiltration shall not receive runoff until the contributory drainage area has achieved final stabilization.

The following shall be provided:

- A note stating that areas designed for infiltration shall not be compacted and requiring remediation/restoration of compacted soils should they become compacted shall be added to the Plan.
- Orange construction fencing or tree protection fence shall be added to the area surrounding the proposed rain garden and infiltration bed to prevent compaction from construction vehicles during site construction. Installation and removal of the fence shall be referenced in the Construction Sequence.

**DLH Response: Due to the complexity of the site, construction access will be needed across these areas. Notes have been added to the Infiltration Bed and Rain Garden Detail to indicate that access across shall be minimized. In addition the applicant is proposing to provide additional infiltration testing in both facilities at the time of construction to confirm adequate infiltration rates are still available. In addition, there will be a minimum of 4 feet of cover of the infiltration surface bottom of the Infiltration Bed and a minimum of 3.5 feet in the rain garden (to the bottom of the soil amendment).**

7. Section 144-306.N - Where sediment transport in the stormwater runoff is anticipated to reach the infiltration system, appropriate permanent measures to prevent or collect sediment shall be installed prior to discharge to the infiltration system.

See Comment #5 regarding adding sump elevations to the Plan Sheets.

**DLH Response: The sump elevations in the inlets that are to contain water quality Snouts have been added to revised profiles.**

8. Section 144-307.A – For regulated activities involving new development with one or more acres of earth disturbance, the applicant shall comply with the following stream channel protection requirements to minimize stream channel erosion and associated water quality impacts to the receiving water: The peak flow rate of the post-construction two-year, twenty-four-hour design storm shall be reduced to the predevelopment peak flow rate of the one-year, twenty-four-hour duration precipitation, using the SCS Type II distribution.

The peak flow rate for the post-construction two-year storm shall be reduced to the predevelopment peak flow rate for the one-year storm as required by the above referenced section of the Ordinance due to the disturbed area exceeding one acre. Additional reduction may be required based upon the reduction requirements set forth in Comment 9 below.

**DLH Response: While this application does include a portion of the site that would be classified as redevelopment, the stormwater management design was based on the above criteria typically required for only new development projects.**

9. Section 144-308.H - Regulated activities located within the Chester Creek watershed shall achieve the applicable peak flow release rate control requirements presented in the approved PA Act 167 Plan for that watershed in Table 308.2 below and as presented in the Chester Creek Watershed Release Rate Map in Appendix F[1] of this chapter.

Table 308.2

Peak Rate Control Standards for Stormwater Management Districts Within the Chester Creek Watershed  
District Control Criteria

100%	Post-development peak discharge for all design storms must be no greater than predevelopment peak discharges.
75%	Post-development peak discharge for all design storms must be no greater than 75% of the predevelopment peak discharges.
50%	Post-development peak discharge for all design storms must be no greater than 50% of the predevelopment peak discharges.

The sub basin areas as referenced on the Chester Creek Act 167 Stormwater Management Plan Rate Release Map must be shown on the PCSM Plan to support the 100% criteria used in the calculations. The subject tract currently encompasses two sub basins, with both 100% and 75% reduction requirements.

**DLH Response: The majority of the disturbed area is located within the 100% release rate district, however the revised design meets the requirements for the 75% release rate for the entirety of the disturbed area. The boundaries of the release rate areas has been added to the revised plans.**

10. Section 144-311.E.(5) – The facility shall be provided with an emergency overflow device. An operations and maintenance program shall be developed for the facility and provided to the homeowner for implementation.

An emergency overflow device shall be provided for the subsurface bed as required by the above referenced section of the Ordinance. The following shall be noted:

- If a perforated overflow pipe is to be provided, the volume of the bed from the invert of the overflow pipe to the top of the bed shall be excluded from the bed volume used to accommodate the required water quality volume.
- If a yard drain or inlet is to be used, it shall be located outside of the proposed parking area.

**DLH Response: An emergency overflow pipe has been added to the revised infiltration bed design. The overflow pipe is a 4 inch pipe connected to a cleanout at the elevation of the top of the bed. This design will allow any overflow to exit through this pipe prior to backing up into the inlets and into the parking lot.**

11. Section 144-401 – The SWM site plan shall consist of a general description of the project including items described in § 144-304, calculations, maps, and plans. A note on the maps shall refer to the associated computations and erosion and sediment control plan by title and date. The cover sheet of the computations and erosion and sediment control plan shall refer to the associated maps by title and date. All SWM site plan materials shall be submitted to the municipality in a format that is clear, concise, legible, neat, and well organized; otherwise, the SWM site plan shall not be accepted for review and shall be returned to the applicant.

The Plans and Report must be revised to reference one another by title and date as required by the above referenced section of the Ordinance.

**DLH Response: A note has been added to both the report and the plans references the other document.**

12. Section 144-402.B.(3) – A statement, signed by the applicant, acknowledging that any revision to the approved SWM site plan shall be submitted to and approved by the municipality, and that a revised erosion and sediment control plan shall be submitted to, and approved by, the Conservation District or municipality (as applicable) for a determination of adequacy prior to construction of the revised features.

The above referenced statement shall be added to the PCSM Plan, signed by the applicant prior to plan approval, and shall be recorded with the Stormwater Operation and Maintenance Agreement.

**DLH Response: The statement has been added to the revised plans and will be signed prior to plan recording.**

13. Section 144-402.B.(4) – The following signature block signed and sealed by the qualified licensed professional responsible for the preparation of the SWM site plan:

"I (name), on this date (date of signature), hereby certify to the best of my knowledge that the SWM site plan meets all design standards and criteria of the Westtown Township Code, Chapter 144, Stormwater Management."

The referenced signature block shall be signed and sealed.

**DLH Response: The requested signature block has been added to the revised plans and will be signed and sealed prior to plan recording.**

14. Section 144-402.C.(2) – The name of the project, tax parcel number(s), and the names, addresses and phone numbers of the owner of the property, the applicant, firm preparing the plan.

The name, address, and phone number of the property owner/applicant must be added to the Plan.

**DLH Response: The name, address, and phone number of the applicant has been added to the revised PCSM plan sheet.**

15. Section 144-402.C.(8).(k) – Soil names and boundaries, general type of soils with hydrologic soil group noted, and in particular note areas most conducive to infiltration BMPs, such as Groups A and B, etc., estimated permeabilities in inches per hour, and location and other results of all soil tests and borings.

The following shall be addressed:

- Soil names and boundaries, noting hydrologic soil groups, shall be shown on the Plans.

**DLH Response: The soil names, boundaries, and hydrologic soil groups have been added to the revised plans.**

16. Section 144-402.C.(16) – A grading plan, including all areas of proposed earth disturbance and the proposed regulated activity and delineating the boundary or limits of earth disturbance of the site. The total disturbed area of the site shall be noted in square feet and acres.

The total disturbed area shall be noted in square feet and acres.

**DLH Response: The total area of the limit of disturbance has been added to the revised E&S and PCSM plan sheets.**

17. Section 144-402.G – Inspections, operation, and maintenance requirements. The following documents shall be prepared and submitted to the Township for review and approval as part of the SWM site plan, in accordance with the requirements of Article VII, for each BMP and conveyance included in the SWM site plan (including any to be located on any property other than the property being developed by the applicant):

- (1) An O&M plan.
- (2) An O&M agreement.
- (3) Any easement agreements that are needed to ensure access, inspection, maintenance, operation, repair and permanent protection of any permanent BMP(s) and conveyances associated with the regulated activity.
- (4) 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
- (5) Written approval, easement agreements, or other documentation for discharges to adjacent or down-gradient properties when required to comply with § 144-301G and Article VII of this chapter.

Section 144-701.D - General Requirements for protection, operation and maintenance of stormwater BMPs and conveyances - For any BMP or man-made conveyance (including any to be located on any property other than the property being developed by the applicant) to be owned by a person other than the Township:

- (1) An O&M agreement shall be submitted to the Township for review and approval; and
- (2) The O&M plan shall be attached to, incorporated within, and recorded as a public record along with a fully executed O&M agreement, all of which shall be recorded as a restrictive covenant that

runs with the land and shall be binding upon the landowner and any heirs, administrators, successors in interest or assigns of the landowner.

A Stormwater Management Operation & Maintenance Agreement will need to be executed and recorded for the proposed stormwater BMPs, to include all BMPs shown on the PCSM Plan. The O&M Agreement shall be provided by Westtown Township upon approval of the plan. The applicable signatures included under the Stormwater Management Operation & Maintenance Statement, Sheet 1, must be signed by the property owner prior to recording. The Operation & Maintenance Agreement shall be recorded concurrently with the Land Development Plan.

**DLH Response: Comment Acknowledged. Will provide prior to plan recording.**

**SUBDIVISION AND LAND DEVELOPMENT COMMENTS (WESTTOWN TOWNSHIP CODE, CHAPTER 149, SUBDIVISION OF LAND):**

18. Section 149-600.C – If the preliminary plan and all supporting data comply in all respects with the requirements for final plans (see Article VII), the Township may, in the case of small subdivisions involving no new streets or limited development of land, proceed to final action at the first consideration of the plan if a written request for final approval is made by the applicant and agreed to by the Board of Supervisors.

The applicant has requested a waiver from submission of a Preliminary Plan. CEG offers no objection to consideration of this waiver request based upon the justification provided by the applicant.

**DLH Response: Comment Acknowledged.**

19. Section 149-602.B.(3) – Name and address of record owner and applicant and source(s) of title to the land being developed, as shown by the records of the County Recorder of Deeds.

Section 149-702.B.(3) – Name and address of record owner and applicant and the source(s) of title to the land being developed, as shown by the records of the County Recorder of Deeds unified parcel index numbers of the property(ies) being developed or subdivided.

See Comment #14.

**DLH Response: The name, address, and phone number of the applicant has been added to the revised PCSM plan sheet.**

20. Section 149-802.B – Tract boundaries and the zoning classification of all abutting properties.

The zoning classification of all abutting properties shall be noted on the Plan as required by the above referenced section of the Ordinance.

**DLH Response: The zoning classification has been added to the adjacent properties. The zoning boundary line has also been added to the plan.**

21. Section 149-803.B.(g).[5] – If stormwater facilities will not be municipally owned, the developer shall establish a legal right of the Township to access the facilities for periodic inspections and maintenance at the Township's discretion. However, the Township is under no obligation to perform such inspections

and maintenance. The Township may require that the entity responsible for maintenance of stormwater facilities reimburse the Township for costs of maintenance and repair of stormwater facilities if that entity fails to perform its duties.

Reference to a blanket easement being provided is shown under Stormwater Management Notes on the PCSM Plan. This note shall be added to the Record Plan.

**DLH Response: The requested note has been the Record Plan, General Note #13.**

22. Section 149-924.D(11) – A tree protection management plan must be submitted at the time of preliminary plan application if there are 10 or more viable trees proposed to be cut or removed from the property. Tree protection management plan shall contain the following information on a plot plan: A chart tabulating the diameter inches being removed, the required diameter inches to be replaced and the equivalent number of compensatory trees.

As shown on the Existing Conditions Plan (C02.1), a total of 10 trees are to be removed. The Landscape Plan shall be revised to clearly demonstrate that the compensatory trees proposed meet the requirements set forth in Section 149-924.D(12) of the Ordinance.

**DLH Response: The Landscape Plan has been revised to meet the requirements for compensatory trees.**

23. Section 149-925.I.(2) – A two-year maintenance and replacement guaranty shall be provided to the Township by the landscape contractor. All plantings which do not survive after the expiration of the maintenance guaranty shall be replaced by the owner.

A note shall be added to the Landscape Plan and Record Plan, stating the above.

**DLH Response: A note has been added to the revised Landscape Plan, LP-2 – General Note #19.**

24. Section 149-925.I.(6) – Unless specifically required otherwise by the Township, or where it is impractical because of the location of existing trees, canopy trees required by this § 149-925 along the street frontage shall be planted with the trunk between five feet and 15 feet from the street right-of-way. These trees shall be intended to provide a canopy over the edges of streets. The Board of Supervisors may approve alternative locations for these trees, such as within a street right-of-way or less than five feet from the right-of-way. The species of these trees shall be subject to approval by the Township.

The following shall be provided on the Landscape Plan:

- The canopy tree plantings along the property frontage shall be adjusted to be located within fifteen (15) feet of the street right-of-way. A note clearly referencing the required location of the trees may be considered sufficient.
- The right-of-way line shall be shown on the Landscape Plan.

**DLH Response: The Landscape Plan has been revised as requested and a note has been added to indicate that the Street Trees shall be placed within 15 feet of the street right-of-way.**

25. Section 149-403.A – Before the final plan is signed by the Board of Supervisors, the applicant shall submit an agreement, subject to the approval of the Board of Supervisors, provided for, but not limited to, the following where applicable: In accordance with the approved final plan, the applicant will layout



and construct all street and other improvements, including , but not limited to, grading, paving , curbs, gutter, sidewalks, streetlights, fire hydrants, water mains, street singes, shade trees, storm and sanitary sewers, stormwater management structures, landscaping, traffic control devices, open space areas, and erosion and sediment control measures.

Section 144-403.C – The applicant shall sign a tri-party agreement with a financial institution and the Township guaranteeing and securing completion of the improvements listed in Subsection A, except as provide for in Subsection E, within one year of the date of the approved plan.

Financial security in an amount acceptable to the Township shall be provided prior to Plan recording. A Construction Cost Estimate shall be submitted for review and approval, with the required financial security incorporated into a Developer's Agreement to be executed prior to Plan recording.

**DLH Response: Upon resolution of all technical comments and prior to plan recording a Construction Cost Estimate will be provided for Township review and approval.**

**ZONING COMMENTS (WESTTOWN TOWNSHIP CODE, CHAPTER 170, ZONING):**

26. Section 170-1514.D.(1).(e) – Examples of illumination levels for typical outdoor applications, as extracted from the IESNA RP-33-99 and RP-8-00 Recommended Practices, are presented below.

The lighting plan shall be revised as follows:

- Additional lighting shall be provided at the Proposed Building Addition entrance to meet the requirements referenced above.
- Additional Illumination shall be provided at the north and south ends of the proposed building sidewalk to meet the requirements referenced above.

**DLH Response: The lighting in the proposed parking lot has been revised to provide adequate lighting per Township requirements. An exterior building light is proposed at the proposed building addition exit. A separate sheet and specifications are provided for this light and is attached as part of this submission.**

27. Section 170-1514.D.(2).(b) – For lighting horizontal tasks such as roadways, sidewalks, entrance drives and parking areas, luminaires shall meet IESNA full-cutoff criteria (no light output emitted above 90° at any lateral angle around the fixture'.

Lighting fixtures shall note full-cutoff criteria or document BUG ratings consistent with a U=0.

**DLH Response: Lighting Plan note #4 indicates that 'All light fixtures shall adhere to full-cutoff criteria'.**

28. Section 170-1703.A.(5) – Ramps shall be provided, giving access from parking areas to the building served, for disabled persons utilizing wheelchairs.

ADA handicap ramps to be provided shall be shown as a large-scale detail, showing proposed spot elevations, grades, ramp and loading locations in accordance with the most recent ADA Standards for Accessible Design. See Comment #29 below.

**DLH Response: Two ADA parking spaces have been added to the revised plans. In addition, a grading detail for the ADA ramp has been added as an exhibit on the Grading Plan.**

29. Section 170-1704.A – In any parking area where the total number of parking spaces exceeds five, a minimum of one space for each 25 total spaces or fraction thereof shall be designed and designated for physically handicapped persons. Number of spaces: Any parking lot including four or more off-street parking spaces shall include a minimum of one handicapped space. The following number of handicapped spaces shall be provided, unless a revised regulation is officially established under the Federal Americans With Disabilities Act.  $26 \text{ to } 50 = 2$

A minimum of two (2) handicap parking spaces shall be provided in the proposed parking area. A large-scale detail clearly showing the location of the handicap parking spaces, striping, and information as referenced in Comment #28 above shall be provided.

**DLH Response: Two ADA parking spaces have been added to the revised plans. In addition, a grading detail for the ADA ramp has been added as an exhibit on the Grading Plan.**

30. Section 170-1705.E.(3).(b) – Elementary school, nursery school, day-care center: One space per 15 students.

The Parking Tabulation shown on Sheet C.01.1 shall be updated to demonstrate compliance with the above referenced requirement

**DLH Response: The parking tabulation has been revised to indicate the required number of parking spaces based on ordinance criteria.**

#### GENERAL COMMENTS

31. The proposed routing of the 6-inch sanitary sewer line underneath the proposed building addition shall be reviewed by the Township Sewer Engineer

**DLH Response: Comment Acknowledged. It is our understanding that the sewer engineer will not be providing a review of the proposed plan.**

We appreciate your time and consideration. Please do not hesitate to contact me at 610-918-9002 with any questions.

Sincerely,  
D.L. HOWELL & ASSOCIATES, INC.



Justin W. Brewer, P.E.  
Project Engineer