Pennsylvania
Department of
Environmental Protection

12/24/2025

Charlie Gauthier
Quaker Valley School District
100 Leetsdale Industrial Drive
Leetsdale, PA, 15056
gauthierc@qvsd.org

Re: Technical Deficiency Letter (TDL)
Quaker Valley School District
NPDES Permit Application No. PAD020098
Leet Township, Leetsdale & Edgeworth Boroughs, Allegheny County

Dear Charlie Gauthier:

The Department of Environmental Protection (DEP) has reviewed the above referenced application and has identified the technical deficiencies listed below. The *Pennsylvania Erosion and Sediment Pollution Control Program Manual* (E&S Manual) and the *Pennsylvania Stormwater Best Management Practices Manual* (BMP Manual) include information that may aid you in responding to some of the deficiencies listed below. The deficiencies are based on applicable laws and regulations, and the guidance sets forth DEP's established means of satisfying the applicable regulatory and statutory requirements.

The technical deficiencies void the permit decision guarantee and any agreements that have been made regarding the timeline for the permit application review. DEP will continue to follow the permit review process procedures in the review and processing of this permit application.

You must submit a response fully addressing each of the technical deficiencies set forth above. Please note that this information must be received within 30 calendar days from the date of this letter, on or before 1/23/26 or DEP may deny or withdraw the application. Alternatively, you may consider a voluntary withdrawal.

Please submit copies of the revised information to the Allegheny County Conservation District and to the DEP. Be advised that submissions to the County Conservation Districts should follow the process used by that District. Submissions to DEP should utilize the Public Upload Tool. It is suggested that the DEP plan reviewer is contacted via email upon resubmission.

Please be advised that if your response does not satisfy the technical deficiencies, in general your NOI or application will proceed to an Elevated Review. If you do not believe the technical deficiencies can be fully addressed within the required timeframe, you should consider a voluntary withdrawal. If a permit application is denied, there is no recovery of fees available; however, if you voluntarily withdraw the NOI or application and then submit a new

NOI or application for the same project, previously paid disturbed acreage fees will be reapplied to the new NOI or application.

If you believe that any of the stated deficiencies are not significant, instead of submitting a response to that deficiency, you have the option of requesting that DEP make a permit decision based on the information you have already provided regarding the subject matter of that deficiency. If you choose this option with regard to any deficiency, you should explain and justify how your current submission satisfies that deficiency.

If you have questions about your application, please contact Sean Naylor by e-mail at senaylor@pa.gov or by telephone at 412-442-4142 or Anne Fox at Allegheny County Conservation District and refer to Application No. PAD020098, to discuss your questions or to schedule a meeting. You must attempt to schedule any meeting within the 30 calendar days allotted for your reply.

Sincerely,

Louis Turka

Louis Turka, P.E.
Environmental Group Manager, Chapter 102
Waterways and Wetlands

cc: Martha Frech, mfrech@streamlineengineering.net
Allegheny County Conservation District
Leet Twp,
Leetsdale Boro,
Edgeworth Boro,
DEP File No. PAD020098

Technical Deficiencies

General Comments

1. §102.8(g)(1), 102.4(b)(5): Geotechnical:
    a. To complete the grading as outlined in Revised Geotechnical Exploration and Engineering Report II; Mass Grading Evaluation (Report II), dated November 14, 2023, revised March 8, 2023, permits for the proposed grading will be required by both Leet Township and Edgeworth Borough. What is the current status of these permit applications?
    b. Report II states that county approval of the drilling plan is needed for the anticipated cut into old landslide deposits on site. What is the current status of this?
    c. Coordination and potentially permitting is needed to complete the proposed design for portions of the work effecting Camp Meeting Road. Provide a discussion of the status of this, an anticipated timeline for the completion of the modelling and design of these areas and the status of any needed further coordination and permitting with Allegheny County.
    d. The Report II describes the use of reinforced slopes with basket facing and layered geosynthetic reinforcement. Provide standard construction details, product cut sheets, and design plans for this construction method.
    e. Describe the methodology or rationale used to select the sampling locations as well as which sample locations and depths were selected for the laboratory analysis.
    f. Demonstrate that the grading set-backs for both the municipal requirements and the Department's requirements found in the Department's Erosion and Sediment (E&S) Pollution Control Program Manual, date March 2012 on Table 16.1 are met in the final grading plan submission and E&S plans.
    g. Provide details or specifications for what is to be done during construction if perched water tables are encountered.
    h. Provide construction methods and details, including steps in the construction sequence of how the keyway, benching and intermediate benching will be constructed for the proposed grading.
    i. Provide construction methods and details for slope drainage needed for the proposed benches to prevent stability issues and drainage problems.
    j. Provide design information, details, and specifications for the mass-gravity-retaining wall/slopes or other retaining walls or structural support that are proposed for use.
    k. The Report II states that for the area associated with the cut slope near section G—G that due to proximity to Camp Meeting Road and proposed cut into old landslide deposits that additional testing, modelling and recommended practices are still pending evaluation. Provide a status update on this and an amended report that addresses these problematic areas, and the proposed design.
    l. It should be anticipated that a significant amount of 'waste' cut material that cannot be reused on-site will be generated during the large-scale excavation operations. What is the ultimate fate of this material? Should it need to be disposed of off-site, provide information in the design plan to ensure that the Department's Management of Fill Policy will be followed.
    m. Provide information on a cut/fill estimate for the site. If imported fill will be needed, provide details on the source of this material and how the developer intends to be compliant with the Department's Management of Fill Policy.
    n. Will interim material stockpiles be needed during construction? If so, provide information on the amounts and storage location areas on-site.
    o. Ensure that all steps of the grading process that must be overseen by owner's geotechnical engineer are identified in the construction sequence as critical steps/stages.
    p. On the Field Exploration Plans (Figure 2 and 3) the symbol "B-XX" is listed in the legend with two different associated definitions (Proposed Supplemental Test Boring Number and GBBE Boring Number Drilled July 19, 2023 to August 4, 2023). Revise.

q. Figure 3 legend is missing the legend identification for the black cross hair symbol and for the cross-section symbol. Revise.

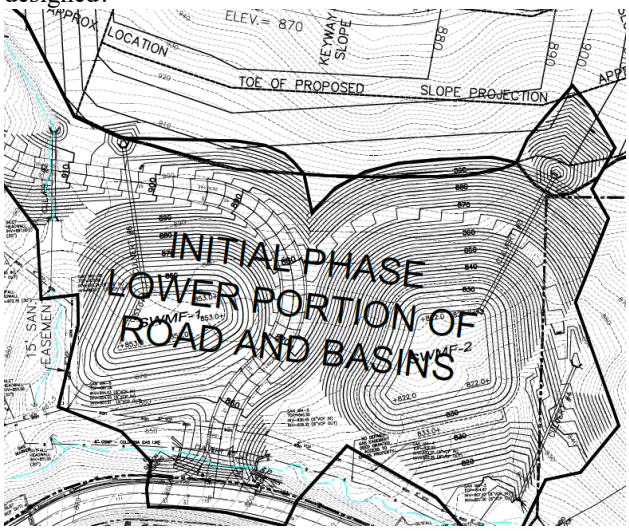
r. The solid and dashed blue lines used in Figures 2 and 3 is not identified in the legends. Revise.

s. The submitted grading plan is incomplete, as all the grading associated with Phase 6 is not provided and some draft grading is not shown. Provide revised intermediate and final grading plans.

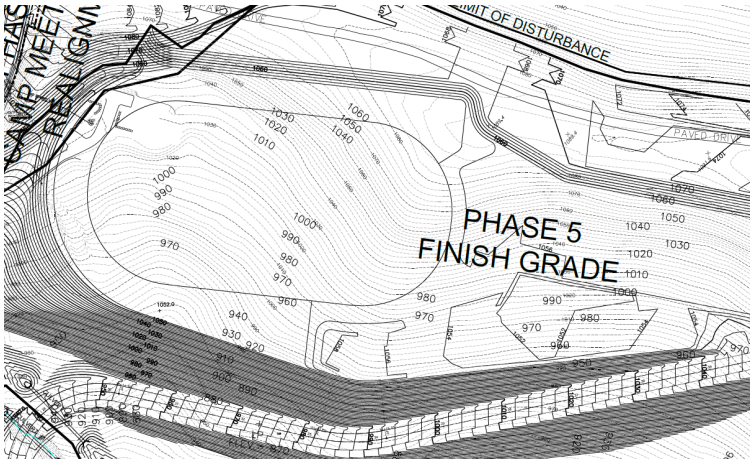
t. In some areas, significantly deep excavation is proposed. Ensure that the E&S plans sufficiently provide direction on how this will be safely done to prevent potential sidewall and slope failures.

u. Modelling of Cross-section G—G is not provided. Revise and resubmit the slope modelling.

v. On the Phase 4 Bulk Grading Plan I (BG-4), the associated grading for the outlet culvert for SWMF-1 and 2 extends significantly into the proposed slope undercutting for the toe of the slope construction for the upper track area. Also, this culvert is proposed to outlet directly into an exposed construction area (shown below). How will this configuration be executed in the field in a manner that will prevent stormwater discharge directly into the proposed keyway and will prevent the likely erosion that will result during interim grading operations if constructed as designed?



w. In the screen shot clipped from BG-5/6 (shown below) there are multiple elevation labels that are inconsistent with one another. Revise.



x. In cross-sections with anticipated loading from roads or structures, modelling of load surcharge is modelled in some cross-sections and not others. Provide information on why the surcharge was omitted in some modelling.

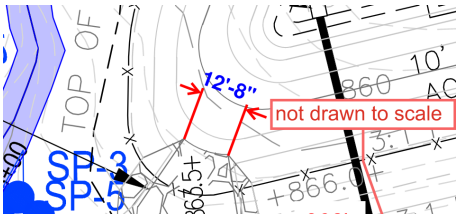
y. In cross-section B—B and others, a 250 PSF surcharge is used for the road and for the area of the proposed track. It seems unlikely that the load from the driveway and the load from a large structure would both have 250 PSF associated with each. Provide a discussion as to why this surcharge value was used and what feature it is representing.

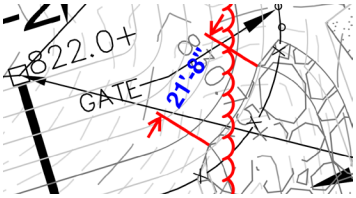
z. When the Geotechnical issues are adequately resolved, please provide a final Geotech report and updated final grading plan drawing set with the geotechnical recommendations properly translated into the construction plans. The Geotechnical report is to be reviewed in tandem with the Erosion and Sedimentation Pollution Control construction plans to ensure the plan drawings and reports, including the construction, inspection, and maintenance sections carry over the standards and recommendations specified within the final Geotechnical report.

2. §102.4(b)(5)(viii), §102.4(b)(5)(ix), §102.8(f)(8), §102.8(f)(9): Due to the large file sizes, please separate the drawing sets from the narratives for review. Please also provide a secondary document with the layers flattened to reduce file size and loading time of the plans to utilize during review.

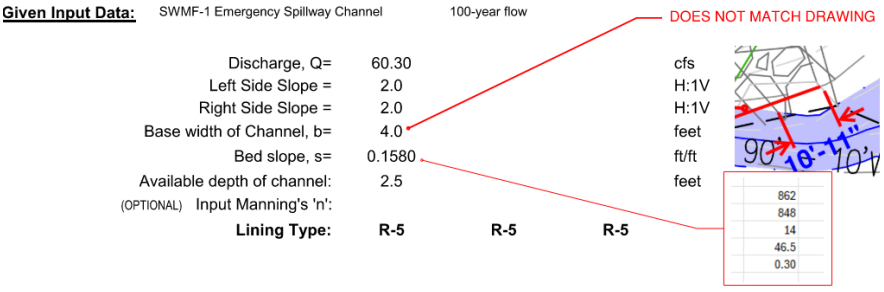
3. §102.4(b)(5)(ix), §102.8(f)(9): Please provide one overall plan sheet for each, the E&S and PCSM Plans, which depict the entire NPDES permit and Limits of Disturbance boundary.

4. §102.4(b)(5)(ix), §102.8(f)(9): Please depict each proposed embankment emergency spillway to scale on both E&S and PCSM drawings. Currently the spillways appear to be drawn smaller than the design minimum of 25-ft. Please revise.

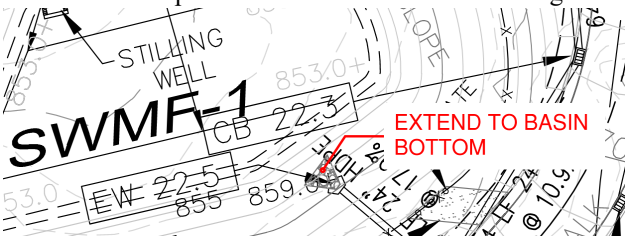




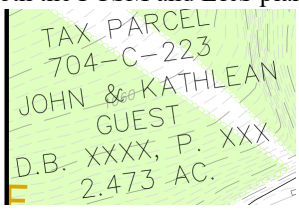
5. §102.4(b)(5)(ix), §102.8(f)(9): The Base width of Channel, b and Bed slope, s values used the Trapezoidal Channel Analysis design worksheets for the basin emergency spillway channels do not match what is depicted on the plan drawings for each basin. The spillway for SWMF-1 design values used for the width and slope are 4.0-ft and 15.8% for width and slope, respectively. However, the values estimated from the drawings provided are approximately 11-ft and 30%. Please revise each basin spillway channel designs to be more consistent with what will be constructed.



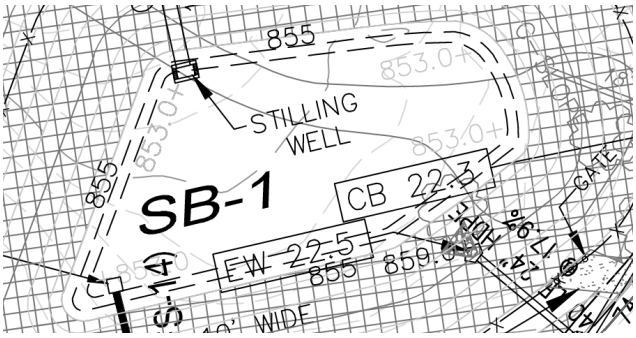
6. §102.4(b)(5)(ix), §102.8(f)(9): Please extend each proposed riprap apron entering a basin to the toe of the basin cut/fill slope on both E&S and PCSM drawings. Please revise.



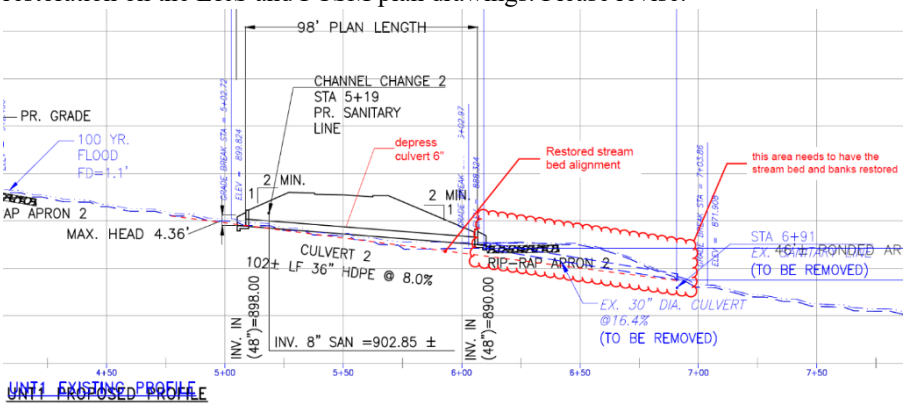
7. §102.4(b)(5)(ix), §102.8(f)(9): The Deed Book and Page Number of Tax parcel 704-C-223 show up on both the PCSM and E&S plan drawings as all Xs. Please revise.

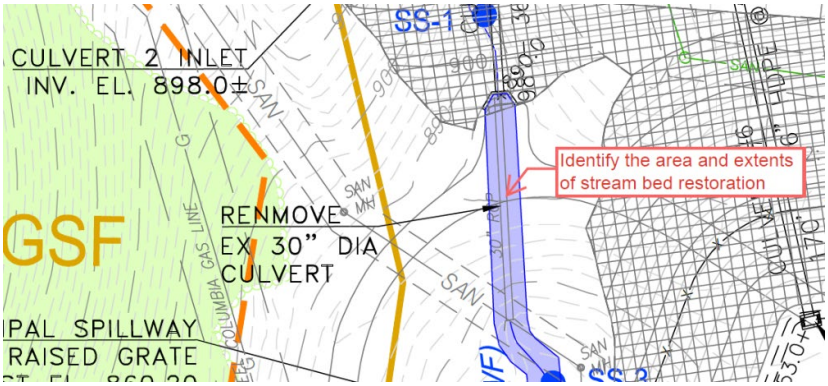


8. §102.4(b)(5)(ix), §102.8(f)(9): What do the two bold dashed lines represent at the interior base of the sediment basin SB-1/MRC stormwater basin SB-1. Please revise and/or explain.



9. §102.4(b)(5)(ix), §102.8(f)(9): Review of the existing and proposed profiles for the removal of the 30-inch diameter culvert and the placement of the proposed Culvert #2, has revealed thought and consideration to the restoration of the stream bed and proper alignment of the culvert #2 and associated riprap apron has not taken place. Please revise and provide appropriate details and construction sequence steeps related to each, the culvert placement and the stream bed restoration. Identify the area and extents of the stream bed restoration on the E&S and PCSM plan drawings. Please revise.



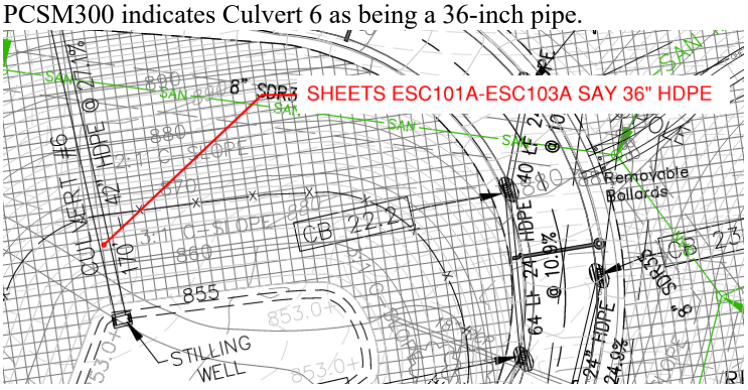


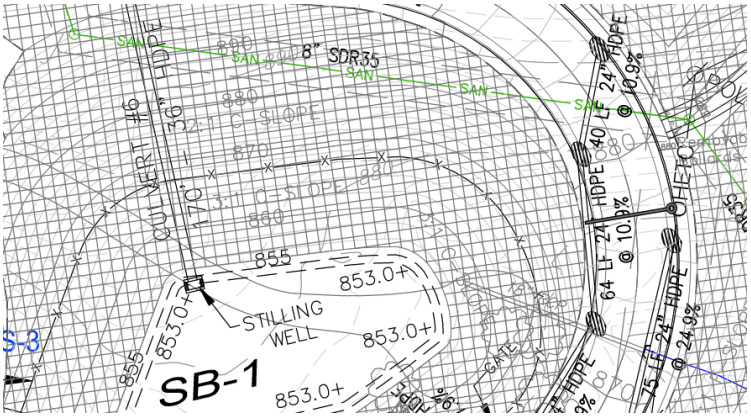
10. §102.4(b)(5)(ix), §102.8(f)(9): The floodway limits on all streams are depicted with widths less than 50-feet and in some cases appears to differ from what has been provided with the USACE/PADEP Joint (Joint) permit application. Please update the floodway limits shown as well as all other information provided within the plan drawings to reflect changes made during the Joint permit application review(s).

11. §102.4(b)(5)(ix), §102.8(f)(9): Please label and dimension all proposed riprap aprons and embankment spillways on both E&S and PCSM drawings. Please include lining information, including riprap sizing, if applicable.

12. §102.4(b)(5)(ix), §102.8(f)(9): The CADD drawing quality provided on each sheet of both the E&S and PCSM plans, including the drainage area mapping within the reports is incredibly cluttered, and messy. The drawings are littered with overlapping text, mix-matched font sizes styles, and excessive use of callouts at various angles, making the drawings difficult to read. Items proposed for demolition early within the E&S construction phases are still depicted within the later E&S and PCSM phases. Please revise.

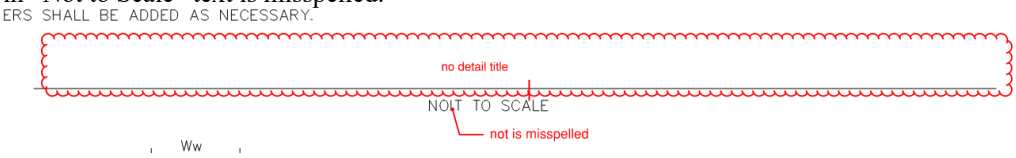
13. §102.4(b)(5)(ix), §102.8(f)(9): Sheet ESC104A depicts the Culvert #6 entering the basin SB1 as a 42" HDPE pipe. Sheets ESC101A-ESC103A depict this as 36" HDPE. The stilling well table on sheet PCSM300 indicates Culvert 6 as being a 36-inch pipe.





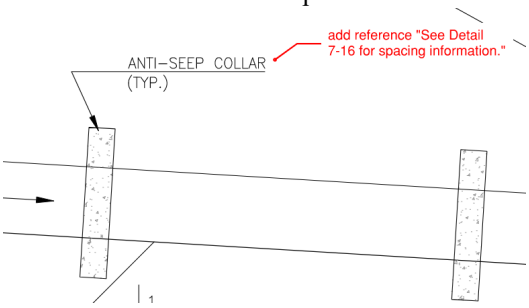
14. §102.4(b)(5)(ix), §102.8(f)(9): To avoid error, please provide an appropriate PennDOT Type 5 precast box detail with dimensions as the stilling well detail on sheet PCSM300. As currently drawn, this box appears to resemble a 2-ft by 4-ft box without access to the interior, which is incorrect. Additionally, the table associated with this detail lists both H_1 and Well Depth dimensions. The H_1 dimension location is indicated on the detail, but the Well Depth dimension location is not. It is difficult to understand where the well begins/ends and where the H_1 begins. Are these two items stacked? The details do not indicate this. Proper details depicting a more accurate representation of the Type 5 box, with access ladder rungs are available online and should be considered.

15. §102.4(b)(5)(ix), §102.8(f)(9): The basin cross section detail title label on sheet ESC304 is blank and “Not” in “Not to Scale” text is misspelled.



16. §102.4(b)(5)(ix), §102.8(f)(9): Please show and provide embankment impervious core information within the basin cross section detail on sheet ESC304.

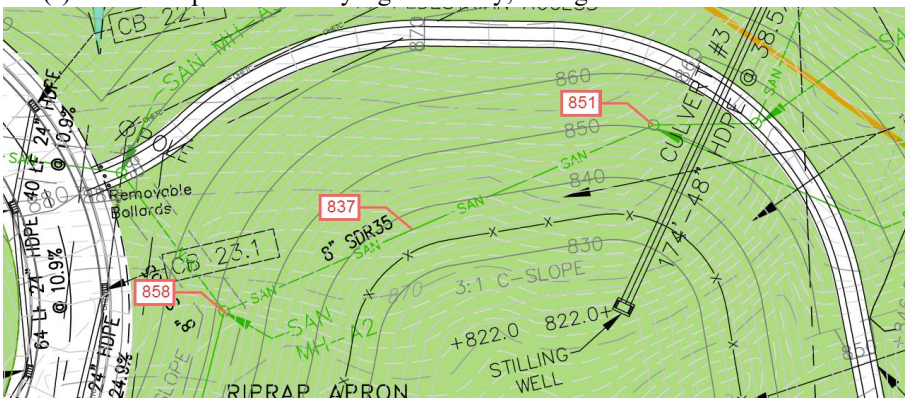
17. §102.4(b)(5)(ix), §102.8(f)(9): Please add the following reference "See Detail 7-16 for spacing information." to the anti-seep collar callout within the basin cross section detail on sheet ESC304.



18. §102.4(b)(5)(ix), §102.8(f)(9): The stilling well detail on sheet PCSM300 indicates a 12-ft wide R-5 Rip-Rap apron is to be placed around the stilling well inlet box. The plan view drawings neither mention nor indicate an apron to be placed around the stilling well of either basin. Please depict this apron to scale on the plan drawings.

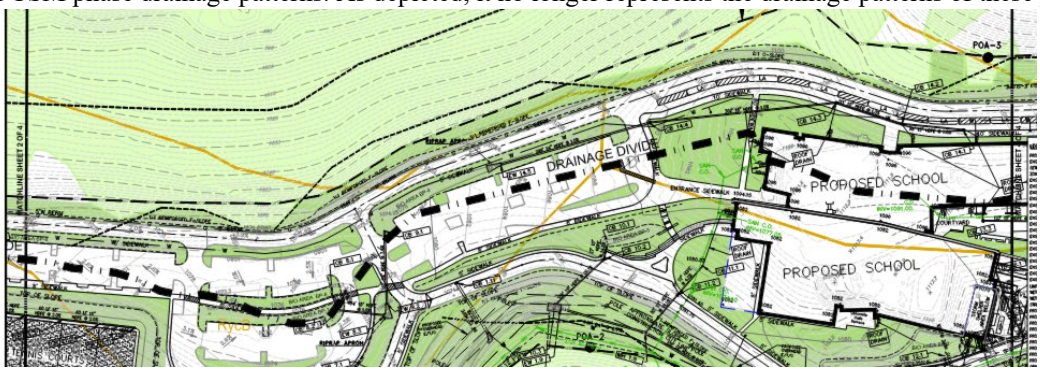
19. §102.4(b)(5)(ix), §102.8(f)(9): It is not clear how the proposed sanitary line cutting through basin SB-2/SWMF-2 cut slope will be constructed and accessed once constructed. There is a ~18-20-ft surface

elevation sag at the midpoint of the line between manholes MH-B1 and MH-A2. This will result in the need for excessively deep manholes to be constructed within the steep slopes. Consider placing the sanitary line(s) within the paved roadway/rights-of-way, easing construction and future access.



20. §102.4(b)(5)(ix), §102.8(f)(9): The proposed grading linework is at times difficult to differentiate from the existing grading. The sheets appear to depict the proposed grading contour linework as a lighter color than the existing grading contour linework. In addition, the proposed green vegetation hatching color obscures and makes it much harder to see other drawing information. Please consider lightening the hatch color, increase the opacity, or eliminate it all together. This vegetation information only needs to be depicted once and can be easily displayed on a landscaping/planting plan (not provided) depicting proposed plantings throughout the site. Please revise.

21. §102.4(b)(5)(ix), §102.8(f)(9): Please update the drainage divide line to represent the later E&S phase and PCSM phase drainage patterns. As depicted, it no longer represents the drainage patterns of these phases.



22. §102.4(b)(5)(vii), §102.8(f)(7): Please include detailed construction sequences for each of the proposed BMPs. See the 2006 Pennsylvania Stormwater BMP Manual, chapter 6, BMP 6.4.4: Infiltration Trench and BMP 6.4.5: Rain Garden/Bioretention for specifics on the construction of each BMP. Please provide.

23. §102.4(b)(5)(viii), §102.4(b)(5)(ix) §102.8(f)(8), §102.8(f)(9): Each basin needs to be provided with a specific plan/profile detail calling out appropriate lengths, widths and other related dimensions, so each can be properly constructed. This is especially important due to the random shape and size of each basin footprint. Please provide or explain why this information is not needed.

E&S Comments

24. §102.4(b)(5)(vii): The Sequence of BMP Installation and Removal on Sheet ESC500 should specify the completion of the proposed E&S BMPs, (basins, traps, channels, outlet protection, etc.), prior to any general earthmoving and clearing/grubbing within a specific work area. Please revise.

25. §102.4(b)(5)(vii): Stage 1, item 15 simply states “Excavate Sediment basins SB-1 and SB-2. Install principal and emergency spillways. Install stilling basin, Culvert 6 and Culvert 3.” Item 18 simply states “Install Culvert 5 with riprap apron and grade new driveway access. Critical stage.” The construction sequence should describe the proper methods of the embankment, and culvert placement construction and stabilization (in detail) or refer to the specifications provided elsewhere on the plan drawings. Each of these items should be described in greater detail. Details provided pertaining to each should be referenced. Discussions including but not limited to the embankment compaction, impervious core construction, lift height, culvert imbedding, flow bypass, etc. should be provided. Please provide or explain why this information is not needed.

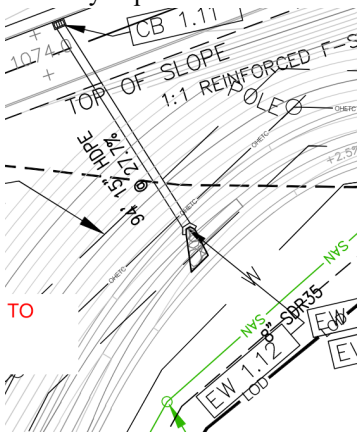
26. §102.4(b)(5)(vii): With so many basins proposed at this site, it is likely springs will be encountered during the basin construction. Please discuss encountering springs during the basin embankment construction in the construction sequence. Per the 2012 Pa E&S Manual, springs encountered in the foundation area of a basin embankment should be drained to the outside/downstream toe of the embankment with a drain section two feet by two feet in dimension consisting of PennDOT Type A sand, compacted by hand tamper. No geotextiles are to be used around the sand. The last three feet of this drain at the outside/downstream slope should be constructed with AASHTO #8 material. Other methods of draining spring discharges may be accepted on a case-by-case basis. Please provide.

27. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Please provide a Worksheet #20 for the proposed aprons.

28. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Outlet protection aprons have not been proposed for several storm pipe outfalls, siting “minimal flow. Riprap apron not needed.” It is unclear how erosion potential does not exist downslope of a 15” storm sewer outfall. Typically splash blocks at a minimum are used for roof leaders. Please demonstrate that flows from the culverts and roof leaders will not cause erosion in the downstream areas. Please provide.

29. §102.4(b)(5)(viii), §102.4(b)(5)(ix): The culvert connected to EW22.5 shown on sheets ESC104A and PCSM100A is depicted as a 24-inch HDPE, however the table located on sheet PCSM300 indicates this upslope culvert as a 15-inch HDPE. Please review each culvert size and verify their sizes are properly identified. Please revise as needed.

30. §102.4(b)(5)(ix): End wall EW1.12 shown on sheets ESC104C and PCSM100C is depicted with a downstream outfall riprap apron, however the table located on sheet PCSM300 indicates that no riprap apron is proposed for this outfall. Please review each proposed end wall and corresponding outlet and make sure they depict information consistently. Please clarify.



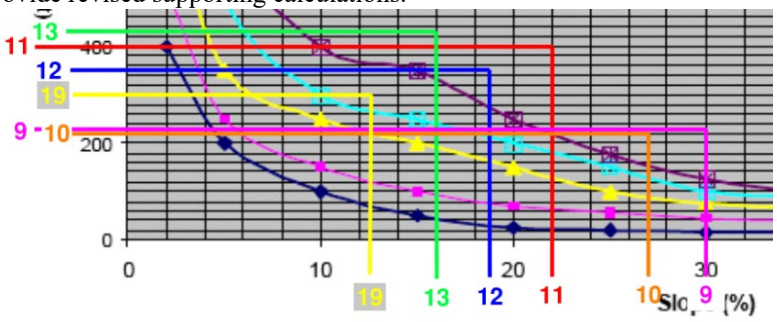
EW1.12	15	HDPE	MINIMAL FLOW. RIPRAP APRON NOT NEEDED	

31. §102.4(b)(5)(vii), §102.4(b)(5)(viii), §102.4(b)(5)(ix): Please include channel 1 and 2 within the construction sequence. The channel calculations for Channel 1 does not appear to include the total drainage area between Channel 1 and Channel 2 (approx. 25-ac), which is likely to be the worst-case scenario for Channel 1. It is unlikely the upslope grading and construction will be complete when Channel 2 is constructed, resulting in the entire combined drainage passing through Channel 1. Additionally, each of the channel (temp & perm) design calculations provided appear to have averaged slopes. Per the 2006 Pa E&S Manual, Chapter 6 - Runoff Conveyance BMPs, Channels, Design Procedure, Item #3.: (Channel) "slopes may not be averaged. For example, Channel 1, slopes vary from 34.5%, 19.4%, 20.8%, 18%, 12.8%, 22.4%, 24.8%, 31.5%, 29.6%, 23.6%, 14.7%, and 9.7%. Channels 2 and 3 slopes are also inconsistent with what has been provided within the design calculations, and in some cases far exceed the slopes used for design. Segments and lengths should be indicated on the drawing and within the design calculations, so it is clear where each segment begins and ends. This applies to both proposed temporary and permanent channels.

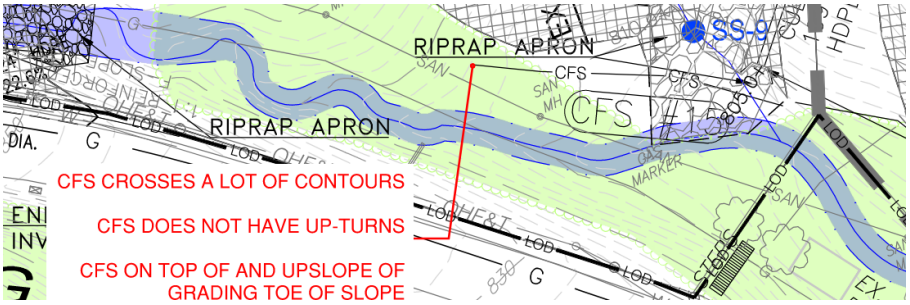
    If a proposed channel will intercept significant changes in slope, such as would require a larger channel size or different protective liner:
    1. Design each segment of the channel separately, or
    2. Design the entire channel with sufficient capacity for the gentlest slope and a protective liner suitable for the steepest slope.

32. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Nearly every proposed compost filter sock is shown crossing multiple contours. Please review each proposed CFS sediment barrier and adjust each sock so that is shown on grade, with proper up-turns to avoid forming low points or diverting concentrated flow.

33. §102.4(b)(5)(viii): A spot check of compost filter sock slope percents and slope lengths indicated on Standard E&S Worksheet #1, for socks 9 through 13 and 19, appear to be incorrect. Each design appears to exceed the slopes/lengths for 32-inch for socks 9-13 and 24-inch sock 19. Consider the use of a sediment trap or other BMP with appropriate capacity for use within the watershed of socks 9-13. Review all CFS sizing and ensure that the maximum slope lengths are used for sizing in all areas. Update the drawings and provide revised supporting calculations.



34. §102.4(b)(5)(viii): Spot checks of CFSs 14, 15, 17, and 18 show in addition to crossing contours, these socks do not depict appropriate up-turned ends, assuring adequate sediment laden stormwater storage. Please revise. Grading is depicted downslope of CFS # 15. Please revise.



35. §102.4(b)(5)(viii): Standard E&S Worksheet #1 lists different sock sizes/designs for "Ex" and "Pr" (existing and proposed) conditions. It is not clear when the use of one ends and the other begins, and the CFS notation on the drawings do not differentiate between the two making it impossible to know which sock is being depicted. Furthermore, it is highly unlikely the contractor be willing to traverse the site perimeter, swapping out a larger 32-inch sock (existing phase) for a smaller 24-inch sock (proposed phase). The shrink-wrapped limits of disturbance provided on the drawings severely limit such a feat, and the expense of doing so will likely be cost prohibitive. Please eliminate the use of both the "Ex" and "Pr" sock designs and propose a single worst-case scenario sock.

36. §102.4(b)(5)(viii): The drainage area mapping provided for the proposed culverts (Culverts Post Development Conditions – Figure C8) is too cluttered and virtually unreadable. Please revise.

37. §102.4(b)(5)(viii): The Standard E&S Worksheet #13 indicates an Elevation at the Top of the Dewatering Zone of 861-ft for sediment basin SB-1. The non-named cross section table on sheet ESC304 indicates this elevation to be 862-ft. Please revise.

38. §102.4(b)(5)(viii): The Standard E&S Worksheet #13 indicates average bottom width and length of 33-ft and 200-ft respectively for sediment basin SB-1 and 44-ft and 180-ft respectively for sediment basin SB-2. As drawn, the basin bottom widths and lengths were measured to be approximately 53-ft and 100-ft respectively for sediment basin SB-1 and 90-ft and 95-ft respectively for sediment basin SB-2. Please revise each accordingly.

39. §102.4(b)(5)(viii): The Standard E&S Worksheet #13 indicates a flow length of 300-ft and 270-ft for sediment basins SB-1 and SB-2 respectively. As drawn, flow lengths were measured to be approximately 232-ft and 187-ft respectively. Please revise each accordingly.

40. §102.4(b)(5)(viii): The Standard E&S Worksheet #13 indicates a flow length to width ratio 6:1 and 4:1 for sediment basins SB-1 and SB-2 respectively. Due to the short circuiting of the flows, these are significantly more than what was measured from the plan drawings. Without considering the short circuiting, these flow width to flow length ratios were measured to be approximately 4.6:1 and 3.7:1 respectively. Please revise each accordingly.

41. §102.4(b)(5)(viii): The Standard E&S Worksheet #13 indicates Silt Curtains are proposed for use in leu of a forebay; however, silt curtain details have not been provided on the plan drawings, nor have the curtains been identified on the plan drawings. Please explain and or revise as necessary.

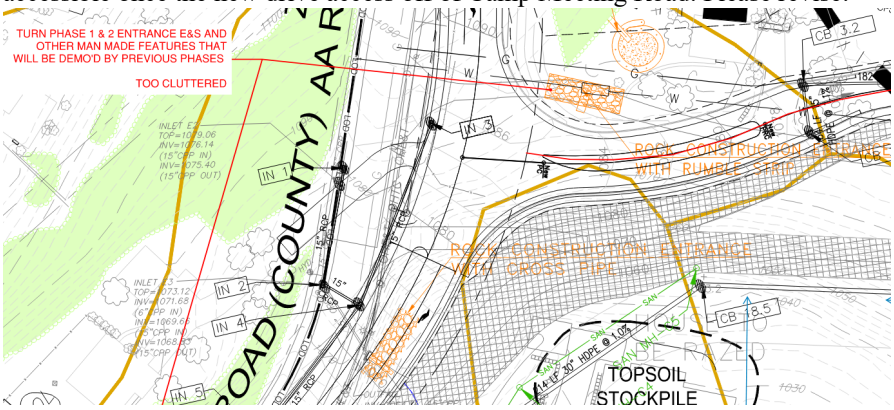
42. §102.4(b)(5)(viii): Zeros have been entered as the Emergency Spillway Capacity indicated on Standard E&S Worksheet #12. This appears to be incorrect. Please explain and or revise as necessary.

43. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Typical broad based dips are depicted along the Camp Meeting Road access grading, however information as to how runoff from these dips will be captured and controlled has

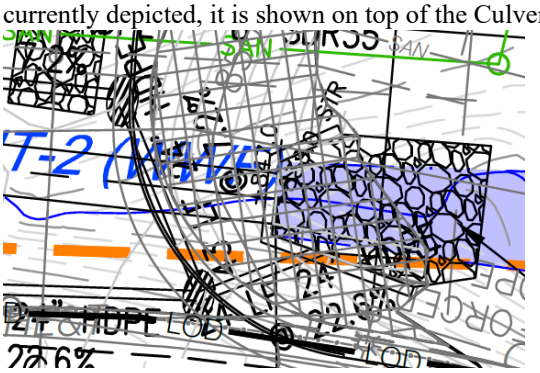
not been provided. All discharges should be to stable drainage courses, or to well-vegetated areas. Sediment removal efficiency for broad based dips is very low therefore, consideration should be given to providing a temporary channel directing runoff to one of the sediment basins, or other BMP. Please revise or explain why this additional information is not needed. Currently no BMP controls are being provided beyond the broad-based dips. As depicted, each broad-based dip is perpendicular to the flow direction. When runoff impacts this structure, it will be directed to both ends of the road. The dip should be depicted angled/in-sloped such that it will direct runoff to one side, preferably a side where it can then be connected to a channel or other BMP.

44. §102.4(b)(5)(viii), §102.4(b)(5)(ix): The proposed permanent access from the Camp Meeting Road has an approximate 11% slope and has large upslope drainage areas. Per the 2012 E&S Manual, "Due to the nature of broad-based dips, they should not be constructed on roads with grades exceeding 10%. Where access roads exceed 10% gradients, in-sloping or other deflection devices should be used to control runoff." A roadway graded with an in-slope, at least temporarily would allow runoff to be captured by a channel and directed to sediment trap or other BMP. Additionally, check-dams could be used along this channel to aide in control of the runoff. If an in-slope option is used, include slope arrows to indicate the in-sloping direction. As currently depicted, channels would need to be provided on both sides of the access roadway Please revise the plans to include adequate access roadway BMPs along the entire length of the access roadway. Provide information within the construction sequence, making it clear to the contractor how this access roadway is to be constructed, both temporarily, and during the final construction phase.

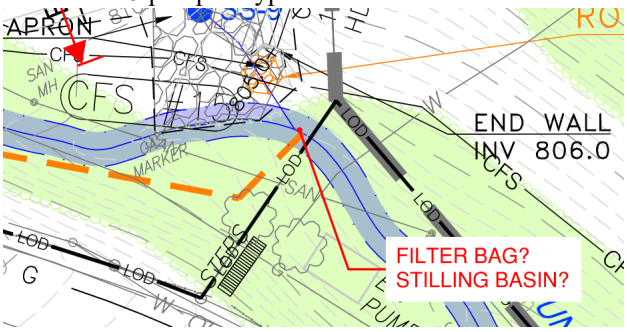
45. §102.4(b)(5)(ix): To aide in de-cluttering the drawings, please remove outdated previous phase BMPs, when depicting the final E&S phase. For example, Rock Construction Entrance # 4 will no longer be accessible once the new drive access off of Camp Meeting Road. Please revise:



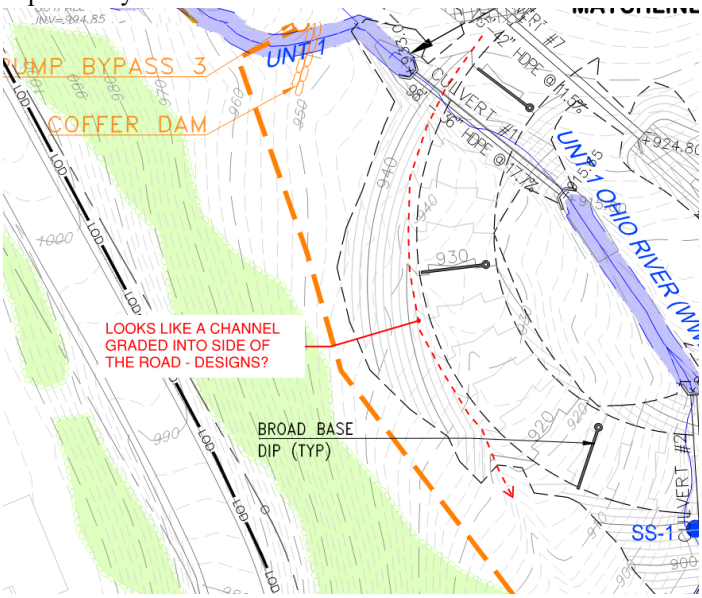
46. §102.4(b)(5)(ix): The erosion control blanket (ECB) hatching scale/color should be toned down. As currently depicted, it obscures much of the important basin construction related information. In addition, as currently depicted, it is shown on top of the Culvert #5 riprap apron. Please revise.



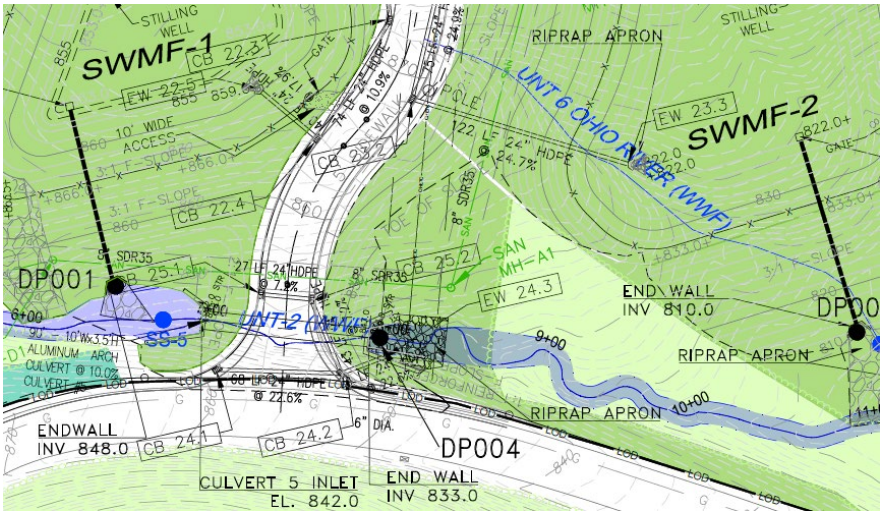
47. §102.4(b)(5)(ix): Provide a properly designed and sized stilling basin or other equivalent anti-scour BMP at the Culvert 5 pumped bypass outlet.



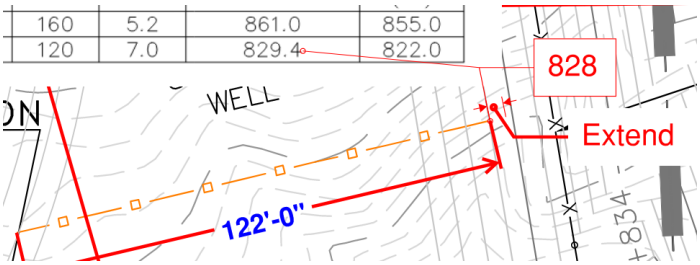
48. §102.4(b)(5)(viii), §102.4(b)(5)(ix): The access road grading across and south of Culvert #1 appears to depict a channel freely discharging uncontrolled stormwater runoff towards the existing access road upslope of UNT-1. Designs do not appear to have been provided for this channel. Please provide or explain why this information is not needed.



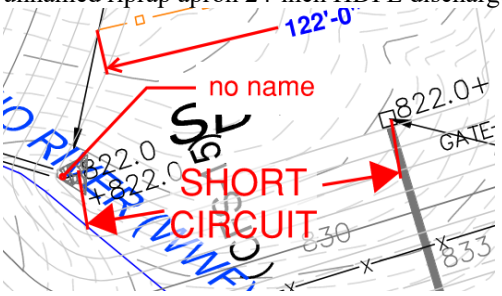
49. §102.4(b)(5)(ix): The PCSM plan drawings are very cluttered and messy. They still depict many items proposed for removal during the demolition phase of the project. For example, the existing guide rail crossing the proposed driveway entrance off Camp Meeting Road, as well as the UNT 6 which is to be eliminated through the construction of the basin SWMF-2 are still depicted on both the PCSM and E&S drawings. Please remove all features to be removed during the demolition and erosion and sedimentation control phases, as these items clutter the provided mapping, making it difficult to read. These include streams, utilities, structures, and other man-made items. Please revise.



50. §102.4(b)(5)(ix): The sediment basin baffle line types should be identified on the plan view drawing legends. Additionally, the way they are depicted on the plan drawings, it is difficult to understand the orientation with which they are to be installed. The baffle for SB-2 appears to be randomly placed within the center of the basin. One end of the baffle should be placed such that the top of the baffle terminates at the basin embankment. As currently depicted, the baffle extends to the 828 contour on the right side, leaving a gap and allowing flows greater than 828 in elevation to escape and pass along both sides of the baffle. This baffle should be depicted farther to the right and extend to the approximate 829.4 elevation. See screenshot below:



Additionally, sediment basin SB-2 still is being short circuited by the flows entering into the basin via unnamed riprap apron 24-inch HDPE discharge from the proposed access road. Please revise.



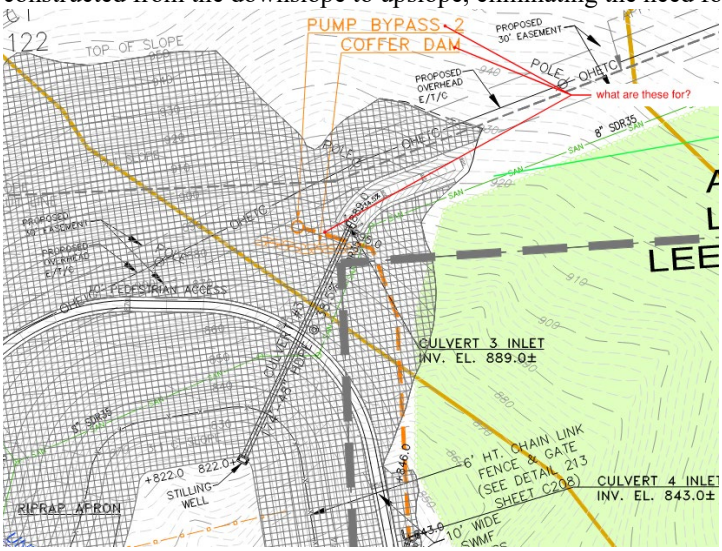
51. §102.4(b)(5)(viii), §102.4(b)(5)(ix): The permanent riser crest elevation for sediment basin SB-1 listed in the Standard Construction Detail # 7-2 (861.0-ft) in Module 1 and on sheet ESC304 differs from the elevation identified on the plan drawings (860.2-ft). Please revise.

52. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Please provide proper construction details for the proposed compost filter sock sediment trap.

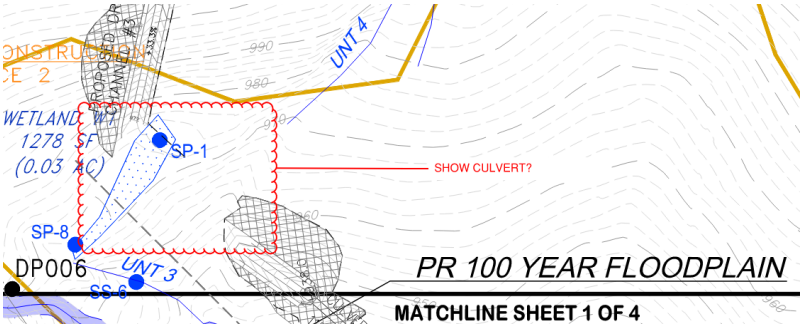
53. §102.4(b)(5)(ix): The proposed channel (Channel 1?) upslope of Culvert 3 is not labeled on sheet ESC101A. Please revise.

54. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Due to the steep placement slopes, please provide anchors for Culverts #3 and #6. Provide anchors for each culvert proposed being placed at a slope of 19% or greater. Include construction details within the plan drawings. Please revise.

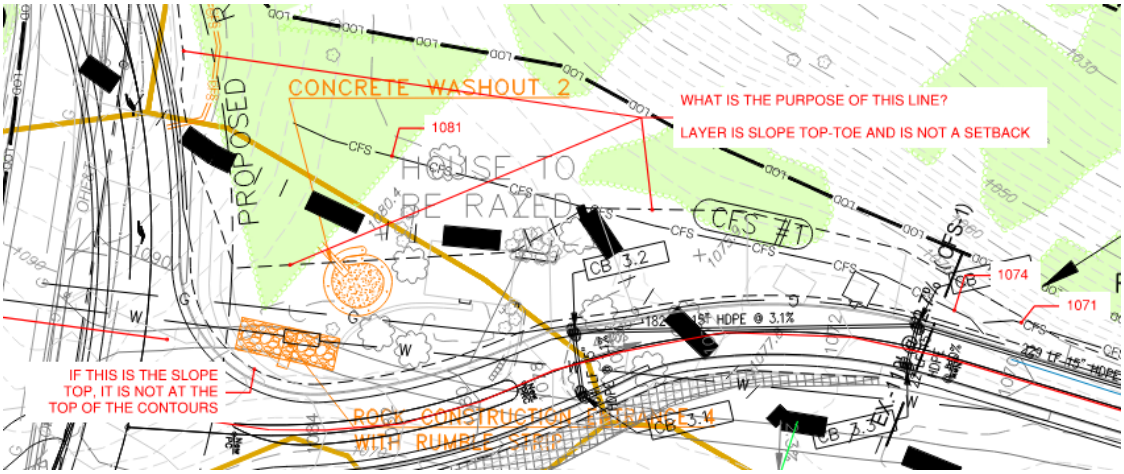
55. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Please explain the need for the coffer dam and Pump Bypass #2 to Culvert #4. As depicted, it appears the construction of collection channel #1 is being proposed prior to the construction of the sediment basin SB-2. Collection channels should not be constructed until after the completion of the sediment basin. Inlet/outlet structures entering and leaving the basin should then be constructed from the downslope to upslope, eliminating the need for upslope bypassing.



56. §102.4(b)(5)(ix): Please show the Culvert # 7 along with the Channel #3 grading on sheet ESC103B. Please revise.



57. §102.4(b)(5)(ix): The CFS #1 linework on sheet ESC101B unidentified bold black dashed line that appears to arbitrarily terminate along the western limits of the site and extends east onto sheet PCSM100D. It is on layer “Slope Top-Toe”, suggesting it relates to the grading. Please either identify this line within the legend or remove if not needed.



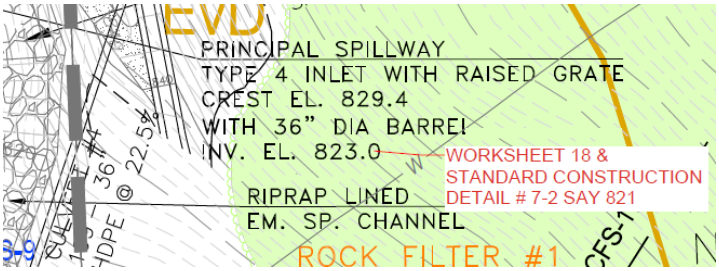
58. §102.4(b)(5)(ix): Provide the construction details for the proposed stream crossing(s). Reference the Joint USACE/PADEP permit application number on E&S and PCSM plan drawings. Identify each crossing included with the Joint Permit, and provide a reference describing where to find each crossing's corresponding construction details. Please revise or explain why this information is not needed.

59. §102.4(b)(5)(ix): Provide grading standard notes on the E&S drawings.

60. §102.4(b)(5)(viii): The drainage area maps are incredibly difficult to read and differentiation between BMP areas, and verification of the routing analysis provided is not possible. Less information is better. Every proposed improvement is not necessary to depict. Light poles, catch basins, roadways, roadway markings, buildings, utilities, grass & tree hatching, and callouts clutter the mapping. Consider providing only the information necessary to describe the stormwater conditions and their relationship to the routing analysis provided. Consider providing summary tables on the DA maps for each sub-drainage area that provide the corresponding routing hydrograph names, surface type acreages, and times of concentrations used within the analysis. The BMP facilities associated with each drainage area should also be identified within the mapping.

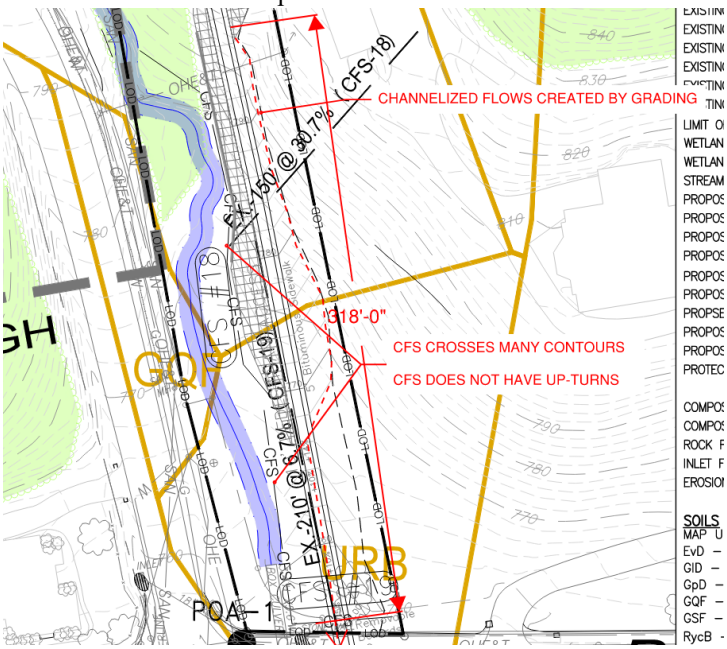
61. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Inlet/outlet protection or splash pads have not been provided for the proposed outlets and/or roof leader discharges into the proposed bioretention areas. (BP-1, BP-2, BP-3, BP-6, BP-7, BP-8) Please provide inlet protection or explain why these are not needed.

62. §102.4(b)(5)(ix): The plan drawings call the principal spillway barrel invert as 823.0-ft. Worksheet 18 and Standard Construction Detail # 7-2 each state this elevation as 821-ft.



63. §102.4(b)(5)(viii), §102.4(b)(5)(ix): The proposed bituminous Sidewalk pathway north of and connecting to Camp Meeting Road is sloped at an average 12.5% for approximately 320-feet and is graded such that it will capture upslope runoff, channelize and discharge uncontrolled directly to Camp Meeting Road. Will

this pathway grading need to meet ADA compliance? If yes, this may affect how runoff from this pathway can be directed. Please explain and/or revise.



64. §102.4(b)(5)(ix), §102.8(f)(8), & §102.8(f)(9): The E&S, PCSM plan drawings and the PCSM Spreadsheet reference trees to be protected. How will these trees be protected? Tree protection must include incorporation into the property deed and be recorded as part of the PCSM Plan.

PCSM Comments

65. §102.8(f)(7): Include sediment basin conversion into PCSM basins within the PCSM construction sequence. Please provide.

66. §102.8(f)(8): The Time of Concentration (Tc) calculations for each of the post construction TR55 Worksheets depict a Sheet Flow length of 150-ft in the post-construction conditions. Per Chapter 5 (Runoff Calculations) of the 2012 PA E&S Manual (pg. 108): "The maximum flow path length (L) for any disturbed area is 50 feet. It is unlikely that any sheet flow occurs in areas where active earthmoving is taking place, as well as previously disturbed areas that were not restored to approximate original contour. Therefore, the sheet flow equation should not be used for newly graded fill or cut slopes. Runoff from these areas should be considered shallow concentrated flow." Please revise each of the post construction Tc calculations accordingly.

Hyd. No. 20

POST to POA-6

Description	A	B	C	Totals
Sheet Flow				
Manning's n-value	= 0.240	0.011	0.011	
Flow length (ft)	= 150.0	0.0	0.0	50' MAX
Two-year 24-hr precip. (in)	= 2.33	0.00	0.00	

67. §102.8(f)(8): Within the provided Appendix E calculations, it is noted that HSG B are utilized in post-construction conditions. Mass grading of sites typically degrades these soils by alteration of depth of fill/topsoil and compaction requirements for structural fill. Discuss how these HSG's are to be maintained

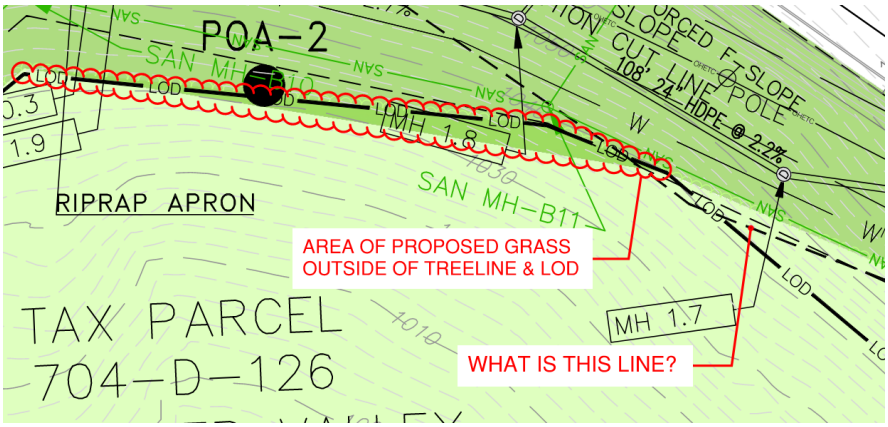
through grading and be sure to include this information in the E&S and PCSM Plans. It is suggested that all B soils be shown degraded to C or D as appropriate in post-construction conditions. Please revise.

68. §102.8(f)(8): The SWM Volume Storage curve number calculations provided throughout the stormwater report use weighted CN values to derive runoff volumes. Please note that per the 2006 Pa SWM Manual, a weighted CN is generally unacceptable for volume analysis due to the large error associated with averaging of initial abstractions for storms less than or equal to the 2-year/24-hour storm event. Curve numbers for impervious and non-compacted pervious areas must be separate from the analysis. Please revise.

69. §102.8(f)(8): As support of the areas being claimed, please provide cross sections/plan views of the Bed Area and Soil Bed Areas for each bioretention areas listed within the Appendix E SWM Volume Storage Calculations as it is unclear how these values were derived. Please provide.

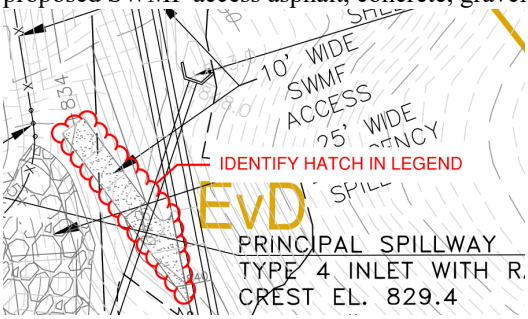
70. §102.8(f)(8): Due to the use of underdrains within the MRC and SWMF-2 basins, the volumes claimed between the dewatering orifice and the basin bottom elevations, as provided within Appendix E SWM Volume Storage Calculations, are not valid. Please revise.

71. §102.8(f)(9): The LOD linework on sheet PCSM100C is being crossed by the proposed grass surface cover and an unidentified bold black dashed line that appears to arbitrarily terminate within the sheet and extends east onto sheet PCSM100D. Please revise to keep the proposed surface vegetation change and grading limits within the limits of disturbance.



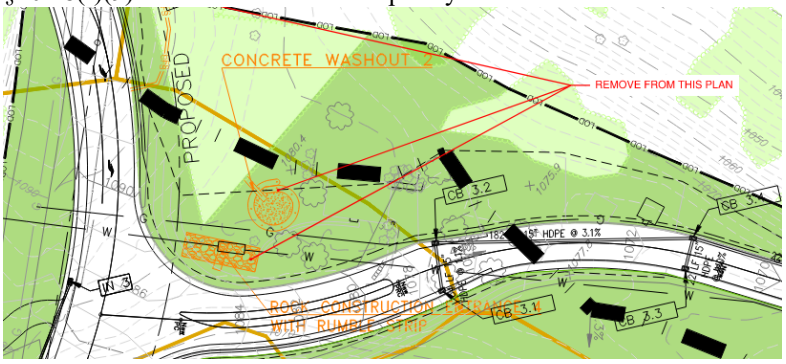
72. §102.8(f)(9): It is not clear how runoff will enter into parking lot bioretention areas (BP-6, BP-7, & BP-8). The drawings and details do not provide curb-cuts or other means of conveyance. Please provide.

73. §102.8(f)(9): Please list and identify within a drawing legend each line type and hatch style, matching scale and intensity. The hatches used for the SWMF access and floodway limits have not been identified. Is the proposed SWMF access asphalt, concrete, gravel? Please revise.



74. §102.8(f)(8), §102.8(f)(9): Consider the use of check-dams along the permanent channels to aid in control of the runoff and obtaining water quality volume.

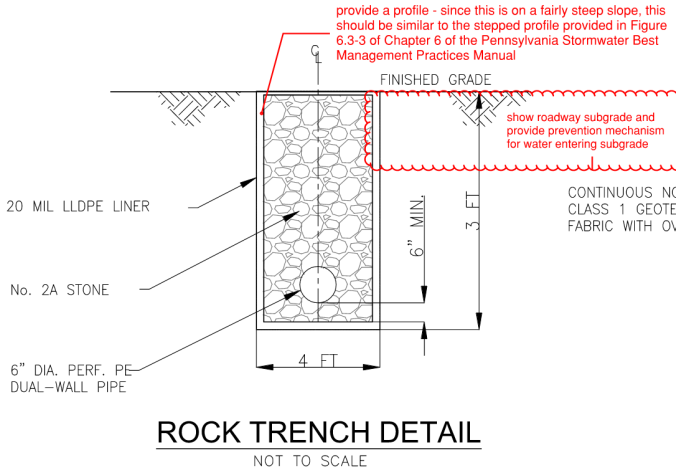
75. §102.8(f)(9): Please remove the temporary E&S BMPs from the PCSM drawings.



76. §102.8(f)(9): It is unlikely the water and gas lines will remain following the reconstruction of the existing access roadway off of Camp Meeting Road (depicted within the above screenshot). Consider revising the existing utilities to be aligned with the proposed grading and roadway alignment. Additionally, unless the pavement is proposed to remain post construction, the pavement linework of the vacated portion of Camp Meeting Road should not be depicted during this phase. It just clutters further an already cluttered drawing.

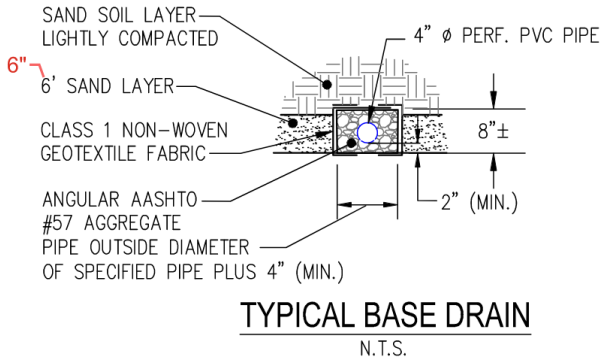
77. §102.8(f)(9): Please identify Camp Meeting Road on each plan sheet it appears on. (PCSM100B)

78. §102.8(f)(9): Please revise the rock trench detail to show the roadway cross section, including the subbase and provide prevention mechanism for water entering the subbase. Additionally, provide a profile. Since this rock trench is on a 10% slope, the profile provided should be similar to the Figure 6.3-3 stepped profile provided in Chapter 6 of the Pennsylvania Stormwater Best Management Practices Manual. Proper measures should be taken to prevent water infiltrating into the subbase of impervious pavement. Consider placing the rock trench on the fill-slope side of the roadway, below the subbase layer, with a cut-slope side swale with catch basins and cross culverts discharging into the infiltration trench. Catch basin sumps and water quality filters can then be placed in the catch basins to be used as pre-treatment for the infiltration trench. Please revise.



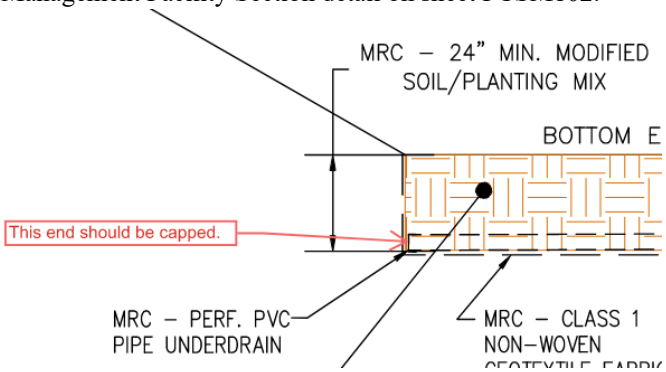
ROCK TRENCH DETAIL
NOT TO SCALE

79. §102.8(f)(9): The Typical Basin Drain detail on sheet PCSM102 references 6-ft thick sand layer. It is likely this is meant to read as 6-in thick. Please revise.



TYPICAL BASE DRAIN
N.T.S.

80. §102.8(f)(9): Please provide a cap on the far/upstream end of the underdrain for the Stormwater Management Facility Section detail on sheet PCSM102.



81. §102.8(f)(9): Please provide a Typical Basin Drain a for the Stormwater Management Facility/MRC basin underdrain on sheet PCSM102. The Typical Basin Drain detail provided appears to be consistent with the bioretention basins, and not the two larger stormwater basins.

82. §102.8(f)(9): Please include basin barrel pipe slopes within the table associated with the Stormwater Management Facility details on sheet PCSM102. Please provide or explain why this information is not needed.

83. 102.8(b)(1), 102.8(b)(3), §102.8(f)(10): Underdrains should not be utilized in infiltration basins. Caps, valves, and gates are not acceptable design features for BMPs which utilize infiltration for Volume Management and Water Quality credit. Proper infiltration testing should yield reliable results. In the event these BMPs require dewatering due to dysfunction, it is unlikely that underdrains will be reliably functional as the soils are likely clogged. If dewatering is necessary, it is more likely the contractor would and should employ a pump and filter bag. If effluent standards are a concern and pumping rate should be considered, include a proper pumping rate in the BMP maintenance. Please revise or explain why this is not necessary.

84. §102.8(g)(2), §102.8(g)(6): The BMP Infiltration / Vegetated Area (SF) values provided on the PADEP PCSM Spreadsheet Volume Worksheet used to calculate the evapotranspiration ET Credit (CF) for BMP exceed the DEP estimated areas from the plan drawings. It appears the entire footprint of each bioretention BMP area, including embankments and cut-slopes associated with each, are being claimed as available for infiltration, which is incorrect. Only the basin interior bottom of the basin/BMP footprint area can be claimed for infiltration and/or evapotranspiration. Additionally, it is not clear where the basin bottoms are. Only Bio areas BP-1 and BP-2 provide grading identifying the extents of the basin footprints. The spreadsheets also provide Storage Volume (CF) values for these basins that appears to be inaccurate. Given the lack of identifiable grading and footprint information, it is impossible to verify these values as well.

Please revise each basin, identifying the basin bottom and top extents to allow verification of the BMP Infiltration / Vegetated Area and Storage Volume values provided. Please revise or explain why this information is not needed.

85. 102.8(g)(2), §102.8(g)(6): Provide information supporting the Non-Structural BMP Volume Credits on the PCSM Spreadsheet. The areas utilized for Tree Planting Credit should be specified on the plan drawings as PCSM SCM's. These areas should be properly designated, and maintenance requirements should be provided. Area's subject to street and road sweeping identified in the Maintenance Program should have similar documentation as noted about the Tree Planting Credit above and include calculations demonstrating the accuracy of the pollutant removal claimed. Provide planting plan(s) describing where, how, and what plantings will be planted and how they will be maintained.

86. 102.8(g)(2), §102.8(g)(6): Please revise the Street and Road Sweeping as described within the Maintenance Program. Rather than "weekly of as needed", provide sweeping monthly from spring through fall, ending in late fall after the leaves have fallen, and restarting in early spring/late winter before the road salt and other debris is washed from the roadway surfaces by rain. Please revise or explain why this is not necessary.

87. 102.8(f)10): Revise the Maintenance Program to include the Rock Trench (aka: BMP 6.4.4: Infiltration Trench) Catch Basins and Inlets should be inspected and cleaned at least 2 times per year. The vegetation along the surface of the Infiltration Trench should be maintained in good condition, and any bare spots revegetated as soon as possible. Vehicles should not be parked or driven on a vegetated Infiltration Trench, and care should be taken to avoid excessive compaction by mowers.

NOI Comments

88. §102.8(f)(8): Given the extent of grading being conducted at this site, it is not clear the site can be constructed without the import of fill material. Please provide a cut/fill grading plan balance sheet with soil volumes identified. If fill material is needed for this project, please update item 12 of the NOI application as appropriate.

89. 102.8(f)(8), §102.8(g)(2): The Infiltration Area (SF) values provided within Item 9 of the Stormwater Analysis – Runoff Volume section of Module 2 for UNT 2 to the Ohio River appear to be incorrect, based on review of the PCSM drawings and the NPDES spreadsheets. Please revise to read consistently.

90. §102.8(f)(8), §102.8(g)(2): The volume and water quality requirements calculated through the provided PADEP PCSM Spreadsheets do not appear to have been met. Page 9 of the PCSM report suggests that water quality requirements will be met at POI-1 through the reductions of runoff and volume requirements of the POI-2 through POI-6 areas. This is not correct, nor valid. Water quality and volume requirements must be met for POI-1, independent of POI-2 through POI-6. Meeting the volume and water quality requirements derived from the spreadsheet for Chapter 102 applications is encouraged, and in this case may be required, because the reviewing agency will receive calculations in a consistent format, which is intended to provide for more efficient and timely reviews.

91. §102.8(f)(8), §102.8(g)(2): It appears the volume Calculations within Appendix E provide an alternative design standard to the PADEP PCSM Spreadsheet. If an alternative design is intended, Item 3. Stormwater Analysis (Runoff Volume) section of Module 2 for the unnamed tributary 2 to the Ohio River should be checked. Please revise.

MRC Comments §102.8(f)(15)

92. The applicant's MRC design deviates from the deign standard 2-yr ponding depth, maximum ponding depth, MRC Release Rate, and ponding time, stating the project is adhering to the "new standard". The mix of the two design standards is not appropriate. The applicant must adhere to the MRC standard which was in place when the application was first made, or switch to the current MRC design standard (preferred). Please revise.
93. Provide 1.2-inch routing calculations in support of 27,588 MRC Volume listed within the Managed Release Concept (MRC) Design Summary sheet. Please provide.
94. The maximum MRC BMP Release Rate (cfs) of 0.01 cfs/acre of equivalent contributing impervious is being exceeded with the current design. Please revise.
95. Provide calculations in support of 65,013 cf runoff volume listed within the Managed Release Concept (MRC) Design Summary sheet. Hydrograph #13 lists a 2-yr runoff volume of 43,953 cf for this MRC basin. Please explain the discrepancy and revise as needed.
96. The drawdown time is being exceeded by the proposed MRC design. The maximum drawdown time to the MRC BMP surface should not exceed 72 hours for each 2-100-year/24-hour design storm. Please revise.
97. The ponding depth is being exceeded by the proposed MRC design. The maximum ponding depth (preferably one foot with a maximum of two feet at the peak of the 2-year/24-hour storm event) should not be exceeded for the design of surface BMPs. In accordance with MRC Design Standard 4, the MRC could incorporate a multi-stage detention facility with the upper portions of the facility providing flow attenuation for storm events greater than a 2-year/24-hour storm, to meet 25 Pa. Code § 102.8(g)(3). An engineered overflow structure or reinforced spillway / berm should be installed to provide safe conveyance for storm events greater than a 2-year/24-hour storm. Ponding depth for storms larger than the 2-year/24-hour storm should not exceed four feet. Please revise.
98. The underdrain calculations provided with the MRC design appear to provide for two (2) underdrains. Please explain and or revise as necessary.
99. Provide a demonstration that all available infiltration, evapotranspiration, and WQ BMPs were utilized prior to managing the remaining credit with MRC BMPs. Please note that this is not an all or nothing situation. All credit which can be taken must be taken prior to authorizing the remainder of the required credit using MRC. BMPs in Chapters 5 and 8 of the SWM Manual should be explored. Also, ET credit should be explored via BMPs such as, but not limited to, vegetated swales as conveyance features, small, dispersed rain gardens, tree planting, etc. Evaluate the potential to use green infrastructure including green roofs, water reuse, etc.

    Infiltration testing was not completed. The site is 69.8 acres. Per MRC guidance, 1 test should be conducted for every 40,000 sf. Provide a demonstration that this criterion has been considered. It is suggested that the Pre-Development Site Characterization Spreadsheet may be used. Alternative site layouts should be considered as well dependent upon results of infiltration testing across the site.

    All options should be considered prior to utilizing MRC for SWM. Riparian Buffers should be considered for use as PCSM SCM's under 102.14 due to the Chapter 93 HQ designation of the watershed. There are locations on the project site which could utilize buffers to manage stormwater. Alternative site layouts should be considered which could maximize the use of buffers. It is suggested that Riparian Buffer guidance document 394-5600-001 and Draft PCSM Manual be consulted regarding the cost benefit along with the PCSM benefits associated with the use of buffers for SWM. The Draft PCSM Manual also has guidance on how to properly use buffers for PCSM credit.

100. The MRC basin receives flow greater than 2-yr event. The design guidance for MRC states that flows from storm events greater than the 2-yr, 24-hr event must be bypassed (routed around and not through) the MRC BMP to a detention facility. This aspect of the design is crucial to the full functioning and thus the full WQ credit achieved by the MRC BMP. Though the guidance does allow that, in certain situations, the flows may not be split, splitting the flows should first be attempted. If it is not possible to split the flow, a narrative should be provided detailing why this cannot be achieved. Insufficient space alone is not always

valid justification nor is economic burden. As the detention component in a split flow set up may be quite small in comparison to the MRC component, space requirements are often similar. In any case, not splitting the flow will be detrimental to the function of the MRC and WQ may not be fully met through the design and maintenance. The narrative should provide evidence that these aspects of the design have been considered despite not splitting the flows. Please provide.

Previous ACCD Comments:

101. (22.) §102.8(f)(8), §102.8(g)(3): Explain where overflow from storm events larger than the 2 year/24 hr storm event for the bioretention areas will go. If this is routed to another PCSM SCM, the module, spreadsheet and routing calculations should reflect as such.

SEI RESPONSE: Bioretention area overflows resulting from storm events larger than the 2-year 24-hour storm are conveyed to either SWMF-1 or SWMF-2.

ACCD: Explain why the bioretention areas are not represented in the hydrographs, drainage area maps, etc. Provide any supporting calculations related to the bioretention SCMs.

SEI RESPONSE: The bioretention ponds are designed to provide volume control and water quality (initial flush) for storm events up to the 2-year 24-hour storm. Larger magnitude storms would pass through the bioretention areas with lesser benefits. Calculations for the bioretention areas is provided in Appendix E of the PCSM Plan. The ponds would provide little or no influence on events larger than the 2-year storm, and therefore are neglected in the designs for SWMF-1 and SWMF-2.

ACCD: All PCSM calcs should have routing provided; just the volume calcs are not sufficient.

102. (23.) §102.8(g)(2), §102.8(g)(3), §102.8(f)(8): Provide routing calculations for the MRC Basin for the 1.2”/24 hour storm.

SEI RESPONSE: The 1-inch/2-hour storm is used to determine the allowable release rate through the MRC orifice. Routing of the 1.2”-2hr storm is not required for the MRC analyses. Per MRC guidance, “The stormwater release rate from the MRC SCM for the 1.2-inch/2-hour storm may not exceed 0.02 cubic feet per second (cfs) from the equivalent impervious area within the MRC SCM’s drainage area (within the project site)”. The calculations for determining the equivalent impervious area and for sizing the SWMF-1 MRC orifice to meet the MRC release rate are provided in Appendix G of the PCSM Plan. The elevation for the stormwater management dewatering orifice has been set no lower than the elevation corresponding to the MRC volume.

Routing analyses for the 1-year, 2-year, 10-year, 50-year, and100-year 24-hour storms under pre-development and post-development conditions are also provided in Appendix G of the PCSM Plan to complete the MRC evaluation.

ACCD: Per MRC guidance - MRC Design Summary #3, routing is required for the 1.2"/2hr storm for the MRC.

103. (24.) §102.4(b)(5)(v), §102.8(f)(5), §102.14, §102.8(f)(14): The watercourse/wetland report provided does not appear to have considered the possibility of additional watercourses on the southern side of the site or the northwestern side of the site. Please revisit and confirm there are not any other surface waters in those areas of the site that would require buffer protection with easements or implementation. Make any necessary changes to the application package. Module 4 may also be needed if there are smaller watercourses present on those areas of the property.

SEI RESPONSE: Streamline accompanied personnel from the PADEP and the USACE March 21, 2025 to revisit these areas. No streams are located within the existing 150-floor buffer on the north side of the site draining to Little Sewickley Creek. All existing channels in the southwest area of the site were determined to be ravines with the exception of a 100-foot section of an ephemeral UNT-6. At the request of the USACE, the ephemeral channels have been added to the wetland report.

ACCD: The drawings show no changes to the area in question. This area should be further evaluated; while there is no earth disturbance there, riparian buffer impacts may be affected. Confirmed based on the Aug 14 revised wetland delineation given to ACCD by PADEP. There are no updated photos in this area.

104.(25.) §102.8(f)(9): Provide a planting plan for proposed SCMs where ET credits are being taken. Per the PCSM Spreadsheet instructions, a combination of woody and herbaceous plantings should be provided (plugs, not just a seed mixture).

SEI RESPONSE: Planting plans for the bioretention ponds are provided on the Plant Schedule drawing by LBA Landscape Architecture in Appendix G of the PCSM Plan. The plantings will include woody and herbaceous plantings, including plugs.

ACCD: The planting plan provided is for the overall site, not specific to the PCSM facilities. Provide specific plantings for each PCSM SCM. Additionally, this should be included in the PCSM drawing set as the plantings should be recorded with the O&M for the site SCMs.

105.(29.) §102.8(g)(1): Provide a copy of the infiltration testing results and test pit descriptions for the project.

SEI RESPONSE: Prior to developing a site plan for the proposed high school project, due diligence evaluation (DDE) was conducted on the site. As part of the DDE, a preliminary geotechnical exploration and evaluations was performed that consisted of drilling of 136 test borings across the entire project site. These test borings revealed the project site ridgetop is capped by a layer of competent sandstone with a thin layer of residual sandy soil that has weathered from its parent sandstone. The sandstone layer is approximately 11 feet thick. This sandstone layer is underlain by an unnamed redbed unit, the Ames limestone, and the Pittsburgh redbed unit. The redbed unit is approximately 80 feet thick. The bedrock below the redbed unit consisted of cyclic sequences of sandstone, siltstone, claystone, and shale to the lowest termination elevations across the site. Pockets of colluvium were encountered in many of the test borings, generally located at or below the elevation of the redbed unit. Since the geology of the site consisted of a sandstone rock layer just below the ridge surface and a redbed unit layer below the rock layer, we did not perform pre-development infiltration testing on the site.

ACCD: Some of the boring logs show materials identified as residuum or colluvium that have depths that would allow for infiltration capabilities on the site. This should be thoroughly evaluated on the site and infiltration should be maximized where possible.

106.(30.) §102.8(g)(1): Provide a drawing showing areas that were investigated for pre-development infiltration capabilities.

SEI RESPONSE: As mentioned in response to comment #29, we did not perform pre-development infiltration testing on the site. However, 136 test borings were drilled across the entire project site. These test borings revealed the soil (sandstone rock, redbed unit, colluvium, etc.) are not conducive to infiltration. Therefore, the site was designed to include bio-retention areas around the proposed school building and parking lots that will be constructed on placed fill material consisting of a mixture of the

excavated site soils with sand from the processing (on-site crusher and screens) of the sandstone rock on the site. We are proposing infiltration testing after the proposed bio-retention areas have been constructed. The site Pre-Characterization Map is provided in Module 2. The Map indicates that only the ridge and the area along UNT-2 are potential areas for infiltration. The ridge provides the only size area possible for the school campus.

ACCD: There is opportunity for infiltration around the upper portions of the site, along the ridge parking areas. Infiltration should be maximized to the extent possible in scenarios where MRC is proposed. Provide testing in areas that might be able to be utilized and utilize them if you can. The proposed excavations will remove much of the colluvial soil within the areas along the ridge tops, and near the proposed bioretention basins. The soil borings within and around these areas show 7-12 ft of overburden which should be deep enough for some level of suitable infiltration material. It does not appear that this was considered as an option. Please provide.

New ACCD Comments:

107. §102.4(c): The PNDI indicates that less than 40 acres of tree cutting or forest clearing will need to occur to implement the project. Based on the aerial view of the site and the pre/post land covers shown in the application, this is incorrect. The PNDI should be rerun with accurate responses to the questions. ("OH River" Sub area identifies 2.83+36.27 ac of woods = 39.1; "LSC" Sub area identifies 4.34+0.98 ac of woods = 5.32; 39.1+5.32 = 44.42 ac woods within the LOD.)

108. §102.6(a)(1), §102.4(b)(5)(i): Provide a properly completed and accurate E&S Module 1. Address the following items:
    a. Page 1, #1 – the response provided does not discuss existing topographic features of the site/surrounding area.
    b. Page 2, #4 – The response provided discusses pre vs. post runoff conditions, but does not discuss during-construction runoff conditions. Describe volume/rate of runoff for the during construction conditions, and identify how runoff will be managed.
    c. Page 5, #18 – there are geologic conditions/soil formations present on the site. A response of NA is not sufficient. Revise to discuss how these conditions will be handled to avoid or minimize potential pollution.
    d. Page 6 – Provide the updated expiration date for the PE license for the E&S plan developer.

109. §102.4(b)(5)(ii), §102.4(b)(5)(ix): The soil limitations/resolutions in Module 1 discuss blending site soils with sand. Identify where this will take place on the site and provide specific instructions and guidance for the contractor in the E&S plans and sequence. Is this the same material to be used in slope construction as "sand" that is referenced in the geotechnical cross sections? Clarify how and where which material is being utilized.

110. §102.4(b)(5)(i): The existing conditions drawings have provided a main plan showing the whole site (C100), and then four sheets at a 60' scale (C100A, C100B, C100C and C100D); however, the Stage 1/Stage 2 E&S plans are only two sheets, also at 60' scale (ESC101A, ESC101B, ESC102A, ESC102B. Stage 3 has 4 sheets at 60' scale. Provide the same sheets and overall page for each stage of construction.
    a. Identify on the overall view sheets what areas each sheet shows and where the match lines are.

111. §102.4(b)(5)(i): Existing and proposed contour lines are too similar, while the existing contour lines are dashed, the proposed contour lines are too faint to easily decipher. Please revise for legibility.

112. §102.4(b)(5)(iii): Show all proposed contours and grading, including those associated with stream restoration impacts, proposed channels, etc.

113. §102.4(b)(5)(iii): Show all proposed E&S controls on the phased drawings. Some have identifiers pointing to items that are not shown on the drawings. (Example – riprap aprons labeled on sheet ESC103C)

114. §102.4(b)(5)(iii): Provide larger scaled drawings with match lines for the proposed grading plan. 1" to 100" is too small to see clearly.

115. §102.4(b)(5)(i): Show existing buildings adjacent to the site on the drawings.

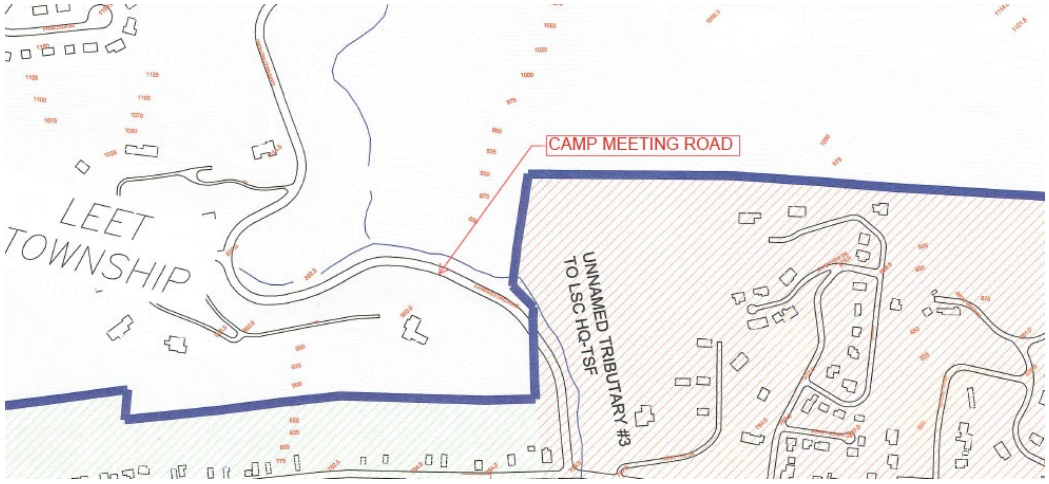
116. §102.4(b)(5)(ix): Provide a scale on each drawing sheet.

117. §102.4(b)(5)(i): The existing conditions plans provided in the E&S set differ from the existing condition plans provided in the JPA set (C100-C100D vs. B102-B103A). Ensure that the existing features on all plan sets are consistent.

118. §102.4(b)(5)(ix): Label and cross reference stream and wetland proposed changes in the E&S plan to items identified in the ARIT.

119. §102.4(b)(5)(iii): RCE #1 is a stream crossing on UNT #2. This crossing is not shown on the ACCD copy of the JPA drawings or in the ARIT. Ensure that this activity has appropriate permit coverage. As shown on the drawings, the existing road is much more narrow than the proposed construction entrance; thus it is anticipated that the crossing will need to be modified for construction equipment to access.

120. §102.4(b)(5)(v): The UNTs to the Ohio River as shown on the plans appear to actually go to Little Sewickley Creek based on Leetsdale MS4 mapping. Provide ABACT E&S controls for the entirety of the site.



121. §102.4(b)(5)(xv): Riparian buffer requirements apply to watercourses on the site that are within the Little Sewickley Creek watershed, which is HQ. Revise the plans to show both existing and proposed buffers.

122. §102.14, 35 P.S. §691.402(c): Provide DEP's Riparian Buffer Module 4 fully completed and signed for the site, as well as any additional riparian buffer worksheets as applicable. Refer to the Module 4 instructions, PA Code Ch 102.14, Riparian Buffer guidance (Document # 394-5600-001), and DEP policy on Riparian Buffer Equivalency Demonstrations (Document # 310-2135-002).

123. §102.4(b)(5)(ix): How will the RCE#1 area be accessible by equipment? The edge of the LOD provides minimal space for implementation and maintenance of a stable crossing/constructed entrance between

Camp Meeting Rd and the edge of UNT 2 to the Ohio River.

124. §102.4(b)(5)(iii): Identify locations on the drawings for staging/equipment drop-off within the LOD (appropriate for each stage of construction). Ensure that there is sufficient room within the LOD for any necessary clearing, E&S controls, entrances, etc.

125. §102.4(b)(5)(ix): In stage 1, RCEs #1, 2, and 3 are provided as access off of Camp Meeting Rd. The details provided in the E&S plans call for wash racks. Wash racks are not shown on the drawings, and there is inadequate means for water removal in these areas. Revise the plans to show all required features of RCEs with a wash rack, including a collector channel to convey water to each associated CFS trap, location of concrete or welded steel pipe in the entrance, drain space, water supply, etc.

126. §102.4(b)(5)(ix): Explain how water previously flowing through ephemeral watercourse UNT #6 to the Ohio River will be handled in the post-construction stage. E.g. identify how relief will be provided for the flow. Has it been determined that the flow for this watercourse is purely stormwater, or is it groundwater? Identify any additional features necessary – such as underdrains, keyway drains, etc. as appropriate for this particular location. (Culvert Demo #3/Stream Fill #2)

127. §102.4(b)(5)(ix): Explain how water previously flowing through ephemeral watercourses UNT 4 and UNT 5 will be handled in the post-demolition phases. Identify additional features as needed. (Culvert Demo #2/Stream Fill #1)

128. §102.4(b)(5)(ix): No E&S controls are provided for protection of wetlands along the haul road/access road that runs from UNT #2 to Basin #1. Provide suitable protection for all sensitive features.

129. §102.4(b)(5)(ix): Provide identifiers/numbering and station numbers for all haul roads, temporary roads, and permanent roads. Identify which detail in the E&S plan is to be followed for haul/temporary roads.

130. §102.4(b)(5)(ix): Per Chapter 3 of the E&S Manual, broad based dips should not be utilized on roads with slopes exceeding 10%. Explain how they will function appropriately on roads in the plans where this design criteria is exceeded.

131. §102.4(b)(5)(ix): Broad based dips should direct flow to either a basin/trap or a well vegetated area with sufficient coverage to resist erosion. This is not being met in the current design, as broad-based dips are discharging to freshly graded slopes and in areas that will not be able to make it to the proposed sediment basins. Revise the plans to provide a suitable outlet and adequate sediment removal for runoff from broad based dips where needed.

132. §102.4(b)(5)(ix): Detail #3-4 is provided for a crowned roadway; identify on the plans were crowned roadways are proposed. Ensure appropriate cross drains, roadside ditches, etc. are shown and that calculations are provided for any additional channels/ditches.

133. §102.4(b)(5)(ix): Provide identifiers for all proposed riprap aprons consistent with naming in the details and calculations.

134. §102.4(b)(5)(ix): Provide the detail for riprap aprons in the E&S drawing set; this could only be located in the PCSM set.

135. §102.4(b)(5)(ix): Provide sizing for proposed CFS #20 surrounding the topsoil stockpile. There was no size identified on the plans or in the details.

136. §102.4(b)(5)(ix): Identify the maximum dimensions to be utilized for the topsoil stockpile on the plans. Ensure sufficient stockpile space is provided for the amount of topsoil anticipated for the site, or provide additional stockpiles where appropriate. Identify in the response the estimated amount of topsoil anticipated to be stockpiled, as well as the amount of topsoil anticipated to be placed upon completion of grading activities.

137. §102.4(b)(5)(iii), §102.4(b)(5)(ix), §102.4(b)(5)(iv), §102.4(b)(5)(xii): The agreement between Leetsdale Borough and Quaker Valley School District (QVSD) relating to land development, requires that the plans help to resolve existing stormwater issues and handle off-site flows of stormwater going into Leetsdale. This does not appear to have been included in the design submitted for permitting. Clarify the proposed plan and confirm drainage areas represented in the application materials align with site goals. (Reference: https://www.leetsdaleboro.net/media/206, page 3, item #4e.)

> e. Storm water detention facilities on the District Property will be designed to partially address the excess water flowing through the site originating at the Quaker Heights development. Although not all Quaker Heights water can be controlled, the District will adopt detention facilities which help control the existing flow of water, in addition to the new flow to be created by development of the District Property;

138. §102.4(b)(5)(vi): Module 1 indicates that there is an existing "rumble pad" to be utilized on the site. Identify the location on the plans, provide a detail for the rumble pads, identify the size, length, etc. of the existing rumble pad, and ensure that it is meeting ABACT requirements. Additionally, provide evaluation on the current status of the rumble pads to determine if they can be used as-is, or if modifications or maintenance will need to be conducted prior to use.

139. §102.4(b)(5)(ix): "Broom wheels" are identified as an E&S BMP in Module 1. This is not currently an approved E&S control; where street sweeping is anticipated to be done, this should be conducted with a vacuum truck. Refer to the E&S manual and approved alternative BMPs list. Revise as needed.

140. §102.4(b)(5)(vii): The sequence provided does not match the features shown on the drawings for each stage. For example – new sidewalk is shown on the drawings in earlier phases, but isn't mentioned as being installed until the final stage. Revisit the sequence and drawings to make sure they are consistent with anticipated project progress in each stage.

141. §102.4(b)(5)(vii): More detail should be provided in the sequence regarding specific instructions for BMP installation.

142. §102.4(b)(5)(vii): The construction sequence mentions a few things that are not direct installation of E&S controls, but generally is still lacking in terms of the construction activities that will need to take place on the site. Revise the sequence to be specific and more detailed. (For example, Stage 3 includes installation of several E&S BMPs, but there is nothing else identified to happen in stage 3.)

143. §102.4(b)(5)(vii): Reference following the JPA plans/permit conditions in appropriate steps of the construction sequence.

144. §102.4(b)(5)(vii): Identify in the sequence that the initial PCSM recording will need to be completed and provided to ACCD prior to scheduling the pre-construction meeting.

145. §102.4(b)(5)(vii): Phase 1: Identify marking of environmentally sensitive features and installation of protective fencing or similar prior to earth disturbance activities in the construction sequence.

146. §102.4(b)(5)(vii): Phase 1: Insufficient E&S controls are provided in the sequence prior to demolition of existing structures. Demolition typically results in earth disturbance. Revise the sequence to implement appropriate controls prior to this step for each structure. Revise worksheet #1 to include additional sections of CFS.

147. §102.4(b)(5)(vii): Phase 1: Clarify if all existing building demolition will occur concurrently, or if these will be done in a certain order.

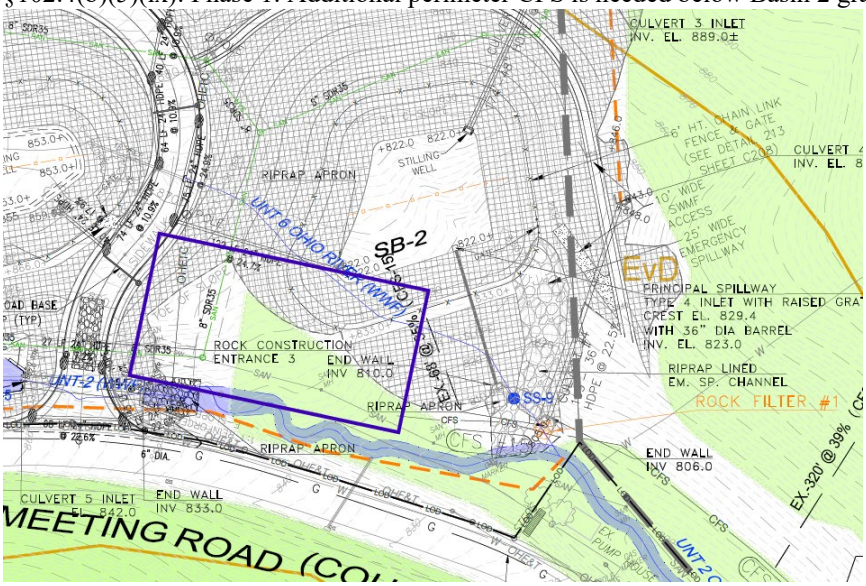
148. §102.4(b)(5)(vii): Phase 1: The plans show locations of the new roadway and broad based dips; these are not discussed in the sequence, please revise.

149. §102.4(b)(5)(ix): Phase 1: Construction vehicle access has not been provided for locations of building demolition. Identify which entrance is to be used or provide additional entrances if need that will prevent sediment from leaving the site during demolition activities.

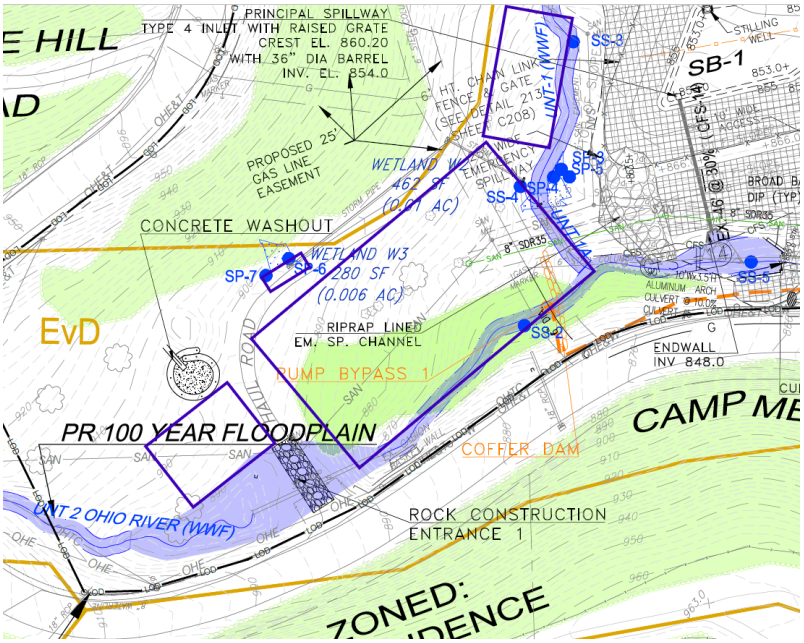
150. §102.4(b)(5)(ix): Phase 1: Identify locations for construction dumpsters or other stockpile/staging areas associated with building demolition.

151. §102.4(b)(5)(ix): Phase 1: Identify the location of a site trailer or equivalent on the drawings if one will be utilized during Phase 1.

152. §102.4(b)(5)(ix): Phase 1: Additional perimeter CFS is needed below Basin 2 grading in this area:

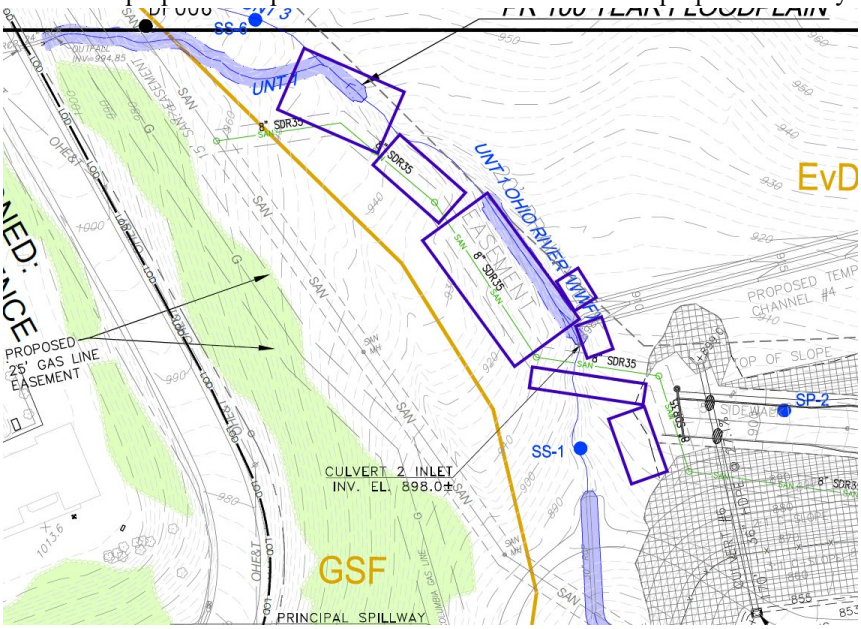


153. §102.4(b)(5)(ix): Phase 1: Additional CFS is needed between the haul road from RCE #1 to SB-1, including below the proposed concrete washout in this area. No protection is provided for wetland W3 or for UNT 2, and no protection is provided for UNT 1 or 1A or wetland W2.

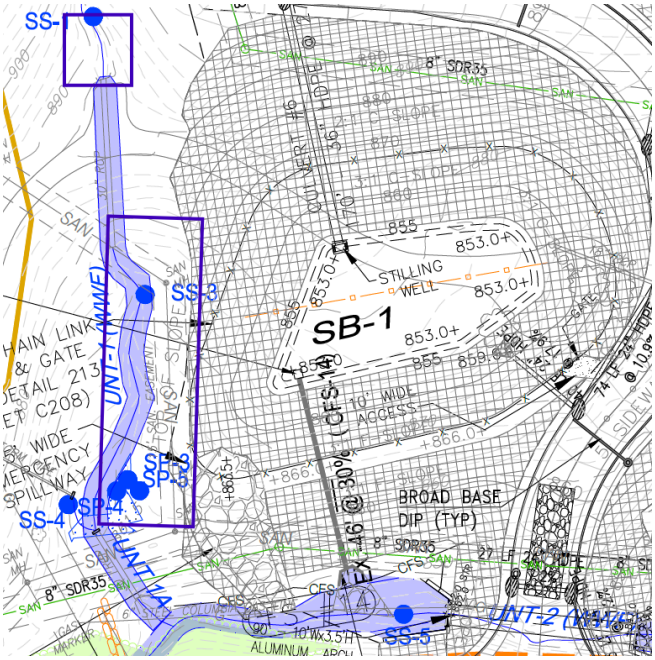


154. §102.4(b)(5)(ix): Phase 1: Provide E&S controls for utility work associated with relocation of the gas and sanitary lines. Several areas are not in an area that would flow to an already proposed section of CFS.

155. §102.4(b)(5)(ix): Phase 1: Additional CFS is needed between areas of earth disturbance and UNT 1 in the area below proposed temp diversion channel #4 and between proposed sanitary.



156. §102.4(b)(5)(ix): Additional CFS is needed between Basin 1 grading earth disturbance activities and UNT1 and 1A and Wetland W2.



157. §102.4(b)(5)(ix): Additional CFS is needed between sanitary line earth disturbance and

158. §102.4(b)(5)(ix): Provide a detail or diagram in the E&S set showing how erosion control for utilities/trenching activity should appear. (e.g. spoils on the upslope side of the trench, perimeter controls, etc.

159. §102.4(b)(5)(ix): Phase 2: Additional CFS is needed between earth disturbance and various watercourses; many of these are the same locations as in Phase 1. Re-evaluate areas of disturbance, slopes, etc. and provide additional CFS; update the calculations with any new sections.
    a. Was it assumed that Phase 1 areas will be greater than 70% permanently stabilized by the time Phase 2 is under construction? Perimeter controls are shown to be removed in many locations; revise to show that these will remain until stabilization requirements are met.

160. §102.4(b)(5)(ix): Phase 2: Insufficient space is provided between CFS and the edge of grading. Ensure that enough space is provided to allow for storage space for sediment as well as access for maintenance. Recommendation is approximately 10 ft.

161. §102.4(b)(5)(ix): Phase 2: CFS #19 is shown almost IN the watercourse near Beaver Street. Please revise. Sufficient buffer space should be provided between perimeter controls and environmental resources.

162. §102.4(b)(5)(ix): The slope length above CFS in the calculations does not match the maximum slope lengths for the areas on the plans between pre/post conditions. Recheck calculations and make any changes necessary to account for maximum drainage areas.

163. §102.4(b)(5)(vii): Reference specific detail identifiers for E&S controls in the sequence.

164. §102.4(b)(5)(ix): Provide specific cut/fill balance information for each stage of construction. For example, when grading is occurring in Phase 1 for sediment basin installation, is that earthwork balanced? Or will there be a need to export/import material to or from a different location on the site?

165. §102.4(b)(5)(vii): Phase 1: Clarify if the sediment basins will be implemented concurrently as the sequence currently reads. Revise the sequence to be more specific in terms of sediment basin installation, including installation of each major component in the order in which they will be implemented for each basin.

166. §102.4(b)(5)(vii): Phase 1: Specify removal of cofferdams, pump bypasses, etc. in the construction sequence.

167. §102.4(b)(5)(vii), §102.4(b)(5)(ix): The JPA plans indicate removal of existing utilities along the site; this is not reflected in the E&S plans or sequence. Revise to show all proposed earth disturbance in the E&S plans. Provide additional perimeter controls where needed.

168. §102.4(b)(5)(vii): Explain how erosion will be prevented where proposed drainage channel #3 discharges to wetland #1.

169. §102.4(b)(5)(vii): There are more stages in the sequence than drawings that were provided. These should match and correspond to each other.

170. §102.4(b)(5)(ix): Stage 4: Identify locations on site where rock will be processed on site.

171. §102.4(b)(5)(vii): Stage 5 states “build to final grade.” Build what to final grade? Be more specific.

172. §102.4(b)(5)(vii): Specify main areas to be permanently stabilized upon moving from one stage of construction to another.

173. §102.4(b)(5)(ix): Clarify the purpose of Rock Filter #1 and Culvert #4. Explain how the rock filter will be constructed overtop of the riprap apron.
    a. Note, sending concentrated sediment laden water to a rock filter is not recommended. Provide documentation that the proposed rock filter can handle the flow.
    b. The description for culvert 4 in the E&S calculations discusses culvert 3; revise to match the appropriate culvert. Confirm naming on the plans matches naming in the calculations.

174. §102.4(b)(5)(ix): Clarify the purpose of having both the riprap channel identified and the emergency spillway identified in the same location for Sediment Basin 2. Are these two separate improvements?

175. §102.4(b)(5)(ix): The grading sheets show a significant difference in grading in the area of Culvert 3 inlet. (Channel vs. a basin like feature) Provide explanation and ensure all proposed grading matches in the plans.

176. §102.4(b)(5)(ix): Provide naming/identifiers for the proposed stilling wells at basin inlets. Provide details and sizing information in the E&S detail sheets. Provide maintenance instructions. Will these be utilized during construction as scour protection?

177. §102.4(b)(5)(ix): Provide identifiers for proposed endwalls in the E&S drawings.

178. §102.4(b)(5)(ix): Provide identifiers for proposed catch basins on the E&S drawings.

179. §102.4(b)(5)(ix): Inlet protection is provided on catch basins that will discharge into the proposed sediment basins. This is inconsistent with guidance in the E&S manual. Remove inlet protection on those that will be able to be treated by the basins in each phase until the basins get converted.

180. §102.4(b)(5)(ix): Compost filter sock is shown crossing contours in multiple locations; this may lead to channelization along the sock and subsequent failure of the sock. Revise to show CFS being placed on existing and level contours.

181. §102.4(b)(5)(ix): Show the ends of CFS as being upturned 45 degrees on each end of each section of CFS.

182. §102.4(b)(5)(vii): For areas that will be completed, identify any proposed removal of E&S BMPs in the sequence. For example, the concrete washout by RCE #1 still remains in the final stage plans. If this is not needed at this stage of construction, it should have been removed to minimize extent/duration of activity near resources. Evaluate and consider these items in the construction sequence; make any changes necessary.

183. §102.4(b)(5)(ix): For any catch basins that will need to utilize inlet protection, the maximum inlet drainage area is ½ acre; this is exceeded for many catch basins, with those exceeding being between 0.53 ac and 2.86 acres. After accounting for those that will drain to a sediment basin, evaluate the remainder that will need inlet protection and make changes necessary to meet guidance in the E&S manual.

184. §102.4(b)(5)(ix): Phase 2: Inlet protection is shown outside of the LOD. All E&S BMPs must be within both the LOD and NPDES permit boundary.

185. §102.4(b)(5)(iii): Clarify what is labeled as proposed gas line by others along Camp Meeting Road. Is that an entirely separate activity, or is the new gas line required for this project?

186. §102.4(b)(5)(vii): Will all paving actually take place in the final stage of construction as identified in the sequence, or will some sections be paved as certain project milestones are met? Revise the sequence if needed.

187. §102.4(b)(5)(vii): Provide specific instructions for conversion of the sediment basins in the E&S sequence.

188. §102.4(b)(5)(vii): Provide language in the sequence that specifies in-stream work should be conducted during periods of low flow conditions.

189. §102.4(b)(5)(vii): Provide language in the sequence and methods in the plans for avoiding/reducing potential compaction in areas with infiltration SCMs.

190. §102.4(b)(5)(vii): Specify compaction and lift requirements for sediment basin embankments, major slope areas, etc. in the sequence as those items are graded.

191. §102.4(b)(5)(viii): For basins required to be ABACT reductions cannot be taken in the dewatering zone. Revise calculations and design to meet criteria in the E&S manual.

192. §102.4(b)(5)(viii), §102.4(b)(5)(ix): The E&S Manual and PA Stormwater Manual guidance discourages construction of basins on steep slopes, as well as significant alteration of a slope for the purposes of installing a basin. Explain how the amount of earthmoving, basin placement, and slope alterations are meeting the design considerations in the guidance.

193. §102.4(b)(5)(viii), §102.4(b)(5)(ix): The PA Stormwater manual states that detention basins should not worsen the runoff potential of the site by removal of trees for the purpose of installing a basin. Additionally, existing trees are an important consideration for reducing potential of slides on landslide prone soils. Explain how this was considered in the design. Describe other areas that were considered for stormwater/sediment basins and why the selected locations were the most ideal.

194. §102.4(b)(5)(ix): The bottom elevation of SB-1 shown on the drawings is 853.0 ft, but the plans identify 855.0 ft. Revise the plans, calculations, and details to be consistent.

195. §102.4(b)(5)(ix): Identify the location for a cleanout stake in each sediment basin on the E&S plans.

196. §102.4(b)(5)(viii): To meet ABACT requirements for sediment basins in special protection watersheds, reductions identified on Standard E&S Worksheet #12 cannot be taken in the dewatering zone. Revise the design to meet all requirements to make the sediment basins ABACT.

197. §102.4(b)(5)(ix): As the drainage area to each sediment basin is greater than 10 acres, a concrete cradle should be utilized for the outlet barrel. Revise the plans and details to show this. (Standard detail #7-10 in the E&S manual)

198. §102.4(b)(5)(ix): Due to the piping nature of on-site soils, consider the use of a filter diaphragm for the outlet barrels in addition to the concrete cradle for both sediment basins.

199. §102.4(b)(5)(ix): Provide specifics in the plans regarding sediment basin embankment grading requirements, including compaction and lift specifications.

200. §102.4(b)(5)(ix): Provide skimmer detail #7-1 for each sediment basin.

201. §102.4(b)(5)(ix): The detail provided for the sediment basins does not show the key trench or impervious core. Provide either the standard detail from the manual, or revise the detail used to include all the same information as the standard detail.

202. §102.4(b)(5)(ix): The details provided for skimmer components reference the standard detail numbers from the E&S manual, but the numbers have been removed from the details in the plans. Revise to include detail numbers for cross referencing, as other details reference these details.

203. §102.4(b)(5)(ix): Provide the typical detail for a sediment basin dewatering device.

204. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Worksheet #12 for both basins shows that the emergency spillway will be grass lined, but the detail provided is for a riprap emergency spillway. Revise to be consistent.

205. §102.4(b)(5)(viii): Identify the land cover conditions utilized in the routing calculations provided for the sediment basins. Provide supporting documentation that the CN values used are for the maximum runoff condition expected during construction, when some areas will likely be bare soil/unvegetated and potentially not yet paved. Evaluating multiple stages across the construction timeline is recommended.

206. §102.4(b)(5)(viii): Explain why “silt loam” was chosen for soil type on sediment basin worksheet #13; geotechnical reports indicate that it is more likely that the basin will be in decomposed rock or bedrock; most soil encountered in these areas were more clayey. What material will be used for embankment construction?

207. §102.4(b)(5)(viii): Key trench width on sediment basin worksheet #13 for basin #2 is inconsistent with the value shown on the E&S plan details; revise to be consistent.

208. §102.4(b)(5)(vii), §102.4(b)(5)(ix): Identify in the sequence when the stilling basins will be implemented.

209. §102.4(b)(5)(ix): Provide the riprap apron details in the E&S set details.

210. §102.4(b)(5)(ix): Provide compost on the upslope side of the rock filters to make them ABACT.

211. §102.4(b)(5)(ix): Provide scour protection where temporary channel #4 outlets to the receiving stream.

212. §102.4(b)(5)(ix): Provide the details for proposed channels in the E&S drawing set.

213. §102.4(b)(5)(ix): A detail was provided for a vegetated channel (channel #5) in the E&S set, but this channel could not be located on the drawings and calculations are not provided. Please address.

214. §102.5(b)(5)(ix): A 5 ft. berm is labeled on the plans, but grading is not shown, and no supporting calculations have been provided. Show all proposed grading, provide a drainage area map, provide supporting calculations, and provide the construction detail. Channel calculations/worksheet #11 may be used for berms.

215. §102.4(b)(5)(viii): The permissible velocity design method for channels should only be used for bed slopes less than 10%. Revise channels with steeper slopes by utilizing the allowable shear stress method for design. Note: values were provided in these columns in worksheet #11, but none of those show that the design is meeting the maximum allowable shear stress.

216. §102.4(b)(5)(viii): The calculated velocity for temporary channel #4 exceeds the allowable velocity provided. Revise the channel design to meet criteria.

217. §102.4(b)(5)(viii): Required capacity for permanent channel #1 is not being met by the design. Revise to ensure the channel meets all design requirements.

218. §102.4(b)(5)(viii), §102.4(b)(5)(ix): Per chapter 6 of the E&S manual, channel dimensions should be rounded to an even 6" for constructability. Revise the design/details to account for this.

219. §102.4(b)(5)(ix): Please clarify why the riprap channel detail identifies the emergency spillways as being only 4 ft wide, but they should be 25 ft. wide based on E&S design criteria.

220. §102.4(b)(5)(ix): Explain why a rock filter is needed between channels 1 and 2, as they both will be going to a sediment basin.

221. §102.4(b)(5)(ix): Several sections of reinforced slopes are shown near the ridge of the site; there is insufficient room for access/construction of this in terms of proximity to the proposed CFS location. Additionally, the area draining to these sections of CFS has been averaged over a much longer flow length than the immediate steeper slope. Evaluate whether the CFS sizing is appropriate for the amount of steep slope in the drainage area.

222. §102.4(b)(5)(ix): Temporary haul roads on previously existing access paths are utilized for this project. Will these be removed and areas restored to vegetation? Identify on the plans/in the sequence what will happen to the roads.

223. §102.4(b)(5)(ix), §102.4(b)(5)(iii), §102.6(a)(1): Antidegradation Module 3 items to address:
    a. The E&S page identifies a compost filter berm to be utilized; this is not represented in the details, drawings, etc. for the project. Explain why this is checked.
    b. Protect/Utilize Natural Flow Pathways on-site has been checked in the PCSM section. Explain how the current design is doing this considering the amount of Ch 105 impacts that are proposed.

This is also not identified in Module 2. Long-term protection also has not been included in the plans with a conservation easement or equivalent.

c. Street sweeping is checked in the PCSM section, but this is not identified in Module 2. Explain.
d. All the bioretention facilities are identified as “infiltration” in Module 2, but there is no design infiltration rate. Module 3 also includes Rain Garden with Infiltration as being checked, which is not consistent with what is proposed on the site.
e. Module 3 identifies rooftop drain disconnect as being utilized on the site, but this is also nowhere else in the application or drawings.
f. Revise Module 3 to accurately reflect what is proposed, for both E&S and PCSM.