Montour Ash Basin No. 1.
Periodic Hazard Potential Classification Assessment

Derry Township, Montour County, PA

October 2026

GFT PROJECT NO.: 064767



Prepared for:

Montour, LLC
Washingtonville, Pennsylvania

GFT

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1. AUTHORIZATION

1.1 General

Talen Energy/Montour, LLC (Montour) seeks a five-year update to the Periodic Hazard Potential Classification for Montour Ash Basin No. 1 Dam located in Derry Township, Montour County, Pennsylvania, in conformance with Pennsylvania Department of Environmental Protection (PADEP) and the Environmental Protection Agency guidelines. This report summarizes GFT's review and findings regarding the adequacy of the 2021 dam breach analysis, hazard potential classification and inundation mapping for the dam.

2. BACKGROUND

Montour owns and operates the Montour Steam Electric Station (MSES), which is located in Derry Township, Montour County, Pennsylvania. Basin No.1 was constructed to dispose of coal combustion residuals (CCR) and to treat wastewater from the MSES.

Basin No.1 is permitted by Pennsylvania Department of Environmental Protection (PADEP) as a Class II Residual Waste Disposal Impoundment under Permit No. 301315, which expires on October 5, 2027. Basin No.1 is also regulated by the PADEP Bureau of Waterways Engineering Division of Dam Safety (PADEP Division of Dam Safety) under Permit No. 47-009 and National Pollutant Discharge Elimination System (NPDES) Permit No. PA0008443.

Basin No.1 is an unlined, earthen dike disposal impoundment. The permitted disposal area is approximately 155 acres. Basin No.1 went into service in 1971 and was developed by excavating site soils to construct an embankment dike around the excavation. The perimeter of Basin No.1 is approximately 11,000 feet in length and up to approximately 40 feet high. The dike ties into a bedrock ridge along the eastern side of the basin. A slurry wall was subsequently installed in the perimeter dike except in the bedrock ridge area. Originally, Basin No.1 was divided into Subbasins A, B, and C by internal dikes referred to as the Median Dike and the Splitter Dike, respectively.

The CCR disposed in Basin No.1 have historically included fly ash (ceased in 1982), bottom ash, Stabil-Fil (lime-amended fly ash placed as beneficial use), and mill rejects. The basin has permanently ceased receipt of CCR and non-CCR waste streams as of November 15th, 2024.

From Subbasin A and B, the stormwater that lands within the basin during closure activities is conveyed by culverts through the splitter dike into Subbasin C. Water is discharged from Subbasin C through a riser and outlet pipe to the on-site detention basin before discharging under NPDES Permit No. PA0008443.

Prior to initiating closure, Montour submitted a Major Permit Modification (MPM) Application to PADEP in November 2014 which PADEP approved by a permit modification dated June 18, 2015. The MPM Application proposed the following:

- Placement of Conditioned Fly Ash (fly ash conditioned with moisture) as a beneficial use to increase final grades to a maximum of 3 percent to promote surface water run-off and decrease the potential for long-term ponding of water on the final cover.
- Installation of a surface water management system designed in accordance with PADEP regulations.
- Placement of an alternative final cover system consisting of a geomembrane, geotextile cushion/drainage layer, and final cover soil.

In accordance with the MPM Application, Montour placed Conditioned fly ash (CFA) in Basin No.1 as structural fill to increase the final grades in preparation for basin closure. The placement of fly ash is considered beneficial use of coal ash as structural fill per Chapter 290.102 of the Pennsylvania Code. CFA has been placed in Subbasin A to increase grades to a minimum slope of 1 percent. This activity ceased prior to initiating closure.

Modifications to allow Basin No.1 to safely pass the Inflow Design Flood were constructed in 2020. The 2020 modifications are detailed below:

Overflow Sections:

- Installed an overflow section between Subbasin B and C. The section is 200-feet wide with 10H:1V slopes and an invert elevation of 561.8-feet based on a local "plant" datum.
- Installed an armored overflow section to convey flow out of Subbasin C. The section from Subbasin C is 150-feet wide with 4H:1V slopes and an invert of 561.8-feet. This section is armored with articulating concrete blocks (ACBs) through the control section and down the downstream embankment slope. The overflow section would be activated by a storm greater than the 1,000-year storm event and can adequately manage flow during and following the peak discharge of the inflow design flood.
- Necessary PADEP permits for these modifications were obtained.

Perimeter Conveyance Channels:

- Installed grass-lined northern and southern perimeter channels at various bottom widths (schedule given in the Channel Modification Exhibit in Appendix A), a channel slope of 0.1% and 3H:1V side slopes.
- Montour did not install Culvert 3 (C3) and has modified the channel invert to maintain the design slope (0.1%) and proper width throughout the entire reach.
- Removed the interior access point over the southern perimeter channel at Culvert 1 (C1), as denoted in the Initial Inflow Design Flood Control System Plan. To provide additional conveyance, the channel was widened in this section to allow flow to enter and bypass the existing culvert. The minimum bypass channel width is 5 feet, assuming free flow conditions through C1.

Intermediate Diversion Channels and Berms:

- Constructed the northern and southern diversion berms upgradient of the perimeter channels to reduce surface water runoff to the perimeter channels.
- The northern diversion berm is a triangular channel with side slopes of 3H:1V and 50H:1V (2% grade), 0.2% channel slope, and a minimum depth of 2 feet.

- The southern diversion berm is a trapezoidal channel with a bottom width of 10 feet, 3H:1V side slopes, a channel slope of 0.1%, and a minimum depth of 6.5 feet.

The hazard potential classification is not sensitive to modifications to the perimeter conveyance channels and intermediate diversion channels and berms because the dam breach inundation analyses modeled the reservoir of Montour Ash Basin No.1 Dam using the bathymetric contours available in the Plant Site Grading drawings dated March 15, 1968. These contours maximize the potential water storage volume within the basin.

With the 2020 modifications, Basin No.1 has adequate capacity to safely pass the Inflow Design Flood (probable maximum flood [PMF] event) without overtopping the non-armored portions of the perimeter dike, thus complying with (§) 257.82(c) of the CCR Rule. Table 1 provides a summary of pertinent details of the dam. All drawings and plans are provided with the 2025 IDF Report, which is provided in Appendix A of this report.

Table 1 - Pertinent Details of Montour Ash Basin No.1 Dam

Dam Name	Montour Ash Basin No.1 Dam
Drainage Area	Approximately 155 acres
Dam Height x Perimeter Length	Approximately 40 feet x 11,000 feet
Normal Pool Elevation/Overtop Elevation	553.7 feet / 564.0 feet

CFA placement within Basin No. 1 continued until the basin initiated closure in 2024. Site survey of the basin was completed in May 2025 to document the existing conditions within the basin (active-closure). In addition, the interior grading plan has been updated to reflect intended final closure conditions. These conditions incorporate the following changes from the existing conditions:

- Elimination of the splitter dike between Subbasin B and Subbasin C and construction of a structural embankment approximately 125 feet downstream of the existing splitter dike. The structural embankment will include a 200-foot-long armored, lowered overtopping section. The crest elevation of the lowered section is 548.0 feet.
- Realignment of the north and south diversion channels near the proposed structural embankment to converge at the lowered section of the embankment. The invert of the diversion channels at the embankment is 548.0 feet. The relocated channels are known as Channel 11 (north) and Channel 6 (south).
- Final grading of the Subbasin B interior will include a 1% finished slope extending from the proposed structural embankment, covering the portion of Subbasin B that is presently open water, and meeting the existing grade approximately 1300 feet east of the structural embankment. The southern portion of the ash basin will have 2 to 3 percent slopes extending from the approximate center of Ash Basin No. 1 to the south diversion channel. The existing south diversion berm will be left in place in the closure condition.

The "Initial Hazard Potential Classification Assessment for Ash Basin No. 1" dated October 14, 2016, and the "Periodic Hazard Potential Classification Assessment" dated October 2021, concluded that failure of the Basin 1

embankment has the potential to result in the loss of life downstream and classified the basin as high hazard. The design storm event of the basin is the probable maximum flood (PMF). This report documents the evaluation of the hazard potential of the dam breach inundation maps based on the current best available data. This evaluation is completed for inclusion in the operating record to meet regulatory requirements.

3. EVALUATION OF EXISTING DAM BREACH ANALYSIS

In 2020, Gannett Fleming evaluated and updated the Initial Inflow Design Flood Control System Plan for the MSES Ash Basin No. 1 prepared by Civil & Environmental Consultants, Inc. (CEC) dated October 2016. The findings from the Gannett Fleming study are documented in the report titled Periodic Inflow Design Flood Control System Plan for Montour Ash Basin No. 1, dated November 2020. As part of the Gannett Fleming study in 2020, detailed hydrologic modeling was performed to simulate the PMF conditions at the reservoir, and a peak PMF pool level of 563.9 feet was estimated. The 2020 hydrologic computations were used at the Periodic Hazard Potential Classification Assessment, developed by Gannett Fleming in 2021.

As the Basin is prepared for closure, a new Periodic Inflow Design Flood Control System Plan was developed by Gannett Fleming in 2025 to evaluate the current conditions (active-closure) as well as planned future conditions (closed) in Basin 1. The revised analyses estimated a peak PMF pool elevations of 563.6 feet under the active-closure (existing) condition and 563.8 feet under the final-closure condition, both slightly lower than the 2020 estimate. The 2025 IDF report is provided in Appendix A.

The breach parameters used in the 2021 hazard potential evaluation were provided by Talen based on Pennsylvania Department of Environmental Protection (PADEP) guidance. No changes have been identified that would materially affect those parameters. The revised PMF pool elevations differ only slightly from the elevations used in the 2021 evaluation and are not expected to meaningfully affect the breach assumptions; therefore, the 2021 breach parameters remain valid.

The 2021 hazard potential evaluation considered three breach locations selected to produce conservative downstream flood consequences. The inundation mapping represents the envelope of those breach scenarios for hazard potential assessment purposes. Review of 2026 aerial imagery identified no apparent changes in downstream development within the inundation area; therefore, the breach locations evaluated in 2021 remain appropriate for representing conservative downstream consequences.

The 2021 dam breach analyses remain valid for the current and proposed closure configuration of Montour Ash Basin No. 1.

4. HAZARD POTENTIAL CLASSIFICATION

Hazard potential classifications are based on the incremental consequences of a hypothetical dam failure. A new hazard potential evaluation is warranted only when conditions affecting downstream consequences have changed,

including dam modifications, revised breach assumptions, changed inundation limits, or additional downstream development. As summarized in the previous section, the 2021 dam breach analyses remain valid.

Based on a review of 2026 aerial imagery, no new development was identified within the inundation area.

The most recent study on the hazard potential classification of Montour Ash Basin No.1 Dam titled "Periodic Hazard Potential Classification Assessment", dated October 2021, concluded that failure of the Basin No.1 embankment has the potential to result in the probable loss of life downstream and classified the basin as high hazard. As no changes on downstream inundation extents were identified, the dam is recommended to be considered as a "high hazard structure" as defined in PA Code Title 25 Chapter 105.1. Based on this re-evaluation study, the current PADEP Hazard Potential Category of B-1 is appropriate. Additionally, Montour Ash Basin No. 1 Dam is recommended to be classified as a "high hazard potential CCR surface impoundment" according to USEPA regulations.

5. INUNDATION MAPPING

The two-dimensional breach hydraulic model results from the 2021 analysis were processed in ArcGIS using LiDAR terrain data to develop inundation maps that show the maximum extent of inundation in the areas downstream of Montour Ash Basin No.1 Dam. Considering the PADEP guidelines, one set of maps which incorporates the worst case extents of both Sunny Day breach and PMF failure scenarios were prepared. The inundation maps show the worst-case extent of inundation with Bing aerial maps used as a base map. In addition to the maximum inundation extents, inundation maps are also presented with Traffic Control Points (TCP) at critical road and railroad crossings downstream of the dam. The inundation maps are provided with the 2021 analysis in Appendix B.

The breach inundation maps provide an approximation of areas that would be flooded if the dams were to fail. Note that the mapped limits of flooded areas are approximate and are subject to certain assumptions and generalizations that are necessary for and intrinsic to the dam failure flood wave modeling and mapping process. Modifications to floodplain features can alter the inundation limits and the extent of inundation resulting from an actual dam failure event and may differ from the information presented on the maps. It is prudent to assume that peripheral areas located outside of the demarcated inundation limits could also be subject to flood inundation.

The 2021 inundation mapping remains valid for the current and proposed closure configuration of Montour Ash Basin No. 1.

CERTIFICATION

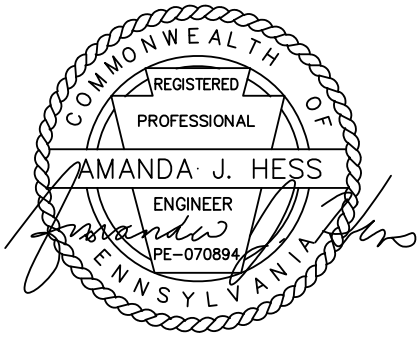
The following is provided in accordance with Section 257.73(a)(2)(ii) of the CCR Rule.

By affixing my seal to this, I do hereby certify to the best of my knowledge, information and belief that the information contained in this report is true and correct. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Amanda J. Hess, P.E.
P.E. License Number: PE070894

Signature:
Date: Amanda J. Hess

Digitally signed by Amanda J. Hess
DN: C=US, E=ahess@gftinc.com, O="GFT Infrastructure, Inc.", OU="Geotechnical, Dams and Hydraulics", CN=Amanda J. Hess
Location: Mechanicsburg, PA
Reason: I attest to the accuracy and integrity of this document
Contact Info: 717-309-6471
Date: 2026.09.15 15:26:54-04'00'



REFERENCES

Hydrologic and Hydraulic Report with Dam Break Analysis for Montour S.E.S. Ash Basin 1, prepared by G. David Hopfer, February 2012.

Initial inflow design flood control system plan – Montour Ash Basin No. 1. Technical Report prepared for Talen Energy by Civil & Environmental Consultants, Inc. (2016).

Periodic Hazard Potential Classification Assessment – Montour Ash Basin No. 1. Technical Report prepared for Talen Energy by Gannett Fleming, October 2021.

Periodic Inflow Design Flood Control System Plan for Montour Ash Basin No. 1, prepared for Talen Energy by Gannett Fleming, November 2025.

Appendix A

PERIODIC INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
MONTOUR ASH BASIN NO. 1

GFT

PERIODIC INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
MONTOUR ASH BASIN NO. 1

MONTOUR STEAM ELECTRIC STATION
DERRY TOWNSHIP
MONTOUR COUNTY, PENNSYLVANIA

Prepared for:

MONTOUR, LLC
WASHINGTONVILLE, PENNSYLVANIA

Prepared by:

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GF Project No. 064767

NOVEMBER 2025

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Active-Closure Conditions

Final Closure Conditions

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Active-Closure Perimeter Channel Hydraulic Model

Final Closure Perimeter Channel Hydraulic Model

1.0 PURPOSE

On behalf of Montour, LLC, Gannett Fleming, Inc. (Gannett Fleming, now known as GFT Infrastructure, Inc.) has evaluated and updated the Initial Inflow Design Flood Control System Plan for the Montour Steam Electric Station (MSES) Ash Basin No. 1 (Basin 1) prepared by Civil & Environmental Consultants, Inc. (CEC) dated October 2016 and subsequently updated by Gannett Fleming in November 2020. This report addresses the requirements in Code of Federal Rules, Title 40, Parts 257 and 261 Hazardous and Solid Waste Management System; Disposal of Coal Combustion Residuals From Electric Utilities; Final Rule, dated April 17, 2015 (CCR Rule). Specifically, this effort satisfies Section (§) 257.82(c)(4), which requires the owner to prepare a periodic inflow design flood control system plan. This Periodic Inflow Design Flood Control System Plan will be placed on the operating record on or prior to November 17, 2025.

Basin 1 is classified as an existing CCR surface impoundment in § 257.53. The Initial Inflow Design Flood Control System Plan was designed and prepared by CEC. In 2020 Gannett Fleming was commissioned to design two overflow sections that convey the inflow design flood (IDF) as defined in Section § 257.82(a)(3) and verify that these overflow sections do not adversely affect the surface water management system including perimeter channels, box culverts, diversion berms, and the surface water control basin that were designed by CEC. These improvements are documented in the November 2020 plan update. This 2025 update evaluates current conditions (active-closure) as well as planned future conditions (closed) in Basin 1.

2.0 SITE DESCRIPTION

Montour owns and operates the Montour Steam Electric Station (MSES), which is located in Derry Township, Montour County, Pennsylvania. Basin 1 was constructed to dispose of coal combustion residuals (CCR) and to treat wastewater from the MSES. The location of Basin 1 is shown on Figure 1 – Site Location Map in Appendix A.

Basin 1 is permitted by Pennsylvania Department of Environmental Protection (PADEP) as a Class II Residual Waste Disposal Impoundment under Permit No. 301315, which expires on October 5, 2027. Basin 1 is also regulated by the PADEP Bureau of Waterways Engineering Division of Dam Safety (PADEP Division of Dam Safety) under Permit No. 47-009 and National Pollutant Discharge Elimination System (NPDES) Permit No. PA0008443.

Basin 1 is an unlined, earthen dike disposal impoundment. The permitted disposal area is approximately 155 acres. Basin 1 went into service in 1971 and was developed by excavating site soils to construct an embankment dike around the excavation. The perimeter of Basin 1 is approximately 11,000 feet in length and up to approximately 40 feet high. The dike ties into a bedrock ridge along the eastern side of the basin. A slurry wall was subsequently installed in the perimeter dike except in the bedrock ridge area. Originally, Basin 1 was divided into Subbasins A, B, and C by internal dikes referred to as the Median Dike and the Splitter Dike, respectively.

The CCR disposed in Basin 1 have historically included fly ash (ceased in 1982), bottom ash, Stabil-Fil (lime-amended fly ash placed as beneficial use), and mill rejects. The basin has permanently ceased receipt of CCR and non-CCR waste streams as of November 15th, 2024.

From Subbasin A and B, the stormwater that lands within the basin during closure activities is conveyed by culverts through the splitter dike into Subbasin C. Water is discharged from Subbasin C through a riser and outlet pipe to the on-site detention basin before discharging under NPDES Permit No. PA0008443.

Prior to initiating closure, Montour submitted a Major Permit Modification (MPM) Application to PADEP in November 2014 which PADEP approved by a permit modification dated June 18, 2015. The MPM Application proposed the following:

- Placement of Conditioned Fly Ash (fly ash conditioned with moisture) as a beneficial use to increase final grades to a maximum of 3 percent to promote surface water run-off and decrease the potential for long-term ponding of water on the final cover.
- Installation of a surface water management system designed in accordance with PADEP regulations.
- Placement of an alternative final cover system consisting of a geomembrane, geotextile cushion/drainage layer, and final cover soil.

In accordance with the MPM Application, Montour placed Conditioned fly ash (CFA) in Basin 1 as structural fill to increase the final grades in preparation for basin closure. The placement of fly ash is considered beneficial use of coal ash as structural fill per Chapter 290.102 of the Pennsylvania Code. CFA has been placed in Subbasin A to increase grades to a minimum slope of 1 percent. This activity has ceased prior to initiating closure. Modifications to allow Basin 1 to safely pass the Inflow Design Flood were constructed in 2020. The 2020 modifications are detailed below:

Overflow Sections:

- Installed an overflow section between Subbasin B and C. The section is 200-feet wide with 10H:1V slopes and an invert elevation of 561.8-feet based on a local "plant" datum.
- Installed an armored overflow section to convey flow out of Subbasin C. The section from Subbasin C is 150-feet wide with 4H:1V slopes and an invert of 561.8-feet. This section is armored with articulating concrete blocks (ACBs) through the control section and down the downstream embankment slope. The overflow section would be activated by a storm greater than the 1,000-year storm event and can adequately manage flow during and following the peak discharge of the inflow design flood.
- Necessary PADEP permits for these modifications were obtained.

Perimeter Conveyance Channels:

- Installed grass-lined northern and southern perimeter channels at various bottom widths (schedule given in the Channel Modification Exhibit in Appendix A), a channel slope of 0.1% and 3H:1V side slopes.
- Montour did not install Culvert 3 (C3) and has modified the channel invert to maintain the design slope (0.1%) and proper width throughout the entire reach.

- Removed the interior access point over the southern perimeter channel at Culvert 1 (C1), as denoted in the Initial Inflow Design Flood Control System Plan. To provide additional conveyance, the channel was widened in this section to allow flow to enter and bypass the existing culvert. The minimum bypass channel width is 5 feet, assuming free flow conditions through C1.

Intermediate Diversion Channels and Berms:

- Constructed the northern and southern diversion berms upgradient of the perimeter channels to reduce surface water runoff to the perimeter channels.
- The northern diversion berm is a triangular channel with side slopes of 3H:1V and 50H:1V (2% grade), 0.2% channel slope, and a minimum depth of 2 feet.
- The southern diversion berm is a trapezoidal channel with a bottom width of 10 feet, 3H:1V side slopes, a channel slope of 0.1%, and a minimum depth of 6.5 feet.

As shown in the 2020 Periodic Inflow Design Flood Control System Plan, with these modifications, Basin 1 has adequate capacity to safely pass the Inflow Design Flood (probable maximum flood [PMF] event, as defined in Section 3.0) without overtopping the non-armored portions of the perimeter dike, thus complying with (§) 257.82(c) of the CCR Rule. As-built construction drawings for the overflow sections, perimeter channels, and diversion berms, are given in Appendix A. These drawings were included in the History of Construction Report dated June 2021.

Since 2020, CFA placement continued until the basin initiated closure in 2024. Site survey was completed in May 2025 to document the existing conditions within the basin (active-closure). In addition, the interior grading plan has been updated to reflect intended final closure conditions. This plan is provided in Appendix A – Figure 3. These conditions incorporate the following changes from the existing conditions:

- Elimination of the splitter dike between Subbasin B and Subbasin C and construction of a structural embankment approximately 125 feet downstream of the existing splitter dike. The structural embankment will include a 200-foot-long armored, lowered overtopping section. The crest elevation of the lowered section is 548.0 feet.

- Realignment of the north and south diversion channels near the proposed structural embankment to converge at the lowered section of the embankment. The invert of the diversion channels at the embankment is 548.0 feet. The relocated channels are known as Channel 11 (north) and Channel 6 (south).

- Final grading of the Subbasin B interior will include a 1% finished slope extending from the proposed structural embankment, covering the portion of Subbasin B that is presently open water, and meeting the existing grade approximately 1300 feet east of the structural embankment. The southern portion of the ash basin will have 2 to 3 percent slopes extending from the approximate center of Ash Basin No. 1 to the south diversion channel. The existing south diversion berm will be left in place in the closure condition.

3.0 § 257.82(a) INFLOW DESIGN FLOOD

The applicable sections of § 257.82(a) are reprinted below in bold, italic font. The responses follow each section of the rule and are provided in normal font.

§ 257.82(a) states:

(a) The owner or operator of an existing or new CCR surface impoundment or any lateral expansion of a CCR surface impoundment must design, construct, operate, and maintain an inflow design flood control system as specified in paragraphs (a)(1) and (2) of this section.

(a)(1) The inflow design flood control system must adequately manage flow into the CCR unit during and following the peak discharge of the inflow design flood specified in paragraph (a)(3) of this section.

(a)(2) The inflow design flood control system must adequately manage flow from the CCR unit to collect and control the peak discharge resulting from the inflow design flood specified in paragraph (a)(3) of this section.

(a)(3) The inflow design flood is:

(a)(3)(i) For a high hazard potential CCR surface impoundment, as determined under § 257.73(a)(2) or § 257.74(a)(2), the probable maximum flood;

As defined in § 257.53, a high hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation will probably cause loss of human life. A significant hazard potential CCR surface impoundment means a diked surface impoundment where failure or mis-operation results in no probable loss of human life, but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns.

Failure of the Basin 1 embankment has the potential to result in the probable loss of life downstream, as described in the "Initial Hazard Potential Classification Assessment for Ash Basin No. 1" dated October 14, 2016, and the "Periodic Hazard Potential Classification Assessment" dated October 2021, both assessments stating that the basin is considered high hazard. The design storm event of the basin is the probable maximum flood (PMF).

4.0 § 257.82(b) SURFACE WATER REQUIREMENTS

§ 257.82(b) is reprinted below in bold, italic font. The responses follow in normal font.

§ 257.82(b) states:

(b) Discharge from the CCR unit must be handled in accordance with the surface water requirements under §257.3-3.

In accordance with § 257.3-3, discharges from the Site are authorized by and in compliance with PADEP under NPDES Permit No. PA0008443. Dredged material or fill material is not discharged from the Site to waters of the United States in violation of the requirements under Section 404 of the Clean Water Act.

5.0 § 257.82(c) INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN

The applicable sections of § 257.82(c) are reprinted below in bold, italic font. The responses follow each section of the rule and are provided in normal font.

§ 257.82(c) states:

(c) Inflow design flood control system plan

(c)(1) Content of the plan. The owner or operator must prepare initial and periodic inflow design flood control system plans for the CCR unit according to the timeframes specified in paragraphs (c)(3) and (4) of this section. These plans must document how the inflow design flood control system has been designed and constructed to meet the requirements of this section. Each plan must be supported by appropriate engineering calculations. The owner or operator of the CCR unit has completed the inflow design flood control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(4).

The Initial Inflow Design Flood Control System Plan prepared by CEC documents the inflow design flood control system at Basin 1, the first Periodic Inflow Design Flood Control System Plan was prepared in November 2020, and this report is the second Periodic Inflow Design Flood Control System Plan. The analyses related to the flood control structures are described in Sections 5.1 to 5.3.

(c)(2) Amendment of the plan. The owner or operator of the CCR unit may amend the written inflow design flood control system plan at any time provided the revised plan is placed in the facility's operating record as required by § 257.105(g)(4). The owner or operator must amend the written inflow design flood control system plan whenever there is a change in conditions that would substantially affect the written plan in effect.

There have not been any changes in conditions that would have substantially affected the previous plan. (c)(3) Timeframes for preparing the initial plan-(i) Existing CCR surface impoundments. The owner or operator of the CCR unit must prepare the initial inflow design flood control system plan no later than October 17, 2016.

The Initial Inflow Design Flood Control System Plan was placed in the operating record prior to October 17, 2016.

(c)(4) Frequency for revising the plan. The owner or operator must prepare periodic inflow design flood control system plans required by paragraph (c)(1) of this section every five years. The date of completing the initial plan is the basis for establishing the deadline to complete the first periodic plan. The owner or operator may complete any required plan prior to the required deadline provided the owner or operator places the completed plan into the facility's operating record within a reasonable amount of time. In all cases, the deadline for completing a subsequent plan is based on the date of completing the previous plan. For purposes of this paragraph (c)(4), the owner or operator has completed an inflow design flood control system plan when the plan has been placed in the facility's operating record as required by § 257.105(g)(4).

This document serves as the second Periodic Inflow Design Flood Control System Plan and was completed and placed in the operating record within the minimum five-year timeframe of the prior update in 2020. As required, subsequent revisions to the plan will be completed within five years from the date of this second plan revision.

(c)(5) The owner or operator must obtain a certification from a qualified professional engineer stating that the initial and periodic inflow design flood control system plans meet the requirements of this section.

The certification statement provided by a qualified professional engineer states that this Periodic Inflow Design Flood Control System Plan meets the requirements stated in §257.82(c).

5.1 INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN BACKGROUND INFORMATION

The MPM Application approved by PADEP in June 2015 included a range of 1 to 3 percent final grades and a surface water management system consisting of perimeter channels, box culverts, diversion berms, and a surface water control basin within Basin 1. The proposed surface water control structures were designed in accordance with both the PADEP Residual Waste Regulations for Disposal Impoundments and PADEP Dam Safety Requirements.

Currently, the basin is actively being closed with grading activities occurring within the basin. The perimeter channels have been installed. Diversion berms have been constructed upgradient of the perimeter channels to reduce the surface runoff to the perimeter channels. Overflow sections from Subbasin B to Subbasin C and from Subbasin C to the Chillisquaque Creek have also been constructed. The existing principal spillway structure in Subbasin C discharges to the Detention Basin located at the MSES. Run-off from areas surrounding Basin 1 is diverted into existing waterways and does not enter Basin 1. The May 2025 configuration of Basin 1 (active-closure) is depicted in the existing conditions drainage area plan provided in Appendix A. Updated plans for the final closure configuration Basin 1 are also provided in Appendix A.

As stated in Section 3.0, because Basin 1 is classified as a high hazard potential CCR surface impoundment; the design storm is the PMF. § 257.73(d)(v) and § 257.82(a) require that the inflow design flood control system manage the peak discharge resulting from the design storm for flow into and out of the CCR unit. The combined capacity of all spillways must adequately manage flow during and following the peak discharge from the PMF.

5.2 HYDROLOGIC AND HYDRAULIC EVALUATION

To comply with § 257.82(c) two overflow sections (one from Subbasin B and one from Subbasin C) were constructed to convey the PMF during the pre-closure, active-closure (existing) conditions, and final closure conditions. The first overflow section conveys flow from Subbasin B to Subbasin C, and the second overflow section conveys flow from Subbasin C to the Chillisquaque Creek. During the final closure conditions, Subbasin B will be filled and only the armored overflow section from Subbasin C will remain. The interior drainage channels have also been evaluated for the PMF event, as discussed in Section 2.0.

For the current plan, hydrologic models were prepared to reflect the current site conditions (for the existing active-closure condition) and to incorporate changes to the final closure design that have been proposed since 2020.

The HEC-HMS models divide the overall drainage area into multiple subbasins in both the existing (active-closure) and proposed (closure) conditions. In the existing conditions model, the existing control structure discharge rating curves and subbasin stage-storage relationships were verified and updated for consistency in all models using updated site survey data. The HEC-HMS model

of final closure conditions was updated to incorporate the newest-available design information. Model inputs and parameters for the hydrologic models are provided below.

In the 2020 periodic plan update, Gannett Fleming also used the U.S. Army Corps of Engineers' River Analysis System (HEC-RAS), a hydraulic modeling software, to create a one-dimensional (1D) hydraulic model for interior perimeter channel analysis of PMF discharges. These models were updated for the present plan update using the newest-available site survey data to verify safe routing of PMF through the interior perimeter channels.

5.2.1 Probable Maximum Precipitation

Estimation of the PMP is unchanged since the 2020 plan update. As stated previously, as a high hazard structure the inflow design flood for Basin 1 is the PMF.

The state-wide PMP study for Pennsylvania, which was commissioned by PADEP, includes a reference manual titled "Probable Maximum Precipitation Study for Pennsylvania" (PADEP PMP Manual) dated March 2019 and a GIS-based PMP Evaluation Tool (PADEP PMP Tool). The PADEP state-wide PMP study and tools were used as the basis of design for the overflow sections at Basin 1.

The PADEP PMP Tool, which is executed in ArcGIS, was used to obtain depth-duration data and the controlling storm distribution type for each storm type (General, Local, and Tropical) and each duration (2-hr synthetic, 3-hr, 6-hr, 12-hr, and 24-hr). While the Tropical storms produced the highest precipitation at the 12-hr and 24-hr durations, the Local 12-hr and 24-hr storms resulted in the highest peak runoff and pool elevation. The Local 1547_1 temporal distribution (as defined in the PADEP PMP Manual) governed for the 3-hour storm duration, and the 1406_1 distribution governed for durations of 6-, 12-, and 24-hours. The complete PMP output, including temporal distribution data are given in Appendix B. These storm events were routed through the surface water management system in Basin 1. In accordance with PADEP PMP Manual, the PMF is the PMP flood event that results in the highest peak outflow and the maximum surface water elevation in the impoundment.

5.2.2 Hydrologic Losses—NRCS Runoff Curve Number

The NRCS RCN method as presented in the NRCS *National Engineering Handbook* (*NEH*) *Chapter 10: Estimation of Direct Runoff from Storm Rainfall* was used to estimate direct runoff from each storm. The RCN is a runoff coefficient that relates runoff potential to land cover and hydrologic soil type. RCN values for combinations of soil and land cover have been published in the NEH. The major factors in estimating the RCN are hydrologic soil group, land cover type, and hydrologic condition. The hydrologic soil groups are classified into four classes (A, B, C, and D).

Initially soil data were obtained from the NRCS Web Soil Survey (SSURGO). However, the most recent soil data identified the entire basin as open water; therefore, the basin's soil was conservatively assumed to be type D (high runoff potential). For Subbasin A, the land cover was conservatively assumed as "Developed, Open Space." Matching this land cover with the type D hydrologic soil results in an RCN of 80. Subbasins B and C both have RCNs of 98 consistent with open water land cover. These assumptions are consistent with the 2020 plan update hydrologic analyses.

5.2.3 Hydrologic Transform—NRCS Unit Hydrograph

To convert excess precipitation into runoff, the NRCS Unit Hydrograph Transform Method was used. This method requires a calculated lag time (L), which is defined as the time between the centroid of rainfall distribution and peak runoff; it is estimated as 60% of the time of concentration (T_c). T_c is defined as the time required for the hydraulically most distant runoff to reach the watershed outlet. To calculate T_c and then L, the segmental velocity approach was applied. This methodology is outlined in *NEH Chapter 15: Time of Concentration* and directly calculates the average velocity, in three separate flow segments: sheet, shallow concentrated, and channelized flow.

Sheet flow velocity was estimated based on slope and Manning's roughness coefficient for a total length of 100 feet where it is assumed to translate to shallow concentrated type flow regime. Shallow concentrated flow computations were applied from this point until flow reaches the perimeter channels or diversion berms. For the remainder of the stream course, open channel hydraulics was used to compute flow velocities and travel times. The total T_c is the summation of the travel times for each individual segment. The perimeter channels and diversion berms were

modeled as reaches, which convey inflow from each subbasin (those which do not discharge directly into a storage element) to the next element modeled. Lag routing was used for the reaches. Lag was estimated using open channel hydraulics. Calculations and equations are presented in Appendix B. For Subbasins B and C, L was set to 1 min, the minimum value allowed in HEC-HMS.

5.2.4 Active-closure (Existing) HEC-HMS Hydrologic Modeling

The parameters and data presented in Sections 5.2.1 to 5.2.3 were used in HEC-HMS to route the PMP storm events through Subbasins A, B, and C during active-closure (existing) conditions. The models demonstrate that the basin passes the PMF without overtopping the non-armored portions of the perimeter dike.

In active-closure (existing) conditions, several drainage areas were delineated within Subbasins A and B. These drainage areas drain either directly into Subbasin B's storage reservoir or into perimeter channels or the channels adjacent to the diversion berms, which in turn drain to Subbasin B's storage reservoir. Subbasin B's storage reservoir discharges into Subbasin C. Subbasin C also receives flow from its contributing area and then discharges to an industrial waste storage basin located on plant property (via the principal spillway) and Chillisquaque Creek (via the armored overflow section). The initial pool level was assumed to be normal pool, 558.5 feet and 553.7 feet, for Subbasin B and C, respectively. These elevations were provided by Talen Energy.

Subbasin B's principal spillway is a 24-inch corrugated metal pipe (CMP) with upstream invert at 557.27 feet attached to a concrete box that has a sluice gate and weir overflow inlet at El. 560.99 feet. Flow then exits the concrete box through two 18-inch CMPs. Conservatively, discharge from Subbasin B's outlet structure did not include the additional weir flow and was estimated as a projecting 24-inch culvert with inlet and outlet coefficients of K_e=0.9 and K_o=1.0.

Subbasin C's principal spillway is a riser structure at El. 551.65 feet that discharges through 1,470 feet of 36-inch reinforced concrete pipe to a separate treatment basin. This system's stage-discharge relationship was estimated using the standard weir equation for pool levels up to El. 554.0 feet. At pool levels greater than 554.0 feet, orifice flow controlled; the Bernoulli energy equation and the Hazen-Williams equation for head loss were then used, assuming a constant

tailwater elevation of 528.0 feet. The riser structure's active-closure (existing) discharge rating curve is given in Appendix B.

The overflow section at the splitter dike (Subbasin B overflow section) was modeled as a 200-foot-long broad crested weir with a crest elevation of 561.8 feet. The crest elevation, which is 0.2 feet lower than the design elevation of 562.0 feet, was recorded in the as-built drawings from the overtopping protection construction project in 2020. The perimeter dike's armored overflow section (Subbasin C overflow) was modeled as a 150-foot-long broad crested weir also with a crest elevation of 561.8 feet. A weir coefficient of C=2.9 was used for both sections. This coefficient was selected based on broad-crested weir hydraulic data presented in the U.S. Department of Interior, Geological Survey Circular 397 (Tracy, 1957).

5.2.5 Final Closure HEC-HMS Hydrologic Modeling

Local soils in hydrologic soil group C will be used in the closure condition. In the proposed closure condition for Ash Basin No. 1, grass cover will be maintained at the facility. The corresponding RCN is 74 (developed areas in good condition with grass cover > 75%) for all drainage areas in the closure condition with the exception of direct runoff to subbasin C, which is given an RCN of 98 consistent with open water.

Final closure condition drainage areas were delineated using the newest-available design data. The SCS TR-55 Segmental Approach methodology used to calculate the time of concentration and lag time in each drainage area.

As in the existing conditions hydrologic model, the perimeter channels and diversion berms were modeled as reaches, which convey inflow to the next element modeled. Lag routing was used for the reaches. A reservoir element was used to model Subbasin C in the final closure condition. The most recent closure design includes installation of a structural embankment that will reduce the size of Subbasin C compared to the existing condition; survey and design data were used to estimate the stage-storage relationship for Subbasin C in the final closure condition.

Consistent with previous hydrologic modeling of the final closure conditions, the Subbasin C principal spillway riser structure will be perforated; four rows of perforations will begin at El. 530.0 feet, and each row will have four, 2-inch diameter perforations. A constant tailwater

elevation of 528.0 feet was assumed based on typical pool elevations in the industrial waste storage basin. The riser structure's final closure rating curve is given in Appendix B.

5.2.6 HEC-RAS Hydraulic Model

As part of the 2020 plan update, Gannett Fleming created a HEC-RAS 1D unsteady model of Basin 1's perimeter channels designed by CEC. Details of the initial perimeter channel design can be found in the Initial Inflow Design Flood Control System Plan. Lateral inflow boundary conditions were used at multiple channel cross-sections to evenly distribute the contributing drainage areas' outflows into the channels. Moreover, the proposed box culverts were modeled as Bridges/Culverts in HEC-RAS using the original design parameters. The channels were modeled with a roughness coefficient (Manning's n) of 0.03, consistent with well maintained, grass-lined channels. For the present plan update, the HEC-RAS models were updated incorporating the newest-available topographic survey data to confirm adequate performance of the perimeter channels during the PMF. Channel invert elevations, which are not easily gathered from drone survey, were assumed to be consistent with 2020 as-built drawings. For the post-closure condition model, the newest-available final grading information was incorporated into the hydraulic model. In the existing active-closure condition, the northern and southern perimeter channel invert elevations in subbasin A remain constant from the 2020 as-built condition, with channel inverts beginning and 560.5 feet and 561.5 feet, respectively, and channel slopes of 0.1%. In the post-closure condition, the perimeter channels are extended to subbasin C as shown in the most recent grading plan. Both channels steepen to approximately 0.5% - 1% in the 1,000 feet approaching discharge to Subbasin C.

5.3 HYDROLOGIC AND HYDRAULIC RESULTS SUMMARY

As outlined above, Gannett Fleming used HEC-HMS software to model the active-closure (existing) conditions and final closure conditions during the PMF event. HEC-RAS was used to model the perimeter channels. Below is a summary of the results of the hydrologic and hydraulic analyses. Detailed model outputs from HEC-HMS and HEC-RAS are provided in Appendix C and D, respectively.

5.3.1 Active-closure (Existing) Conditions Results Summary

- The 2-hour synthetic, 3-hour, 6-hour, 12-hour, and 24-hour Local storm events and the 12-hour and 24-hour Tropical storm events were routed through the active-closure (existing) model. The Local 24-hour PMP storm event resulted in the highest maximum water surface elevation and highest peak inflow to the basin. Therefore, the Local 24-hr PMP event is the PMF.
- The overflow section (constructed in November 2020) between Subbasin B and Subbasin C conveys 1,130 cfs at a maximum pool elevation of 563.3 in Subbasin B feet during active-closure (existing) conditions. There is no overtopping of the non-armored perimeter dike and the overflow section is adequately sized.
- The armored overflow section that conveys flow from Subbasin C conveys a peak PMF discharge of 1,160 cfs with a peak pool elevation of 563.6 feet during active-closure (existing) conditions. There is no overtopping of the non-armored perimeter dike and the overflow section is adequately sized.
- The northern and southern diversion berms upgradient of the perimeter channels prevent the perimeter channels from overtopping during the PMF during active-closure (existing) conditions. The diversion berms' geometry is given in Section 2.0.
- As described in the 2020 plan update, the northern perimeter channel, during active-closure (existing) conditions, can manage the peak PMF discharge if Culvert 3 (C3) is not installed. Montour did not install C3 and will not install the culvert during active CFA placement and has modified the channel invert to maintain the design slope (0.1%) throughout the entire reach.
- The southern perimeter channel is adequate to pass peak discharge from the PMF with the constructed diversion berms. The interior access point over the southern perimeter channel at Culvert 1 (C1), as denoted in the Initial Inflow Design Flood Control System Plan, was removed. To provide additional conveyance at C1, the channel was widened in this section to allow the southern diversion berm's flow to enter and bypass the existing culvert.

Appendix A contains a channel modification exhibit, displaying the diversion berms and perimeter channels that were installed in 2020. Table 1 presents Gannett Fleming's HEC-HMS model results for active-closure (existing) conditions during each of the PMP storm events. Detailed results for the 24-hour local PMP are provided in Appendix C.

TABLE 1 – ACTIVE-CLOSURE (EXISTING) CONDITIONS PMF RESULTS SUMMARY						
Subbasin:	**Subbasin B**			**Subbasin C**		
Storm Duration	**Peak Inflow cfs**	**Peak Pool El. feet**	**Peak Outflow cfs**	**Peak Inflow cfs**	**Peak Pool El. feet**	**Peak Outflow cfs**
2-hr Local	2015	562.8	594	607	559.4	93
3-hr Local	1424	563.0	778	791	561.6	96
6-hr Local	1192	563.3	1134	1204	563.6	1121
12-hr Local	1183	563.3	1126	1196	563.6	1145
24-hr Local	**1184**	**563.3**	**1127**	**1197**	**563.6**	**1157**
12-hr Tropical	337	562.4	325	345	562.4	322
24-hr Tropical	337	562.4	324	344	562.4	322

5.3.2 Final Closure Conditions Results Summary

- The 2-hour synthetic, 3-hour, 6-hour, 12-hour, and 24-hour Local storm events and the 12-hour and 24-hour Tropical storm events were routed through the final closure conditions model. The Local 24-hour PMP storm event was most critical, resulting in the highest peak pool elevation and peak inflow to Subbasin C. Therefore, the Local 24-hr PMP event is the PMF for both existing and final closure conditions.
- The armored overflow section from Subbasin C can convey the PMF peak outflow of **1,300** cfs at a peak pool elevation of **563.8** feet.
- In order to convey the PMF, the channel and C3 culvert were modified in pre-closure conditions to maintain a consistent channel slope of 0.1% through the culvert and the upstream reach. This condition will be maintained during active closure and during final closure to ensure adequate conveyance of the PMF. Montour may instead elect to forego the C3 culvert and instead install an ACB-lined open channel.
- The southern perimeter channel, as installed, can convey the final closure PMF.
- Both diversion berms designed as part of the MPM Application were modified in 2020 to convey the updated PMF peak discharge. These modifications are outlined in Section 5.3.1.
- The peak water surface elevation in the northern perimeter channel upstream of the proposed culvert C3, if installed, is approximately 564.5 feet. This is greater than the maximum elevation reported in the 2020 plan update when the proposed closure grading

diverted less runoff to the perimeter channel upstream of culvert C3. The top of dike elevations adjacent to the northern perimeter channel in this area are high enough to contain this maximum water surface elevation. Installation of an ACB-lined open channel instead of culvert C3 would result in lower peak water surface elevations in the northern perimeter channel. In either scenario there is no overtopping of the non-armored perimeter dike.

- The most recent closure plans include installation of a structural embankment that will reduce the size of Subbasin C compared to the existing condition. The structural embankment will have a lowered, 200-foot-long armored overtopping section with crest elevation of 548 feet. Runoff from Ash Basin No. 1 will be conveyed to the perimeter channels and discharge into Subbasin C over the lowered overtopping section. Model results show that the full width of the structural embankment will be submerged during the PMF and the Subbasin C pool will extend several hundred feet upstream into Subbasin B.

Table 2 gives the final closure conditions HEC-HMS model results during each of the PMP storm events.

TABLE 2 – FINAL CLOSURE CONDITIONS PMP RESULTS SUMMARY AT SUBBASIN C

Duration	Subbasin C		
	Peak Inflow cfs	**Peak Pool Level feet**	**Peak Outflow cfs**
2-hr Local	2127.0	562.3	262.8
3-hr Local	1533.8	562.8	514.0
6-hr Local	1315.9	563.8	1293.3
12-hr Local	1307.4	563.8	1291.6
24-hr Local	**1309.0**	**563.8**	**1295.2**
12-hr Tropical	361.4	562.5	348.9
24-hr Tropical	361.4	562.5	348.9

The HEC-HMS model output for the 24-hour Local PMP event is provided in Appendix C. HEC-RAS model output for the perimeter channel hydraulics is given in Appendix D.

6.0 CONCLUSIONS AND RECOMMENDATIONS

Based on our evaluation, Gannett Fleming concludes that Inflow Design Flood Control System as designed for Basin 1 meets the criteria outlined in § 257.82. The following items have been or will be performed to maintain and modify the system:

- Continue to regularly mow and maintain the channels to preserve hydraulic conveyance capacity.
- For final closure conditions, one of two options may be selected regarding culvert C3 between the northern perimeter channel and Subbasin B. One option is to refrain from installing the proposed box culvert. If additional access is desired, a box culvert measuring 3-feet high by 12-feet wide may be installed provided that the channel slope of 0.1% is maintained through the culvert and the upstream reach and the channel inverts reported in the 2020 as-built drawings are maintained. This recommendation is unchanged from the 2020 plan update.

7.0 CERTIFICATION

I, Amanda J. Hess, P.E., a registered professional engineer in the state of Pennsylvania certify that Montour Ash Basin No. 1 fulfills the Periodic Inflow Design Flood Control System Plan requirements of §257.82(c). This certification is based on my review of the analyses and modifications made to the Initial Inflow Design Flood Control System Plan. This Periodic Inflow Design Flood Control System Plan will be placed in the operating record by November 17, 2025.

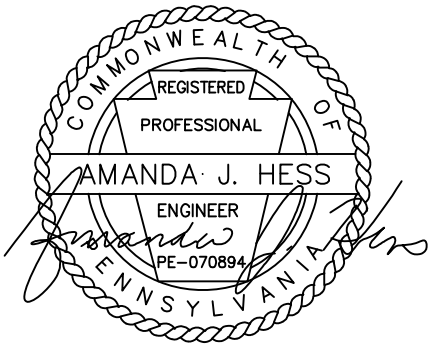
Amanda J. Hess, P.E.

Printed Name of Professional Engineer

Signature

PE-070894	Pennsylvania	11/14/2025
Registration No.	Registration State	Date

Stamp/Seal:



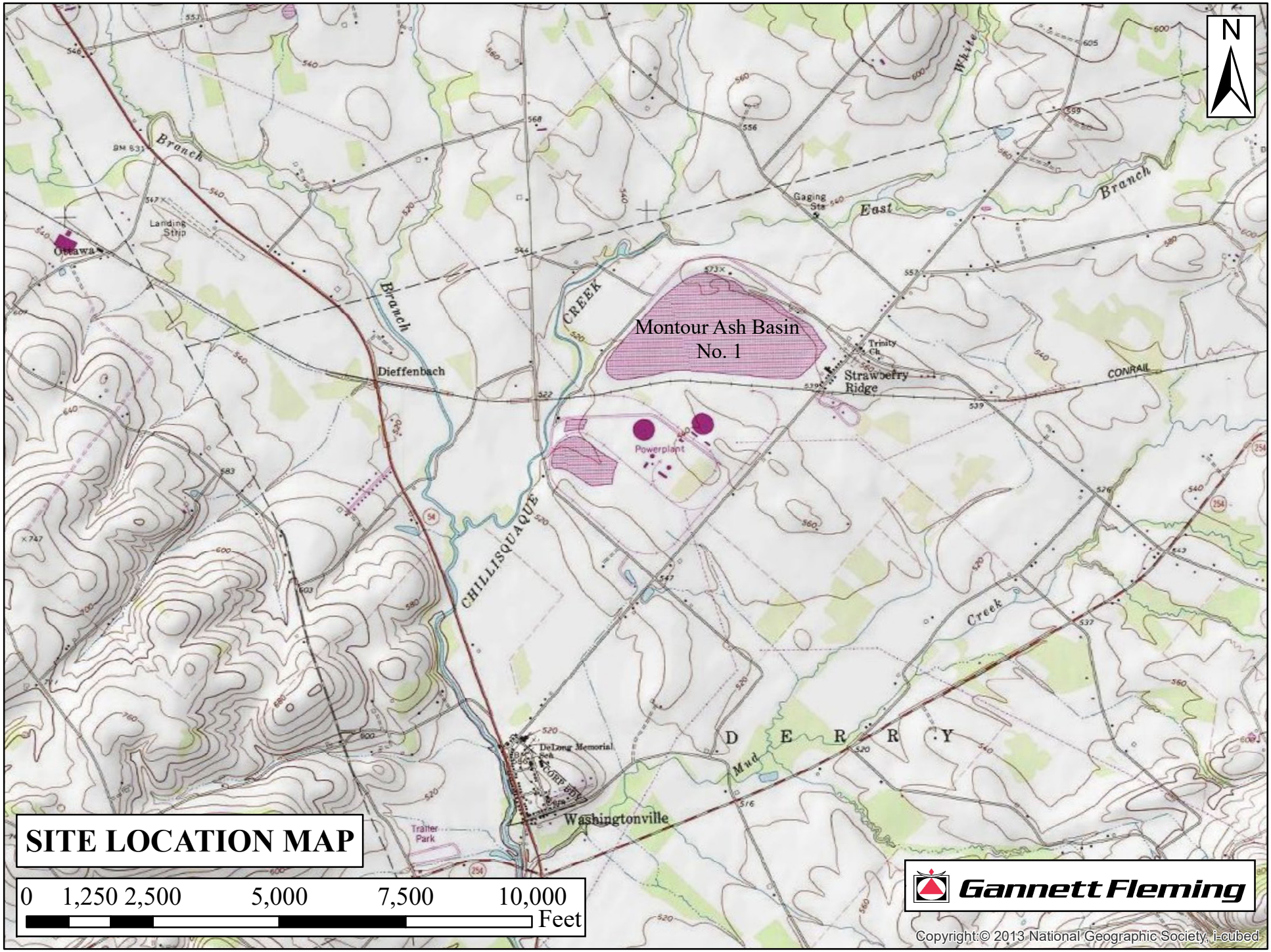
8.0 REFERENCES

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2. Civil & Environmental Consultants, Inc. (2016). *Initial inflow design flood control system plan – Montour Ash Basin No. 1*. Technical report prepared for Talen Energy, Pittsburgh, PA.
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5. Hydrologic Modeling System HEC-HMS, Version 4.11, U.S. Army Corps of Engineers Research and Development. September 2018.
6. HydroCAD Stormwater Modeling 10.0, HydroCAD Software Solutions, LLC., 2011.
7. Probable Maximum Precipitation Study for Pennsylvania and PMP Evaluation Tool, Pennsylvania Department of Environmental Protection. Prepared by Applied Weather Associates, LLC. March 2019.

APPENDIX A

FIGURES

SITE MAP


N
Montour Ash Basin
No. 1
Powerplant
Dieffenbach
Strawberry
Ridge
Trinity
Ch
Gaging
Sta
Landing
Strip
Ottawa
East
Branch
White
Branch
Branch
CREEK
CHILLISQUAQUE
CONRAIL
Mud
Creek
D E R R Y
Washingtonville
DeLong Memorial
Park
Trailer
Park
SITE LOCATION MAP
0 1,250 2,500 5,000 7,500 10,000
Feet
Gannett Fleming
Copyright:© 2013 National Geographic Society, i-cubed

OVERFLOW SECTION AS-BUILT CONSTRUCTION PLANS

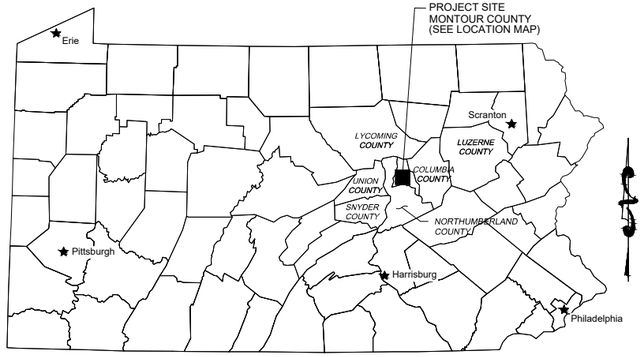
PERMIT DRAWINGS (CONSTRUCTION SET)
GANNETT FLEMING PROJECT NO. 66982
SEPTEMBER 2020

TALEN ENERGY

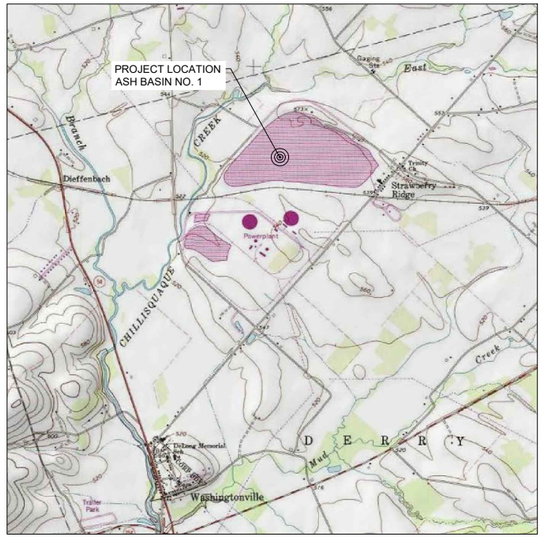
600 HAMILTON STREET, SUITE 600, ALLENTOWN, PA. 18101

OVERTOPPING PROTECTION FOR ASH BASIN NO. 1
MONTOUR STEAM ELECTRIC STATION

18 McMICHEAL RD. WASHINGTONVILLE, PA. 17884
MONTOUR COUNTY, PA



PENNSYLVANIA STATE MAP
NOT TO SCALE



LOCATION MAP
36000 -0- 36000 72000
SCALE IN FEET



VICINITY MAP
1000 -0- 1000 2000
SCALE IN FEET

PUBLIC UTILITIES

SERVICE ELECTRIC CABLE

COMCAST CABLE

UNITED STATES GYPSUM CORPORATION

WASHINGTONVILLE MUNICPAL AUTHORITY

MONTOUR LLC

PPL ELECTRIC UTILITIES CORPORATION

VERIZON PENNSYLVANIA INC.

CONTACT INFORMATION

MONTOUR SES - TALEN ENERGY
ATTENTION: JOHN L MCCABE III, ENVIRONMENTAL & LOGISTICS ENGINEERING MANAGER
PHONE: 1-570-437-1362
LOCATION: MONTOUR, LLC
MONTOUR SES
18 McMICHAEL RD. P.O. BOX 128
WASHINGTONVILLE PA 17884-0128

PENNSYLVANIA ONE CALL SYSTEM

CALL BEFORE YOU DIG
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE
STOP CALL

PA1 SYSTEM, INC.
1-800-242-1776

POCS SERIAL NUMBER: 20202600515
POCS CALL DATE: 2020-09-16

PA ONE CALL NOTE:
GANNETT FLEMING, INC. (GANNETT FLEMING) ADVISES THAT IT HAS COMPLIED WITH THE PROVISIONS OF THE PENNSYLVANIA UNDERGROUND UTILITY LINE PROTECTION LAW, ACT 287 OF 1974 AS AMENDED, IN PREPARING THESE PLANS. ALTHOUGH GANNETT FLEMING MADE THE TELEPHONE CALL(S) LISTED ON THESE PLANS ON THE DATE(S) SHOWN, THE INFORMATION SHOWN MAY BE PRELIMINARY AS OF THE DATE OF BIDDING. THE DATA PERTAINING TO UTILITIES SHOWN ON THE PLANS IS FOR GENERAL INFORMATION AND GUIDANCE ONLY AND GANNETT FLEMING MAKES NO REPRESENTATIONS, WARRANTY, GUARANTY OR ASSURANCES THAT THE INFORMATION RECEIVED PURSUANT TO SAID CALL(S) AND REFLECTED ON THE PLANS IS COMPLETE, CORRECT OR ACCURATE, BUT IS REFLECTING SAID INFORMATION IN ACCORDANCE WITH THE REQUIREMENTS OF SUCH ACT AS OF THE DATE OF SAID CALL(S). THE AREAS IN WHICH NEW UNDERGROUND FACILITIES AND APPURTENANCES ARE TO BE CONSTRUCTED UNDER THIS CONTRACT MAY CONTAIN EXISTING UNDERGROUND UTILITIES AND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS OR ARE IN LOCATIONS OTHER THAN AS SHOWN. CONTRACTORS ARE ADVISED OF THEIR OBLIGATIONS TO NOTIFY ALL FACILITY OWNERS, NOT LESS THAN 3 OR MORE THAN 10 DAYS PRIOR TO EXCAVATION, VIA ONE CALL(S) IN ACCORDANCE WITH THE REQUIREMENTS OF THE ACT [1-800-242-1776 OR 412-464-7100 (PITTSBURGH)], AND TO PRECISELY IDENTIFY THE LOCATION OF, AVOID DAMAGE TO AND REPAIR DAMAGED UNDERGROUND UTILITIES.

INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES AND LEGEND
3	EXISTING CONDITIONS SITE PLAN OVERALL MAP
4	EXISTING CONDITIONS SITE PLAN PROJECT AREA
5	PROJECT CONTROL PLAN
6	FOUNDATION EXPLORATION PLAN
7	PROPOSED CONDITIONS PERIMETER BERM OVERTOPPING SECTION PLAN
8	EXCAVATION PLAN PERIMETER BERM OVERTOPPING SECTION
9	PROFILE & CROSS SECTION PERIMETER BERM OVERTOPPING SECTION
10	CROSS SECTIONS PERIMETER BERM OVERTOPPING SECTION
11	PROPOSED CONDITIONS SPLITTER DIKE OVERTOPPING SECTION
12	PROFILE & CROSS SECTION SPLITTER DIKE OVERTOPPING SECTION
13	ARTICULATED CONCRETE BLOCK DETAILS 1 OF 4
14	ARTICULATED CONCRETE BLOCK DETAILS 2 OF 4
15	ARTICULATED CONCRETE BLOCK SYSTEM DETAILS 3 OF 4
16	ARTICULATED CONCRETE BLOCK SYSTEM DETAILS 4 OF 4 GEOWEB DETAILS
17	MISCELLANEOUS DETAILS

SHEET NO.	SHEET TITLE
	EROSION AND SEDIMENT CONTROL
ESC1	EROSION AND SEDIMENT CONTROL PLAN
ESC2	EROSION AND SEDIMENT CONTROL PLAN
ESC3	EROSION AND SEDIMENT CONTROL NOTES
ESC4	EROSION AND SEDIMENT CONTROL NOTES
ESC5	EROSION AND SEDIMENT CONTROL DETAILS
ESC6	EROSION AND SEDIMENT CONTROL DETAILS

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

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Plot Date: 20/2021 8:17 AM, Plotted By: James, Joshua F.

ABBREVIATIONS

A

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ACI	AMERICAN CONCRETE INSTITUTE
AC-FT	ACRE-FOOT (FEET)
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL	ALUMINUM
ALLOW.	ALLOWABLE
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
APPROX	APPROXIMATE(LY)
ASW	AUXILIARY SPILLWAY
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
@	AT

B

BF	BLIND FLANGE OR BACK FACE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BFV	BUTTERFLY VALVE
℄	BASELINE
BM	BENCHMARK
BOT	BOTTOM
B.P.	BEGINNING POINT

C

C/C, C.C., C TO C	CENTER TO CENTER
℄	CENTERLINE
CI	CAST IRON
CIP	CAST IN PLACE OR CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CLR	CLEARANCE, CLEAR, CLEAR DISTANCE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONST, CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTION
CORR	CORRUGATED
CF	CUBIC FOOT(FEET)
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CY	CUBIC YARD(S)

D

DEPT	DEPARTMENT
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DIA, Ø	DIAMETER
DWG	DRAWING

E

E	EAST/EASTING COORDINATE
EA	EACH
EF	EACH FACE
EL, EL.	ELEVATION
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
E&SC	EROSION AND SEDIMENT CONTROL
EQ	EQUAL
EW	EACH WAY

F

FF	FRONT FACE
FM	FORCE MAIN
FTG	FOOTING
FT, FT/FT	FOOT/FEET, FEET PER FOOT

G

GALV.	GALVANIZED
GIS	GEOGRAPHICAL INFORMATION SYSTEM
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE

H

HEX	HEXAGONAL
HDPE	HIGH DENSITY POLYETHYLENE
HH	HAND HOLE
HORIZ	HORIZONTAL

I

ID	INSIDE DIAMETER
IN	INCH(ES)
INTR	INTERIOR
INV	INVERT

J

JT	JOINT
JB	JUNCTION BOX

L

LB	POUND
LBS	POUNDS
LF,	LINEAR FEET

M

MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MSE	MECHANICALLY STABILIZED EMBANKMENT

N

N	NORTH/NORTHING COORDINATE
N/A	NOT APPLICABLE
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NTS	NOT TO SCALE
No., #	NUMBER

O

OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRIC
OPNG	OPENING
OZ	OUNCE

P

P.C.	POINT OF CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCF	POUNDS PER CUBIC FOOT
PE	PLAIN END
P.I.	POINT OF INFLECTION
PL	PLATE
POB	POINT OF BEGINNING
POI	POINT OF INTERSECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSW	PRINCIPAL SPILLWAY
P.T.	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE OR POINT VERTICAL CURVATURE
PVI	POINT VERTICAL INTERSECTION
PVT	POINT VERTICAL TANGENCY

Q

QTY	QUANTITY

R

R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REIN	REINFORCED
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
RJ	RESTRAINED JOINT
ROW	RIGHT OF WAY

S

SECT	SECTION
SF	SQUARE FOOT (FEET)
SHT	SHEET
SPA	SPACING
SQ	SQUARE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
SY	SQUARE YARD

T

TEMP	TEMPORARY
TOPO	TOPOGRAPHY
TYP, TYP., (TYP)	TYPICAL

U

UNO	UNLESS OTHERWISE NOTED
USGS	U.S. GEOLOGICAL SURVEY
U/S	UPSTREAM

V

VC	VERTICAL CURVE
VERT	VERTICAL
VOL	VOLUME

W

WM	WATERMAIN
W/	WITH
W/O	WITHOUT
WT	WEIGHT

Y

YD	YARD

ABBREVIATIONS NOTE:

1. THIS IS A STANDARD LIST OF ABBREVIATIONS AND ALL THE ABBREVIATIONS SHOWN ARE NOT USED IN THIS SET OF DRAWINGS.

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EXISTING LEGEND

- MAJOR CONTOUR (20)
- MINOR CONTOUR
- UNDERGROUND ELECTRIC (UE)
- OVERHEAD ELECTRIC (OE)
- GAS (G)
- UNDERGROUND TELECOMMUNICATIONS (UTC)
- OVERHEAD TELECOMMUNICATIONS (TC)
- UNDERGROUND CABLE TV (UTV)
- OVERHEAD CABLE TV (TV)
- WATERMAIN (W)
- FIBER OPTIC (FO)
- FORCE MAIN (FM)
- SANITARY SEWER (S)
- STORM SEWER (ST)
- AIR LINE (AIR)
- RIPRAP
- SWALE / DITCH
- LIMIT OF DETAILED FIELD SURVEY
- PROPERTY LINE
- RIGHT OF WAY
- EASEMENT LINE
- CENTERLINE / BASELINE
- EDGE OF WATER
- VEGETATION
- BRUSH
- HEDGE ROW
- FENCE (X)
- GUIDE RAIL
- HANDRAIL
- RAILROAD
- PROTECTIVE FENCE (PF)
- SILT FENCE (SF)
- SHEETPILE
- WETLAND
- BASIN PERMIT AREA LIMIT (BPA)

- TREE - DECIDUOUS
- TREE - CONIFEROUS
- SHRUB
- BORING INSTRUMENTED WITH PIEZOMETER
- BORING
- TEST PIT
- IRON PIN
- CONTROL POINT
- BENCHMARK
- MARKER POST
- RAILROAD SPIKE
- SURVEY MONUMENT
- PK NAIL
- POST
- WELL
- WATER VALVE
- WATER METER
- WATER CURB BOX
- FIRE HYDRANT
- CLEANOUT
- SPIGOT
- DOWNSPOUT
- STORM MANHOLE (ST)
- STORM INLET
- SANITARY MANHOLE (S)
- VENT
- GAS VALVE
- GAS METER
- GAS CURB BOX
- CABLE TV UTILITY BOX (TV)
- TELECOMMUNICATIONS UTILITY BOX (T)
- TELECOMMUNICATIONS MANHOLE (T)
- ELECTRICAL MANHOLE (E)
- ELECTRICAL UTILITY BOX (/)
- LIGHT POST
- UTILITY POLE
- GUY WIRE
- GUY POLE
- MANHOLE - UNKNOWN UTILITY (M)
- JUNCTION BOX (JB)
- MAILBOX
- SIGN
- STUMP
- WEIR

PROPOSED AND MISCELLANEOUS LEGEND

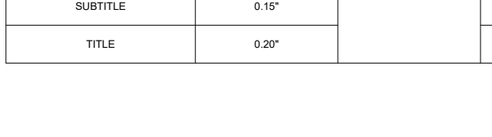
- MAJOR CONTOUR (20)
- MINOR CONTOUR
- GEOTEXTILE
- LIMIT OF WORK
- CULTURAL RESOURCES
- EARTH SLOPE (SLOPING ↓)
- APPROXIMATE TOP OF BEDROCK
- EARTH SUBGRADE
- WATER LEVEL (FOR SECTIONS AND PROFILES)
- FLOW ARROW
- BORING INSTRUMENTED WITH PIEZOMETER
- BORING
- TEST PIT

ACB	ARTICULATED CONCRETE BLOCK
PB	PERIMETER BERM BASELINE
PBOS	PERIMETER BERM OVERTOPPING SECTION BASELINE
SD	SPLITTER DIKE BASELINE
SDOS	SPLITTER DIKE OVERTOPPING SECTION BASELINE

GENERAL DRAFTING NOTES:

1. GREY OR LIGHT LINEWORK GENERALLY REPRESENT EXISTING FEATURES, WHEREAS DARKER BLACK LINEWORK IS GENERALLY INTENDED TO DEPICT NEW CONSTRUCTION.
2. DIMENSION AND TEXT CALLOUTS
   a. EXISTING FEATURES TEXT IS SLANTED AS SHOWN HERE.

SECTION SYMBOLS:



NORTH ARROW:

SCALE BARS:

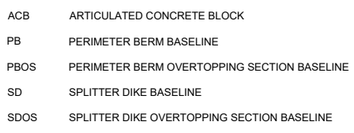


TABLE STYLE AND FONTS:

TEXT AND DIMENSION STYLES

FEATURE	TEXT HEIGHT	FONT	EXAMPLE
EXISTING DIMENSION	0.1"	ARIAL	1.5'
EXISTING CALL-OUT			*EXISTING CALL-OUT*
NOTES			NOTES
PROPOSED DIMENSION			1.5'
PROPOSED CALL-OUT			PROPOSED CALL-OUT
SUBTITLE	0.15"		SUBTITLE
TITLE	0.20"		TITLE

NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO. 1

GENERAL NOTES AND LEGEND

JOB NO.	SHEET NO.
66982	2
DATE	DRAWING NO.
MAY 2020	2 OF 23

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Plot Date: 4/29/2020 9:27 AM, Plotted By: Lewis, Jill E



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NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

EXISTING CONDITIONS SITE PLAN

OVERALL MAP

JOB NO.	SHEET NO.
66982	3
DATE	DRAWING NO.
MAY 2020	3 OF 23

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Plot Date: 22/5/2020 - 8:39 AM - Plotted By: Jason Hall

APPROXIMATE TOP OF PERIMETER BERM/ LIMIT OF COAL COMBUSTION RESIDUAL

CONCRETE VAULT

42" WATERLINE

ACCESS ROAD

FEMA FLOODPLAIN BOUNDARY

BPA

SUBBASIN B
NORMAL POOL EL. 558.5'

24" PIPE

MB-39

SPLITTER DIKE

MPZ-12S

MOMW-14

MOMW-13

DOCK AND PIER

DUAL 18" DIA. PIPE

MW1-2

PERIMETER BERM

ACCESS ROAD

MPZ-24S

SUBBASIN C
NORMAL POOL EL. 553.7'

LIMIT OF SURVEY

MPZ-18S

MPZ-18I

FLOODWAY BOUNDARY (50' FROM TOP OF BANK)

FLOW

STREAM

FLOW

EXISTING OVERHEAD ELECTRIC POLE

B-103

B-102

MOMW-12

B-101

MW1-3

DISCHARGE STRUCTURE AND PIPE TO DETENTION BASIN (NPDES OUTFALL)

MOMW-11

BPA

BPA

NOTES:

1. THE EXISTING TOPOGRAPHY, DATED MAY 17, 2019 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FORM PPL DRAWING NO. E376172 REV 3, DATED JUNE 2013.
2. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
3. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
4. THE LIMITS OF THE BASIN PERMIT AREA IS FROM PPL DRAWING E244381, DATED SEPTEMBER 2007.
5. EXISTING CONTOURS TO SOUTH OF BASIN 1 WERE DERIVED FROM THE PAMAP PROGRAM 3.2 FT. DIGITAL ELEVATION MODEL OF PENNSYLVANIA; DEVELOPED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY; DATED 2008.
6. PIPE BRIDGE AND SLUICE PIPE LOCATIONS WERE TAKEN FROM PPL MONTOUR, LLC DWG. NO. D324541 SHEET 1 OF 3, DATED SEPTEMBER 19, 2008.
7. THE APPROXIMATE TOP OF DIKE/LIMIT OF COAL COMBUSTION RESIDUALS (CCR) SHOWN IS AN ESTIMATED LOCATION BASED ON REFERENCES FROM PPL DRAWINGS.
8. PROPERTY BOUNDARIES AND OWNERS HAVE BEEN PROVIDED BY PPL THROUGH A GIS DATA RELEASE AGREEMENT, DATED SEPTEMBER 4, 2014. COPYRIGHT 2011, ALL RIGHTS RESERVED. THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF THE CONTRIBUTOR SUPPLIED UNDER LICENSE AND MAY NOT BE REPRODUCED EXCEPT AS LICENSED BY DIGITAL MAP PRODUCTS.
9. CONTRACTOR TO BE AWARE THE BPA LINE SHOWN REPRESENTS THE EXISTING PADEP PERMIT BOUNDARY ASSOCIATED WITH THE ASH BASIN.

50 -0- 50 100
SCALE IN FEET

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NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

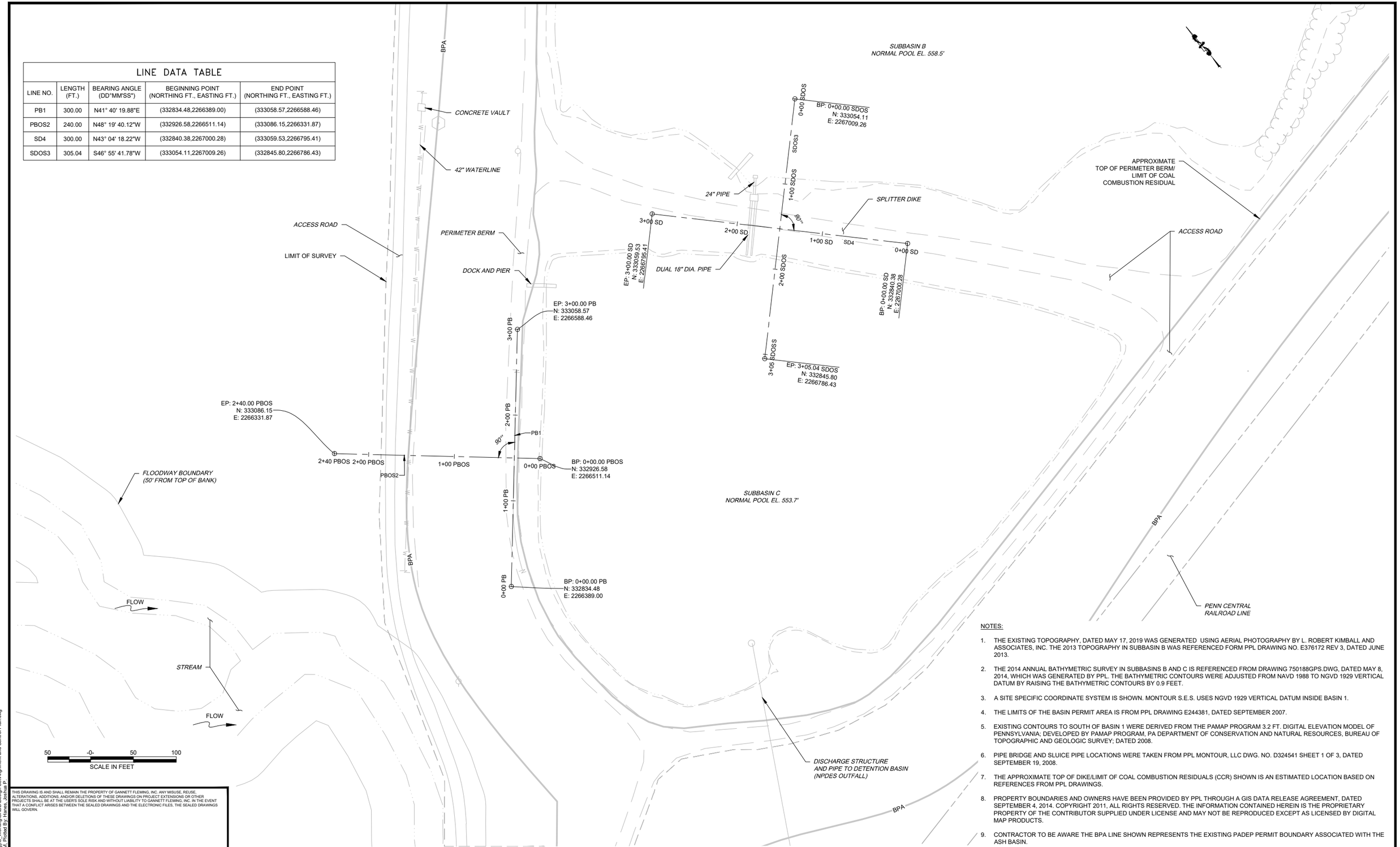
EXISTING CONDITIONS SITE PLAN

PROJECT AREA

JOB NO.	SHEET NO.
66982	4
DATE	DRAWING NO.
MAY 2020	4 OF 23

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Plotted: 2/5/2021 8:16 AM, Plotted By: Jessica L. Cox

LINE DATA TABLE				
LINE NO.	LENGTH (FT.)	BEARING ANGLE (DD°MM'SS")	BEGINNING POINT (NORTHING FT., EASTING FT.)	END POINT (NORTHING FT., EASTING FT.)
PB1	300.00	N41° 40' 19.88"E	(332834.48,2266389.00)	(333058.57,2266588.46)
PBOS2	240.00	N48° 19' 40.12"W	(332926.58,2266511.14)	(333086.15,2266331.87)
SD4	300.00	N43° 04' 18.22"W	(332840.38,2267000.28)	(333059.53,2266795.41)
SDOS3	305.04	S46° 55' 41.78"W	(333054.11,2267009.26)	(332845.80,2266786.43)



NOTES:

1. THE EXISTING TOPOGRAPHY, DATED MAY 17, 2019 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FORM PPL DRAWING NO. E376172 REV 3, DATED JUNE 2013.
2. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS.DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
3. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
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9. CONTRACTOR TO BE AWARE THE BPA LINE SHOWN REPRESENTS THE EXISTING PADEP PERMIT BOUNDARY ASSOCIATED WITH THE ASH BASIN.

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NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

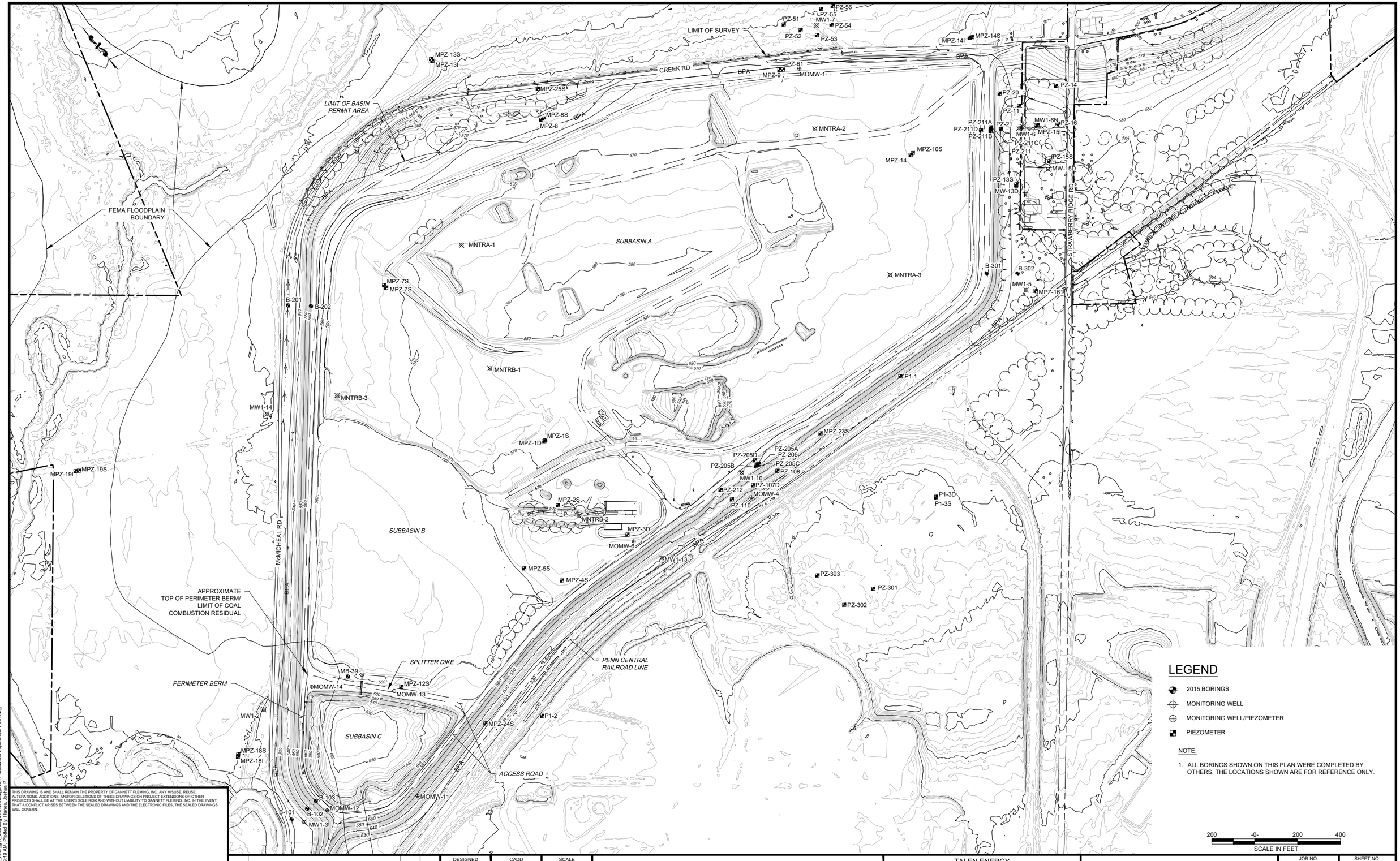
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

PROJECT CONTROL PLAN

JOB NO.	SHEET NO.
66982	5
DATE	DRAWING NO.
MAY 2020	5 OF 23

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Plot Date: 2/25/2020 10:18 AM, Plotted By: Howard, Jill F



LEGEND

- 2015 BORINGS
- MONITORING WELL
- MONITORING WELL/PIEZOMETER
- PIEZOMETER

NOTE:

1. ALL BORINGS SHOWN ON THIS PLAN WERE COMPLETED BY OTHERS. THE LOCATIONS SHOWN ARE FOR REFERENCE ONLY.

200 -0- 200 400
SCALE IN FEET

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NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

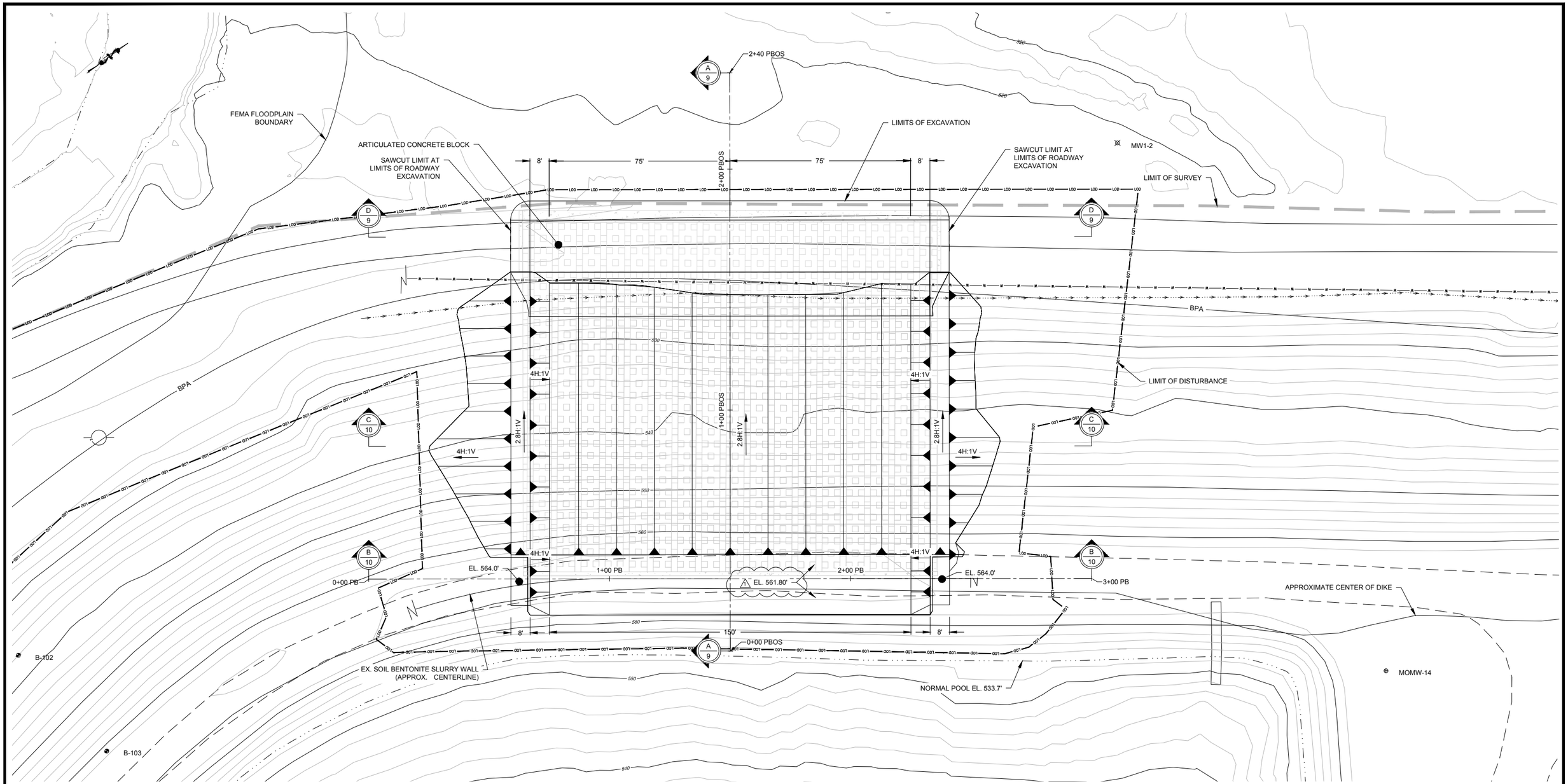
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

FOUNDATION EXPLORATION PLAN

JOB NO.	SHEET NO.
66982	6
DATE	DRAWING NO.
MAY 2020	6 OF 23

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Plot Date: 20/2020 3:19 AM Plotted By: Jason Lee



LEGEND AND ABBREVIATIONS

	ARTICULATED CONCRETE BLOCK SYSTEM
ACB	ARTICULATED CONCRETE BLOCK
PB	PERIMETER BERM BASELINE
PBOS	PERIMETER BERM OVERTOPPING SECTION BASELINE
SD	SPLITTER DIKE BASELINE
SDOS	SPLITTER DIKE OVERTOPPING SECTION BASELINE

20 -0- 20 40
SCALE IN FEET

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NO.	DESCRIPTION	DATE	BY
1	AS-BUILTS	2-1-21	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

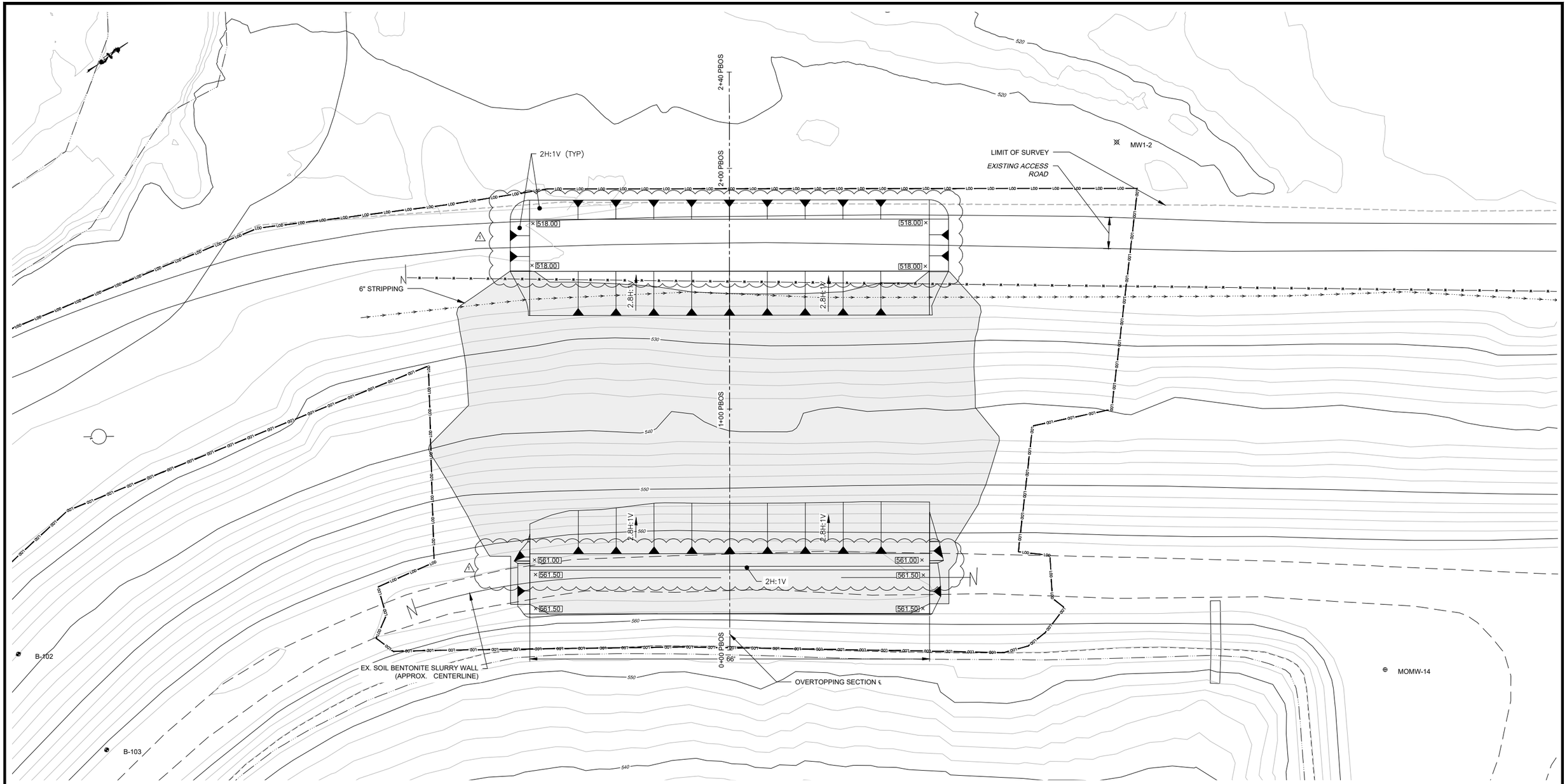
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

PROPOSED CONDITIONS
PERIMETER BERM OVERTOPPING SECTION PLAN

JOB NO.	SHEET NO.
66982	7
DATE	DRAWING NO.
MAY 2020	7 OF 23

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Plot Date: 2/25/2021 10:02 AM Plotted By: Patrick Lee



LEGEND

- 6" STRIPPING
- EARTH SLOPE (SLOPING ↓)

NOTES:

1. SEE DWG 2 FOR PROJECT NOTES.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING STABLE TEMPORARY SLOPES FOR COMMON EXCAVATION AND FOR ROCK EXCAVATION. THE DOWNSTREAM SLOPE OF THE EMBANKMENT DAM SHALL NOT BE EXCAVATED STEEPER THAN THE 2.8H:IV SLOPE SHOWN HERE.
3. INSTALL AND MAINTAIN ORANGE CONSTRUCTION FENCING AROUND EXISTING MONITORING WELLS WITHIN LIMIT OF DISTURBANCE.
4. IN ADDITION TO THE STRIPPING LIMITS SHOWN, STRIP TOPSOIL FROM SURFACES WITHIN THE LIMITS OF EXCAVATION PRIOR TO EXCAVATION.
5. EXCAVATION AND TRENCHING FOR UTILITIES NOT SHOWN.

20 -0- 20 40
SCALE IN FEET

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NO.	DESCRIPTION	DATE	BY
1	RESPONSE TO RFI 1 AND PADEP PERMIT	10.7.20	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

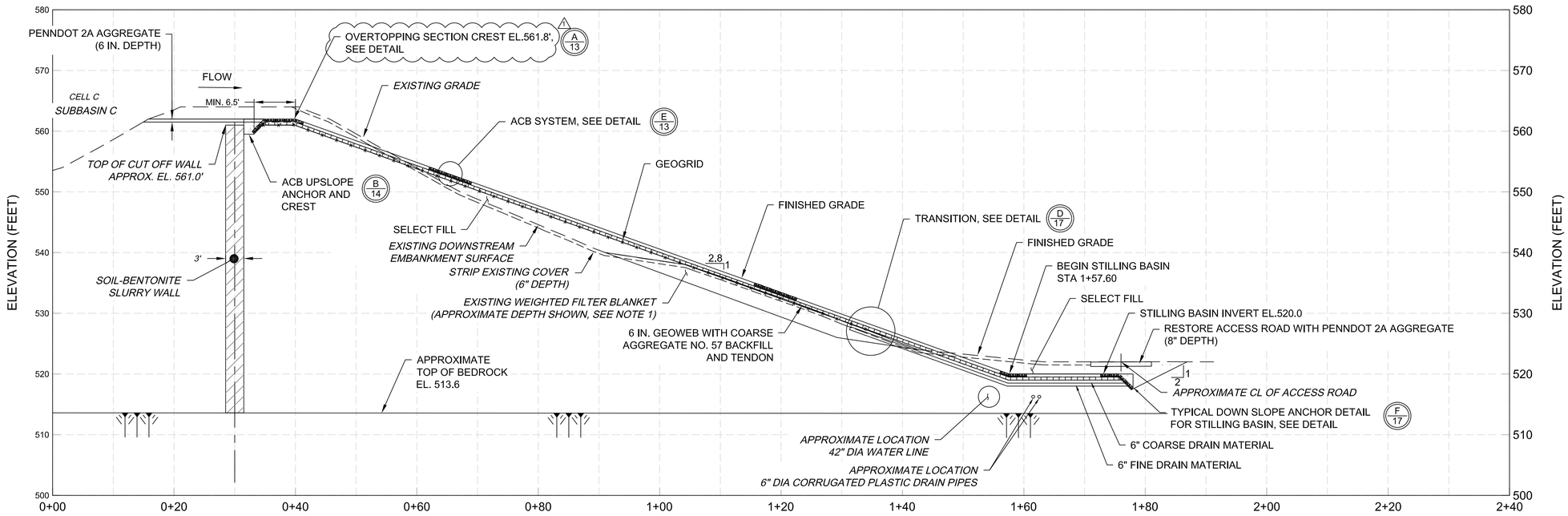
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

EXCAVATION PLAN
PERIMETER BERM OVERTOPPING SECTION PLAN

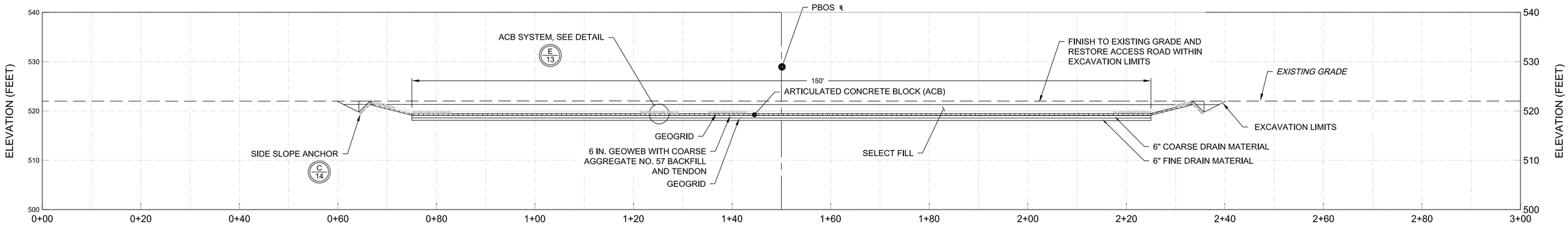
JOB NO.	SHEET NO.
66982	8
DATE	DRAWING NO.
MAY 2020	8 OF 23

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Plot Date: 2/25/2021 10:16 AM Plotted By: Joseph Hall



SECTION A/7

10 -0- 10 20
SCALE IN FEET



SECTION D/7

10 -0- 10 20
SCALE IN FEET

NOTES:

1. STRIP THE TOP 6" OF WEIGHTED FILTER BLANKET AND RESTORE THE ACB SUBGRADE AS-NEEDED USING COMPACTED COARSE AGGREGATE NO. 57 BACKFILL.

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NO.	DESCRIPTION	DATE	BY
1	AS-BUILT	2.1.21	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

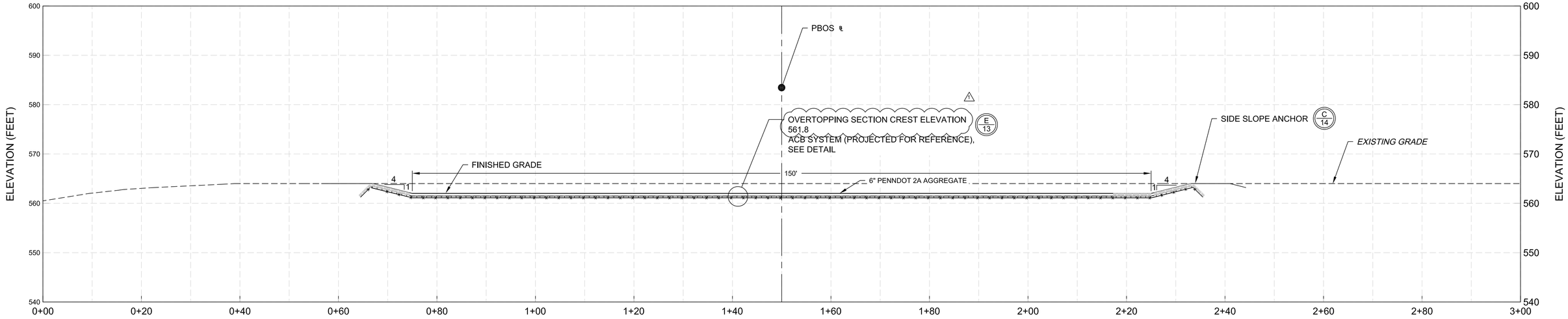
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

PROFILE & CROSS SECTION

PERIMETER BERM OVERTOPPING SECTION

JOB NO.	SHEET NO.
66982	9
DATE	DRAWING NO.
MAY 2020	9 OF 23

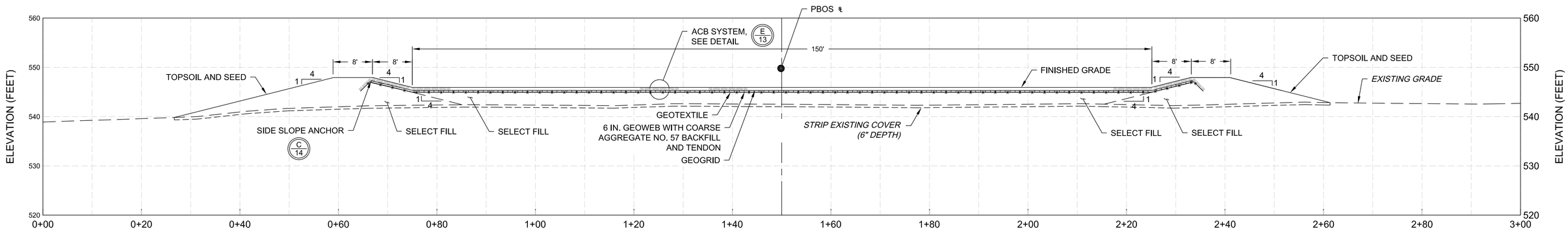
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Plot Date: 5/29/2020 8:04 AM Plotted By: Jessica Hall



SECTION B/7

10 -0- 10 20

SCALE IN FEET



SECTION C/7

10 -0- 10 20

SCALE IN FEET

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NO.	DESCRIPTION	DATE	BY
1	AS-BUILT	2.1.21	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

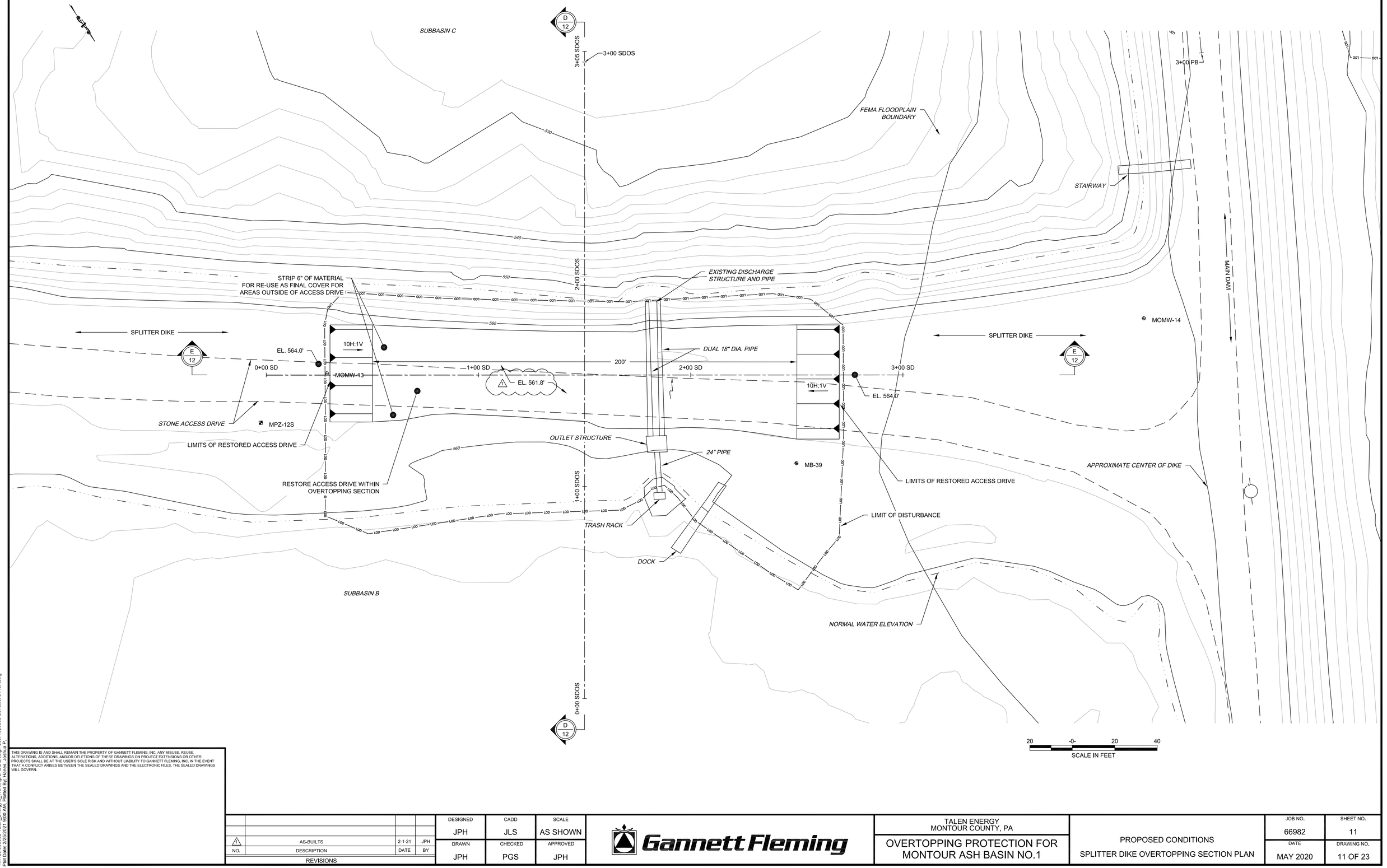
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

CROSS SECTIONS

PERIMETER BERM OVERTOPPING SECTION

JOB NO.	SHEET NO.
66982	10
DATE	DRAWING NO.
MAY 2020	10 OF 23

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Plot Date: 2/25/2021 8:29 AM, Plotted By: Jason Hall



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NO.	DESCRIPTION	DATE	BY
1	AS-BUILTS	2-1-21	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

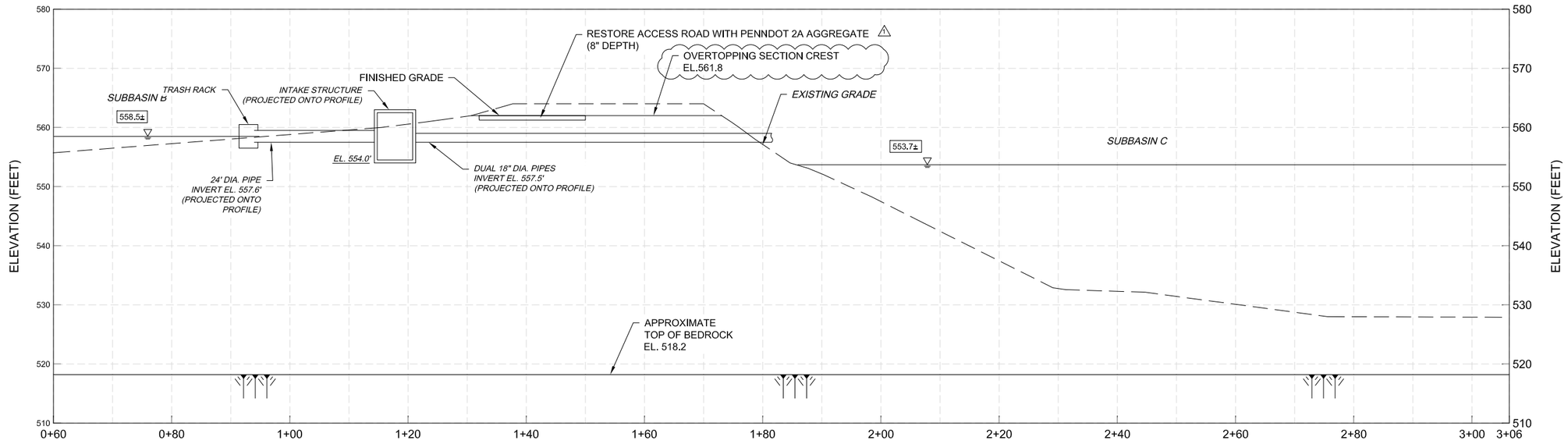
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

PROPOSED CONDITIONS
SPLITTER DIKE OVERTOPPING SECTION PLAN

JOB NO.	SHEET NO.
66982	11
DATE	DRAWING NO.
MAY 2020	11 OF 23

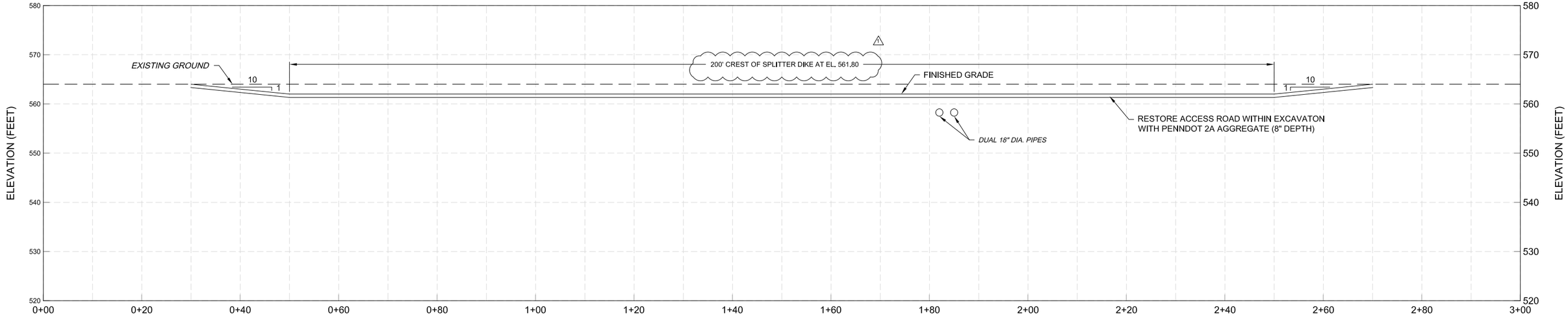
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SECTION D/11

10 -0- 10 20

SCALE IN FEET



SECTION E/11

10 -0- 10 20

SCALE IN FEET

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NO.	DESCRIPTION	DATE	BY
1	AS-BUILT	2.1.21	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

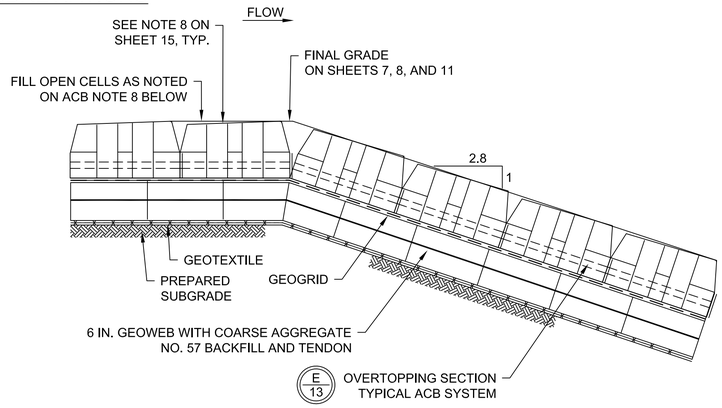
PROFILE & CROSS SECTION

SPLITTER DIKE OVERTOPPING SECTION

JOB NO.	SHEET NO.
66982	12
DATE	DRAWING NO.
MAY 2020	12 OF 23

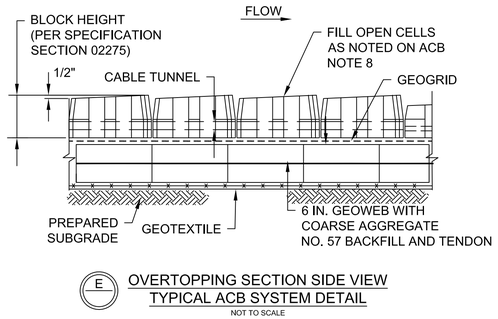
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PG Dated 2/2/2021 Rev'd All Plotted By: Paul Gerhart

ABBREVIATIONS



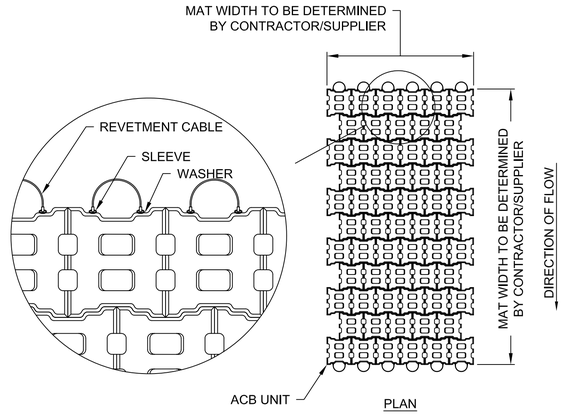
A — OVERTOPPING SECTION CREST-SLOPE TRANSITION DETAIL

NOT TO SCALE



E — OVERTOPPING SECTION SIDE VIEW TYPICAL ACB SYSTEM DETAIL

NOT TO SCALE



TYPICAL ARTICULATED CONCRETE BLOCK MAT DETAIL

NOT TO SCALE

ARTICULATED CONCRETE BLOCK (ACB) NOTES:

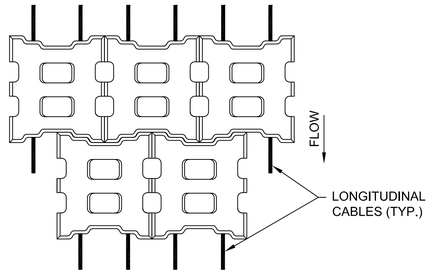
1. SEE SPECIFICATION SECTION 02275 FOR ACCEPTABLE ACB SYSTEM(S).
2. PRIMARY REQUIREMENTS OF THE ACB UNITS, AS DETAILED IN THE SPECIFICATION, ARE AS FOLLOWS: CONCRETE BLOCKS THAT HAVE A NOMINAL HEIGHT OF 4.75-INCHES, INTERLOCKING, TAPERED, OPEN CELL AND CABLED.
3. PREPARATION OF THE SUBGRADE IS CRITICAL TO THE SUCCESSFUL PERFORMANCE OF THE ACB SYSTEM. FILL TESTING AND INSTALLATION REQUIREMENTS ARE DETAILED IN THE SPECIFICATIONS.
4. MANUFACTURER TO PROVIDE ON-SITE CONSULTING DURING CONSTRUCTION AS INDICATED IN SPECIFICATIONS.
5. CONTRACTOR TO SUBMIT MANUFACTURER'S SPECIFICATIONS AND INSTALLATION PROCEDURES/ RECOMMENDATIONS TO ENGINEER FOR APPROVAL PER SPECIFICATION SECTION 02275.
6. MANUFACTURER TO CERTIFY THAT INSTALLATION WAS PERFORMED IN ACCORDANCE WITH MANUFACTURER'S PROCEDURES/RECOMMENDATIONS.
7. EACH SIDE OF EACH MAT SHALL BE TIED TO ADJACENT MAT USING THE LACING DETAILS SHOWN ON SHEET 15.
8. ON DAM EMBANKMENT SLOPES, OPEN CELLS OF EACH BLOCK AND SPACES BETWEEN THE BLOCKS SHALL BE FILLED WITH ~~TOPSOIL AND SEEDED~~ AASHTO NO. 8 MATERIAL.

   ON THE DAM EMBANKMENT CREST, OPEN CELLS OF EACH BLOCK AND SPACES BETWEEN BLOCKS SHALL BE FILLED WITH NO. 57 MATERIAL.
9. ACB MATS ARE TO BE PLACED DIRECTLY ON THE GEOGRID. DO NOT WALK ON OR DISTURB GEOGRID AS INDICATED IN SPECIFICATIONS.
10. PROVIDE MINIMUM 3 IN. CONCRETE COVER ON ALL SIDES OF REBAR ANCHOR.

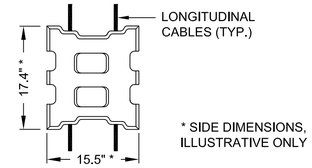


REFERENCE PHOTO:
GEOGRID OVER GEOWEB DURING INSTALLATION

NOT TO SCALE



PLAN VIEW



INDIVIDUAL BLOCK

PLAN VIEW
TYPICAL ACB SYSTEM DETAIL

NOT TO SCALE

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NO.	DESCRIPTION	DATE	BY
1	AS-BUILT	2.1.21	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

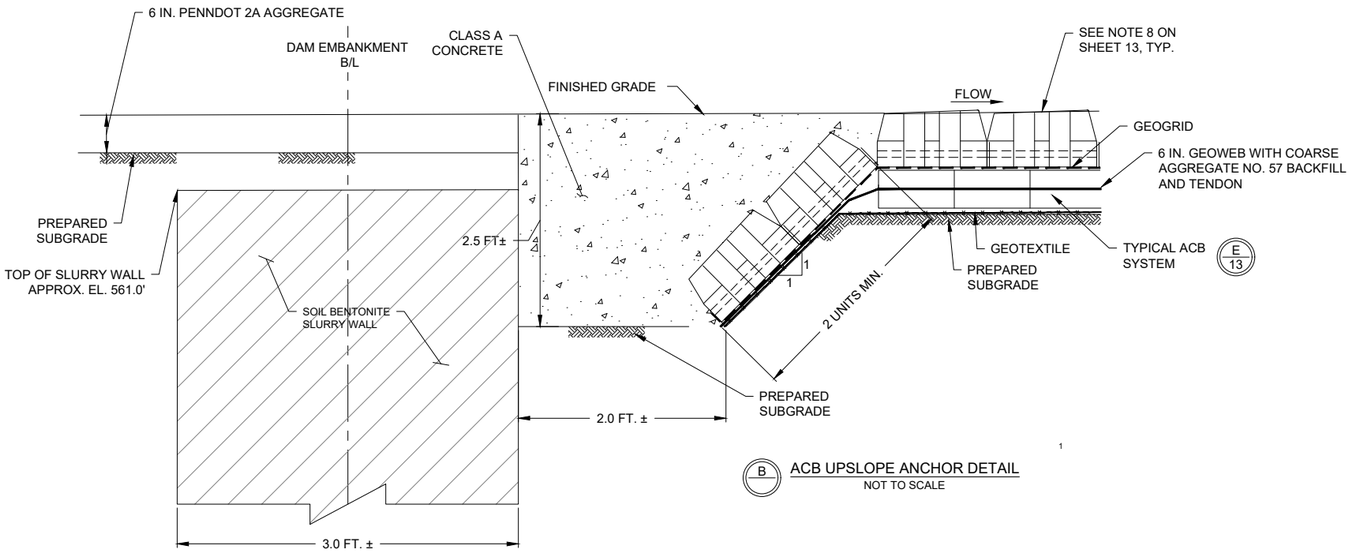
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

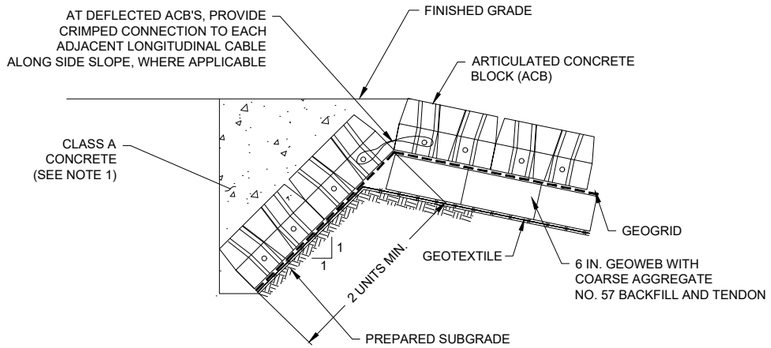
ARTICULATED CONCRETE BLOCK DETAILS
1 OF 4

JOB NO.	SHEET NO.
66982	13
DATE	DRAWING NO.
MAY 2020	13 OF 23

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Plot Date: 2/25/2021 10:51 AM - Plotted By: Hines, Jake A.



B ACB UPSLOPE ANCHOR DETAIL
NOT TO SCALE



NOTES:
1. CLASS A CONCRETE ANCHOR IS ONLY TO BE INSTALLED AS A SIDE SLOPE ANCHOR ALONG THE STILLING BASIN. STATION 1+57.60 TO THE DOWNSLOPE ANCHOR OF THE STILLING BASIN.

C TYPICAL SIDE SLOPE ANCHOR DETAIL
NOT TO SCALE



TYPICAL TRANSITION PHOTO
NOT TO SCALE

TYPICAL ANCHOR DETAILS
NOT TO SCALE

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NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

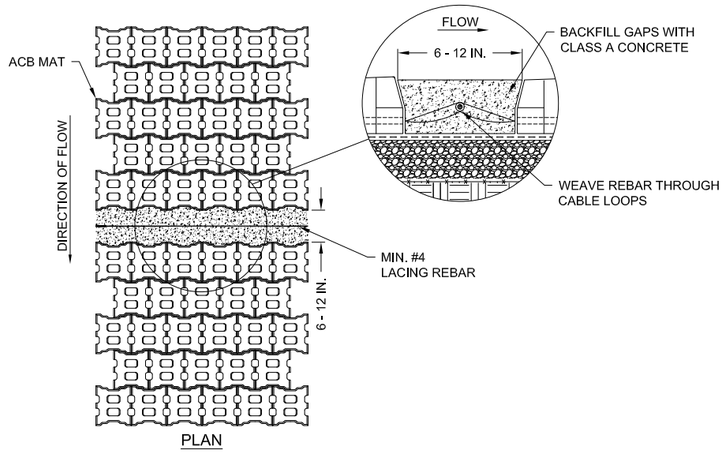
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

ARTICULATED CONCRETE BLOCK DETAILS
2 OF 4

JOB NO.	SHEET NO.
66982	14
DATE	DRAWING NO.
MAY 2020	14 OF 23

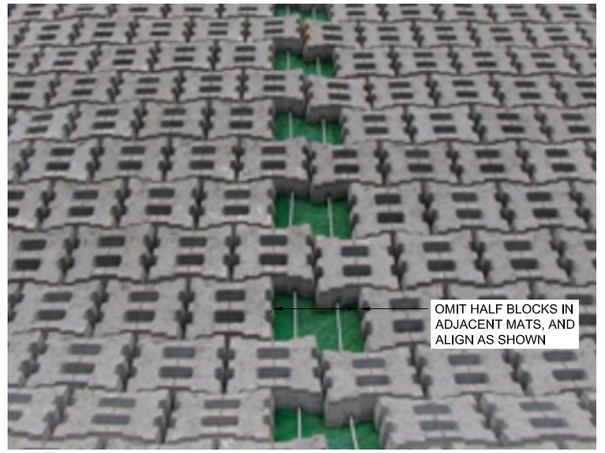
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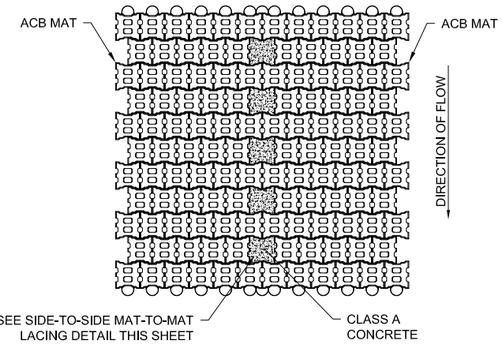
PLAN

UPSTREAM-TO-DOWNSTREAM MAT-TO-MAT CONNECTION DETAIL

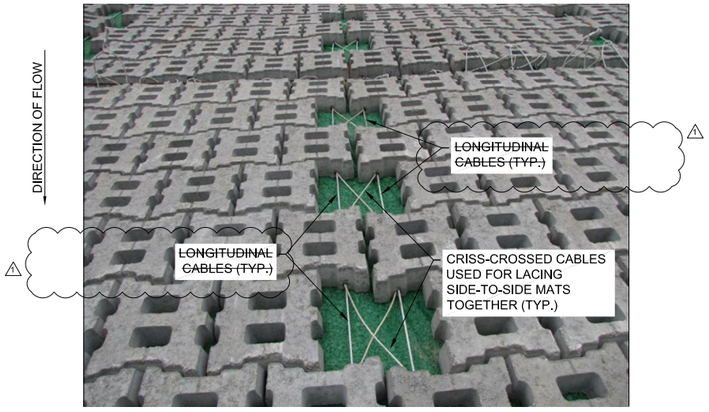
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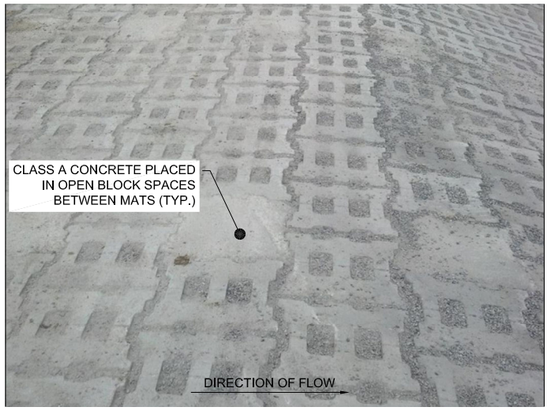
PLACING DETAIL



CONNECTION DETAIL



SIDE-TO-SIDE MAT-TO-MAT LACING DETAIL



FINISHED CONDITION DETAIL

SIDE-TO-SIDE MAT-TO-MAT DETAILS

NOT TO SCALE

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NO.	DESCRIPTION	DATE	BY
1	AS-BUILT	2.1.21	JPH

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

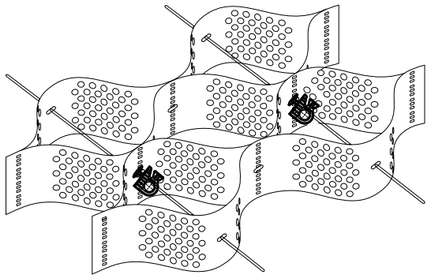
ARTICULATED CONCRETE BLOCK SYSTEM

DETAILS 3 OF 4

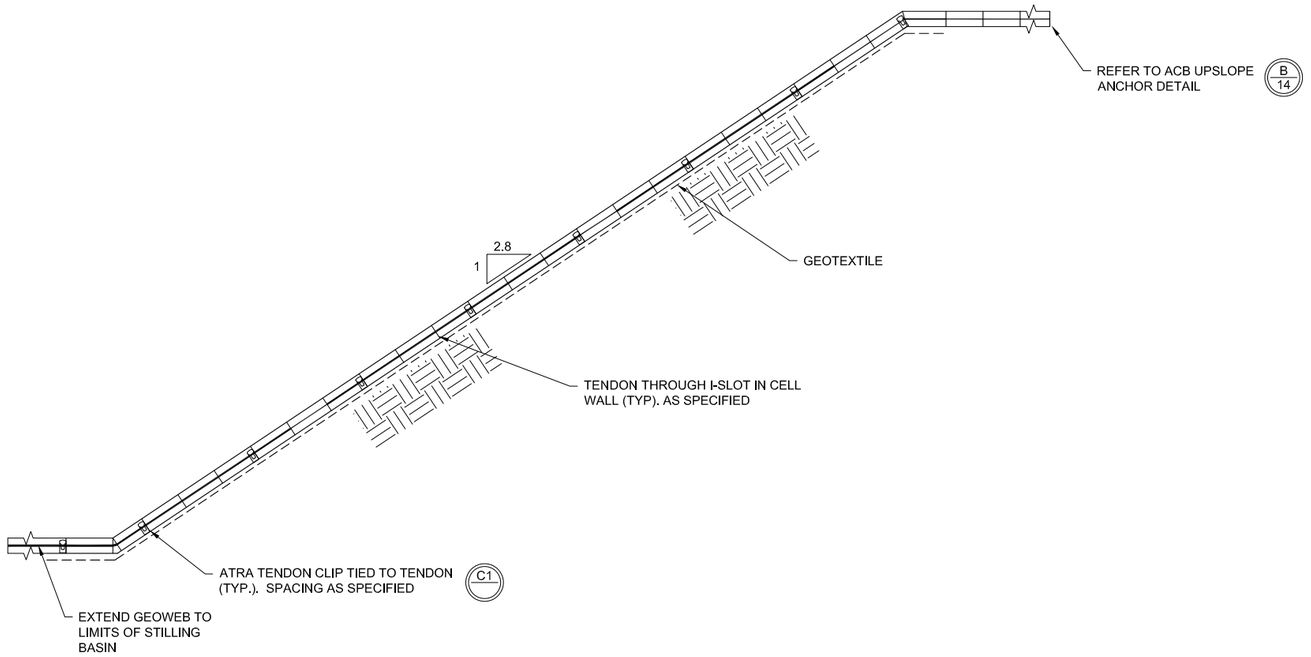
JOB NO.	SHEET NO.
66982	15
DATE	DRAWING NO.
MAY 2020	15 OF 23

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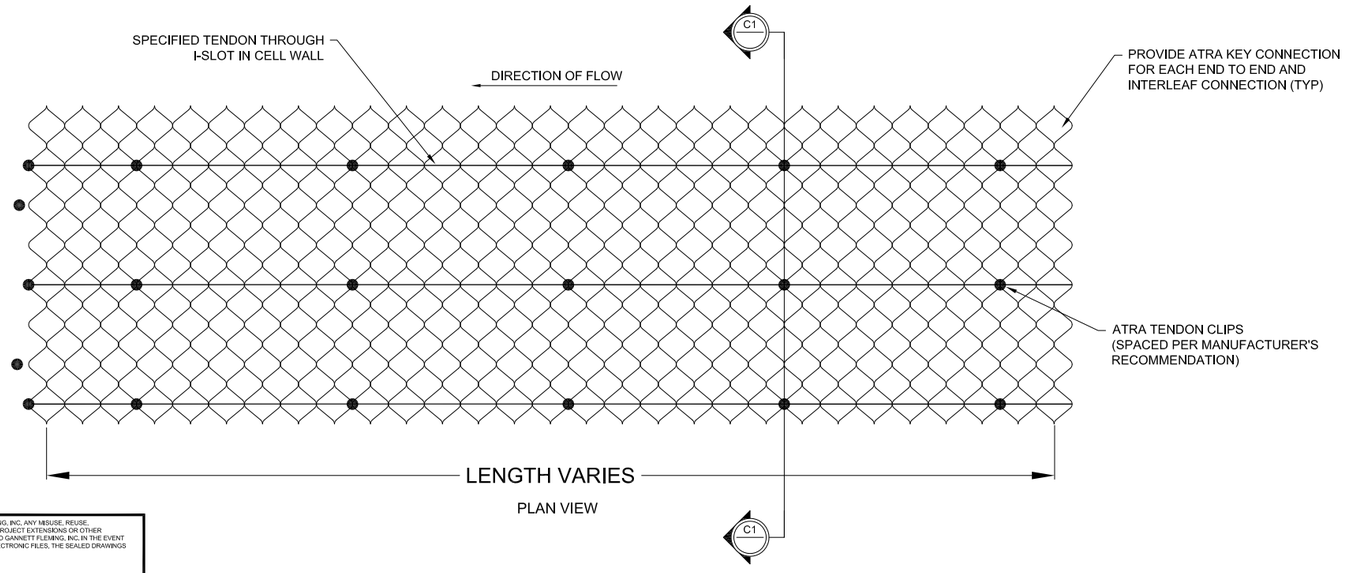
NOTES:
1. THE TYPE AND QUANTITY OF TENDONS SHALL BE AS SPECIFIED.
2. TENDONS SHALL CONSIST OF POLYESTER TENDONS WITH A MINIMUM BREAK STRENGTH OF 1500 LBF.
3. THE GEOWEB® SHALL BE FILLED WITH COARSE AGGREGATE NO. 57.
4. THE GEOWEB® SECTIONS SHALL BE ANCHORED TO RESIST SLIDING DUE TO DRIVING AND HYDRAULIC FORCES.
5. THE GEOWEB® PANELS SHALL BE CONNECTED WITH ATRA KEYS AT EACH INTERLEAF AND END TO END CONNECTION.
6. REFER TO THE DETAIL DRAWINGS ON THIS SHEET FOR CLIP AND CONNECTION DETAILS.



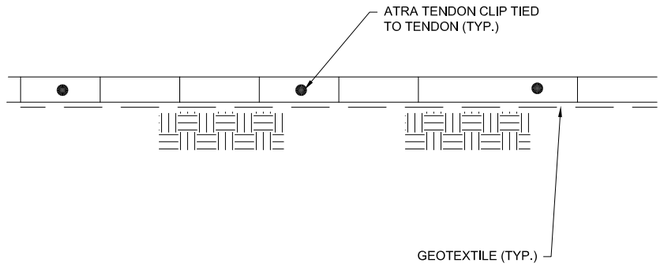
A1 TYPICAL GEOWEB SYSTEM
ISOMETRIC VIEW
NOT TO SCALE



B1 TYPICAL TENDON AND CLIP SYSTEM
NOT TO SCALE



PLAN VIEW



SECTION C1

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NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

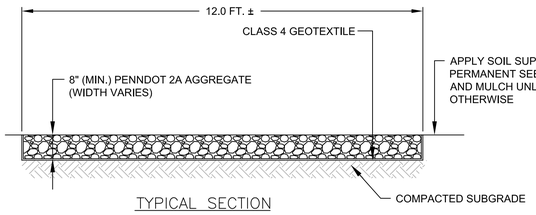
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

ARTICULATED CONCRETE BLOCK SYSTEM
DETAILS 4 OF 4
GEOWEB DETAILS

JOB NO.	SHEET NO.
66982	16
DATE	DRAWING NO.
MAY 2020	16 OF 23

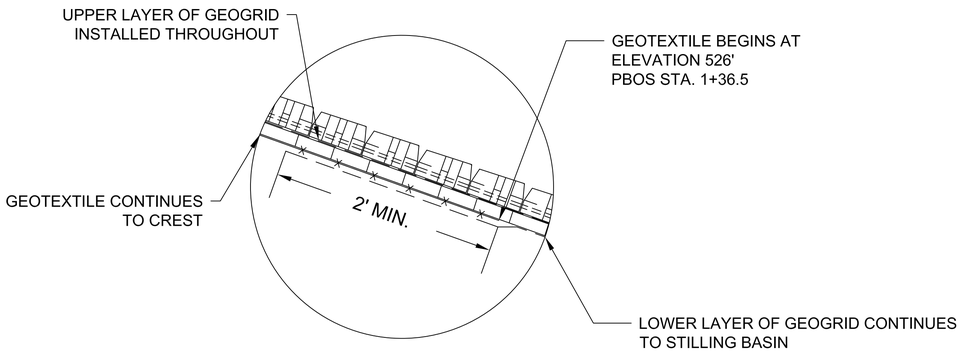
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Plotted: 22/2020 - 8:08 AM Plotted By: Jason Kelly



TYPICAL SECTION

ACCESS ROAD RESTORATION

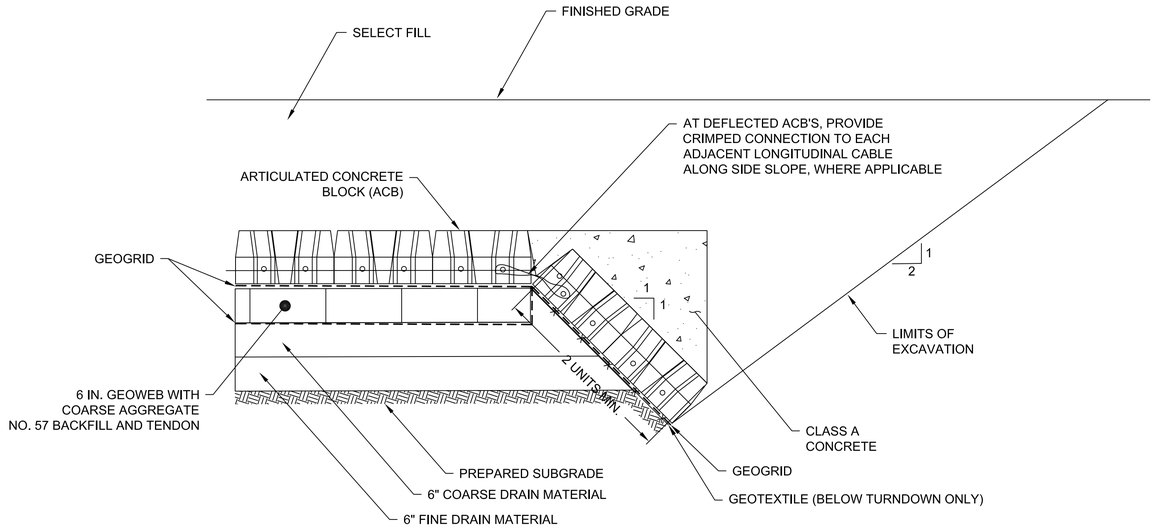
NOT TO SCALE



D

GEOTEXTILE TO GEOGRID TRANSITION DETAIL

NOT TO SCALE



F

TYPICAL DOWN SLOPE ANCHOR DETAIL FOR STILLING BASIN

NOT TO SCALE

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NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

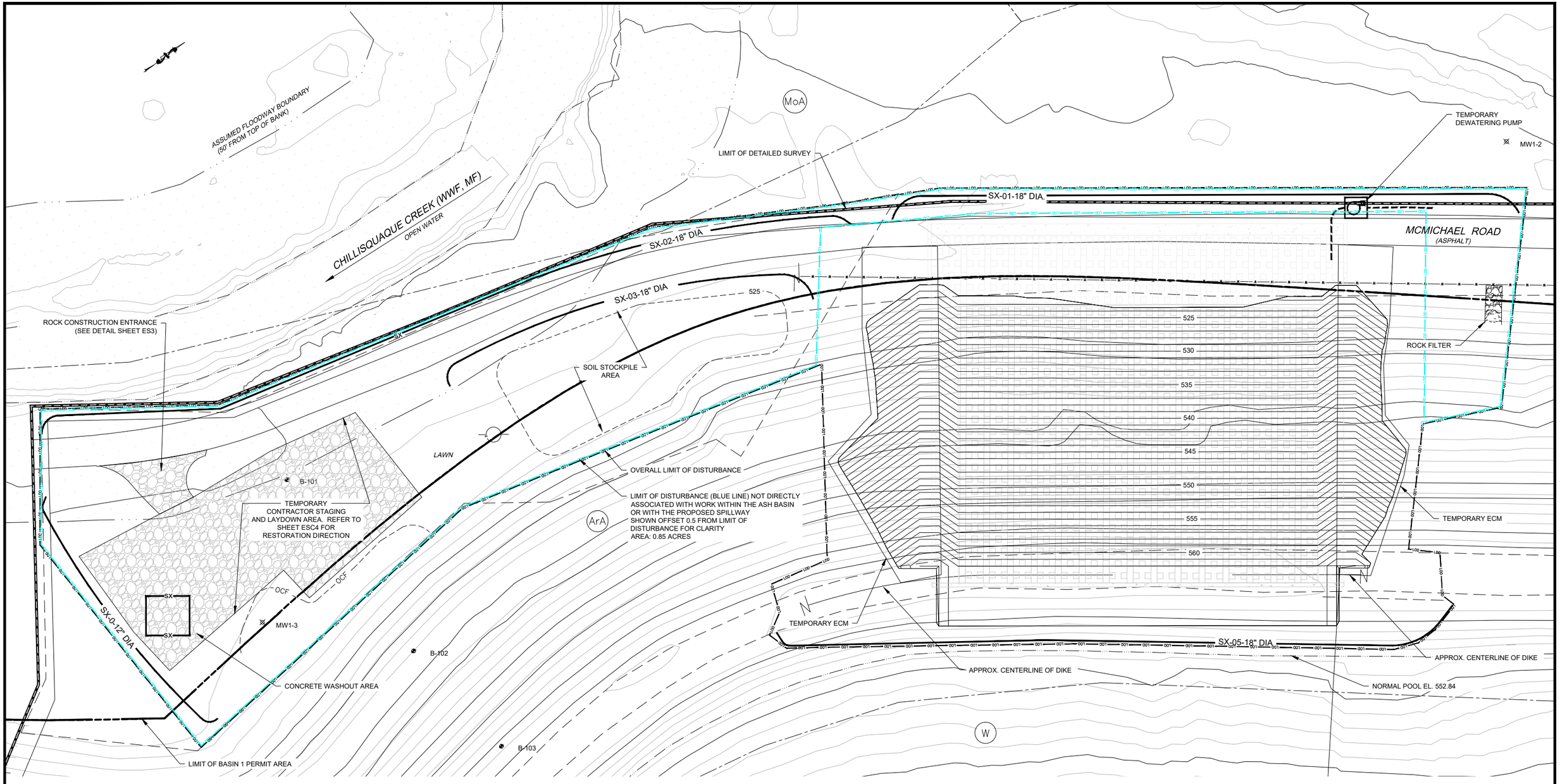
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

MISCELLANEOUS DETAILS

JOB NO.	SHEET NO.
66982	17
DATE	DRAWING NO.
MAY 2020	17 OF 23

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Plot Date: 5/22/2020 11:51 AM Plotted By: Hong, Jason A.



EROSION AND SEDIMENT CONTROL PLAN LEGEND

- SX — COMPOST FILTER SOCK
- STABILIZED ACCESS ROAD
- ARTICULATED CONCRETE BLOCK
- LOD — LOD — LIMIT OF DISTURBANCE
- ROCK FILTER
- OCF — ORANGE CONSTRUCTION FENCE
- MONITORING WELL / BORING
- ArA / MoA — SOIL CLASSIFICATION AND BOUNDARY
- PUMP LINE
- ASSUMED FLOODWAY (50' FROM TOP OF BANK)

20 -0- 20 40
SCALE IN FEET

SHEET NOTES:
1. REFER TO SHEET 3 FOR EXISTING CONDITIONS LEGEND AND GENERAL NOTES.

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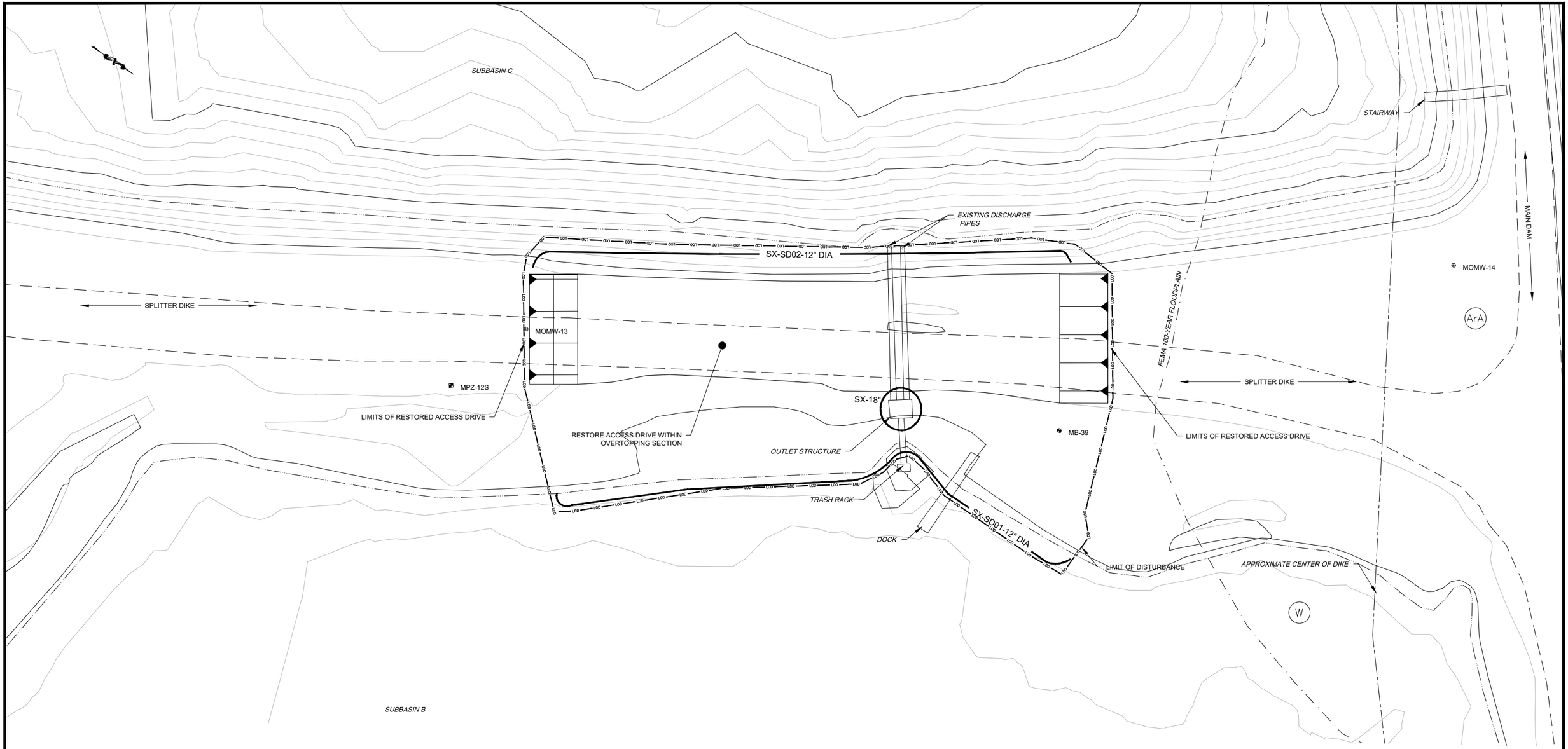
TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL PLAN

JOB NO.	SHEET NO.
66982	ESC1
DATE	DRAWING NO.
MAY 2020	18 OF 23

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EROSION AND SEDIMENT CONTROL PLAN LEGEND

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Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL PLAN

JOB NO.	SHEET NO.
66982	ESC2
DATE	DRAWING NO.
MAY 2020	19 OF 23

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Print Date: 4/29/2020 10:30 AM, Printed By: Hunter Bell

EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE

GENERAL STATEMENT OF THE PROJECT

A1. TALEN ENERGY IS PROPOSING TO MAKE IMPROVEMENTS TO MONTOUR STEAM ELECTRIC STATION BASIN 1 LOCATED IN WASHINGTONVILLE, MONTOUR COUNTY, PENNSYLVANIA. REFER TO THE COVER SHEET FOR THE LOCATION OF THE PROJECT.

A2. ASH BASIN NO. 1 WAS CONSTRUCTED IN 1971 TO DISPOSE COAL COMBUSTION RESIDUALS (CCRS). BASIN 1 COVERS APPROXIMATELY 144 ACRES AND UTILIZES A PERIMETER EARTHEN BERM WITH A BERM HEIGHT RANGING FROM 4 FEET TO 40 FEET. BASIN 1 CONSISTS OF A SERIES OF THREE (3) SUB-BASINS (A, B, AND C) WHICH DISCHARGE THROUGH A PRINCIPAL RISER SPILLWAY AND PRESSURE PIPE TO A DETENTION BASIN LOCATED APPROXIMATELY 1,000 FEET TO THE SOUTH OF BASIN 1.

A3. THE PROPOSED IMPROVEMENTS INCLUDE CONSTRUCTION OF AN OVERTOPPING SECTION AT BASIN 1. THE OVERTOPPING SECTION WILL DISCHARGE TO CHILLISQUAQUE CREEK FROM SUB-BASIN C. AN OVERTOPPING SECTION WILL BE CONSTRUCTED ON THE SPLITTER DIKE BETWEEN SUB-BASINS B AND C AS WELL.

A4. THE PRIMARY EROSION CONTROL MEASURES FOR THIS PROJECT WILL INCLUDE, BUT ARE NOT LIMITED TO, COMPOST FILTER SOCK, ROCK CONSTRUCTION ENTRANCE(S), MINIMIZING THE DURATION AND AMOUNT OF DISTURBED AREA, IMMEDIATELY STABILIZING DISTURBED AREAS, UTILIZING FILTERING DEVICES AS PART OF DEWATERING OPERATIONS, AND OTHER MEASURES AS DESCRIBED WITHIN THIS EROSION CONTROL PLAN.

A5. THE ENTIRE PROJECT IS LOCATED WITHIN THE MUNCY-CHILLISQUAQUE CREEK WATERSHED. AT THE PROJECT SITE, CHILLISQUAQUE CREEK IS CLASSIFIED AS A WARM WATER FISHERY (WWF) AND A MIGRATORY FISHERY (MF) WITHIN THE PA CODE, TITLE 25, CHAPTER 93 WATER QUALITY STANDARDS.

A6. THE ONSITE SOILS WITHIN THE IMMEDIATE PROJECT AREA ARE MAPPED AS AIVIRA SILT LOAM (ArA), MONONGAHELA SILT LOAM (MoA), AND WATSON SILT LOAM (WbA), AS IDENTIFIED WITHIN THE USDA NRCS WEB SOIL SURVEY.

A7. CONSTRUCTION IS ANTICIPATED TO BEGIN IN FALL OF 2020 AND TAKE APPROXIMATELY 2 MONTHS TO COMPLETE.

GENERAL EROSION CONTROL NOTES

B1. IN ALL CASES, THE SMALLEST PRACTICAL AREA OF STABLE LAND SURFACE WILL BE DISTURBED.

B2. EXCAVATED MATERIAL SHALL BE PLACED UP SLOPE FROM THE EXCAVATION WHENEVER POSSIBLE. SHOULD A SOIL PILE BE CREATED FROM THE EXCAVATION THAT IS NOT LOCATED WITHIN THE DRAINAGE AREA OF A PERIMETER EROSION CONTROL FACILITY, COMPOST FILTER SOCK SHALL BE INSTALLED ALONG THE DOWN SLOPE TOE OF SAID SOIL PILE, OR THE PILE SHALL BE COVERED WITH AN IMPERMEABLE TARP UNTIL SUCH TIME THAT THE PILE IS REMOVED. CONTRACTOR SHALL COORDINATE WITH THE OWNER WITH REGARDS TO SOIL PILE LOCATIONS.

B3. TEMPORARY SOIL/TOPSOIL STOCKPILES SHALL BE IMMEDIATELY SEEDED (TEMPORARY SEED MIXTURE) AND MULCHED. STOCKPILES ARE TO BE PLACED IN A LOCATION WHERE THEY WILL NOT INTERFERE WITH CONSTRUCTION ACTIVITIES AND ARE NOT TO BE LOCATED WITHIN THE FLOW PATH OF A NATURAL OR CONSTRUCTED WATERWAY. STOCKPILES ARE TO HAVE SIDE SLOPES OF 2H:1V OR FLATTER AND SHALL NOT EXCEED 35 FEET IN HEIGHT.

B4. ACCELERATED EROSION AND SEDIMENTATION WILL BE LIMITED BY IMMEDIATELY STABILIZING DISTURBED AREAS AND BY KEEPING THE AMOUNT OF DISTURBED AREA TO A MINIMUM. REFER TO THE TEMPORARY AND PERMANENT STABILIZATION NOTES THIS SHEET.

B5. SHOULD UNFORSEEN CIRCUMSTANCES ARISE POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMMEDIATELY IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. STOCKPILES OF WOOD CHIPS, HAYBALES, CRUSHED STONE AND OTHER MULCHES SHALL BE HELD IN READINESS TO DEAL IMMEDIATELY WITH EMERGENCY PROBLEMS OF EROSION.

B6. CONTRACTOR SHALL CONTROL DUST FROM THE PROJECT AREA BY APPLYING WATER OR IMPLEMENTING OTHER METHODS AS APPROVED BY THE OWNER/ENGINEER.

B7. ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BEST MANAGEMENT PRACTICE, SUCH AS A PUMPED WATER FILTER BAG OR EQUIVALENT SEDIMENT REMOVAL FACILITY. SAID BMP SHALL BE LOCATED ON AND DISCHARGE OVER UNDISTURBED VEGETATED AREAS. DISCHARGE POINTS SHOULD BE ESTABLISHED TO PROVIDE FOR MAXIMUM DISTANCE TO ACTIVE WATERWAYS.

B8. EROSION CONTROL MATTING SHALL BE PLACED ON DISTURBED SLOPES THAT ARE STEEPER THAN 3H:1V. SHOULD CONSTRUCTION PROCEDURES AND/OR LOCALIZED SITE CONDITIONS DISTURB AND/OR CREATE DISTURBED SLOPES THAT ARE STEEPER THAN 3H:1V, THESE SLOPES SHALL BE PROTECTED WITH EROSION CONTROL MATTING.

B9. SHOULD SITE STABILIZATION OCCUR OUTSIDE OF THE ALLOWABLE SEEDING DATES, ALL DISTURBED AREAS TO BE VEGETATED SHALL BE STABILIZED WITH AN ANCHORED MULCH. AREAS WITHIN 50 FEET OF A WATERWAY SHALL BE STABILIZED WITH EROSION CONTROL MATTING. TEMPORARY OR PERMANENT STABILIZATION (AS APPROPRIATE) SHALL BE APPLIED TO THESE AREAS ONCE WITHIN THE ALLOWABLE SEEDING DATES.

B10. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED TO MAINTAIN A DRY WORK AREA, AND TO PREVENT EROSION AND OFF-SITE SEDIMENTATION. MANAGE SEEPS OR SPRINGS THROUGH THE USE OF SUBSURFACE DRAINS, SPRING BOXES, SUMP PITS OR OTHER MEASURES AS APPROVED BY THE ENGINEER. SEEPAGE THROUGH THE DAM EMBANKMENT SHALL BE FILTERED. FILTER MATERIAL SHALL BE APPROVED BY THE ENGINEER.

B11. A COPY OF THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES THROUGHOUT THE TERM OF THE PROJECT.

B12. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.

B13. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING, AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED PLAN. A COPY OF THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES THROUGHOUT THE TERM OF THE PROJECT.

B14. SHOULD THE CONTRACTOR CHOOSE TO DEVIATE FROM THE APPROVED EROSION CONTROL PLAN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPROVALS FOR THE MODIFICATION FROM PADEP, COUNTY CONSERVATION DISTRICT, LOCAL MUNICIPALITY OR OTHER REVIEWING AGENCY AS APPROPRIATE, PRIOR TO INITIATING SAID REVISIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SAID APPROVALS (I.E., ENGINEER'S DESIGN COSTS, APPLICATION FEES, ETC.).

GENERAL E&S INSTALLATION PROCEDURES

C1. ALL MATERIALS NEEDED TO COMPLETELY CONSTRUCT AN EROSION CONTROL FACILITY SHALL BE AVAILABLE ON SITE PRIOR TO THE ANTICIPATED DISTURBANCE OF THE DRAINAGE AREA TO BE CONTROLLED BY SAID FACILITY.

C2. EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS, INCLUDING CLEARING AND GRUBBING, WITHIN THE TRIBUTARY AREAS OF THOSE FACILITIES.

C3. ONLY LIMITED DISTURBANCE WILL BE PERMITTED TO PROVIDE ACCESS FOR CONSTRUCTING EROSION CONTROL FACILITIES AND FOR GRADING AND ACQUIRING BORROW TO CONSTRUCT THOSE CONTROLS.

C4. EARTH DISTURBANCE ACTIVITIES, INCLUDING MOVEMENT OF CONSTRUCTION VEHICLES, SHALL BE BE AVOIDED/MINIMIZED BELOW THE LOCATION OF THE PERIMETER EROSION CONTROL FACILITIES. SHOULD EARTH DISTURBANCE OCCUR BELOW THE PERIMETER EROSION CONTROL FACILITIES, PERMANENT STABILIZATION SHALL BE IMMEDIATELY APPLIED TO THOSE DISTURBED AREAS.

C5. AT NO TIME WILL SEDIMENT OR SEDIMENT-LADEN RUNOFF BE ALLOWED TO LEAVE THE SITE AND ENTER COMMONWEALTH WATERS WITHOUT FIRST PASSING THROUGH A SEDIMENT FILTERING DEVICE. SHOULD SITE CONDITIONS, CONSTRUCTION PROCEDURES, ETC. ALTER THE EROSION CONTROL PLAN TO THE POINT WHERE SEDIMENT AND SEDIMENT-LADEN RUNOFF IS NOT BEING CONTROLLED AND FILTERED BEFORE IT LEAVES THE SITE, ADDITIONAL EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AT NO ADDITIONAL COST TO THE OWNER. ALL MODIFICATIONS TO THE APPROVED EROSION CONTROL PLAN SHALL BE REVIEWED AND APPROVED BY THE COUNTY CONSERVATION DISTRICT PRIOR TO IMPLEMENTING SAID MEASURES. REFER TO NOTE B10 ON THIS SHEET.

C6. EROSION AND SEDIMENT CONTROL FACILITIES REQUIRED OR NECESSARY TO PROTECT AREAS FROM EROSION DURING THE STABILIZATION PERIOD SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION OF THE CONTRIBUTING DRAINAGE AREA IS COMPLETED. UPON COMPLETION OF PERMANENT STABILIZATION AND UPON APPROVAL FROM THE CONSERVATION DISTRICT, ALL TEMPORARY OR UNUSABLE CONTROL MEASURES AND FACILITIES SHALL BE REMOVED, THE DISTURBED AREAS CREATED BY THIS ACTIVITY SHALL BE BROUGHT TO FINAL GRADE AND PERMANENT STABILIZATION SHALL BE IMMEDIATELY APPLIED TO ALL DISTURBED AREAS CREATED BY THIS ACTIVITY.

FILL/DISPOSAL OF MATERIAL NOTES

D1. ALL CLEAN FILL DEMOLITION MATERIAL INCLUDING CLEARING AND GRUBBING DEBRIS ACCUMULATION WILL BE PROPERLY DISPOSED OF IN A LAWFUL MANNER.

D2. ALL BUILDING MATERIALS AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE PADEP'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE SUBSECTION 260.1 ET SEQ., SUBSECTION 271.1 ET SEQ., AND SUBSECTION 287.1 ET SEQ. NO BUILDING MATERIAL OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.

D3. OFFSITE BORROW AREAS, STOCKPILE AREAS AND/OR WASTE DISPOSAL AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN PRIOR TO THE START OF ANY EARTHMOVING ACTIVITIES IN THOSE OFFSITE AREAS. THE CONTRACTOR, IN THEIR PROPOSAL, SHALL MAKE PROVISIONS FOR THESE OFFSITE AREAS AND SHALL BE RESPONSIBLE FOR ENSURING THAT EACH OFFSITE AREA HAS AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN BY THE COUNTY CONSERVATION DISTRICT IN WHICH THE OFFSITE AREA IS LOCATED. THE CONTRACTOR SHALL NOTIFY THE COUNTY CONSERVATION DISTRICT OF ALL OFFSITE SPOIL, STOCKPILE AND/OR BORROW AREAS THAT ARE ANTICIPATED TO BE USED.

D4. IF FILL MATERIAL IS BROUGHT ONTO THE SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINING IF SAID MATERIAL IS CLEAN FILL. CLEAN FILL IS DEFINED AS UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. ENVIRONMENTAL DUE DILIGENCE SHALL INCLUDE INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.

D5. SEDIMENT REMOVED FROM EROSION CONTROL FACILITIES SHALL BE DISPOSED OF IN LANDSCAPED OR LAWN AREAS LOCATED UPSLOPE OF SAID FACILITIES AND SHALL BE IMMEDIATELY STABILIZED. REMOVED SEDIMENTS SHALL NOT BE PLACED ON STEEP SLOPES, IN WETLANDS, OR DRAINAGE SWALES. REMOVED SEDIMENTS MAY ALSO BE PLACED IN AN APPROVED TOPSOIL STOCKPILE.

D6. THE CONTRACTOR AND PERMITTEE MUST ATTEMPT, WHENEVER POSSIBLE, TO RECYCLE ALL WASTE GENERATED ONSITE DURING THIS PROJECT. ALL WASTE MATERIAL NOT RECYCLED, MUST BE DISPOSED OF AT AN APPROVED WASTE SITE.

TEMPORARY STABILIZATION NOTES

E1. WHERE IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA IMMEDIATELY AFTER FINAL EARTHMOVING HAS BEEN COMPLETED OR WHERE CONSTRUCTION ACTIVITIES CEASE, TEMPORARY STABILIZATION MEASURES SHALL BE IMMEDIATELY IMPLEMENTED.

E2. TEMPORARY STABILIZATION, AS REFERRED TO IN THIS NARRATIVE, INVOLVES THE STABILIZATION AND PROTECTION OF THE SOIL SURFACE TO AN EXTENT THAT WILL PREVENT EROSION AND ELIMINATE OFFSITE SEDIMENTATION. TYPICAL TEMPORARY STABILIZATION IS OBTAINED BY ESTABLISHING A VEGETATIVE COVER ACROSS THE DISTURBED AREA. ESTABLISH TEMPORARY VEGETATIVE COVER IN ACCORDANCE WITH THE FOLLOWING:

A. PREPARE THE SOIL SURFACE IN ACCORDANCE WITH PENNDOT PUB 408, SECTION 804. APPLY SOIL SUPPLEMENTS AS RECOMMENDED BY SOIL TEST RESULTS. IN THE ABSENCE OF SOIL TEST RESULTS, APPLY AGRICULTURAL GRADE LIMESTONE AT A RATE OF ONE (1) TON/ACRE AND APPLY 10-20-20 COMMERCIAL FERTILIZER AT A RATE OF 140 POUNDS PER 1,000 SQUARE YARDS.

B. SOW ERNMX-104 AT THE RATE OF 50 POUNDS PER ACRE (TEN POUNDS PER 1,000 SQ. YARDS) OR WINTER WHEAT AT THE RATE OF 180 POUNDS PER ACRE (37 POUNDS PER 1,000 SQ. YARDS) BY THE HELICOPTER, HYDRAULIC PLACEMENT, BROADCASTING, DRILLING, OR HAND SEEDING METHODS. COVER GRASS SEED WITH 1/4" OF SOIL USING SUITABLE EQUIPMENT FOR THAT PURPOSE.

C. IMMEDIATELY AFTER SEEDING, PROVIDE AN ANCHORED STRAW MULCH SPREAD UNIFORMLY IN A CONTINUOUS BLANKET AT A RATE OF 1,240 POUNDS PER 1,000 SQUARE YARDS (3 TONS PER ACRE). REFER TO ITEM F.3 OF THIS NARRATIVE FOR MULCH PLACEMENT AND ANCHORING REQUIREMENTS.

D. SPREAD SEED BETWEEN MARCH 15 AND OCTOBER 15. UNLESS APPROVED OTHERWISE

E3. IF TEMPORARY STABILIZATION ACTIVITIES FALL OUTSIDE OF THE ALLOWABLE SEEDING DATES, AN ANCHORED MULCH IS TO BE PLACED WITHOUT SEEDING. APPLY TEMPORARY OR PERMANENT SEED MIXTURES ONCE WITHIN THE ALLOWABLE SEEDING DATES.

PERMANENT STABILIZATION NOTES

F1. ALL AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE AND THOSE DISTURBED AREAS THAT WILL NOT BE WORKED WITHIN ONE YEARS TIME, SHALL HAVE PERMANENT STABILIZATION MEASURES IMMEDIATELY APPLIED.

F2. PERMANENT STABILIZATION OF LAWN AREAS, AS REFERRED TO IN THIS NARRATIVE, INVOLVES THE STABILIZATION AND PROTECTION OF THE SOIL SURFACE TO AN EXTENT THAT WILL PREVENT EROSION AND ELIMINATE OFFSITE SEDIMENTATION. TYPICAL PERMANENT STABILIZATION IS OBTAINED BY ESTABLISHING A VEGETATIVE COVER ACROSS THE DISTURBED AREA. ESTABLISH PERMANENT VEGETATIVE COVER IN ACCORDANCE WITH THE FOLLOWING:

A. PREPARE THE SOIL SURFACE AND SPREAD TOPSOIL (SIX-INCH MINIMUM DEPTH) IN ACCORDANCE WITH PENNDOT PUB 408, SECTION 804. APPLY SOIL SUPPLEMENTS AS RECOMMENDED BY SOIL TEST RESULTS. IN THE ABSENCE OF SOIL TEST RESULTS, APPLY AGRICULTURAL GRADE LIMESTONE AT A RATE OF SIX (6) TONS/ACRE AND APPLY 10-20-20 COMMERCIAL FERTILIZER AT A RATE OF 1,000 POUNDS PER ACRE.

B. SOW THE PERMANENT SEED MIXTURES AT THE RATE SPECIFICIED BELOW PER ACRE BY THE HELICOPTER, HYDRAULIC PLACEMENT, BROADCASTING, DRILLING, OR HAND SEEDING METHODS. COVER GRASS SEED WITH 1/4" OF SOIL USING SUITABLE EQUIPMENT FOR THAT PURPOSE.

⚠

MIX	RATE OF APPLICATION (LBS/1,000 SQ. YD)
RED FESCUE CHEWINGS (30%) KENTUCKY BLUEGRASS (45%) PERENNIAL RYEGRASS (20%) ANNUAL RYEGRASS (5%)	44

F3. IMMEDIATELY AFTER SEEDING, PROVIDE AN ANCHORED STRAW MULCH SPREAD UNIFORMLY IN A CONTINUOUS BLANKET AT A RATE OF 1,240 POUNDS PER 1,000 SQUARE YARDS (3 TONS PER ACRE).

A. MULCH MAY BE SPREAD BY HAND OR WITH AN ACCEPTABLE MECHANICAL BLOWER. MACHINES WHICH CUT MULCH INTO SHORT PIECES WILL NOT BE PERMITTED.

B. MULCH SHALL BE ANCHORED BY USE OF CRIMPING, NETTING, OR A NONASPHALTIC EMULSION MULCH BINDER IMMEDIATELY FOLLOWING MULCH SPREADING. IF A NONASPHALTIC EMULSION MULCH BINDER IS USED, THE NUMBER OF PASSES OVER THE MULCH AS NEEDED TO SECURE IT FIRMLY SHALL NOT EXCEED THREE PASSES WITH MAXIMUM APPLIED BINDER NOT EXCEEDING TEN GALLONS PER 1,000 SQUARE FEET.

F4. PERMANENT STABILIZATION OF LAWN AREAS IS CONSIDERED TO BE A UNIFORM EROSION RESISTANT PERENNIAL VEGETATION ESTABLISHED TO THE POINT WHERE THE SURFACE SOIL IS CAPABLE OF RESISTING EROSION DURING RUNOFF EVENTS AND SUBSURFACE CHARACTERISTICS ARE SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. THE STANDARD FOR THIS VEGETATIVE COVER WILL BE A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS THE ENTIRE DISTURBED AREA.

PROPOSED IMPERVIOUS AREAS WILL BE CONSIDERED PERMANENTLY STABILIZED ONCE THE IMPERVIOUS SURFACE (I.E., GRAVEL FOR DRIVEWAYS, CONCRETE SURFACES) HAS BEEN PLACED.

MAINTENANCE/CONTRACTOR'S RESPONSIBILITIES

G1. THE CONTRACTOR SHALL ASSURE THAT THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED IN ACCORDANCE WITH THE APPROVED EROSION CONTROL PLAN DRAWINGS AND THE TECHNICAL SPECIFICATIONS.

G2. MAINTENANCE INSPECTIONS SHALL BE PERFORMED AND DOCUMENTED, ON ALL CONTROLS, AFTER EACH RAINFALL EVENT AND AT A MINIMUM ON A WEEKLY BASIS, USING AN INSPECTION LOG SHEET. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, OR RENETTING, MUST BE PERFORMED IMMEDIATELY. CONTRACTOR SHALL DOCUMENT IN WRITING ALL INSPECTIONS AND REMEDIAL ACTIONS ASSOCIATED WITH THE EROSION CONTROL FACILITIES. CONTRACTOR SHALL BE PREPARED TO PROVIDE THE INSPECTION LOG SHEETS TO THE OWNER AND/OR THE COUNTY CONSERVATION DISTRICT UPON REQUEST.

G3. ONCE AN EROSION CONTROL FACILITY BECOMES CLOGGED WITH SEDIMENTS AND CAN NO LONGER PERFORM AS INTENDED, SAID FACILITY SHALL BE CLEANED OF SEDIMENTS OR REPLACED WITH A NEW FACILITY. SEDIMENT COLLECTED FROM THE EROSION CONTROL FACILITIES SHALL BE PLACED UPSTREAM OF THOSE CONTROLS AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH OR HAULED OFFSITE TO A DISPOSAL AREA WITH AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN. SEDIMENT SHALL BE DEPOSITED OUTSIDE OF STEEP SLOPES, WETLANDS, OR DRAINAGE SWALES.

G4. REFER TO EACH EROSION CONTROL FACILITY DETAIL FOR ADDITIONAL INSTALLATION AND MAINTENANCE REQUIREMENTS ASSOCIATED WITH SAID FACILITY.

G5. ALL PERMANENTLY SEEDED AREAS THAT BECOME ERODED SHALL IMMEDIATELY HAVE THE TOPSOIL REPLACED, THE EROSION CONTROL MATTING REPLACED (IF APPLICABLE), THE GRASS RESOWN AND MULCH REAPPLIED AND ANCHORED. IF EROSION PERSISTS, THE AREA SHALL BE EITHER LINED WITH SOD OR STABILIZED WITH ROCK RIPRAP AT THE DISCRETION OF THE ENGINEER/OWNER.

G6. MAINTENANCE OF ALL PERMANENT BEST MANAGEMENT PRACTICES BECOMES THE RESPONSIBILITY OF THE OWNER IN PERPETUITY UPON COMPLETION OF CONSTRUCTION AND ACCEPTANCE BY OWNER, SUBJECT TO THE TERMS OF THE WARRANTY PERIOD SPECIFIED IN THE CONTRACT DOCUMENTS.

G7. FINES AND RELATED COSTS RESULTING FROM THE CONTRACTOR'S FAILURE TO PROVIDE ADEQUATE PROTECTION AGAINST SOIL EROSION AND FOR ANY VIOLATIONS OF THE CLEAN STREAMS LAW AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER SHALL BE BORNE BY THE CONTRACTOR.

G8. THE INTENT OF THIS PLAN/NARRATIVE IS TO INDICATE GENERAL MEANS OF COMPLIANCE WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF CHAPTER 102, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (AS AUTHORIZED UNDER THE CLEAN STREAMS LAW). IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT THESE METHODS, PLUS ADDITIONAL METHODS, AS MAY BE NECESSARY BECAUSE OF CONDITIONS CREATED BY LOCALIZED SITE CONDITIONS AND/OR CONSTRUCTION PROCEDURES IN ORDER TO ASSURE COMPLIANCE WITH APPLICABLE LAW. IT WILL FURTHER BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION AND SEDIMENT CONTROL FACILITIES SO THAT THEY PERFORM AS REQUIRED BY APPLICABLE LAW.

EROSION CONTROL PLAN PREPARER INFORMATION:
NAME:_____JOSHUA P. HANES, P.E.
FIRM: _____GANNETT FLEMING, INC.
ADDRESS:_____P.O. BOX 67100
HARRISBURG, PA 17106-7100
PHONE NUMBER:____717-763-7212, EXT. 2828
QUALIFICATIONS: 12+ YEARS OF EXPERIENCE IN PREPARING EROSION CONTROL PLANS

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NO.	DESCRIPTION	DATE	BY
⚠1	RESPONSE TO RFI 1 AND PADEP PERMIT	10.7.20	JPH

REVISIONS

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TALEN ENERGY
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MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL NOTES

JOB NO.	SHEET NO.
66982	ESC3
DATE	DRAWING NO.
MAY 2020	20 OF 23

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Plot Date: 2/25/2021 10:30 AM, Plotted By: Hanes, Joshua P.

STAGING OF EARTHMOVING ACTIVITIES

THE INTENT OF THIS STAGING NARRATIVE IS TO DESCRIBE THE CRITICAL EARTHMOVING/CONSTRUCTION ACTIVITIES WHICH MUST OCCUR IN ORDER TO PROVIDE A COMPREHENSIVE PLAN FOR THE CONTROL OF SEDIMENT–LADEN RUNOFF FROM THE PROJECT AREA. THIS STAGING NARRATIVE IS NOT INTENDED TO DESCRIBE ALL THE WORK ACTIVITIES ASSOCIATED WITH THE PROPOSED CONSTRUCTION PROJECT.

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. UNLESS STATED OTHERWISE, EACH CONSTRUCTION STAGE SHALL BE COMPLETED AND ALL DISTURBED AREAS STABILIZED BEFORE ANY FOLLOWING STAGE IS INITIATED. DEMOLITION, CLEARING, GRUBBING AND TOPSOIL STRIPPING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

PRECONSTRUCTION ACTIVITIES

1. AT LEAST SEVEN (7) DAYS BEFORE STARTING EARTHMOVING AND DEMOLITION ACTIVITIES, THE CONTRACTOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE OWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION CONTROL PLAN PREPARER, AND THE COUNTY CONSERVATION DISTRICT(S) AND PADEP TO AN ONSITE PRE–CONSTRUCTION MEETING.
2. AT LEAST THREE (3) DAYS BEFORE STARTING EARTHMOVING AND DEMOLITION ACTIVITIES, ALL CONTRACTORS INVOLVED IN SAID ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM, INC. AT 1–800–242–1776 FOR BURIED UTILITIES LOCATION. THE CONTRACTOR SHALL COORDINATE THEIR WORK ACTIVITIES WITH THE UTILITY COMPANIES AND THE OWNER. PA ONE CALL 20202600515–000 HAS BEEN ASSIGNED TO THIS PROJECT.
3. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO DEVELOP A VEHICULAR/PEDESTRIAN SAFETY PLAN TO PREVENT VEHICULAR/PEDESTRIAN TRAFFIC FROM ENTERING THE WORK AREA. THE PLAN MAY INCLUDE SUCH THINGS AS SIGNS, BARRICADES, FENCING, TEMPORARY WALKWAYS, FLAGGING PERSONNEL, ETC.
4. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER WITH REGARDS TO WHERE THE CONTRACTOR'S STAGING/PARKING AREA(S) ARE TO BE LOCATED. STAGING AREAS NOT LOCATED ON EXISTING PAVEMENT SHALL BE STABILIZED WITH A 6" (MIN.) LAYER OF PENNDOT 2A AGGREGATE. REFER TO THE STAGING AREA DETAIL THIS SHEET.
5. SCHEDULE CONSTRUCTION SO AS TO MINIMIZE THE EXTENT AND DURATION OF DISTURBED GROUND SURFACES.
6. CLEARLY MARK AREAS WHICH ARE NOT TO BE DISTURBED BY FLAGS, SIGNS, FENCING, ETC. CLEARLY IDENTIFY THE LIMIT OF DISTURBANCE LINE IN THE FIELD.

STAGE 1: INSTALLATION OF INITIAL EROSION CONTROL FACILITIES

1. EARTH DISTURBANCE ASSOCIATED WITH THE STAGE 1 ACTIVITIES SHALL BE LIMITED TO ONLY THOSE AREAS ABSOLUTELY NEEDED TO INSTALL THE INITIAL EROSION CONTROL FACILITIES.
2. INSTALL ROCK CONSTRUCTION ENTRANCE(S) AND STAGING AREAS AT THE LOCATIONS SHOWN ON THE DRAWINGS. SHOULD THE CONTRACTOR CHOOSE TO RELOCATE OR ADD ADDITIONAL INGRESS/EGRESS LOCATIONS TO THE PROJECT AREA, THESE LOCATIONS SHALL ALSO BE EQUIPPED WITH ROCK CONSTRUCTION ENTRANCES AND STABILIZED ROUTES TO THE CONSTRUCTION AREA.
3. INSTALL PROTECTIVE FENCING AS SHOWN ON THE DRAWINGS AND AROUND ALL TREES AND FACILITIES WHICH ARE TO BE PROTECTED. FENCING IS TO BE LOCATED AT THE DRIP LINE OF THE TREE UNLESS DIRECTED OTHERWISE.
4. INSTALL COMPOST FILTER SOCK RUNS AS SHOWN ON THE DRAWINGS.
5. CONTRACTOR SHALL HAVE PUMPING EQUIPMENT AND A SUPPLY OF SEDIMENT FILTERING DEVICES FOR PUMPED WATER ONSITE AND IN WORKING ORDER FOR DEWATERING OPERATIONS.
6. ALL DISTURBED AREAS CREATED BY THE STAGE 1 ACTIVITIES SHALL BE IMMEDIATELY STABILIZED.

STAGE 2A: SUB–BASIN C OVERTOPPING SECTION WORK ACTIVITIES

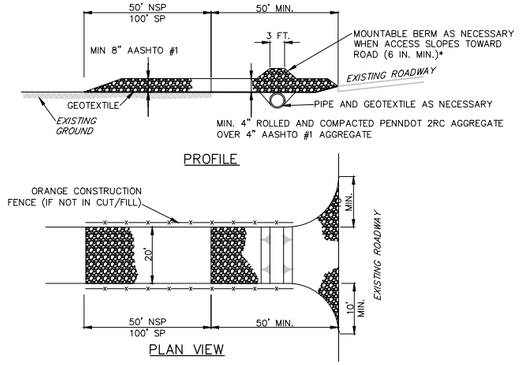
1. STAGE 2A ACTIVITIES MAY NOT OCCUR UNTIL THE STAGE 1 ACTIVITIES ARE COMPLETE AND ALL EROSION CONTROL FACILITIES ARE INSTALLED, STABILIZED, AND FUNCTIONAL.
2. EXCAVTE AND FIELD CONFIRM THE LOCATION AND DEPTH OF THE WATERLINE AND FRENCH DRAIN LOCATED ALONG THE TOE OF THE EMBANKMENT. ONCE EARTH DISTURBANCE ACTIVITIES BEGIN, ALL PUMPED WATER SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE, SUCH AS A PUMPED WATER FILTER BAG, BEFORE BEING DISCHARGED FROM THE SITE.
3. STRIP RIPRAP, FILTER BLANKET OR AND 6" OF TOPSOIL FROM THE WORK AREA AND STOCKPILE ON–SITE FOR FUTURE USE.
4. PERFORM EXCAVATION AND DEMOLITION ACTIVITIES FOR OVERTOPPING SECTION, AND ACB INSTALLATION. DISPOSE OF ALL MATERIAL IN A LAWFUL MANNER (REFER TO THE "FILL/DISPOSAL OF MATERIAL NOTES" ON SHEET ES3).
5. CONSTRUCT THE OVERTOPPING SECTION IMPROVEMENTS (I.E., ACB EMBANKMENT PROTECTION).
6. BRING ALL AREAS TO FINAL GRADE AND IMMEDIATELY APPLY PERMANENT STABILIZATION TO ALL DISTURBED AREAS.

STAGE 2B: SPLITTER DIKE WORK ACTIVITIES

1. STAGE 2B ACTIVITIES MAY NOT OCCUR UNTIL THE STAGE 1 ACTIVITIES ARE COMPLETE AND ALL EROSION CONTROL FACILITIES ARE INSTALLED, STABILIZED, AND FUNCTIONAL. THIS STAGE MAY OCCUR CONCURRENTLY WITH STAGE 2A.
2. DEWATER THE SUB–BASIN B AS NEEDED TO PERFORM THE CONSTRUCTION ACTIVITIES. ALL PUMPED WATER SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE, SUCH AS A PUMPED WATER FILTER BAG, BEFORE BEING DISCHARGED FROM THE SITE. STRIP RIPRAP FROM THE WORK AREA AND STOCKPILE ON–SITE FOR FUTURE USE.
3. PERFORM EXCAVATION AND DEMOLITION ACTIVITIES FOR THE SUB–BASIN B/C SPLITTER DIKE.
4. DISPOSE OF ALL MATERIAL IN A LAWFUL MANNER (REFER TO THE "FILL/DISPOSAL OF MATERIAL NOTES" ON SHEET ES3).
5. BRING ALL AREAS TO FINAL GRADE AND IMMEDIATELY APPLY PERMANENT STABILIZATION TO ALL REMAINING DISTURBED AREAS.

STAGE 3: CLEANUP ACTIVITIES

1. STAGE 3 ACTIVITIES MAY NOT OCCUR UNTIL THE STAGE 1 AND STAGE 2 ACTIVITIES ARE COMPLETED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED.
2. REMOVE ALL GRAVEL STAGING AREAS, AND ACCESS ROADS AND RESTORE THE AREA PER THE DETAIL ON THIS SHEET.
3. REMOVE ALL SEDIMENT DEPOSITS COLLECTED BEHIND THE INSTALLED EROSION CONTROL FILTERING DEVICES (I.E., FILTER SOCK, ROCK FILTER AND FILTERING DEVICES FOR PUMPED WATER) AND EITHER USE FOR ONSITE GRADING AND STABILIZE WITH SEED AND AN ANCHORED MULCH OR HAUL THIS MATERIAL OFFSITE TO A SPOIL AREA WITH AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN. IMMEDIATELY PROVIDE PERMANENT STABILIZATION TO ALL DISTURBED AREAS CREATED BY THIS ACTIVITY.
4. NOTIFY THE MONTOUR COUNTY CONSERVATION DISTRICT TO REQUEST A FINAL SITE INSPECTION. THE DISTRICT SHALL DETERMINE IF THE SITE IS STABILIZED AND IF THE TEMPORARY EROSION CONTROL MEASURES CAN BE REMOVED.
5. UPON PERMANENT STABILIZATION OF ALL CONTRIBUTING UPSTREAM AREAS, REMOVE ALL TEMPORARY EROSION CONTROL FACILITIES (I.E., FILTER SOCK, ROCK FILTER, FILTERING DEVICES FOR PUMPED WATER). IMMEDIATELY STABILIZE ALL DISTURBED AREAS CREATED BY THIS ACTIVITY.
6. ONCE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE HAS CEASED, REMOVE ALL REMAINING STAGING/STOCKPILE AREAS AND THE ROCK CONSTRUCTION ENTRANCE(S). IMMEDIATELY APPLY PERMANENT STABILIZATION TO ANY DISTURBED AREAS CREATED BY THIS ACTIVITY.



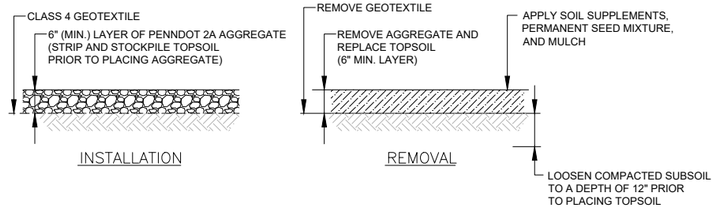
* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

ROCK CONSTRUCTION ENTRANCE NOTES:

1. ROCK CONSTRUCTION ENTRANCE(S) SHALL BE PLACED AT THE LOCATIONS SHOWN ON THE PLAN AND CONSTRUCTED TO THE MINIMUM DIMENSIONS AS SHOWN ON THE DETAIL.
2. REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE. AT LOCATIONS WHERE ROCK CONSTRUCTION ENTRANCES ARE LOCATED OVER EXISTING PAVEMENT, THE PAVEMENT SHALL BE REMOVED UNDER THE FOOTPRINT OF THE FACILITY PRIOR TO INSTALLING SAID CONSTRUCTION ENTRANCE.
3. RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.
4. MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.
5. THE ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSION BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ONSITE FOR THIS PURPOSE. PROVIDE MOUNTABLE BERM AS NEEDED TO PROVIDE ADEQUATE COVER OVER DRAINAGE PIPE.
6. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. REMOVAL SHALL BE COMPLETED THROUGH THE USE OF MECHANICAL OR HAND TOOLS. WASHING OF THE ROADWAY WITH WATER OR SWEEPING THE DEPOSITS INTO ROADWAY DRAINAGE FACILITIES IS NOT PERMITTED.
7. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON THE PUBLIC ROADWAY, EXTEND THE LENGTH OF THE ROCK CONSTRUCTION ENTRANCE IN 50-FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASH RACK SHALL MATCH THE TOTAL WIDTH OF THE ENTRANCE AND SHALL BE AT LEAST 6-FEET IN LENGTH. WASH RACK SHALL BE CONSTRUCTED OF REINFORCED CONCRETE OR WELDED STEEL PIPE AND DESIGNED TO ACCOMMODATE THE ANTICIPATED TRAFFIC LOADING. WASH RACK SHALL COMPLY WITH STANDARD CONSTRUCTION DETAIL NO. 3-2 OF THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, MARCH 2012.
8. STABILIZE ALL DISTURBED AREAS CREATED BY THE REPAIR / REMOVAL OF THE ROCK CONSTRUCTION ENTRANCE(S) WITH SEED AND MULCH, GRAVEL OR WITH PAVEMENT AS INDICATED ON THE DRAWINGS.



TEMPORARY GRAVEL CONTRACTOR STAGING AREA

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DRAWN	CHECKED	APPROVED
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Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

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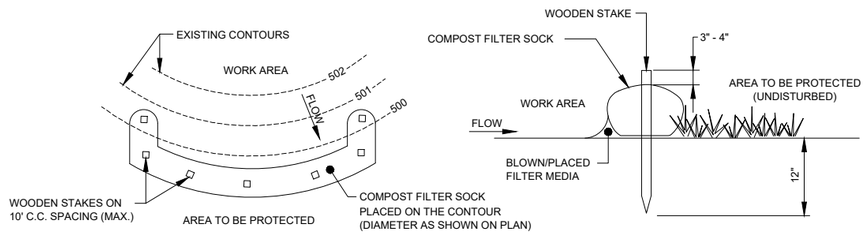
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SOILS LEGEND

SOIL SERIES	MAP SYMBOL	DESCRIPTION	ENGINEERING CLASSIFICATION UNIFIED	ENGINEERING CLASSIFICATION AASHTO	DEPTH TO WATER TABLE	PLASTICITY INDEX	SOIL REACTION (Ph)	LIQUID LIMIT (%)	AVAILABLE WATER CAPACITY (IN/IN)	SUITABILITY AS A SOURCE OF... TOPSOIL	SAND & GRAVEL	ROAD FILL	SOIL FEATURES AFFECTING ENGINEERING PRACTICES FOR... ROADWAYS	LAWNS	POND STORAGE AREAS	POND EMBANKMENTS	DWELLING UNITS	POTENTIAL FROST ACTION	HYDROLOGIC SOIL GROUP
ALVIRA	ArA	ALVIRA SILT LOAM, 0 TO 3 % SLOPES	CL-ML	A-4	12"±	9	4.6	29	0.18	FAIR	POOR	FAIR	MODERATELY SUITED WETNESS	SOMEWHAT LIMITED DEPTH TO SAT. ZONE	SOMEWHAT LIMITED SEEPAGE	VERY LIMITED DEPTH TO SATURATED ZONE	VERY LIMITED DEPTH TO SATURATED ZONE	HIGH	D
MONONGAHELA	MoA	MONONGAHELA SILT LOAM, 0 TO 3 % SLOPES	CL-ML	A-4	23"±	5.5	5	27.5	0.21	FAIR	POOR	FAIR	MODERATELY SUITED LOW STRENGTH	SOMEWHAT LIMITED LOW EXCHANGE CAP.	SOMEWHAT LIMITED SEEPAGE	VERY LIMITED DEPTH TO SATURATED ZONE	VERY LIMITED DEPTH TO SATURATED ZONE	MODERATE	C/D
WATSON	WbA	WATSON SILT LOAM, 0 TO 3 % SLOPES	CL-ML	A-4	26"±	12	5	33	0.16	FAIR	POOR	POOR	MODERATELY SUITED LOW STRENGTH	SOMEWHAT LIMITED LOW EXCHANGE CAP.	SOMEWHAT LIMITED DEPTH TO CEMENTED PAN	SOMEWHAT LIMITED DEPTH TO SATURATED ZONE	VERY LIMITED DEPTH TO SATURATED ZONE	MODERATE	C

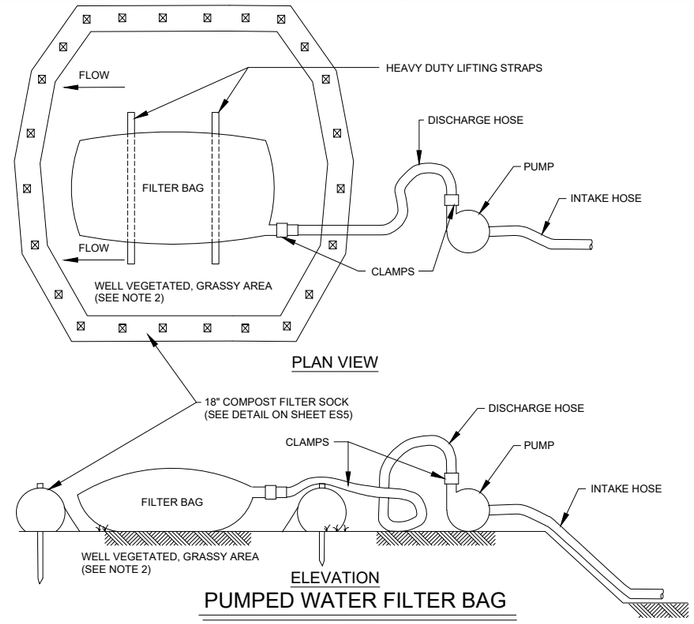
SOURCE: NRCS WEB SOIL SURVEY.



PLAN VIEW SECTIONAL ELEVATION

COMPOST FILTER SOCK DETAIL

NOT TO SCALE



PLAN VIEW

ELEVATION

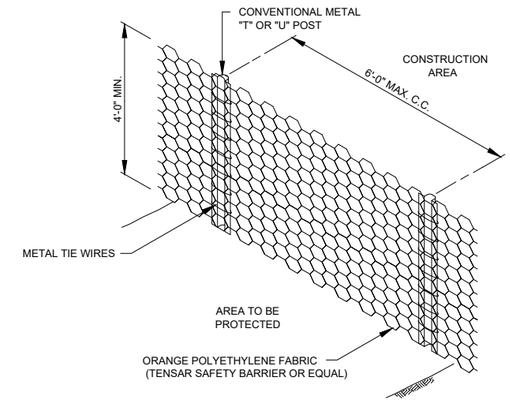
PUMPED WATER FILTER BAG

NOT TO SCALE

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

PUMPED WATER FILTER BAG NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING OPERATIONS, INCLUDING THE SELECTION, SIZING, AND OPERATION OF THE FILTERING DEVICE. IF CLAY SOILS ARE PRESENT, THE ADDITION OF A FLOCCULANT MAY BE NECESSARY TO EFFECTIVELY TREAT THE PUMPED WATER AND PREVENT OFFSITE SEDIMENTATION. THE CONTRACTOR SHALL CONSIDER THE ONSITE SOILS AND INCLUDE FILTERING MEASURES IN HIS BASE BID THAT WILL EFFECTIVELY TREAT THE PUMPED WATER. IF A PUMPED WATER FILTER BAG IS UTILIZED, IMPLEMENT SAID DEVICE IN COMBINATION WITH A SUMP PIT AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE INFORMATION PROVIDED WITHIN THE CONTRACT DOCUMENTS.
2. CONTRACTOR SHALL VERIFY LOCATION OF FACILITY WITH ENGINEER PRIOR TO CONSTRUCTION OF SAID FACILITY. FACILITY SHALL BE PLACED AT A LOCATION WHERE THE FILTERED OUTFLOW WILL NOT INTERFERE WITH ONGOING CONSTRUCTION ACTIVITIES OR CAUSE FLOODING OR EROSION PROBLEMS. FILTER BAGS SHALL DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOMEMBRANE-LINED FLOW PATH SHALL BE PROVIDED TO CONVEY FLOW TO A WELL VEGETATED AREA OR NATURAL WATERWAY IN A MANNER THAT WILL NOT RESULT IN EROSION.
3. THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ONE HALF THE MAXIMUM RATE SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMPED INTAKES SHALL BE FLOATING AND SCREENED.
4. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME HALF FULL. A SUPPLY OF SPARE FILTER BAGS SHALL BE KEPT AVAILABLE ONSITE FOR REPLACEMENT OF THOSE BAGS WHICH HAVE BEEN USED OR WHICH HAVE FAILED.
5. SEDIMENT COLLECTED FROM THE DEVICE SHALL BE REMOVED AND USED FOR ONSITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH.
6. REMOVE FACILITY WHEN NO LONGER NEEDED. REMOVE ALL MATERIALS AND UNSTABLE SEDIMENT AND EITHER SALVAGE OR DISPOSE OF PROPERLY. IMMEDIATELY STABILIZE ALL DISTURBED AREAS CREATED BY THE INSTALLATION, USE, AND REMOVAL OF THIS FACILITY.
7. FILTER BAGS SHALL BE INSPECTED DAILY. IF A PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.
8. FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.
9. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED SO AS TO PREVENT LEAKAGE FROM THIS CONNECTION POINT.
10. A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES MUST BE PROVIDED.
11. ALL PUMPING OF WATER FROM THE WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER VEGETATED AREAS.



PROTECTIVE FENCE

NOT TO SCALE

PROTECTIVE FENCE NOTES:

1. LOCATE PROTECTIVE FENCE AS SHOWN ON THE DRAWINGS AND/OR AS DIRECTED BY THE OWNER. AT A MINIMUM, THE PROTECTIVE FENCING AROUND EXISTING TREES SHOULD BE LOCATED OUTSIDE OF THE DRIP LINE OF TREE TO BE RETAINED AND, IN NO CASE, CLOSER THAN FIVE (5) FEET TO THE TRUNK OF ANY TREE. NO CLEARING OR GRUBBING ACTIVITIES ARE PERMITTED WITHIN THIS RADIUS.
2. FENCING TO BE USED SHALL BE 48-INCH-HIGH "INTERNATIONAL ORANGE" PLASTIC (POLYETHYLENE) WEB FENCING SECURED TO CONVENTIONAL METAL "T" OR "U" POSTS DRIVEN TO A MINIMUM DEPTH OF 18 INCHES ON SIX-FOOT-MAXIMUM CENTERS.
3. THE FENCE SHALL HAVE THE FOLLOWING PROPERTIES:

   TENSILE YIELD: AVG. 2,000 LBS PER 4-FOOT WIDTH
   ULTIMATE TENSILE YIELD: AVG. 2,900 LBS PER 4-FOOT WIDTH
   ELONGATION AT BREAK (%): GREATER THAN 1,000%
   CHEMICAL RESISTANCE: INERT TO MOST CHEMICALS AND ACIDS
4. PROTECTIVE FENCING SHALL BE IN PLACE BEFORE ANY GRADING ACTIVITIES BEGIN AND IS TO BE KEPT IN GOOD REPAIR FOR THE DURATION OF THE CONSTRUCTION ACTIVITIES.

   REMOVE FENCING MATERIALS ONLY AFTER CONSTRUCTION ACTIVITY HAS CEASED ON THE SITE.

SUMMARY OF INSPECTION AND MAINTENANCE REQUIREMENTS FOR EROSION CONTROL FACILITIES

FACILITY TYPE	INSPECTION INTERVAL	KEY MAINTENANCE REQUIREMENTS
ROCK CONSTRUCTION ENTRANCE	SEE NOTES 2B AND 2C	MAINTAIN SPECIFIED ROCK THICKNESS CLEAN OR REPLACE ROCK IF FACILITY IS NOT PERFORMING AS INTENDED REMOVE SEDIMENT DEPOSITS TRACKED ONTO PUBLIC ROADWAYS
FILTER SOCK (OR SILT FENCE)	SEE NOTES 2A AND 2C	REMOVE COLLECTED SEDIMENT DEPOSITS WHEN ACCUMULATIONS REACH 1/2 HEIGHT OF FILTER SOCK REPAIR FILTER SOCK THAT HAS BEEN UNDERMINED OR OVERTOPPED AND ADD SECOND FILTER SOCK RUN
TEMPORARY PROTECTIVE FENCE	SEE NOTE 2A	REINSTALL FENCE WHICH HAS BEEN DISLODGED OR REMOVED REPLACE DAMAGED FENCE/POSTS WITH NEW FENCE/POSTS
DEWATERING FACILITIES (PUMPS, FILTER BAGS)	SEE NOTE 2B	REPAIR DEWATERING PUMPS AS NEEDED KEEP SPARE DEWATERING PUMPS, HOSES, ETC. ONSITE REPLACE FILTER BAGS ONCE THEY BECOME HALF FULL
TURBIDITY BARRIER	SEE NOTES 2A AND 2C	REPLACE DAMAGED PORTIONS OF THE BARRIER WITH NEW BARRIER REPAIR LOCATIONS WHERE BARRIER IS ANCHORED AS NEEDED TO KEEP THE BARRIER FUNCTIONAL
TEMPORARY/PERMANENT VEGETATION	SEE NOTES 2A AND 2C	TOPSOIL, RESEED, APPLY SOIL SUPPLEMENTS AND MULCH BARE AREAS AND AREAS WHICH HAVE BEEN ERODED PROBLEM AREAS SHALL BE STABILIZED WITH SOD OR RIPRAP.
ROCK RIPRAP	SEE NOTES 2A AND 2C	REPLACE RIPRAP WHICH HAS BEEN DISLODGED AS NEEDED TO MAINTAIN THE DESIGN ROCK THICKNESS

NOTES:

1. KEY MAINTENANCE REQUIREMENTS REPRESENT THE MOST COMMON MAINTENANCE ACTIVITIES REQUIRED FOR EACH FACILITY. ADDITIONAL MAINTENANCE SHALL BE PROVIDED AS NEEDED TO KEEP EACH FACILITY FUNCTIONAL AT NO ADDITIONAL COST TO THE OWNER.
2. INSPECTION INTERVAL LEGEND
   A = INSPECT ON A WEEKLY BASIS
   B = INSPECT ON A DAILY BASIS
   C = INSPECT AFTER EACH RAINFALL EVENT
3. REPAIRS TO EROSION CONTROL BMP'S SHALL BE PERFORMED IMMEDIATELY.

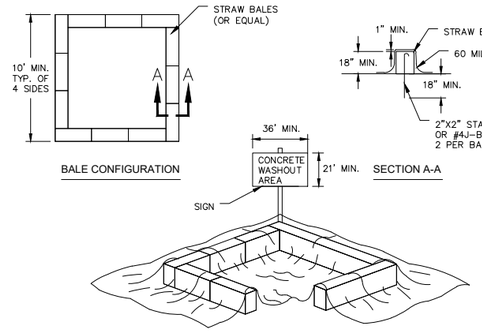
RESOLUTIONS FOR SOIL LIMITATIONS

HIGH WATER TABLE: CONTRACTOR SHALL DEWATER EXCAVATIONS BY PUMPING TO A PUMPED WATER FILTER BAG OR OTHER APPROVED FILTERING DEVICE. CONTRACTOR SHALL PROVIDE SUFFICIENT NUMBER OF PUMPS AND FILTER BAGS TO KEEP EXCAVATIONS DRY AND PREVENT OFFSITE EROSION AND SEDIMENTATION.

SHALLOW BEDROCK: CONTRACTOR SHALL RIP BEDROCK AS NEEDED TO BRING AREAS TO FINAL GRADE. ALL AREAS TO HAVE PERMANENT VEGETATIVE STABILIZATION SHALL BE OVER-EXCAVATED TO ACCOUNT FOR TOPSOIL PLACEMENT. REFER TO THE CONTRACT DOCUMENTS REGARDING BLASTING REQUIREMENTS.

EMBANKMENT STABILITY: STRUCTURAL EMBANKMENTS (TEMPORARY AND PERMANENT) SHALL BE PLACED IN LIFTS AND COMPACTED AS REQUIRED BY THE GEOTECHNICAL ENGINEER. FILL SLOPES EXCEEDING 10 FEET IN HEIGHT SHALL BE PERMANENTLY STABILIZED AT REGULAR VERTICAL INCREMENTS OF 10 FEET (MAXIMUM) AS EACH FILL AREA IS BEING CONSTRUCTED.

LOW SOIL PH: IN THE ABSENCE OF SOIL TEST RESULTS, THE CONTRACTOR SHALL PROVIDE LIME AT THE FOLLOWING RATES TO PROMOTE VEGETATIVE GROWTH:
TEMPORARY SEEDING: ONE (1) TON PER ACRE
PERMANENT SEEDING: SIX (6) TONS PER ACRE



BALE CONFIGURATION SECTION A-A

CONCRETE WASHOUT DETAIL

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Gannett Fleming

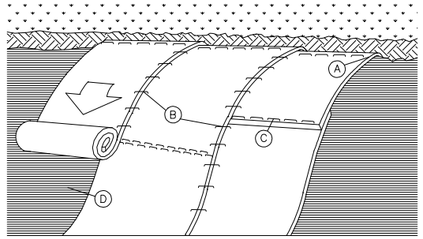
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MAY 2020	22 OF 23

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Plot Date: 20/2020 3:53 PM Plotted By: Lee Schaffer



STARTING AT TOP OF SLOPE, ROLL BLANKETS IN DIRECTION OF WATER FLOW

PREPARE SEED BED (INCLUDING APPLICATION OF LIME, FERTILIZER, & SEED) PRIOR TO INSTALLATION OF BLANKET.

REFER TO MANUFACTURER'S RECOMMENDED STAPLING PATTERN FOR STEEPNESS AND LENGTH OF SLOPE BEING BLANKETED.

INSTALL BEGINNING OF ROLL IN 6"X6" ANCHOR TRENCH, STAPLE, BACKFILL AND COMPACT SOIL.

BLANKET EDGES OVERLAPPED 4" (MIN.) AND STAPLED

OVERLAP BLANKET ENDS 6" (MIN.) WITH THE UPSLOPE BLANKET OVERLYING THE DOWNSLOPE BLANKET (SHINGLE STYLE). STAPLE SECURELY.

THE BLANKET SHOULD NOT BE STRETCHED; IT MUST MAINTAIN GOOD SOIL CONTACT

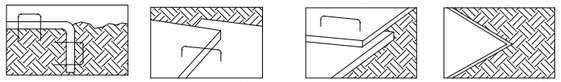


DIAGRAM (A) DIAGRAM (B) DIAGRAM (C) DIAGRAM (D)

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

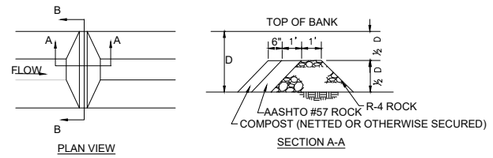
BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

EROSION CONTROL BLANKET INSTALLATION DETAIL

NOT TO SCALE



FOR 3' ≤ D USE R-4
FOR 2' ≤ D < 3' USE R-3
NOT APPLICABLE FOR D < 2'

ROCK FILTER NUMBER	LOCATION	D (FT)	RIPRAP SIZE
1	ADJACENT TO ACB OVERTOPPING SECTION	2	R-3

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTER.

IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, INSTALLER SHALL REMOVE ACCUMULATED SEDIMENT AND STABILIZE DISTURBED AREAS.

ROCK FILTER

NOT TO SCALE

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NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

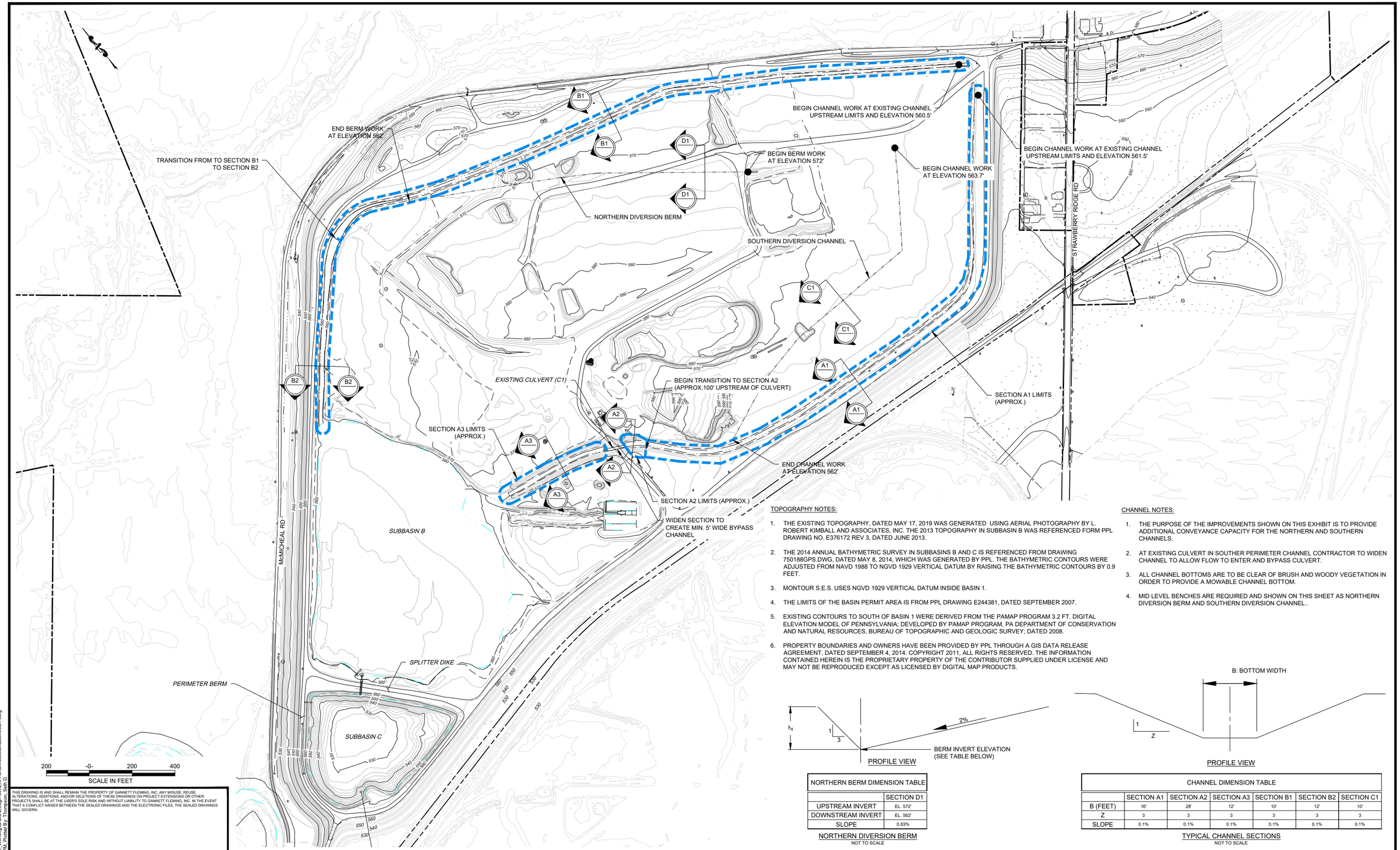
TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL DETAILS

JOB NO.	SHEET NO.
66982	ESC6
DATE	DRAWING NO.
MAY 2020	23 OF 23

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PLOT Date: 20/2021 8:13 AM Printed by: Lucas Kelly



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TOPOGRAPHY NOTES:

1. THE EXISTING TOPOGRAPHY, DATED MAY 17, 2019 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FORM PPL DRAWING NO. E376172 REV 3, DATED JUNE 2013.
2. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS.DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
3. MONTOUR S.E.S. USES NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
4. THE LIMITS OF THE BASIN PERMIT AREA IS FROM PPL DRAWING E244381, DATED SEPTEMBER 2007.
5. EXISTING CONTOURS TO SOUTH OF BASIN 1 WERE DERIVED FROM THE PAMAP PROGRAM 3.2 FT. DIGITAL ELEVATION MODEL OF PENNSYLVANIA; DEVELOPED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY; DATED 2008.
6. PROPERTY BOUNDARIES AND OWNERS HAVE BEEN PROVIDED BY PPL THROUGH A GIS DATA RELEASE AGREEMENT, DATED SEPTEMBER 4, 2014. COPYRIGHT 2011, ALL RIGHTS RESERVED. THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF THE CONTRIBUTOR SUPPLIED UNDER LICENSE AND MAY NOT BE REPRODUCED EXCEPT AS LICENSED BY DIGITAL MAP PRODUCTS.

CHANNEL NOTES:

1. THE PURPOSE OF THE IMPROVEMENTS SHOWN ON THIS EXHIBIT IS TO PROVIDE ADDITIONAL CONVEYANCE CAPACITY FOR THE NORTHERN AND SOUTHERN CHANNELS.
2. AT EXISTING CULVERT IN SOUTHER PERIMETER CHANNEL CONTRACTOR TO WIDEN CHANNEL TO ALLOW FLOW TO ENTER AND BYPASS CULVERT.
3. ALL CHANNEL BOTTOMS ARE TO BE CLEAR OF BRUSH AND WOODY VEGETATION IN ORDER TO PROVIDE A MOWABLE CHANNEL BOTTOM.
4. MID LEVEL BENCHES ARE REQUIRED AND SHOWN ON THIS SHEET AS NORTHERN DIVERSION BERM AND SOUTHERN DIVERSION CHANNEL..

PROFILE VIEW

NORTHERN BERM DIMENSION TABLE	
	SECTION D1
UPSTREAM INVERT	EL. 572'
DOWNSTREAM INVERT	EL. 562'
SLOPE	0.63%

NORTHERN DIVERSION BERM
NOT TO SCALE

PROFILE VIEW

CHANNEL DIMENSION TABLE						
	SECTION A1	SECTION A2	SECTION A3	SECTION B1	SECTION B2	SECTION C1
B (FEET)	16'	28'	12'	10'	12'	10'
Z	3	3	3	3	3	3
SLOPE	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

TYPICAL CHANNEL SECTIONS
NOT TO SCALE

NO.	DESCRIPTION	DATE	BY
REVISIONS			

DESIGNED	CADD	SCALE
JPH		AS SHOWN
DRAWN	CHECKED	APPROVED
JPH		

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

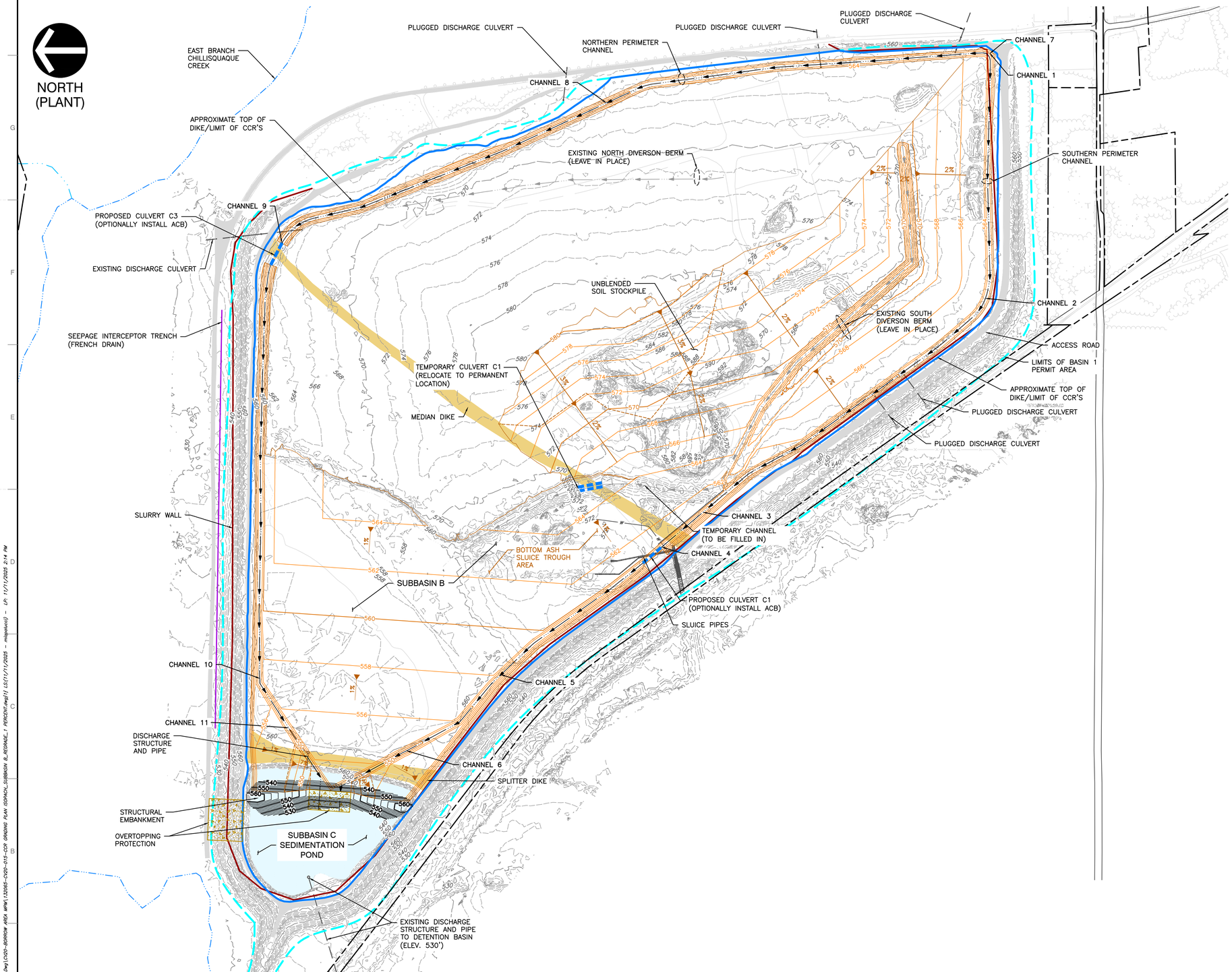
MONTOUR ASH BASIN NO.1

CHANNEL MODIFICATION EXHIBIT

JOB NO.	SHEET NO.
66982	EXH-1
DATE	DRAWING NO.
MAY 2020	1 OF 1

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Plotted: 4/29/2020 - 2:32 PM, Plotted By: Jonathan Hall (LD)

ASH BASIN NO. 1 CLOSURE GRADING PLAN



REVISION RECORD		
NO	DATE	DESCRIPTION
1		
2		
3		
4		
5		

SUBMITTAL RECORD		
NO	DATE	DESCRIPTION

LEGEND

- TALEN PROPERTY LINE
- LIMITS OF BASIN 1 PERMIT AREA
- APPROXIMATE TOP OF DIKE/LIMIT OF CCR
- SLURRY WALL
- SEEPAGE INTERCEPTOR TRENCH (FRENCH DRAIN)
- 570 EXISTING CONTOUR
- **570** PROPOSED STRUCTURAL EMBANKMENT CONTOUR
- 570 PROPOSED CCR CONTOUR
- EXISTING BASIN 1 ACCESS ROAD
- EXISTING BASIN 1 DISCHARGE CULVERT
- PROPOSED CULVERT
- SURFACE WATER CHANNEL / DIVERSION BERM

NOTES

1. THIS CCR GRADING PLAN IS BASED ON ANTICIPATED CCR VOLUMES WITH THE CURRENT TIMELINES FOR CLOSURE. THE CCR GRADING PLAN MAY BE REVISED BASED ON THE AMOUNT OF CCR GENERATED, BUT WILL NOT HAVE SLOPES LESS THAN 1 PERCENT AND WILL NOT EXCEED THE PERMITTED 3 PERCENT GRADES INCLUDED IN THE 2015 MPM.

REFERENCE

1. THE EXISTING CONDITIONS TOPOGRAPHY IN BASIN NO. 1 PROVIDED BY BORTON-LAWSON USING CONTOURS GENERATED FROM AN UAS ON APRIL 4, 2024. THE TOPOGRAPHY IS PROVIDED IN PLANT HORIZONTAL COORDINATES AND VERTICAL DATUM. THE EXISTING CONDITIONS OUTSIDE OF THESE AREAS IS FROM THE PAMAP PROGRAM LIDAR DATA AT 2-FEET INTERVALS DATED 2006 AND 2008.
2. THE LIMITS OF THE BASIN NO. 1 PERMIT AREA IS FROM PPL DRAWING E244381, DATED 9/2007. THE APPROXIMATE TOP OF DIKE/LIMIT OF CCR SHOWN IS AN ESTIMATED LOCATION.

SCALE IN FEET
0 300 600

Civil & Environmental Consultants, Inc.
700 Cherrington Parkway
Moon Township, PA 15108
Ph: 412.429.2324 · 800.365.2324
www.cecinc.com

ENGINEERING, SURVEYING AND LANDSCAPE ARCHITECTURE IN THE STATE OF NORTH CAROLINA WILL BE PROVIDED BY CEC SURVEYING AND LANDSCAPE ARCHITECTS OF NC, PLLC. SERVICES IN PUERTO RICO WILL BE PROVIDED BY CEC ENGINEERS & CONSULTANTS, LLC. LANDSCAPE ARCHITECTURE SERVICES IN THE STATE OF OHIO WILL BE PROVIDED BY CEC LANDSCAPE ARCHITECTS, LLC.

MONTOUR, LLC
ASH BASIN NO. 1
MONTOUR COUNTY, PA

DRAWN BY:	MJI	CHECKED BY:	AMR	APPROVED BY:	RJB *
DATE:	JULY 2025	DWG SCALE:	AS SHOWN	PROJECT NO:	132-065

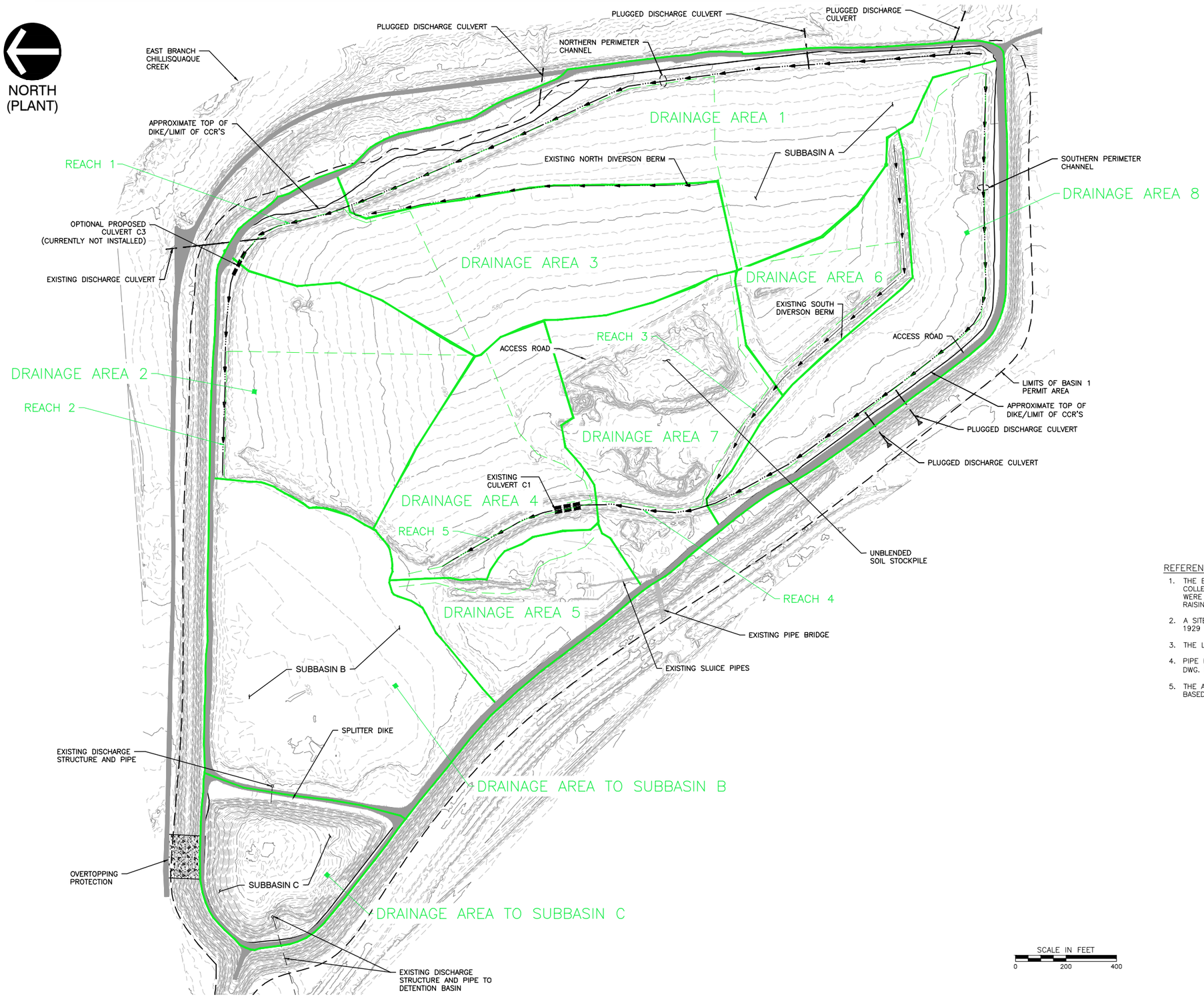
BASIN NO. 1 CCR GRADING PLAN

DRAWING NO.: 1

A:\2013\132-065\-CAD\Dwg\CV20-BOHOM AREA WPW\132065-CV20-015-CCR GRADING PLAN OSPHAZU_SUBBASIN B_REGRADE_1 PERCENT.dwg[1] LS(1/1/2025 - mkpalucci) - LP: 11/1/2025 2:14 PM

PRE- AND FINAL CLOSURE DRAINAGE PLANS

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LEGEND

- LIMITS OF BASIN 1 PERMIT AREA
- APPROXIMATE TOP OF DIKE/LIMIT OF CCR
- 570 EXISTING CONTOUR
- EXISTING BASIN 1 DISCHARGE CULVERT
- EXISTING SLUICE PIPING
- EXISTING BASIN 1 ACCESS ROAD
- CULVERT
- DRAINAGE AREA
- TIME OF CONCENTRATION PATH
- CHANNEL / BERM

REFERENCE

1. THE EXISTING TOPOGRAPHY AND BATHYMETRY IN SUBBASINS B AND C WAS COLLECTED IN 2025 BY MONTOUR SURVEYING, LLC. THE ELEVATION CONTOURS WERE ADJUSTED FROM NAVD 1988 TO THE NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
2. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES A NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
3. THE LIMITS OF THE PERMIT AREA IS FROM PPL DRAWING E244381, DATED 9/2007.
4. PIPE BRIDGE AND SLUICE PIPE LOCATIONS WERE TAKEN FROM PPL MONTOUR, LLC DWG. NO. D324541 SHEET 1 OF 3, DATED 9/19/08.
5. THE APPROXIMATE TOP OF DIKE/LIMIT OF CCR'S SHOWN IS AN ESTIMATED LOCATION BASED ON REFERENCES FROM PPL DRAWINGS.

SCALE IN FEET
0 200 400

GANNETT FLEMING

ACCT–
SCALE–AS SHOWN
BY–GANNETT FLEMING
REVIEWED

MONTOUR STEAM ELECTRIC STATION
ASH BASIN NO. 1

EXISTING CONDITION DRAINAGE AREA MAP

APPROVED ---
DATE OCT 2025
TALEN ENERGY

DRAWING NO.
SHEET NO.
REV. 0

REFERENCE TITLE	NUMBER	REFERENCE TITLE	NUMBER

NO.	DATE	ACCT.	REVISION	BY	REVIEWED	APPROVED

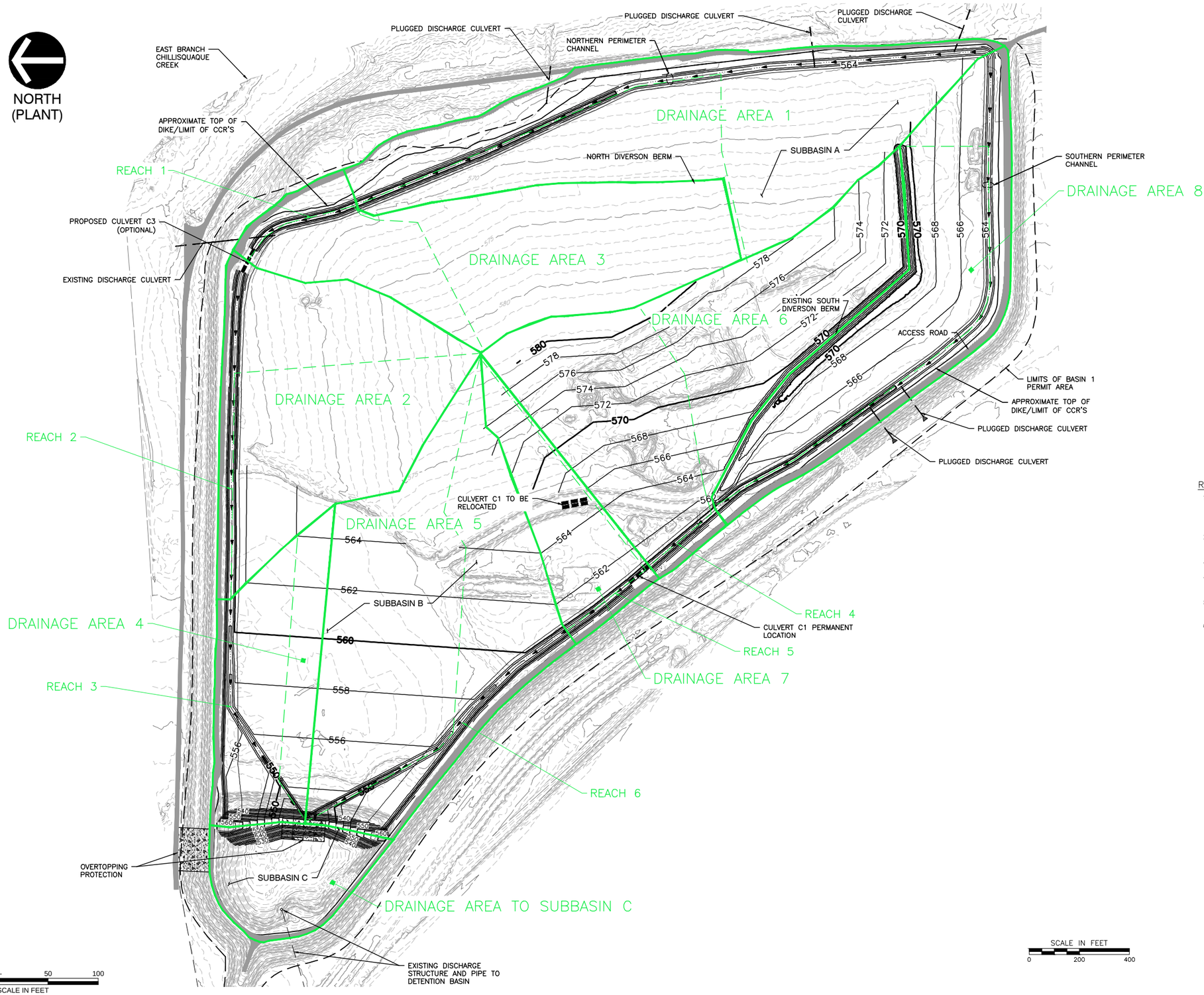
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FRACTIONAL 0 1 2 DECIMAL 0 1 2

ExPlan.dwg

PC CAD

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LEGEND

- LIMITS OF BASIN 1 PERMIT AREA
- APPROXIMATE TOP OF DIKE/LIMIT OF CCR
- 570 EXISTING CONTOUR
- EXISTING BASIN 1 DISCHARGE CULVERT
- EXISTING SLUICE PIPING
- EXISTING BASIN 1 ACCESS ROAD
- 556 PROPOSED CONTOUR
- CULVERT
- DRAINAGE AREA
- TIME OF CONCENTRATION PATH
- CHANNEL / BERM

REFERENCE

1. THE EXISTING TOPOGRAPHY AND BATHYMETRY IN SUBBASINS B AND C WAS COLLECTED IN 2025 BY MONTOUR SURVEYING, LLC. THE ELEVATION CONTOURS WERE ADJUSTED FROM NAVD 1988 TO THE NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
2. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES A NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
3. THE LIMITS OF THE PERMIT AREA IS FROM PPL DRAWING E244381, DATED 9/2007.
4. PIPE BRIDGE AND SLUICE PIPE LOCATIONS WERE TAKEN FROM PPL MONTOUR, LLC DWG. NO. D324541 SHEET 1 OF 3, DATED 9/19/08.
5. THE APPROXIMATE TOP OF DIKE/LIMIT OF CCR'S SHOWN IS AN ESTIMATED LOCATION BASED ON REFERENCES FROM PPL DRAWINGS.
6. PROPOSED ELEVATION CONTOURS ARE REFERENCED FROM DRAWING D5056396 BASIN NO. 1 CCR GRADING PLAN BY CEC INC. DATED APRIL 2024.

SCALE IN FEET
0 200 400

GANNETT FLEMING

ACCT–
SCALE–**AS SHOWN**
BY–**GANNETT FLEMING**
REVIEWED

MONTOUR STEAM ELECTRIC STATION
ASH BASIN NO. 1

POST–CLOSURE DRAINAGE AREA MAP

APPROVED ---
DATE **OCT 2025**
TALEN ENERGY

DRAWING NO.
SHEET NO.
REV. 0

REFERENCE TITLE	NUMBER	REFERENCE TITLE	NUMBER

NO.	DATE	ACCT.	REVISION	BY	REVIEWED	APPROVED

0 1 2 FRACTIONAL 2 1 0 DECIMAL

Oct. 24, 2025 - 10:09 AM

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PC CAD

APPENDIX B

HYDROLOGY

PADEP PMP DEPTH AND TEMPORAL DISTRIBUTION

STORM SPECIFIC DISTRIBUTION								2 HR Synth	
3 HR		6 HR		12 HR		24 HR			
1547_1		1406_1		1406_1		1406_1			
MIN	INC	MIN	INC	MIN	INC	MIN	INC	MIN	INC
0	0.000	0	0.000	0	0.000	0	0.000	*0*	0.000
60	1.565	60	5.537	60	0.258	60	0.021	*5*	0.128
120	10.431	120	3.178	120	0.246	120	0.255	*10*	0.128
180	1.565	180	0.758	180	0.193	180	0.281	*15*	0.128
240	0.000	240	0.779	240	0.320	240	0.034	*20*	0.128
300	0.000	300	2.041	300	5.491	300	0.046	*25*	0.128
360	0.000	360	8.528	360	3.152	360	0.060	*30*	0.128
420	0.000	420	0.000	420	0.751	420	0.258	*35*	0.645
480	0.000	480	0.000	480	0.772	480	0.246	*40*	0.697
540	0.000	540	0.000	540	2.024	540	0.193	*45*	0.764
600	0.000	600	0.000	600	8.458	600	0.320	*50*	0.943
660	0.000	660	0.000	660	0.905	660	5.491	*55*	1.332
720	0.000	720	0.000	720	0.149	720	3.151	*60*	1.633
780	0.000	780	0.000	780	0.000	780	0.751	*65*	1.105
840	0.000	840	0.000	840	0.000	840	0.772	*70*	0.833
900	0.000	900	0.000	900	0.000	900	2.024	*75*	0.723
960	0.000	960	0.000	960	0.000	960	8.457	*80*	0.676
1020	0.000	1020	0.000	1020	0.000	1020	0.905	*85*	0.595
1080	0.000	1080	0.000	1080	0.000	1080	0.149	*90*	0.514
1140	0.000	1140	0.000	1140	0.000	1140	0.024	*95*	0.128
1200	0.000	1200	0.000	1200	0.000	1200	0.006	*100*	0.128
1260	0.000	1260	0.000	1260	0.000	1260	0.000	*105*	0.128
1320	0.000	1320	0.000	1320	0.000	1320	0.000	*110*	0.128
1380	0.000	1380	0.000	1380	0.000	1380	0.015	*115*	0.128
1440	0.000	1440	0.000	1440	0.000	1440	0.001	*120*	0.128

Input the rainfall data for the Local, Tropical, and General Storm directly from the PMP tool.
This data is available on the PMP_Basin_Average.csv file
which is located in the CSV_ folder for the analyzed watershed.

	1 HR	2 HR	3 HR	4 HR	5 HR	6 HR	12 HR	24 HR
Local	10.46	12	13.56	14.76	16.06	20.82	22.72	23.46
Tropical								
General								

The green highlighted values in the table above are the controlling PMP values for the specified durations.
The Yellow highlighted Storm type below is the controlling storm for the specific duration.
- Use GIS program to view PMP_Points for your watershed to determine the controlling storm at each duration.
- If Local controls at all durations, only the Local_PMP_Points will need to be used.
- If other storms (General, Tropical) control at certain durations, make sure to use the correct PMP_Points file.
- If multiple storms control at a specific duration, i.e. more than one Local storm, try all distributions and choose the most conservative answer.
Select the appropriate storm from the red highlighted dropdown for each duration.

3 HR	
Local	1547_1

6 HR	
Local	1406_1

12 HR	
Local	1406_1

24 HR	
Local	1406_1

The storm specific distributions for use in HEC-HMS or other
hydraulic routing programs will be available to the right.
The rainfall distributions are given in 1-hour increments.
A 5-minute timestep should be used in the hydraulic routing program to capture the peak of the storm.

Input the rainfall data for the Local, Tropical, and General Storm directly from the PMP tool.
This data is available on the PMP_Basin_Average.csv file
which is located in the CSV_ folder for the analyzed watershed.

	1 HR	2 HR	3 HR	4 HR	5 HR	6 HR	12 HR	24 HR
Local	10.46	12	13.56	14.76	16.06	20.82	22.72	23.46
Tropical	9.3	9.3	10.6	11.7	13.6	15.9	24.26	24.26
General	3.3	5.4	9	9	9	12.76	14.76	15.06

The green highlighted values in the table above are the controlling PMP values for the specified durations.
The Yellow highlighted Storm type below is the controlling storm for the specific duration.
- Use GIS program to view PMP_Points for your watershed to determine the controlling storm at each duration.
- If Local controls at all durations, only the Local_PMP_Points will need to be used.
- If other storms (General, Tropical) control at certain durations, make sure to use the correct PMP_Points file.
- If multiple storms control at a specific duration, i.e. more than one Local storm, try all distributions and choose the most conservative answer.
Select the appropriate storm from the red highlighted dropdown for each duration.

3 HR	
Local	1547_1

6 HR	
Local	1406_1

12 HR	
Tropical	1491_1

24 HR	
Tropical	1491_1

The storm specific distributions for use in HEC-HMS or other
hydraulic routing programs will be available to the right.
The rainfall distributions are given in 1-hour increments.
A 5-minute timestep should be used in the hydraulic routing program to capture the peak of the storm.

STORM SPECIFIC DISTRIBUTION								2 HR Synth	
3 HR		6 HR		12 HR		24 HR			
1547_1		1406_1		1491_1		1491_1			
MIN	INC	MIN	INC	MIN	INC	MIN	INC	MIN	INC
0	0.000	0	0.000	0	0.000	0	0.000	*0*	0.000
60	1.565	60	5.537	60	2.525	60	0.000	*5*	0.128
120	10.431	120	3.178	120	2.588	120	0.000	*10*	0.128
180	1.565	180	0.758	180	1.913	180	0.000	*15*	0.128
240	0.000	240	0.779	240	2.489	240	0.000	*20*	0.128
300	0.000	300	2.041	300	2.201	300	0.000	*25*	0.128
360	0.000	360	8.528	360	2.390	360	0.000	*30*	0.128
420	0.000	420	0.000	420	1.627	420	0.000	*35*	0.645
480	0.000	480	0.000	480	2.300	480	0.000	*40*	0.697
540	0.000	540	0.000	540	1.725	540	0.000	*45*	0.764
600	0.000	600	0.000	600	1.725	600	0.000	*50*	0.943
660	0.000	660	0.000	660	1.438	660	0.000	*55*	1.332
720	0.000	720	0.000	720	1.339	720	0.000	*60*	1.633
780	0.000	780	0.000	780	0.000	780	2.525	*65*	1.105
840	0.000	840	0.000	840	0.000	840	2.588	*70*	0.833
900	0.000	900	0.000	900	0.000	900	1.913	*75*	0.723
960	0.000	960	0.000	960	0.000	960	2.489	*80*	0.676
1020	0.000	1020	0.000	1020	0.000	1020	2.201	*85*	0.595
1080	0.000	1080	0.000	1080	0.000	1080	2.390	*90*	0.514
1140	0.000	1140	0.000	1140	0.000	1140	1.627	*95*	0.128
1200	0.000	1200	0.000	1200	0.000	1200	2.300	*100*	0.128
1260	0.000	1260	0.000	1260	0.000	1260	1.725	*105*	0.128
1320	0.000	1320	0.000	1320	0.000	1320	1.725	*110*	0.128
1380	0.000	1380	0.000	1380	0.000	1380	1.438	*115*	0.128
1440	0.000	1440	0.000	1440	0.000	1440	1.339	*120*	0.128

TIME OF CONCENTRATION CALCULATIONS AND FLOWPATH

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Ex Conditions DA 1

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

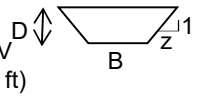
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	660
8.	Watercourse slope, s (ft/ft)	0.02424
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.165
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.06** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00130
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	4.04



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	1540

$$T_t = \frac{L}{3600V}$$

T_t = **0.11** hours

Results

Time of Concentration =	**0.19**	**hours**	**=**	**11.13**	**minutes**	Flowpath Length (ft)	2,300
Lag Time =	**0.11**	**hours**	**=**	**6.68**	**minutes**	Flowpath Length (mi)	0.44

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Ex Conditions DA 2

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

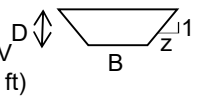
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	850
8.	Watercourse slope, s (ft/ft)	0.02529
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.233
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.07** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00100
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	3.54



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	500

$$T_t = \frac{L}{3600V}$$

T_t = **0.04** hours

Results

Time of Concentration =	**0.13**	**hours**	**=**	**8.03**	**minutes**	Flowpath Length (ft)	1,450
Lag Time =	**0.08**	**hours**	**=**	**4.82**	**minutes**	Flowpath Length (mi)	0.27

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Ex Conditions DA 3

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

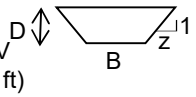
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	800
8.	Watercourse slope, s (ft/ft)	0.02500
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.214
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.07** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00204
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	5.06



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	490

$$T_t = \frac{L}{3600V}$$

T_t = **0.03** hours

Results

Time of Concentration =	**0.12**	**hours**	**=**	**7.06**	**minutes**	Flowpath Length (ft)	1,390
Lag Time =	**0.07**	**hours**	**=**	**4.23**	**minutes**	Flowpath Length (mi)	0.26

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Ex Conditions DA 4

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

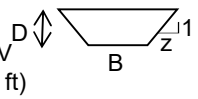
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	660
8.	Watercourse slope, s (ft/ft)	0.02955
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.494
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.05** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00130
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	4.04



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	790

$$T_t = \frac{L}{3600V}$$

T_t = **0.05** hours

Results

Time of Concentration =	**0.13**	**hours**	**=**	**7.70**	**minutes**	Flowpath Length (ft)	1,550
Lag Time =	**0.08**	**hours**	**=**	**4.62**	**minutes**	Flowpath Length (mi)	0.29

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Ex Conditions DA 5

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.00500

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.04** hours

Shallow Concentrated Flow Properties

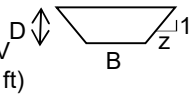
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	240
8.	Watercourse slope, s (ft/ft)	0.02708
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.345
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.02** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00943
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	10.89



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	530

$$T_t = \frac{L}{3600V}$$

T_t = **0.01** hours

Results

Time of Concentration =	**0.07**	**hours**	**=**	**4.26**	**minutes**	Flowpath Length (ft)	870
Lag Time =	**0.04**	**hours**	**=**	**2.56**	**minutes**	Flowpath Length (mi)	0.16

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Ex Conditions DA 6

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.01000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.03** hours

Shallow Concentrated Flow Properties

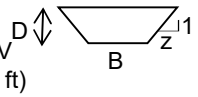
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	420
8.	Watercourse slope, s (ft/ft)	0.01548
9.	Average velocity, V (NRCS NEH, Table 15-3)	2.529
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.05** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00130
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	4.04



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	770

$$T_t = \frac{L}{3600V}$$

T_t = **0.05** hours

Results

Time of Concentration =	**0.13**	**hours**	**=**	**7.65**	**minutes**	Flowpath Length (ft)	1,290
Lag Time =	**0.08**	**hours**	**=**	**4.59**	**minutes**	Flowpath Length (mi)	0.24

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Ex Conditions DA 7

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.06000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.01** hours

Shallow Concentrated Flow Properties

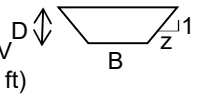
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	400
8.	Watercourse slope, s (ft/ft)	0.01750
9.	Average velocity, V (NRCS NEH, Table 15-3)	2.689
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.04** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00545
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	8.28



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	1100

$$T_t = \frac{L}{3600V}$$

T_t = **0.04** hours

Results

Time of Concentration =	**0.09**	**hours**	**=**	**5.53**	**minutes**	Flowpath Length (ft)	1,600
Lag Time =	**0.06**	**hours**	**=**	**3.32**	**minutes**	Flowpath Length (mi)	0.30

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1 | By: BHH | Date: 10/6/2025
Location: Derry Township, Montour County, Pennsylvania | Checked: ARS | Date: 10/14/2025
Subwatershed: Ash Basin No. 1 Subbasin A

Flowpath Description: Ex Conditions DA 8

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.04000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

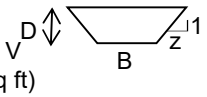
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	430
8.	Watercourse slope, s (ft/ft)	0.01163
9.	Average velocity, V (NRCS NEH, Table 15-3)	2.192
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.05** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00132
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	4.07



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	2280

$$T_t = \frac{L}{3600V}$$

T_t = **0.16** hours

Results

Time of Concentration =	**0.23**	**hours**	**=**	**13.60**	**minutes**	Flowpath Length (ft)	2,810
Lag Time =	**0.14**	**hours**	**=**	**8.16**	**minutes**	Flowpath Length (mi)	0.53

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Prop Conditions DA 1

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

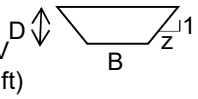
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	660
8.	Watercourse slope, s (ft/ft)	0.02424
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.165
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.06** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00130
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	4.04



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	1540

$$T_t = \frac{L}{3600V}$$

T_t = **0.11** hours

Results

Time of Concentration =	**0.19**	**hours**	**=**	**11.13**	**minutes**	Flowpath Length (ft)	2,300
Lag Time =	**0.11**	**hours**	**=**	**6.68**	**minutes**	Flowpath Length (mi)	0.44

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Prop Conditions DA 2

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

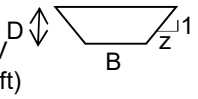
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	875
8.	Watercourse slope, s (ft/ft)	0.02343
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.111
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.08** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00112
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	3.76



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	890

$$T_t = \frac{L}{3600V}$$

T_t = **0.07** hours

Results

Time of Concentration =	**0.17**	**hours**	**=**	**9.93**	**minutes**	Flowpath Length (ft)	1,865
Lag Time =	**0.10**	**hours**	**=**	**5.96**	**minutes**	Flowpath Length (mi)	0.35

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Prop Conditions DA 3

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

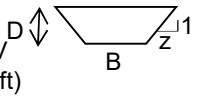
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	720
8.	Watercourse slope, s (ft/ft)	0.02708
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.345
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.06** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00102
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	3.58



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	490

$$T_t = \frac{L}{3600V}$$

T_t = **0.04** hours

Results

Time of Concentration =	**0.12**	**hours**	**=**	**7.16**	**minutes**	Flowpath Length (ft)	1,310
Lag Time =	**0.07**	**hours**	**=**	**4.30**	**minutes**	Flowpath Length (mi)	0.25

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Prop Conditions DA 4

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.01000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.03** hours

Shallow Concentrated Flow Properties

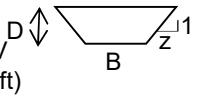
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	870
8.	Watercourse slope, s (ft/ft)	0.01609
9.	Average velocity, V (NRCS NEH, Table 15-3)	2.579
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.09** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00500
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	7.93



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	200

$$T_t = \frac{L}{3600V}$$

T_t = **0.01** hours

Results

Time of Concentration =	**0.13**	**hours**	**=**	**7.75**	**minutes**	Flowpath Length (ft)	1,170
Lag Time =	**0.08**	**hours**	**=**	**4.65**	**minutes**	Flowpath Length (mi)	0.22

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Prop Conditions DA 5

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

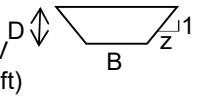
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	1420
8.	Watercourse slope, s (ft/ft)	0.01761
9.	Average velocity, V (NRCS NEH, Table 15-3)	2.697
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.15** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00857
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	10.38



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	700

$$T_t = \frac{L}{3600V}$$

T_t = **0.02** hours

Results

Time of Concentration =	**0.19**	**hours**	**=**	**11.19**	**minutes**	Flowpath Length (ft)	2,220
Lag Time =	**0.11**	**hours**	**=**	**6.72**	**minutes**	Flowpath Length (mi)	0.42

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1 | By: BHH | Date: 10/6/2025
Location: Derry Township, Montour County, Pennsylvania | Checked: ARS | Date: 10/14/2025
Subwatershed: Ash Basin No. 1 Subbasin A

Flowpath Description: Prop Conditions DA 6

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02500

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

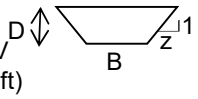
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	800
8.	Watercourse slope, s (ft/ft)	0.02563
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.254
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.07** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00167
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	4.58



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	300

$$T_t = \frac{L}{3600V}$$

T_t = **0.02** hours

Results

Time of Concentration =	**0.11**	**hours**	**=**	**6.37**	**minutes**	Flowpath Length (ft)	1,200
Lag Time =	**0.06**	**hours**	**=**	**3.82**	**minutes**	Flowpath Length (mi)	0.23

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Prop Conditions DA 7

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.02000

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

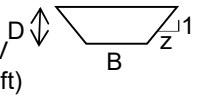
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	950
8.	Watercourse slope, s (ft/ft)	0.02211
9.	Average velocity, V (NRCS NEH, Table 15-3)	3.022
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.09** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00125
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	3.96



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	400

$$T_t = \frac{L}{3600V}$$

T_t = **0.03** hours

Results

Time of Concentration =	**0.14**	**hours**	**=**	**8.22**	**minutes**	Flowpath Length (ft)	1,450
Lag Time =	**0.08**	**hours**	**=**	**4.93**	**minutes**	Flowpath Length (mi)	0.27

Gannett Fleming

Project: 66982 - Talen Energy Montour Ash Basin No. 1
Location: Derry Township, Montour County, Pennsylvania
Subwatershed: Ash Basin No. 1 Subbasin A

By: BHH Date: 10/6/2025
Checked: ARS Date: 10/14/2025

Flowpath Description: Prop Conditions DA 8

Sheet Flow Properties

	Segment ID	SH-1
1.	Surface description	Smooth Surface (concrete, asphalt, gravel, or bare soil)
2.	Manning's roughness coefficient, n (NRCS NEH,Table 15-1)	0.011
3.	Flow length, L (ft)	100
4.	Two-year 24-hour rainfall, P2 (in) (NOAA HDSC PFDS)	2.80
5.	Land slope, s (ft/ft)	0.03500

$$T_t = \frac{0.007\,(nL)^{0.8}}{(P2)^{0.5}(s)^{0.4}}$$

T_t = **0.02** hours

Shallow Concentrated Flow Properties

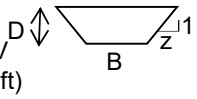
	Segment ID	SC-1
6.	Surface description (NRCS NEH, Table 15-3)	Pavement and small upland gullies
7.	Flow length, L (ft)	225
8.	Watercourse slope, s (ft/ft)	0.02000
9.	Average velocity, V (NRCS NEH, Table 15-3)	2.875
		V =20.328(s)^0.5

$$T_t = \frac{L}{3600V}$$

T_t = **0.02** hours

Open Channel Flow Properties

	Segment ID	CH-1
10.	Bottom width, B (ft)	20
11.	Depth flowing full, D (ft)	5
12.	Channel side slope, z H : 1 V	3
13.	Cross sectional area, A (sq ft)	175
14.	Wetted perimeter, P (ft)	51.62
15.	Hydraulic radius, r = A/P (ft)	3.39
16.	Channel slope, s (ft/ft)	0.00100
17.	Manning's roughness coefficient, n	0.030
18.	Velocity, V (ft/sec)	3.54



$$V = \frac{1.49(r^{2/3})(s^{1/2})}{n}$$

19.	Flow length, L (ft)	2000

$$T_t = \frac{L}{3600V}$$

T_t = **0.16** hours

Results

Time of Concentration =	**0.20**	**hours**	**=**	**11.74**	**minutes**	Flowpath Length (ft)	2,325
Lag Time =	**0.12**	**hours**	**=**	**7.05**	**minutes**	Flowpath Length (mi)	0.44

SUBBASIN C RISER STRUCTURE DISCHARGE RATING CURVE

Gannett Fleming

Project: Talen Energy Montour Ash Basin No. 1 SHEET NO. 1
Subject: Subbasin C existing outlet rating curve JOB NO. 66982
By: SDT Date: 4/8/2020
Checked by: BHH Date: 5/13/2020

Input Parameters:

Pipe Information		Minor Losses		Weir Information	
Inlet El. [ft]	551.65	C-HW	110	Length [ft]	9.42
Diameter [ft]	3	$K_{entrance}$	0.8	C_d	0.62
Area [ft^2]	7.07	K_{exit}	1	C	3.32
Hydraulic Radius [ft]	0.75	K_{elbow}	0.9		
Pipe Length [ft]	1470				
Dentention Basin El. (z_2) [ft]	528				

$V^2/2g$ [ft]	H_f [ft]	H_{minor} [ft]	z_2 [ft]	E_2-E_1 [ft]	Q_{pipe} [cfs]	Q_{weir} [cfs]	Reservoir Level [ft]	Q_{total} [cfs]
					0.00	0.00	**551.65**	**0.00**
2.02	18.55	5.45	528.00	0.00	80.62	6.47	**552.00**	**6.47**
2.06	18.93	5.57	528.00	0.00	81.51	24.50	**552.50**	**24.50**
2.11	19.31	5.69	528.00	0.00	82.38	49.04	**553.00**	**49.04**
2.15	19.68	5.82	528.00	0.00	83.25	78.66	**553.50**	**78.66**
2.20	20.06	5.94	528.00	0.00	84.11	112.62	**554.00**	**84.11**
2.24	20.44	6.06	528.00	0.00	84.97	150.41	**554.50**	**84.97**
2.29	20.82	6.18	528.00	0.00	85.82	191.68	**555.00**	**85.82**
2.33	21.20	6.30	528.00	0.00	86.65	236.16	**555.50**	**86.65**
2.38	21.58	6.42	528.00	0.00	87.49	283.63	**556.00**	**87.49**
2.42	21.96	6.54	528.00	0.00	88.31	333.91	**556.50**	**88.31**
2.47	22.33	6.67	528.00	0.00	89.13	386.85	**557.00**	**89.13**
2.51	22.71	6.79	528.00	0.00	89.94	442.33	**557.50**	**89.94**
2.56	23.09	6.91	528.00	0.00	90.75	500.24	**558.00**	**90.75**
2.60	23.47	7.03	528.00	0.00	91.54	560.47	**558.50**	**91.54**
2.65	23.85	7.15	528.00	0.00	92.34	622.94	**559.00**	**92.34**
2.70	24.22	7.28	528.00	0.00	93.12	687.57	**559.50**	**93.12**
2.74	24.60	7.40	528.00	0.00	93.91	754.30	**560.00**	**93.91**
2.79	24.98	7.52	528.00	0.00	94.68	823.06	**560.50**	**94.68**
2.83	25.36	7.64	528.00	0.00	95.45	893.78	**561.00**	**95.45**
2.88	25.73	7.77	528.00	0.00	96.21	966.43	**561.50**	**96.21**
2.92	26.11	7.89	528.00	0.00	96.97	1040.94	**562.00**	**96.97**
2.97	26.49	8.01	528.00	0.00	97.73	1117.27	**562.50**	**97.73**
3.01	26.86	8.14	528.00	0.00	98.47	1195.39	**563.00**	**98.47**
3.06	27.24	8.26	528.00	0.00	99.22	1275.24	**563.50**	**99.22**
3.11	27.62	8.38	528.00	0.00	99.96	1356.80	**564.00**	**99.96**

Gannett Fleming

Project: Talen Energy Montour Ash Basin No. 1 SHEET NO. 2
Subject: Subbasin C final outlet rating curve JOB NO. 66982
By: SDT Date: 4/8/2020
Checked by: BHH Date: 5/13/2020

Input Parameters:

Pipe Information		Minor Losses		Weir Information	
Inlet El. [ft]	551.65	C-HW	110	Length [ft]	9.42
Diameter [ft]	3	$K_{entrance}$	0.8	C_d	0.62
Area [ft^2]	7.07	K_{exit}	1	C	3.32
Hydraulic Radius [ft]	0.75	K_{elbow}	0.9		
Pipe Length [ft]	1470				
Dentention Basin El. (z_2) [ft]	528				

Perforations

Inlet El. [ft]	530	531.5	533	534.5
Diameter [ft]	0.1666667			
Area [ft^2]	0.0872665			
Cd	0.6			

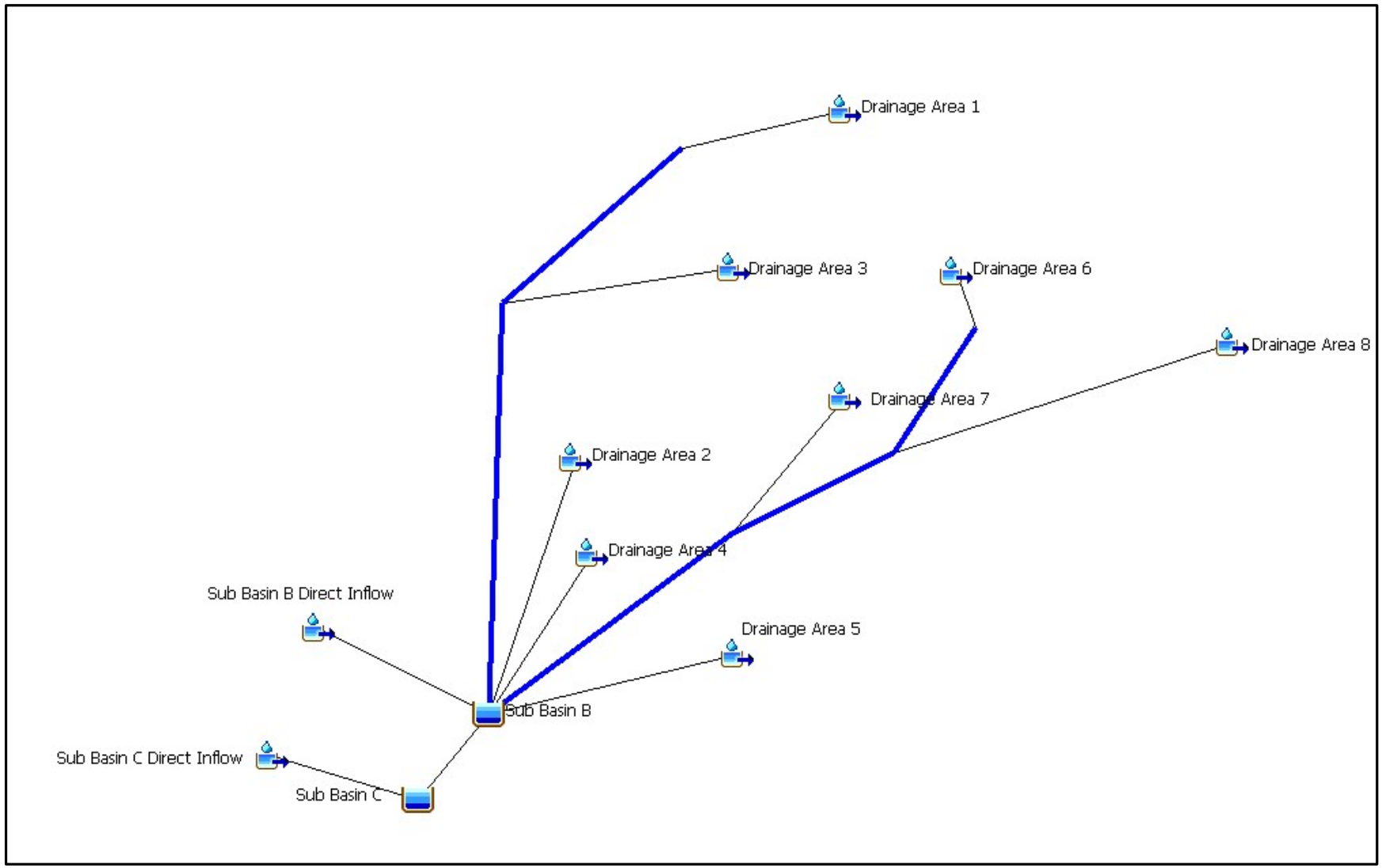
$V^2/2g$ [ft]	H_f [ft]	H_{minor} [ft]	z_2 (solved) [ft]	E_2-E_1 [ft]	Q_{pipe} [cfs]	$Q_{perforation}$ [cfs]	Q_{weir} [cfs]	Reservoir Level [ft]	Q_{total} [cfs]
0.14	1.61	0.39	528.00	0.00	21.54	0.00	0.00	**530.0**	**0.00**
0.22	2.40	0.60	528.00	0.00	26.73	0.42	0.00	**531.0**	**0.42**
0.30	3.19	0.81	528.00	0.00	31.14	0.89	0.00	**532.0**	**0.89**
0.38	3.97	1.03	528.00	0.00	35.06	1.24	0.00	**533.0**	**1.24**
0.46	4.75	1.25	528.00	0.00	38.63	1.92	0.00	**534.0**	**1.92**
0.55	5.53	1.47	528.00	0.00	41.92	2.62	0.00	**535.0**	**2.62**
0.97	9.39	2.61	528.00	0.00	55.81	4.65	0.00	**540.0**	**4.65**
1.40	13.22	3.78	528.00	0.00	67.14	5.99	0.00	**545.0**	**5.99**
1.84	17.03	4.97	528.00	0.00	76.98	7.07	0.00	**550.0**	**7.07**
1.93	17.79	5.21	528.00	0.00	78.82	7.27	0.00	**551.0**	**7.27**
2.02	18.55	5.45	528.00	0.00	80.62	7.46	6.47	**552.0**	**13.94**
2.11	19.31	5.69	528.00	0.00	82.38	7.65	49.04	**553.0**	**56.69**
2.20	20.06	5.94	528.00	0.00	84.11	7.83	112.62	**554.0**	**84.11**
2.29	20.82	6.18	528.00	0.00	85.82	8.01	191.68	**555.0**	**85.82**
2.38	21.58	6.42	528.00	0.00	87.49	8.19	283.63	**556.0**	**87.49**
2.47	22.33	6.67	528.00	0.00	89.13	8.36	386.85	**557.0**	**89.13**
2.56	23.09	6.91	528.00	0.00	90.75	8.52	500.24	**558.0**	**90.75**
2.65	23.85	7.15	528.00	0.00	92.34	8.69	622.94	**559.0**	**92.34**
2.74	24.60	7.40	528.00	0.00	93.91	8.85	754.30	**560.0**	**93.91**
2.83	25.36	7.64	528.00	0.00	95.45	9.01	893.78	**561.0**	**95.45**
2.92	26.11	7.89	528.00	0.00	96.97	9.16	1040.94	**562.0**	**96.97**
3.01	26.86	8.14	528.00	0.00	98.47	9.32	1195.39	**563.0**	**98.47**
3.11	27.62	8.38	528.00	0.00	99.96	9.47	1356.80	**564.0**	**99.96**

APPENDIX C

HEC-HMS MODELS

ACTIVE-CLOSURE CONDITIONS

HEC-HMS MODEL



Project: Montour-Final Simulation Run: 24hr-PMP-exist - L - 2025

Reservoir: Sub Basin B

Start of Run:	01Jan2000, 00:00	Basin Model:	Existing_2025
End of Run:	02Jan2000, 00:00	Meteorologic Model:	24hr-PMP
Compute Time:	DATA CHANGED, RECOMPUTE	Control Specifications:	24hr-1min

Volume Units: IN

Computed Results

Peak Inflow:	1183.6 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 16:00
Peak Discharge:	1127.2 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:01
Inflow Volume:	21.14 (IN)	Peak Storage:	130.6 (ACRE-FT)
Discharge Volume:	16.13 (IN)	Peak Elevation:	563.33 (FT)

Project: Montour-Final Simulation Run: 24hr-PMP-exist - L - 2025

Reservoir: Sub Basin C

Start of Run:	01Jan2000, 00:00	Basin Model:	Existing_2025
End of Run:	02Jan2000, 00:00	Meteorologic Model:	24hr-PMP
Compute Time:	DATA CHANGED, RECOMPUTE	Control Specifications:	24hr-1min

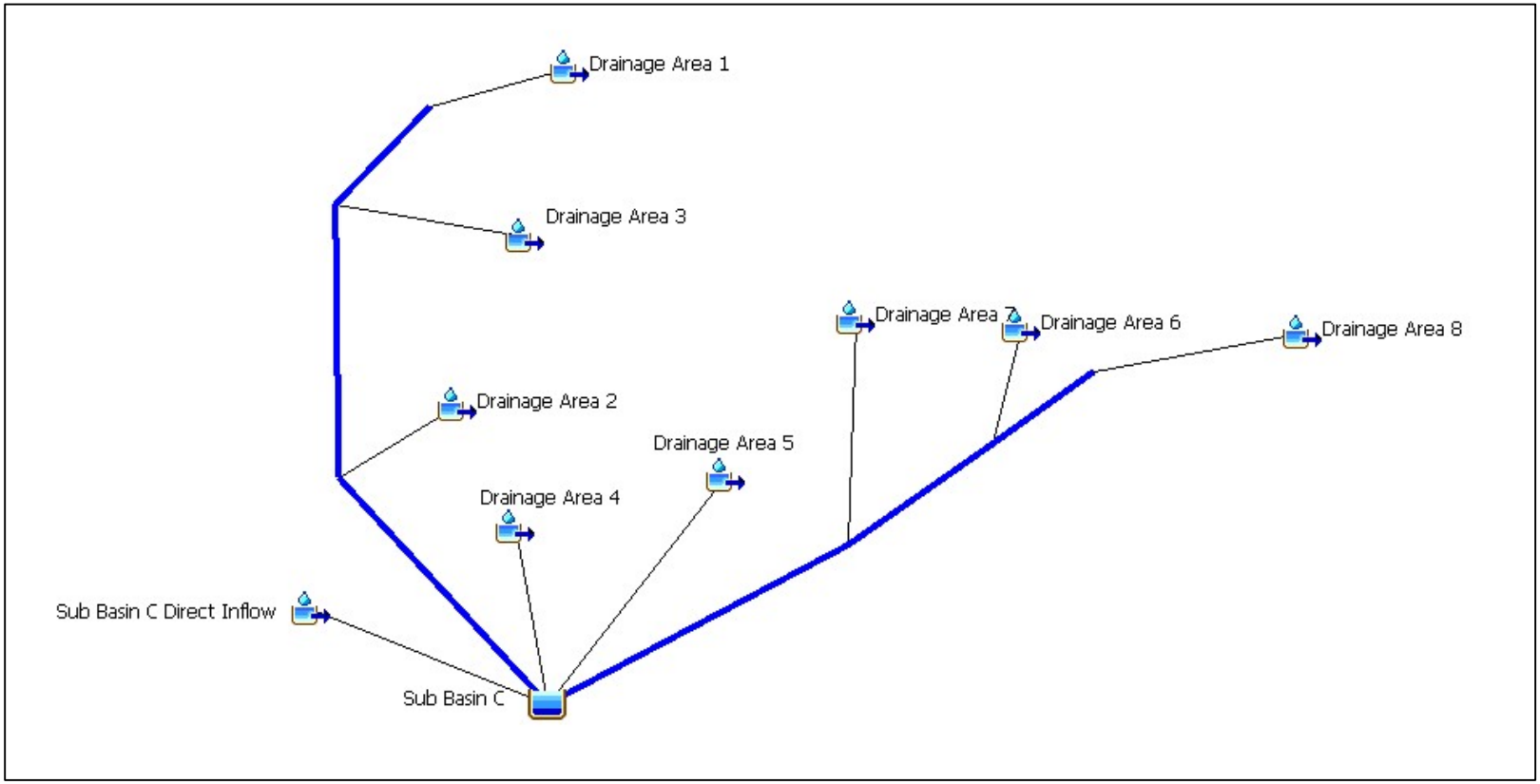
Volume Units: IN

Computed Results

Peak Inflow:	1197.0 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 16:00
Peak Discharge:	1156.7 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:02
Inflow Volume:	16.52 (IN)	Peak Storage:	168.2 (ACRE-FT)
Discharge Volume:	15.07 (IN)	Peak Elevation:	563.61 (FT)

FINAL CLOSURE CONDITIONS

HEC-HMS MODEL



Project: Montour-Final Simulation Run: 24hr-PMP-final - L - 2025

Reservoir: Sub Basin C

Start of Run:	01Jan2000, 00:00	Basin Model:	Final_2025
End of Run:	02Jan2000, 00:00	Meteorologic Model:	24hr-PMP
Compute Time:	DATA CHANGED, RECOMPUTE	Control Specifications:	24hr-1min

Volume Units: IN

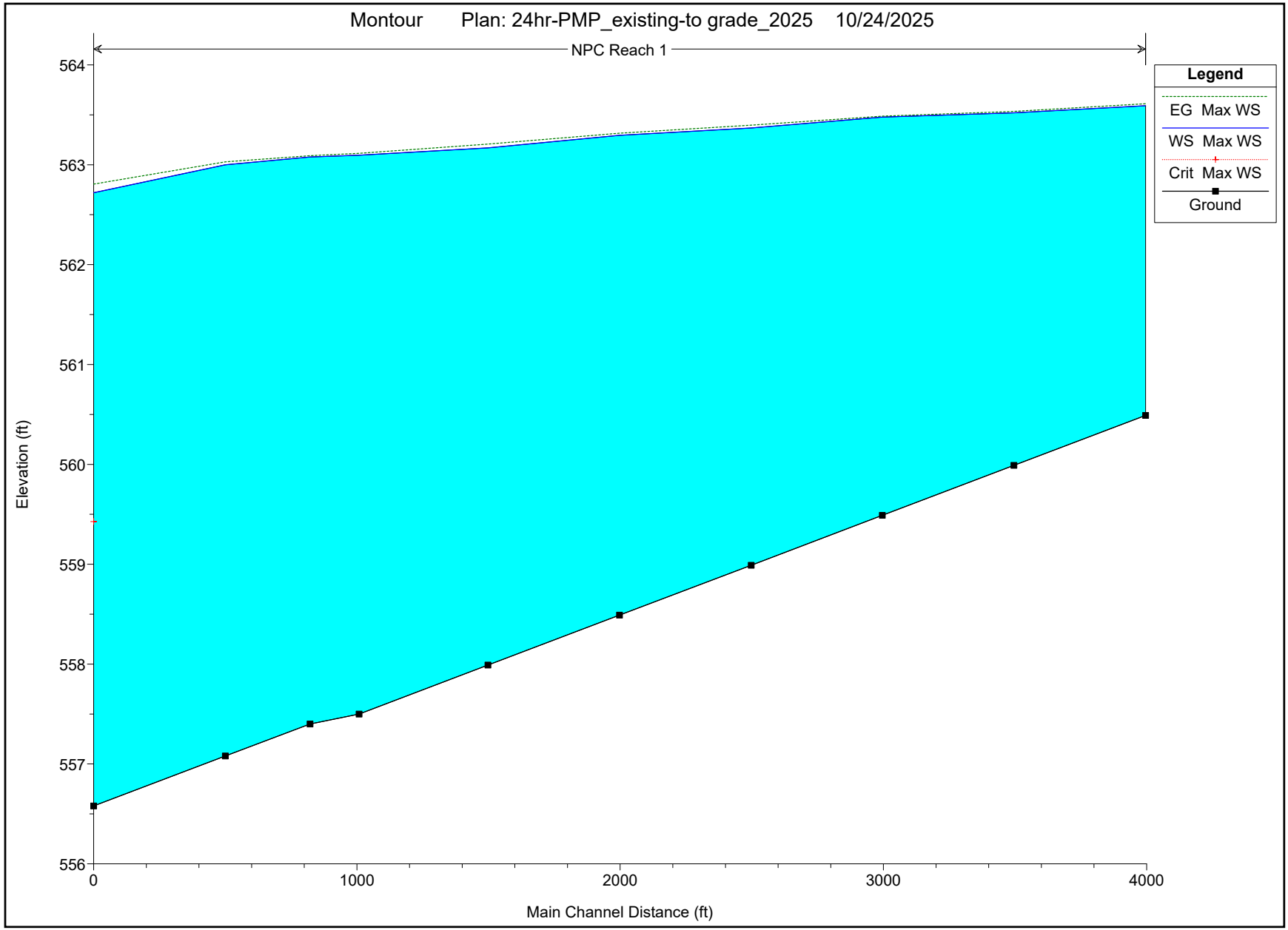
Computed Results

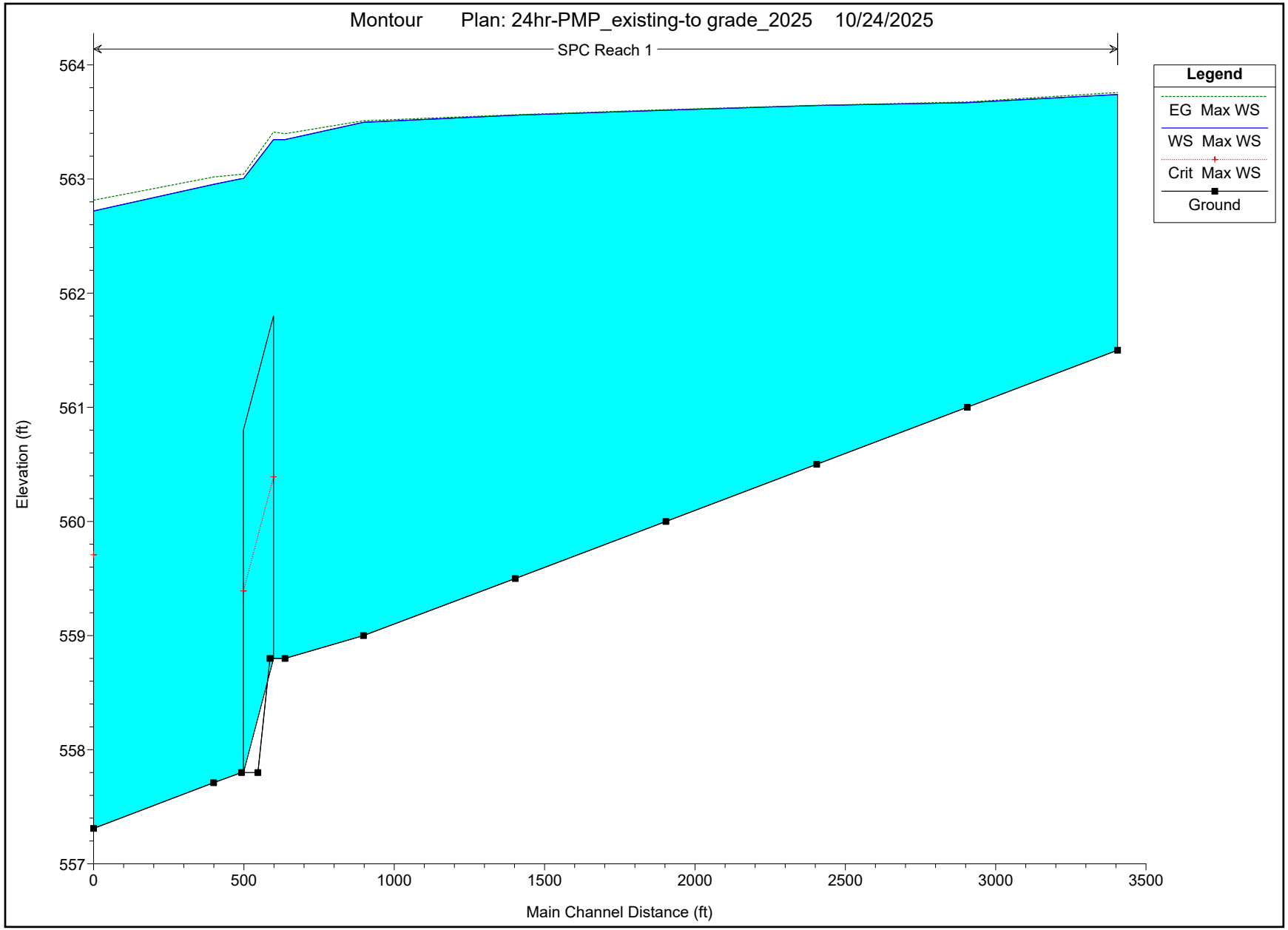
Peak Inflow:	1309.0 (CFS)	Date/Time of Peak Inflow:	01Jan2000, 16:00
Peak Discharge:	1295.2 (CFS)	Date/Time of Peak Discharge:	01Jan2000, 16:01
Inflow Volume:	19.84 (IN)	Peak Storage:	116.9 (ACRE-FT)
Discharge Volume:	16.20 (IN)	Peak Elevation:	563.76 (FT)

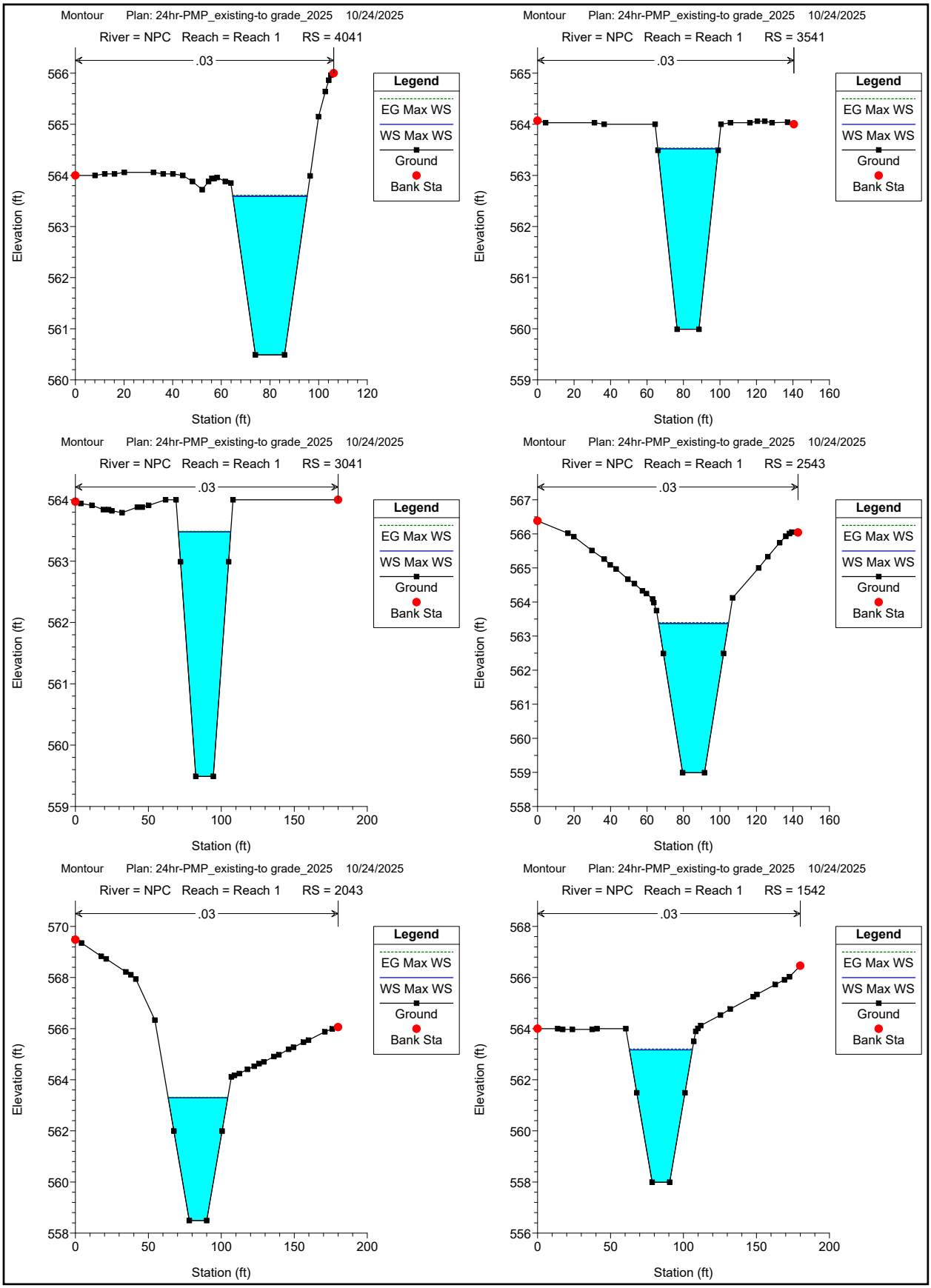
APPENDIX D

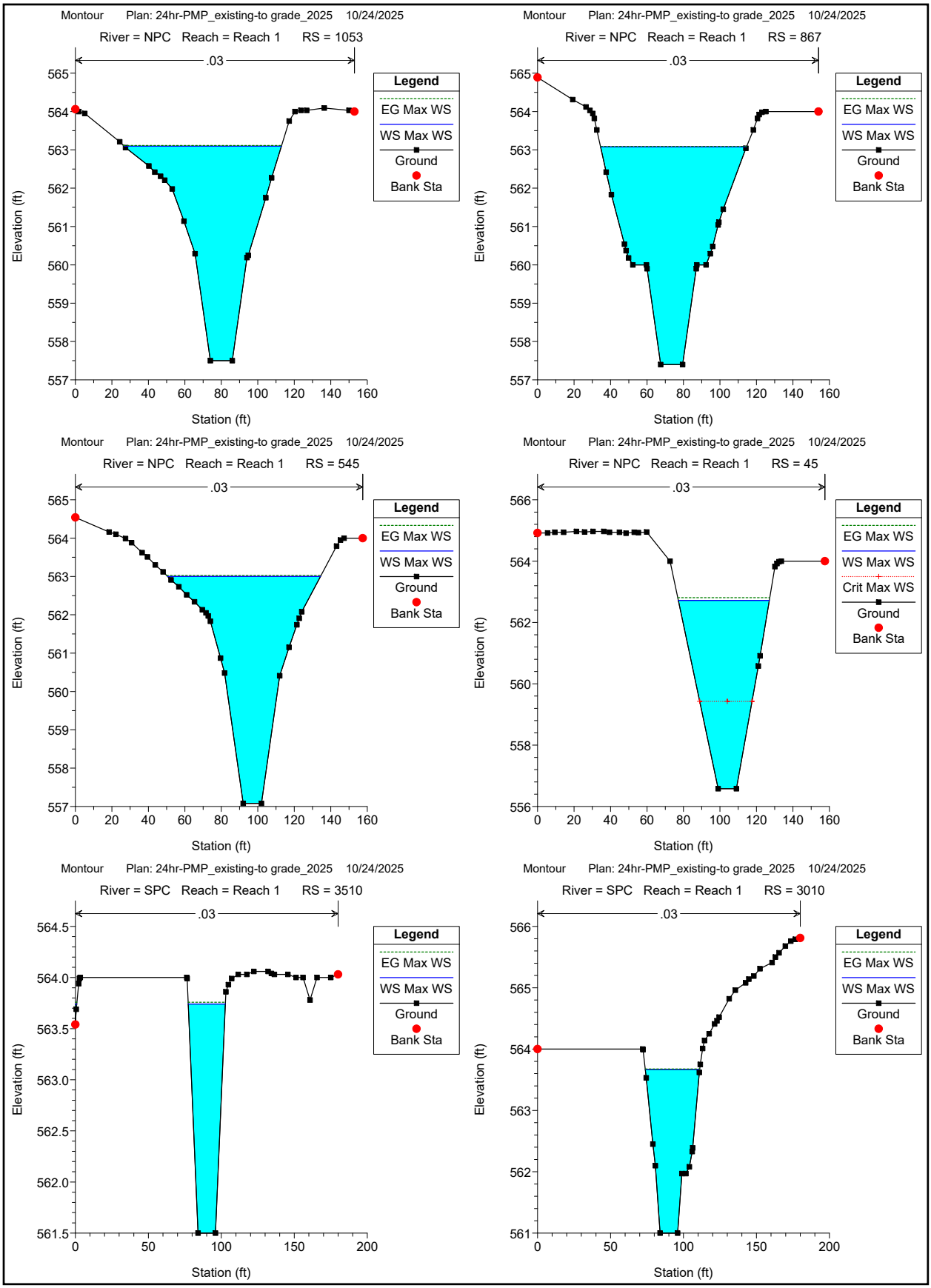
HEC-RAS MODEL

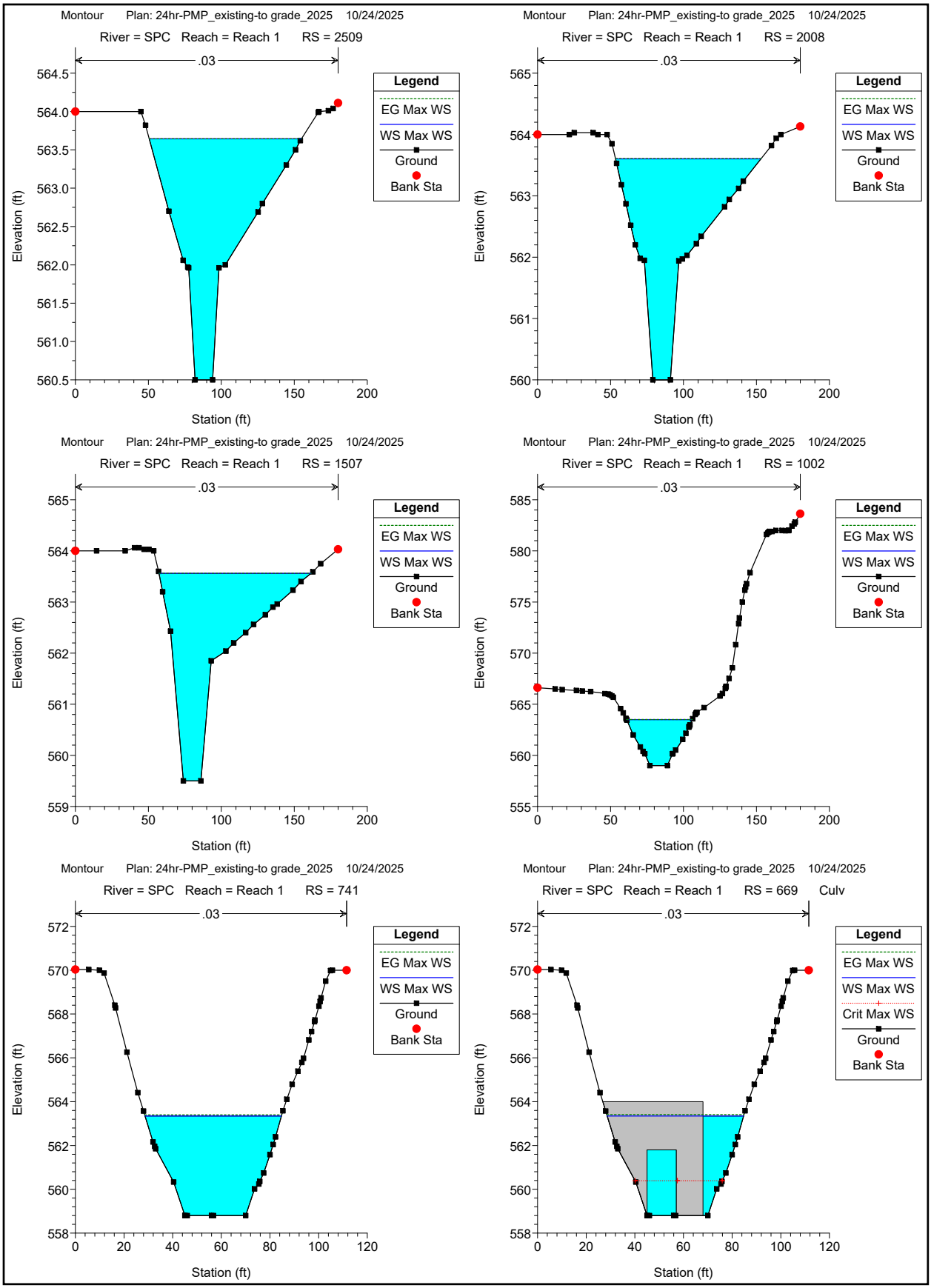
ACTIVE-CLOSURE CONDITIONS

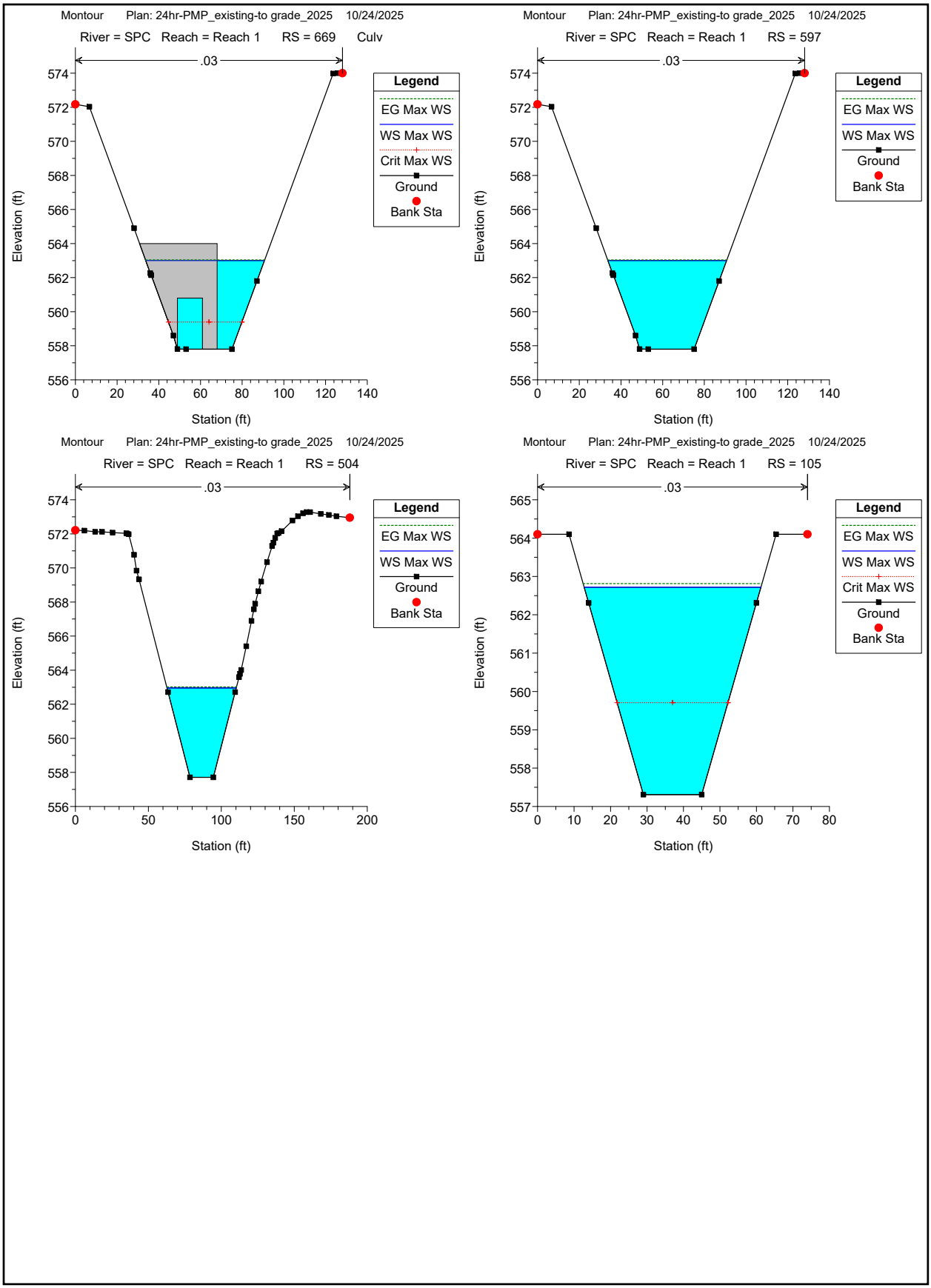

Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
NPC Reach 1
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Elevation (ft)
564
563
562
561
560
559
558
557
556
0
1000
2000
3000
4000
Main Channel Distance (ft)


Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
SPC Reach 1
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Elevation (ft)
564
563
562
561
560
559
558
557
0
500
1000
1500
2000
2500
3000
3500
Main Channel Distance (ft)


Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 4041
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 3541
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 3041
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 2543
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 2043
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 1542
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)


Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 1053
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 867
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 545
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = NPC Reach = Reach 1 RS = 45
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 3510
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 3010
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

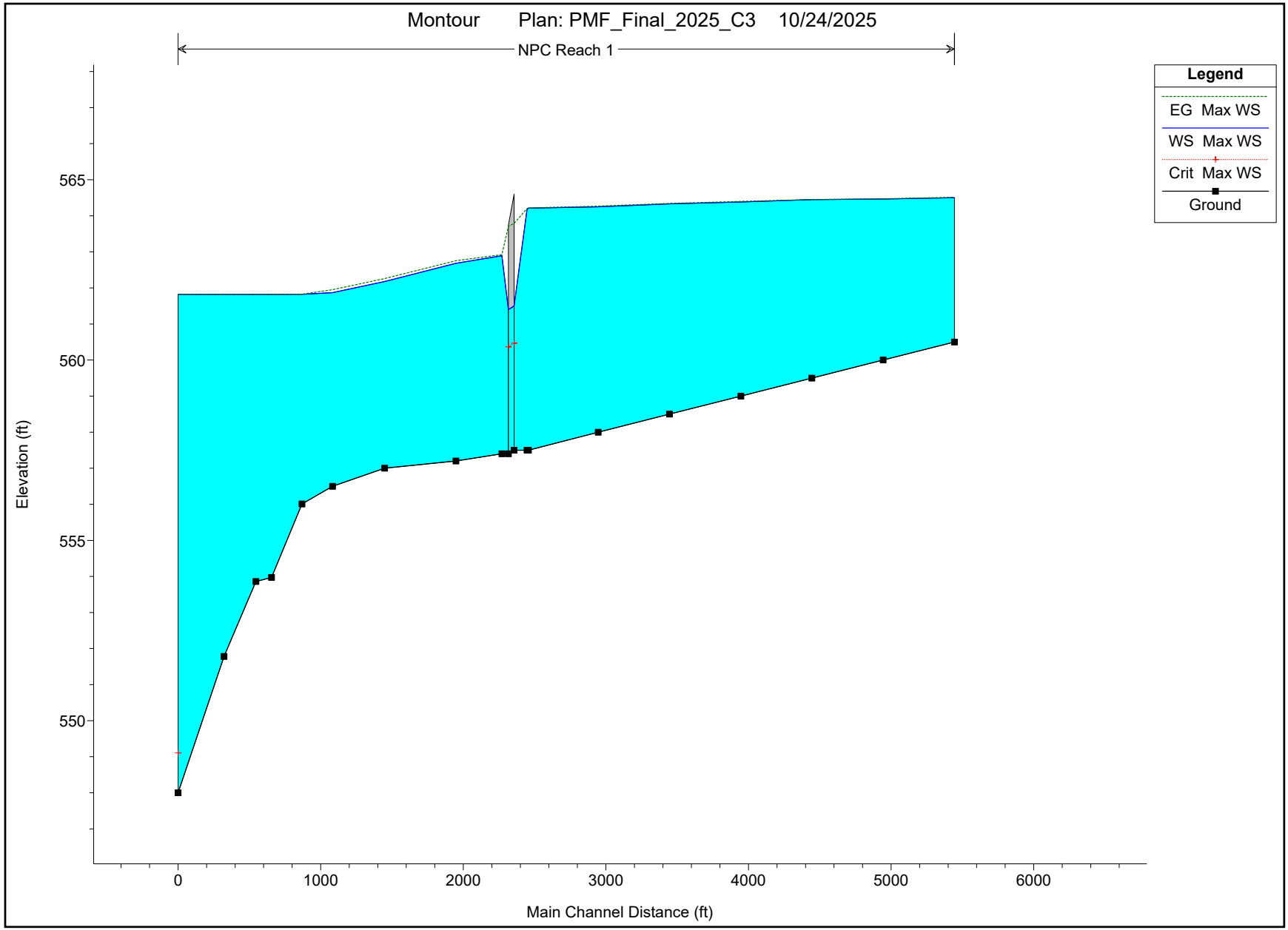

Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 2509
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 2008
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 1507
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 1002
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 741
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 669 Culv
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

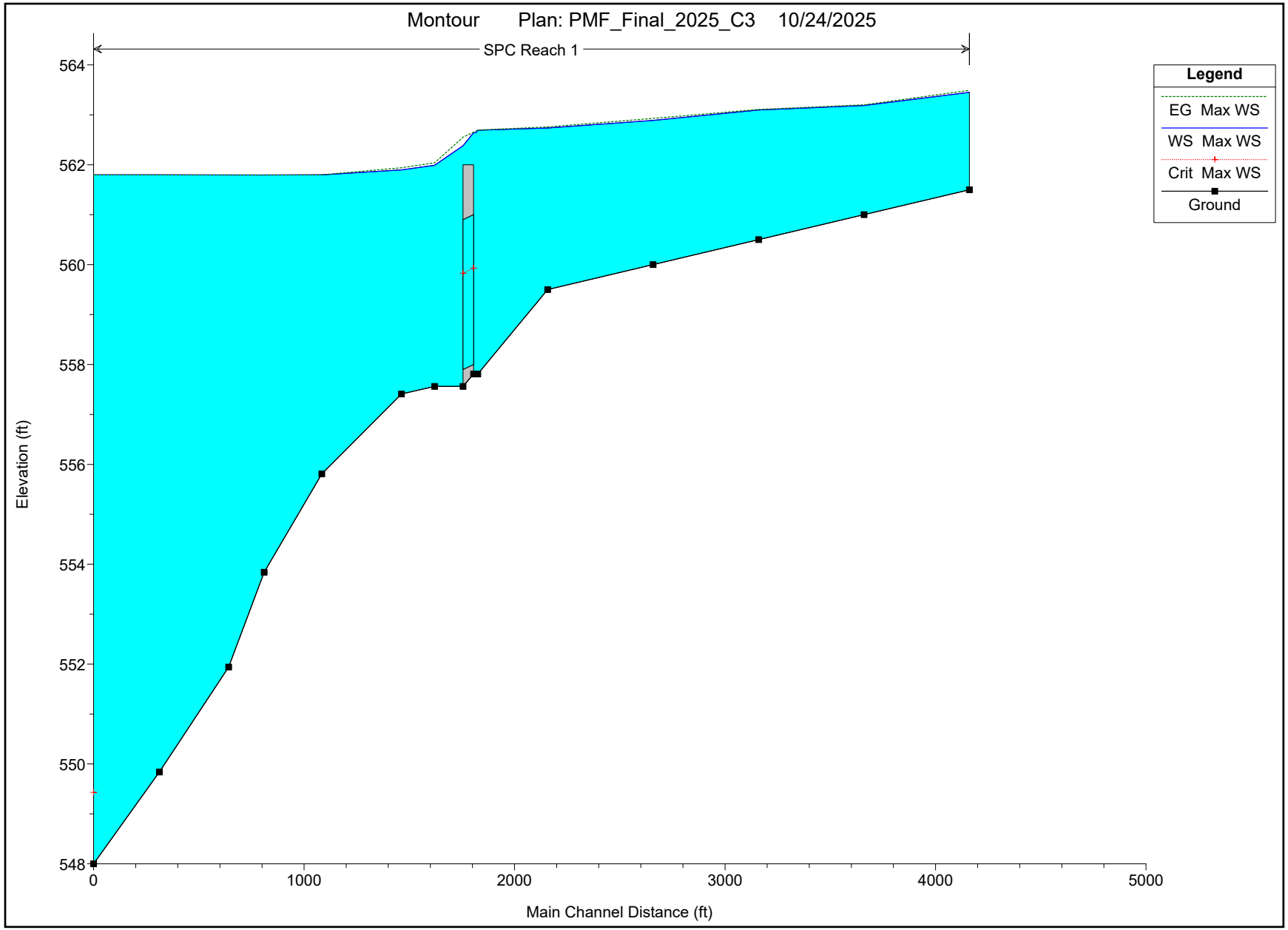

Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 669 Culv
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 597
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 504
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: 24hr-PMP_existing-to grade_2025 10/24/2025
River = SPC Reach = Reach 1 RS = 105
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

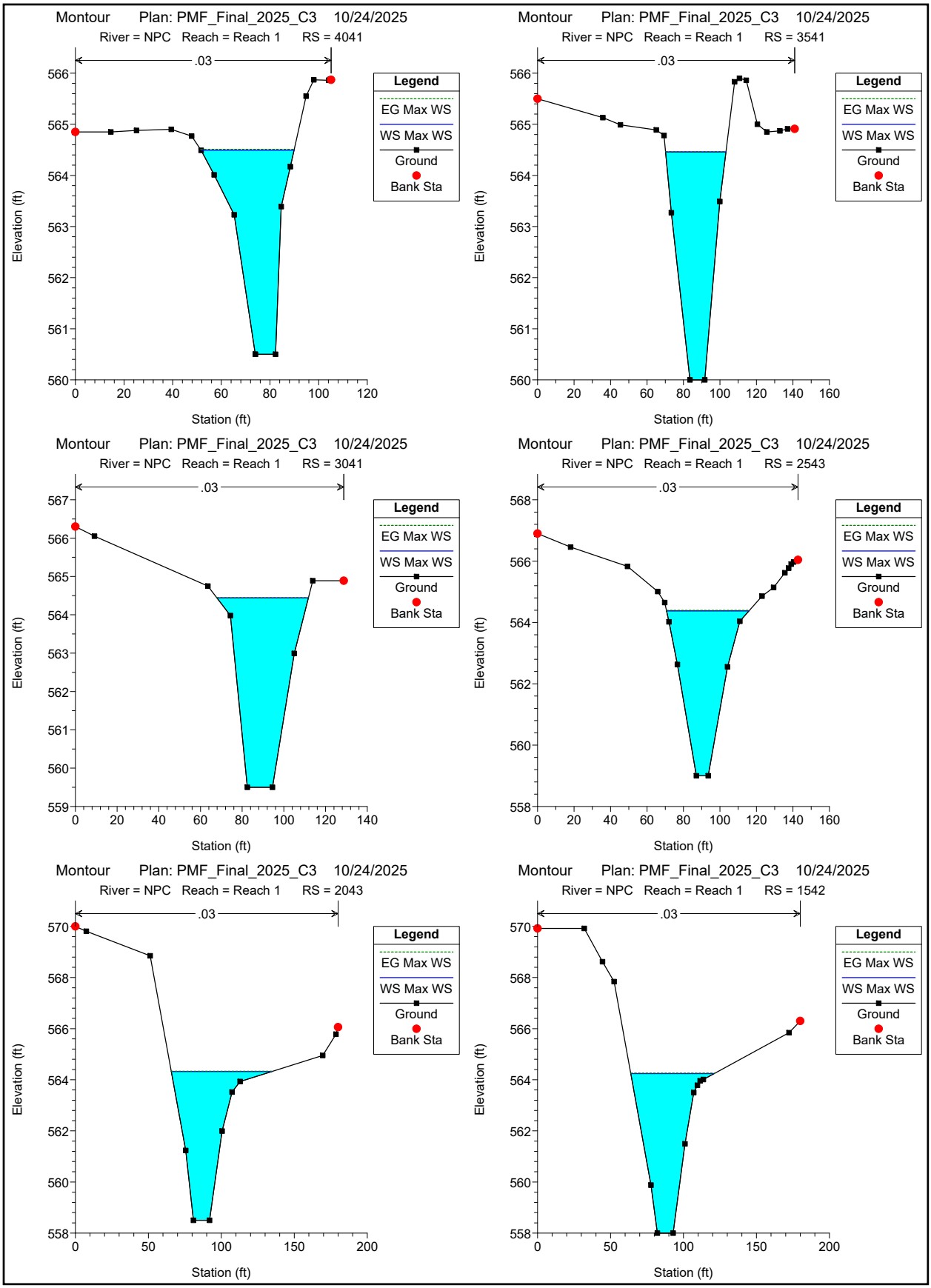
HEC-RAS Plan: 24-hr PMP existing to grade_2025 Profile: Max WS

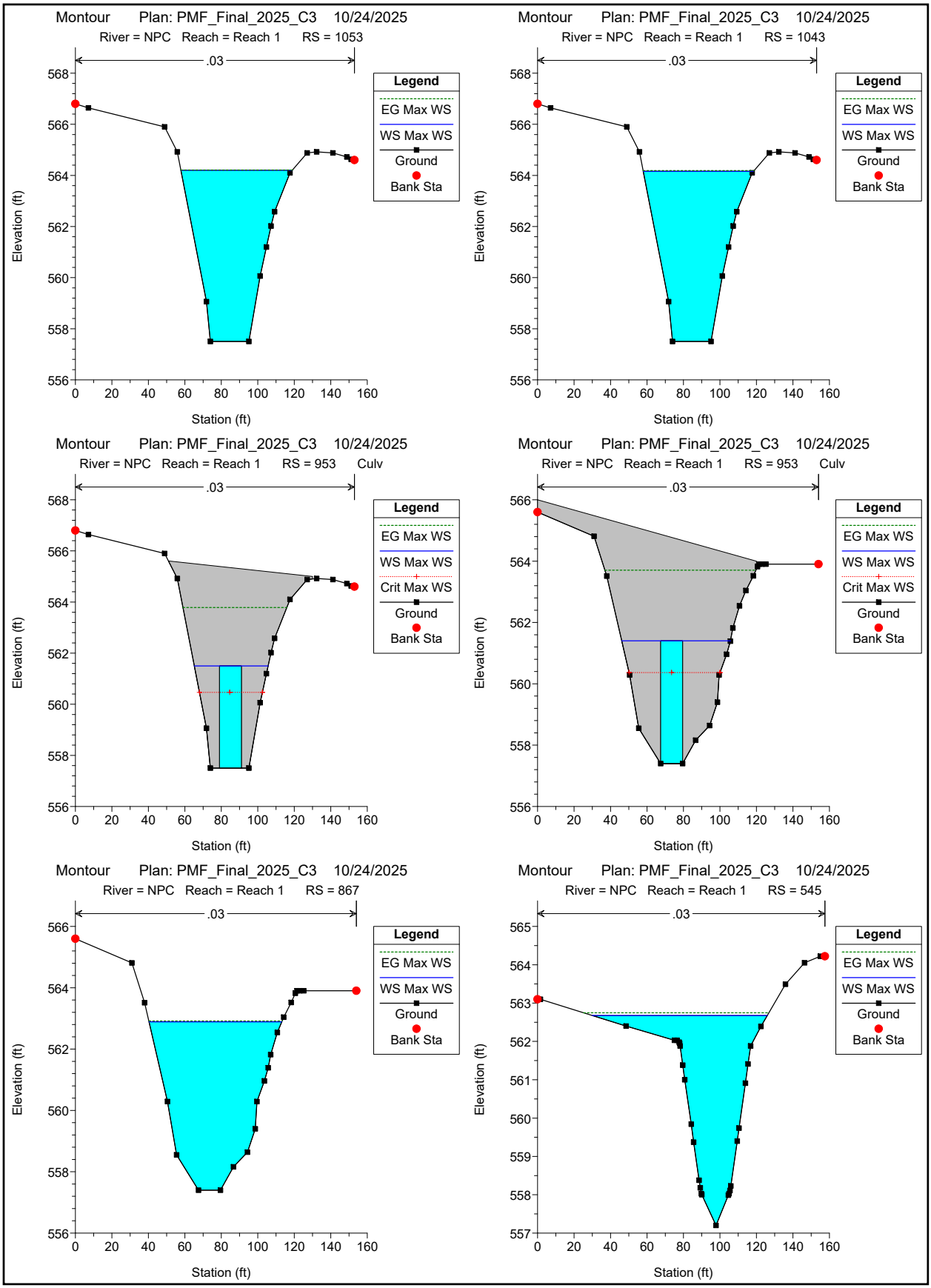
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
SPC	Reach 1	3510	Max WS	45.44	561.50	563.74		563.76	0.000269	1.08	42.03	26.39	0.15
SPC	Reach 1	3010	Max WS	43.04	561.00	563.67		563.68	0.000084	0.66	65.68	37.23	0.09
SPC	Reach 1	2509	Max WS	42.63	560.50	563.64		563.65	0.000029	0.32	134.42	104.31	0.05
SPC	Reach 1	2008	Max WS	84.91	560.00	563.60		563.61	0.000092	0.60	141.94	99.59	0.09
SPC	Reach 1	1507	Max WS	81.83	559.50	563.56		563.56	0.000066	0.52	156.34	104.11	0.08
SPC	Reach 1	1002	Max WS	121.88	559.00	563.50		563.51	0.000091	0.94	129.54	45.02	0.10
SPC	Reach 1	741	Max WS	340.59	558.80	563.35		563.40	0.000281	1.82	186.79	56.09	0.18
SPC	Reach 1	669		Culvert									
SPC	Reach 1	597	Max WS	338.73	557.80	563.00		563.04	0.000179	1.58	214.98	56.97	0.14
SPC	Reach 1	504	Max WS	338.41	557.71	562.95		563.02	0.000332	2.03	166.37	47.46	0.19
SPC	Reach 1	105	Max WS	429.30	557.31	562.72	559.71	562.81	0.000470	2.46	174.36	48.46	0.23
NPC	Reach 1	4041	Max WS	75.08	560.49	563.59		563.61	0.000197	1.14	66.08	30.62	0.14
NPC	Reach 1	3541	Max WS	74.86	559.99	563.52		563.53	0.000117	0.94	79.76	33.18	0.11
NPC	Reach 1	3041	Max WS	74.79	559.49	563.48		563.49	0.000071	0.78	95.55	35.92	0.08
NPC	Reach 1	2543	Max WS	149.22	558.99	563.37		563.40	0.000192	1.36	110.06	38.28	0.14
NPC	Reach 1	2043	Max WS	149.10	558.49	563.29		563.32	0.000130	1.17	126.90	40.82	0.12
NPC	Reach 1	1542	Max WS	222.95	557.99	563.17		563.21	0.000212	1.56	142.63	43.08	0.15
NPC	Reach 1	1053	Max WS	222.86	557.50	563.10		563.11	0.000161	1.10	202.73	86.21	0.13
NPC	Reach 1	867	Max WS	222.60	557.40	563.08		563.09	0.000085	0.93	238.17	79.97	0.10
NPC	Reach 1	545	Max WS	269.77	557.08	563.00		563.03	0.000249	1.37	197.34	83.81	0.16
NPC	Reach 1	45	Max WS	435.60	556.58	562.72	559.43	562.81	0.000416	2.36	184.61	49.86	0.22

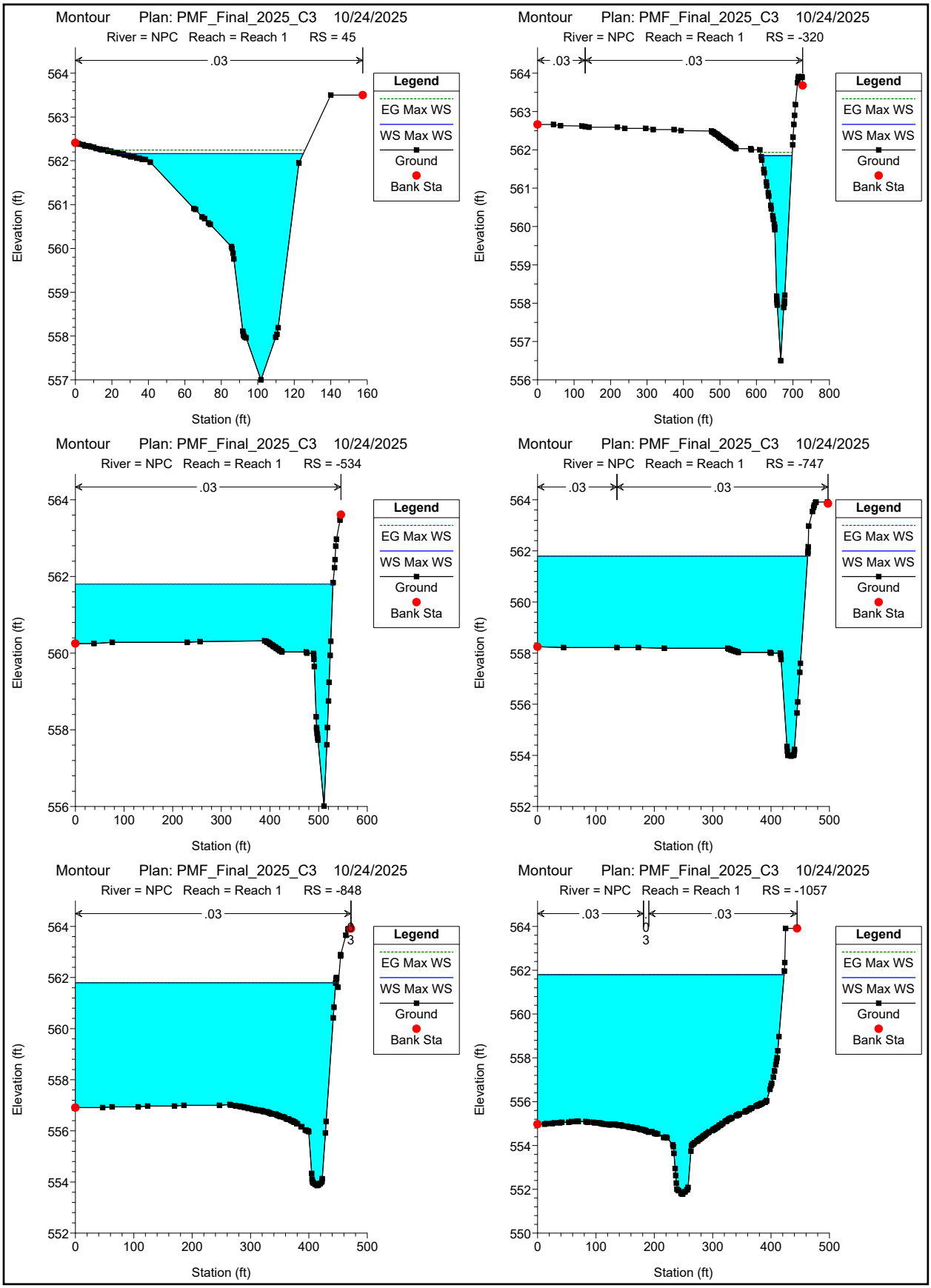
FINAL CLOSURE CONDITIONS

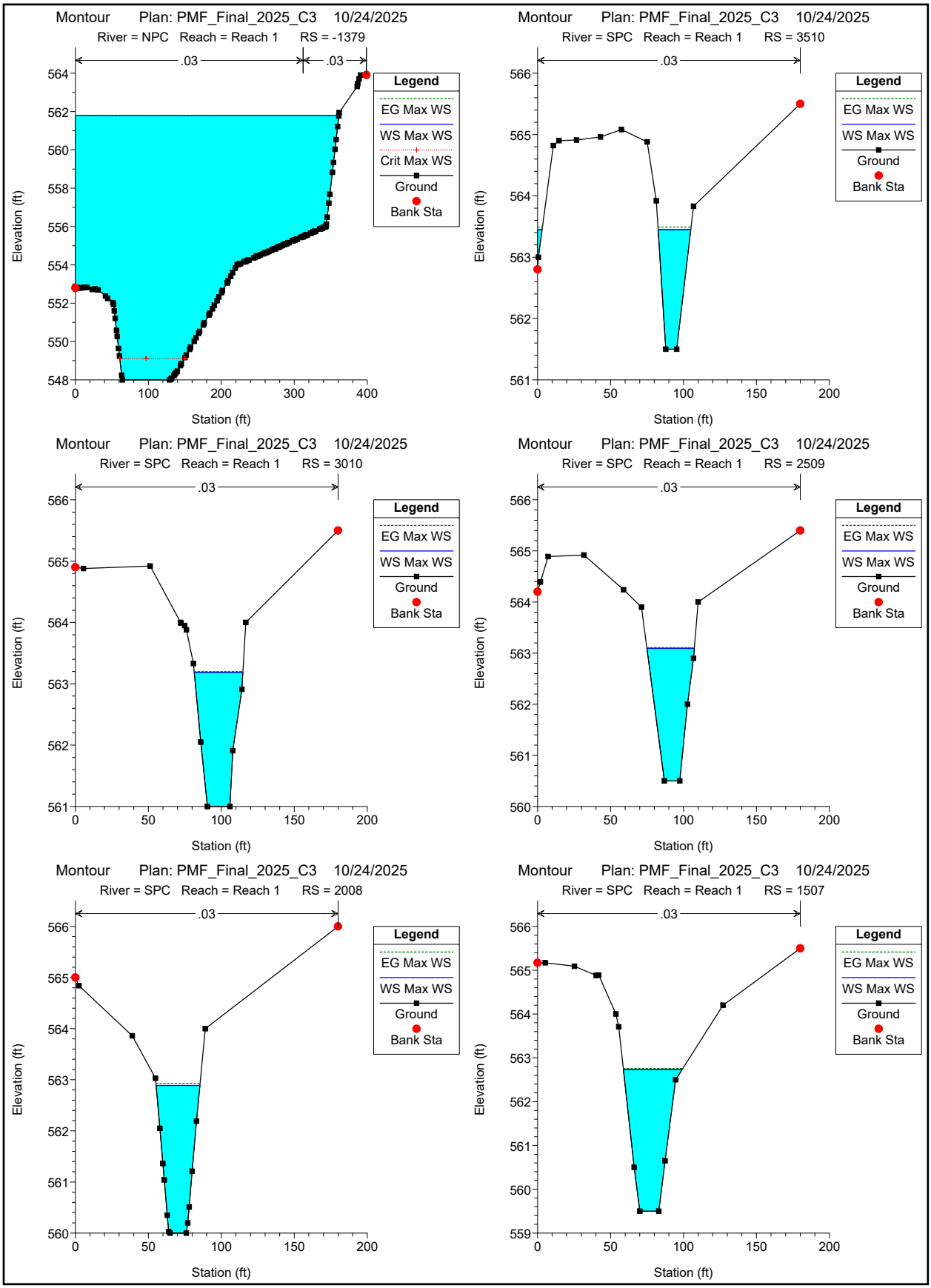

Montour Plan: PMF_Final_2025_C3 10/24/2025
NPC Reach 1
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Elevation (ft)
565
560
555
550
0
1000
2000
3000
4000
5000
6000
Main Channel Distance (ft)

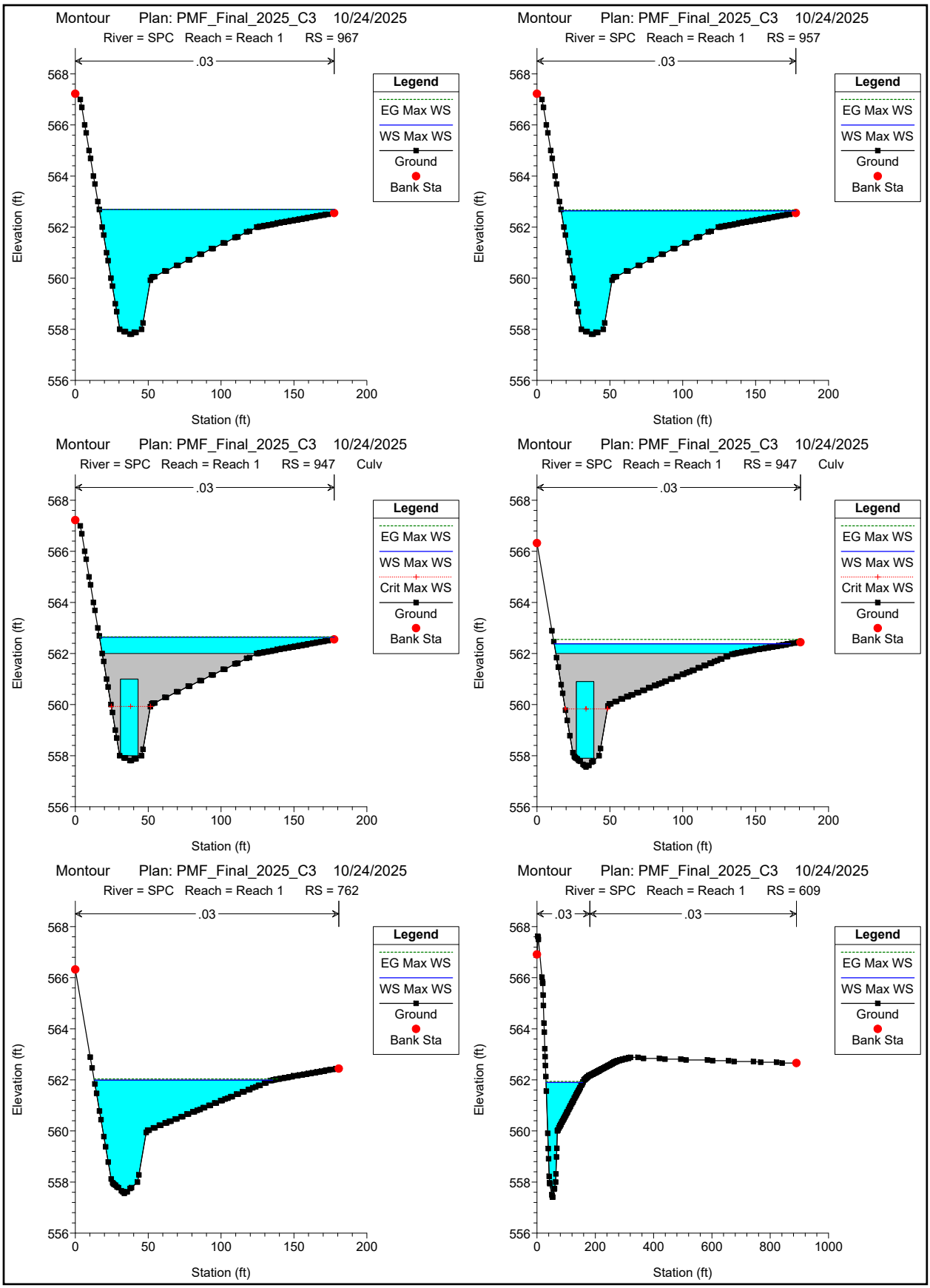

Montour Plan: PMF_Final_2025_C3 10/24/2025
SPC Reach 1
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Elevation (ft)
564
562
560
558
556
554
552
550
548
0
1000
2000
3000
4000
5000
Main Channel Distance (ft)

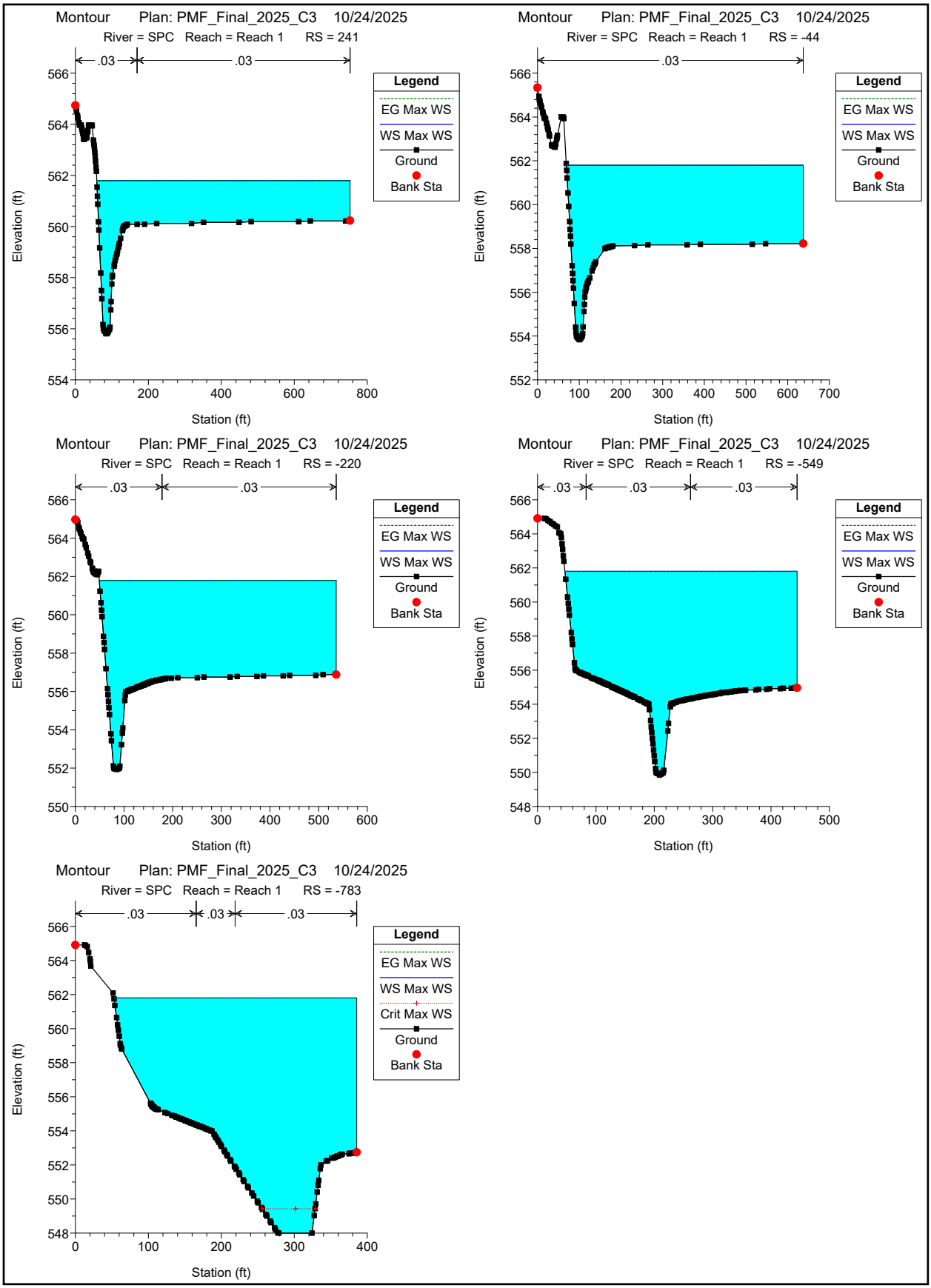

Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 4041
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 3541
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 3041
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 2543
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 2043
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 1542
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)


Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 1053
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 1043
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 953 Culv
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 953 Culv
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 867
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 545
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)


Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = 45
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = -320
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = -534
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = -747
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = -848
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = -1057
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

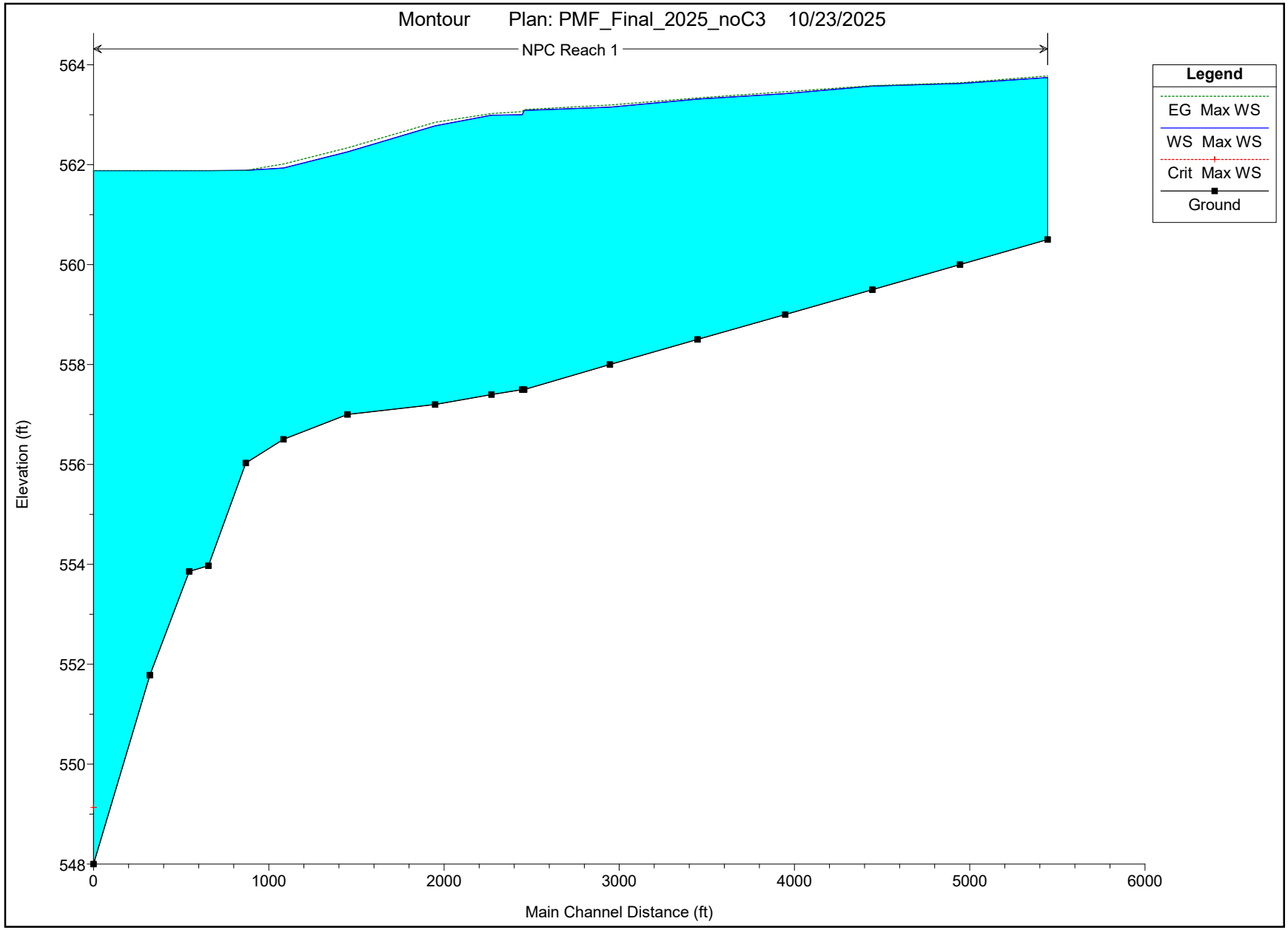

Montour Plan: PMF_Final_2025_C3 10/24/2025
River = NPC Reach = Reach 1 RS = -1379
.03
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 3510
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 3010
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 2509
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 2008
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 1507
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

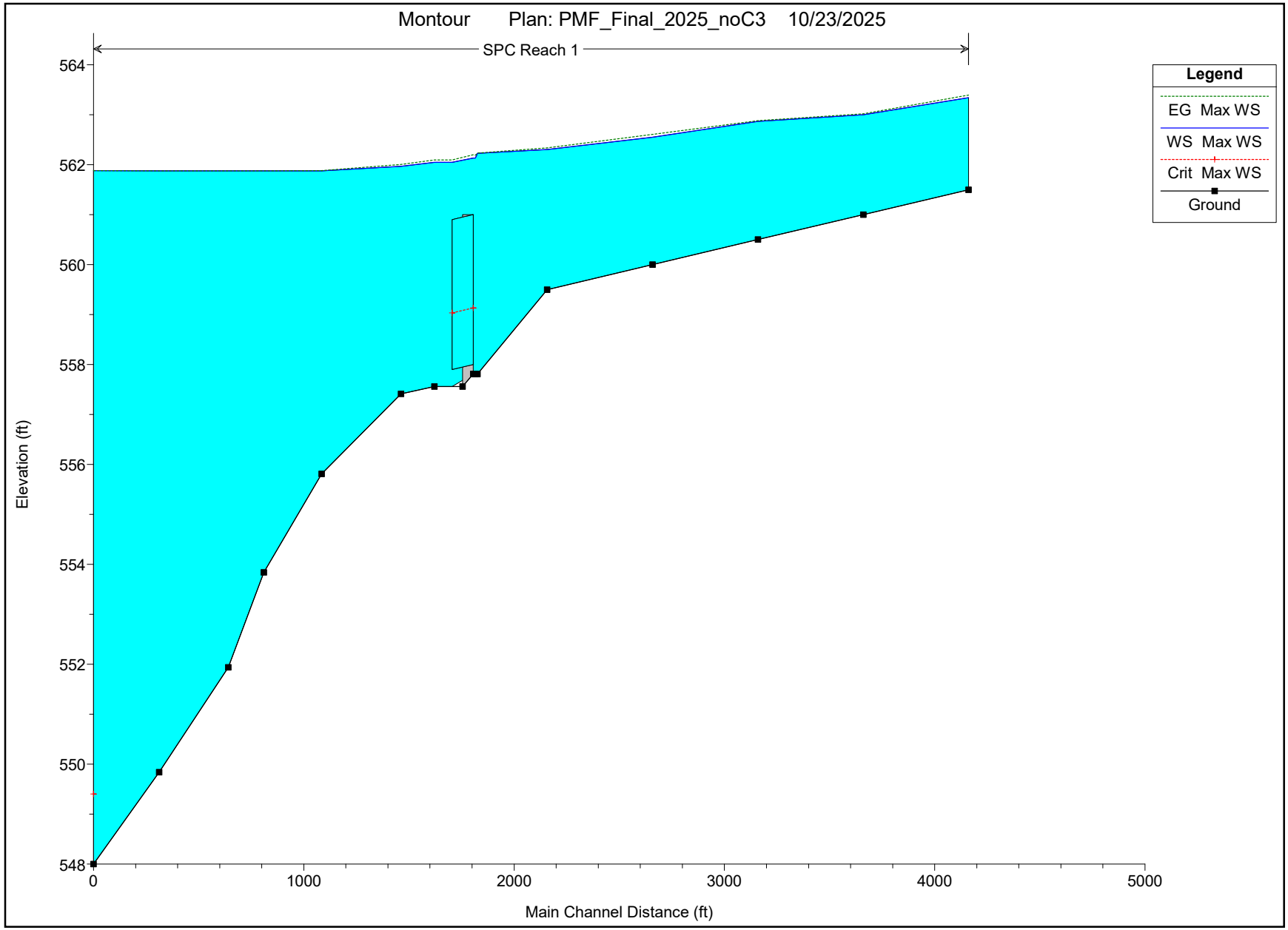

Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 967
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 957
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 947 Culv
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 947 Culv
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 762
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 609
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

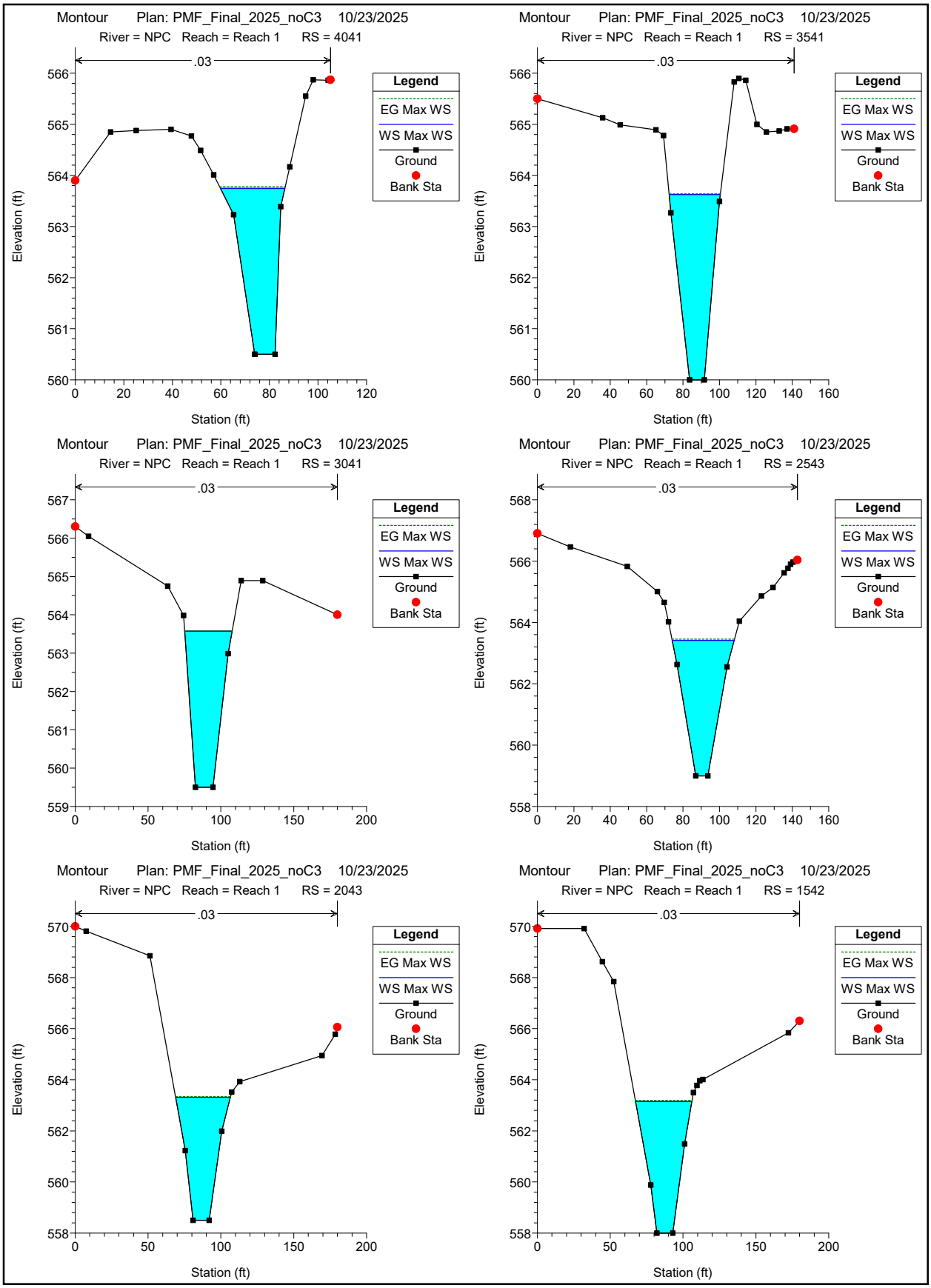

Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = 241
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = -44
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = -220
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = -549
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_C3 10/24/2025
River = SPC Reach = Reach 1 RS = -783
.03
.03
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

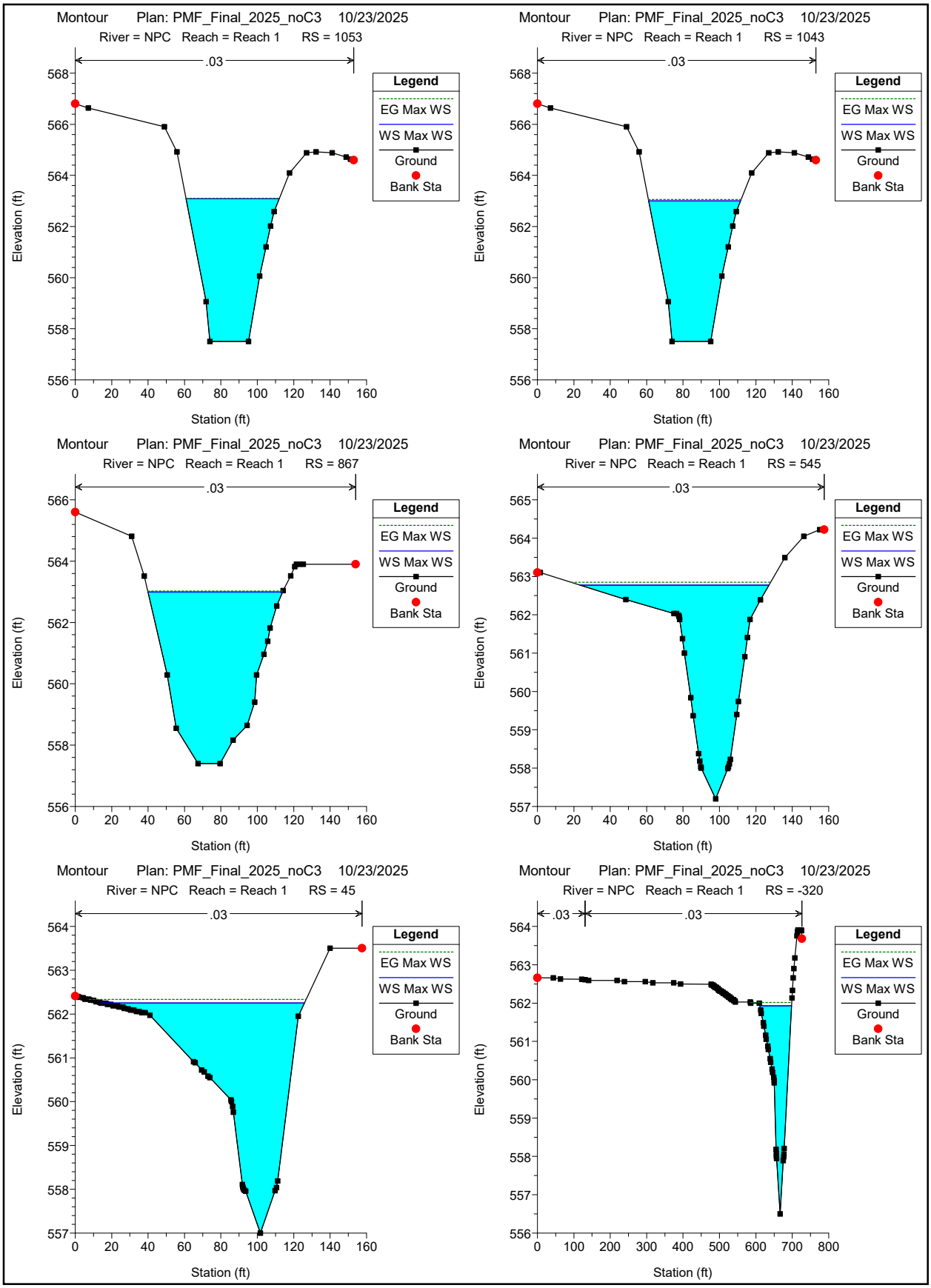
HEC-RAS Plan: PMF_Prop_2025_C3 Profile: Max WS

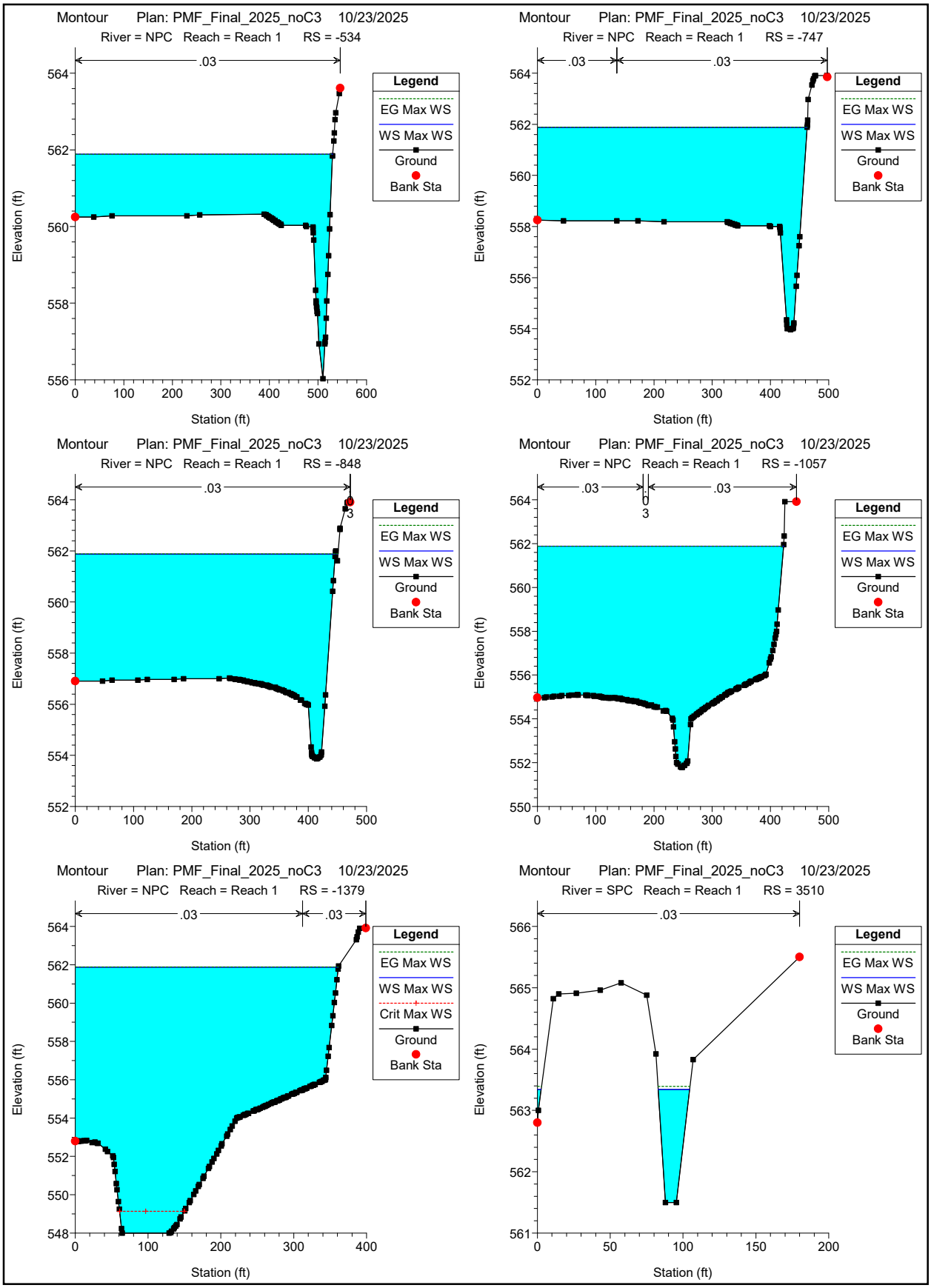
River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
SPC	Reach 1	3510	Max WS	49.08	561.50	563.45		563.49	0.000941	1.64	29.95	25.48	0.27
SPC	Reach 1	3010	Max WS	49.11	561.00	563.19		563.20	0.000204	0.94	52.12	33.32	0.13
SPC	Reach 1	2509	Max WS	48.92	560.50	563.10		563.11	0.000160	0.88	55.39	32.48	0.12
SPC	Reach 1	2008	Max WS	97.26	560.00	562.89		562.93	0.000421	1.60	60.91	30.01	0.20
SPC	Reach 1	1507	Max WS	97.45	559.50	562.74		562.76	0.000237	1.20	81.25	40.28	0.15
SPC	Reach 1	967	Max WS	147.64	557.81	562.69		562.70	0.000059	0.54	273.54	161.15	0.07
SPC	Reach 1	957	Max WS	361.39	557.81	562.64		562.67	0.000391	1.36	265.57	161.01	0.19
SPC	Reach 1	947		Culvert									
SPC	Reach 1	762	Max WS	360.22	557.56	561.99		562.04	0.000663	1.78	202.77	122.40	0.24
SPC	Reach 1	609	Max WS	358.47	557.41	561.90		561.94	0.000583	1.69	212.39	125.72	0.23
SPC	Reach 1	241	Max WS	543.74	555.81	561.80		561.80	0.000029	0.42	1289.47	694.42	0.05
SPC	Reach 1	-44	Max WS	537.53	553.84	561.80		561.80	0.000004	0.24	2194.55	568.02	0.02
SPC	Reach 1	-220	Max WS	534.69	551.94	561.80		561.80	0.000002	0.21	2565.03	487.00	0.02
SPC	Reach 1	-549	Max WS	528.21	549.84	561.80		561.80	0.000001	0.19	2844.71	397.80	0.01
SPC	Reach 1	-783	Max WS	525.49	548.00	561.80	549.43	561.80	0.000001	0.17	3017.52	332.77	0.01
NPC	Reach 1	4041	Max WS	65.89	560.50	564.50		564.51	0.000146	0.89	73.64	38.31	0.11
NPC	Reach 1	3541	Max WS	64.95	560.00	564.46		564.47	0.000058	0.72	90.82	33.10	0.08
NPC	Reach 1	3041	Max WS	64.42	559.50	564.44		564.45	0.000031	0.53	121.21	43.87	0.06
NPC	Reach 1	2543	Max WS	127.97	559.00	564.38		564.39	0.000120	1.04	123.61	45.20	0.11
NPC	Reach 1	2043	Max WS	125.81	558.50	564.33		564.34	0.000092	0.80	156.74	69.11	0.09
NPC	Reach 1	1542	Max WS	192.29	558.00	564.24		564.26	0.000125	1.12	171.30	57.12	0.11
NPC	Reach 1	1053	Max WS	189.25	557.50	564.20		564.21	0.000036	0.75	253.89	61.11	0.06
NPC	Reach 1	1043	Max WS	347.82	557.50	564.16		564.19	0.000123	1.38	251.28	60.47	0.12
NPC	Reach 1	953		Culvert									
NPC	Reach 1	867	Max WS	347.02	557.40	562.89		562.91	0.000131	1.32	263.38	72.79	0.12
NPC	Reach 1	545	Max WS	346.89	557.20	562.68		562.75	0.000941	2.14	162.33	95.98	0.29
NPC	Reach 1	45	Max WS	421.72	557.00	562.16		562.25	0.000956	2.28	185.18	100.97	0.30
NPC	Reach 1	-320	Max WS	421.30	556.50	561.85		561.93	0.000765	2.28	184.71	85.04	0.27
NPC	Reach 1	-534	Max WS	488.77	556.01	561.80		561.81	0.000058	0.54	906.72	529.40	0.07
NPC	Reach 1	-747	Max WS	488.41	553.97	561.80		561.80	0.000005	0.28	1756.22	462.85	0.03
NPC	Reach 1	-848	Max WS	488.25	553.86	561.80		561.80	0.000002	0.22	2240.86	447.74	0.02
NPC	Reach 1	-1057	Max WS	487.04	551.78	561.80		561.80	0.000001	0.17	2877.47	422.39	0.01
NPC	Reach 1	-1379	Max WS	484.61	548.00	561.80	549.10	561.80	0.000000	0.14	3407.63	361.05	0.01

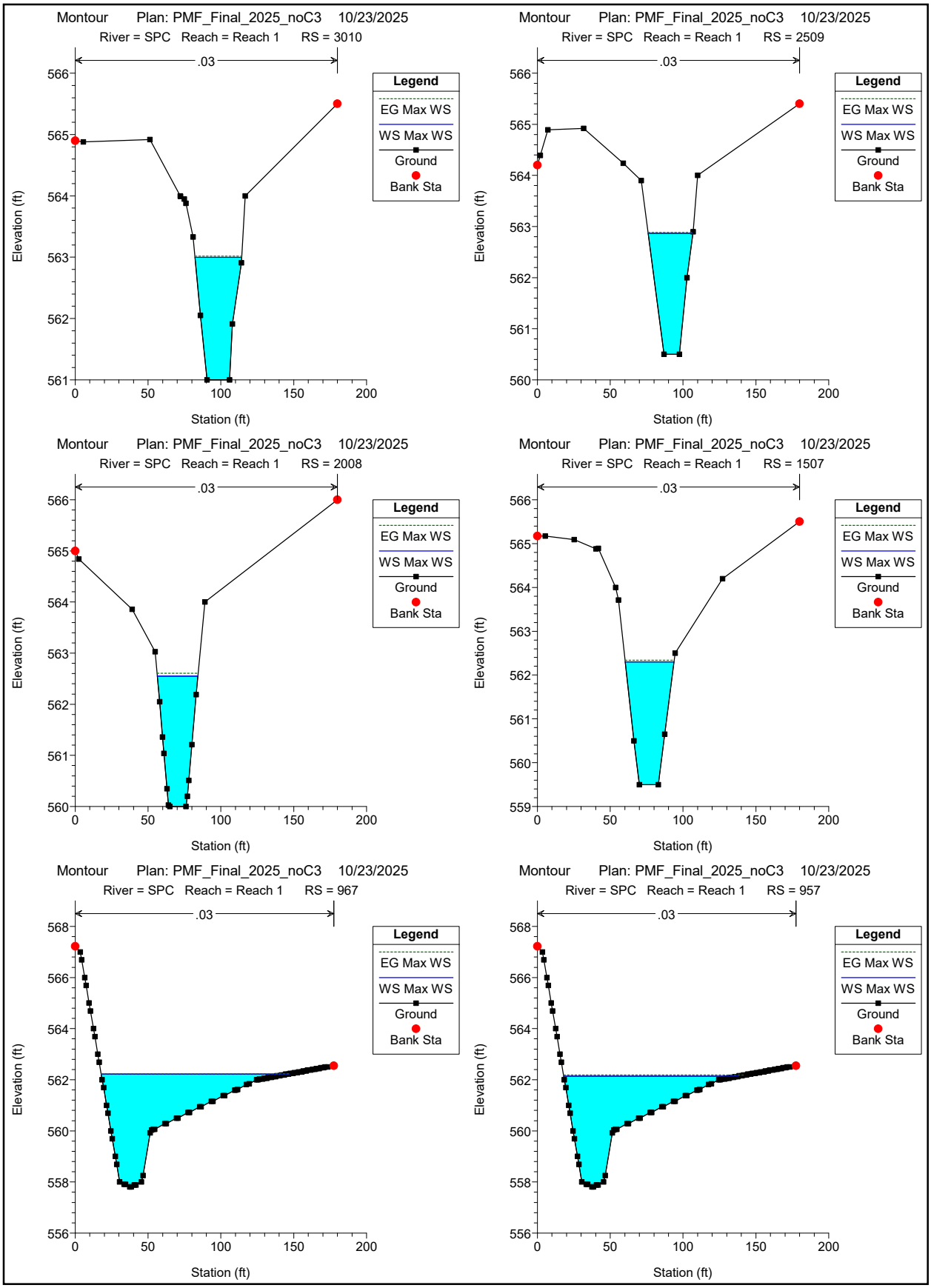

Montour Plan: PMF_Final_2025_noC3 10/23/2025
NPC Reach 1
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Elevation (ft)
564
562
560
558
556
554
552
550
548
0
1000
2000
3000
4000
5000
6000
Main Channel Distance (ft)

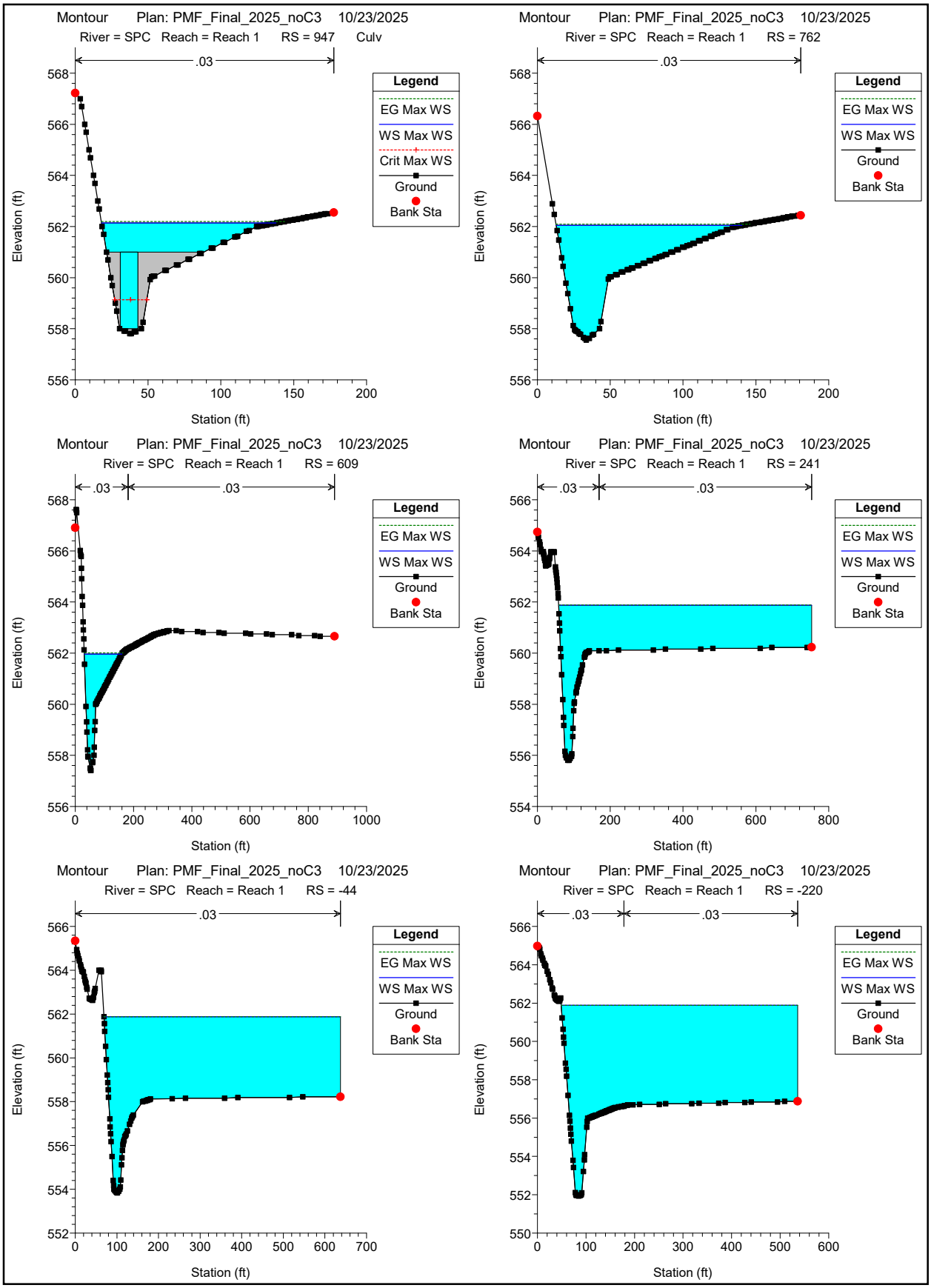

Montour Plan: PMF_Final_2025_noC3 10/23/2025
SPC Reach 1
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Elevation (ft)
564
562
560
558
556
554
552
550
548
0
1000
2000
3000
4000
5000
Main Channel Distance (ft)

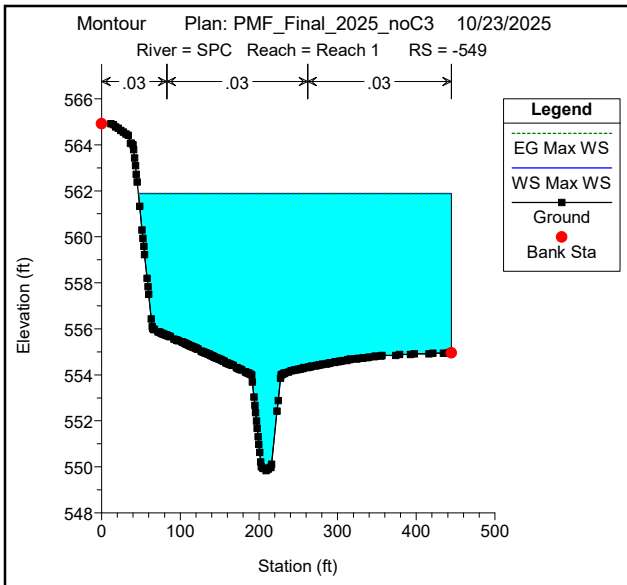

Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 4041
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 3541
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 3041
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 2543
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 2043
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 1542
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)

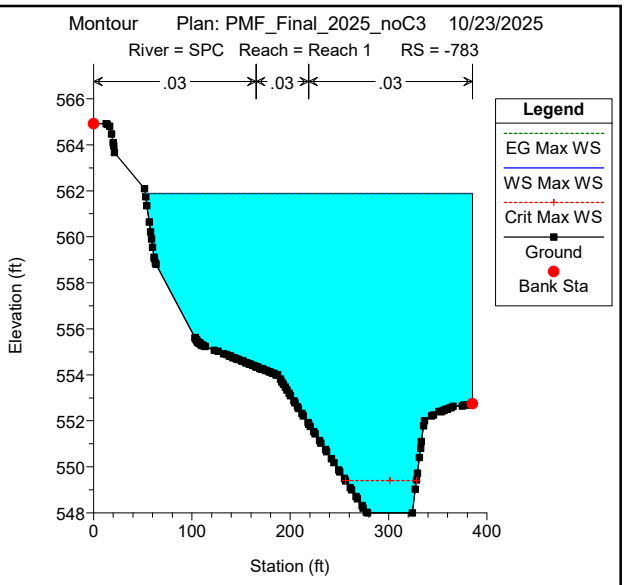

Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 1053
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 1043
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 867
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 545
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = 45
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = -320
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)


Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = -534
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = -747
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = -848
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = -1057
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = NPC Reach = Reach 1 RS = -1379
.03
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 3510
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)


Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 3010
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 2509
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 2008
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 1507
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 967
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 957
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)


Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 947 Culv
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 762
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 609
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = 241
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = -44
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)
Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = -220
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
Station (ft)


Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = -549
.03
.03
.03
Legend
EG Max WS
WS Max WS
Ground
Bank Sta
Elevation (ft)
566
564
562
560
558
556
554
552
550
548
0
100
200
300
400
500
Station (ft)


Montour Plan: PMF_Final_2025_noC3 10/23/2025
River = SPC Reach = Reach 1 RS = -783
.03
.03
.03
Legend
EG Max WS
WS Max WS
Crit Max WS
Ground
Bank Sta
Elevation (ft)
566
564
562
560
558
556
554
552
550
548
0
100
200
300
400
Station (ft)

HEC-RAS Plan: PMF_Prop_2025 Profile: Max WS

River	Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
				(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
SPC	Reach 1	3510	Max WS	49.09	561.50	563.34		563.39	0.001186	1.80	27.27	24.05	0.30
SPC	Reach 1	3010	Max WS	49.13	561.00	563.00		563.02	0.000295	1.07	46.00	32.12	0.16
SPC	Reach 1	2509	Max WS	49.03	560.50	562.87		562.88	0.000238	1.02	48.14	30.71	0.14
SPC	Reach 1	2008	Max WS	97.18	560.00	562.55		562.61	0.000680	1.90	51.15	27.86	0.25
SPC	Reach 1	1507	Max WS	96.95	559.50	562.30		562.34	0.000375	1.48	65.60	33.57	0.19
SPC	Reach 1	967	Max WS	147.21	557.81	562.23		562.23	0.000116	0.72	204.03	128.94	0.10
SPC	Reach 1	957	Max WS	359.31	557.81	562.14		562.19	0.000760	1.86	192.74	119.83	0.26
SPC	Reach 1	947		Culvert									
SPC	Reach 1	762	Max WS	358.67	557.56	562.05		562.09	0.000615	1.71	210.30	127.59	0.23
SPC	Reach 1	609	Max WS	356.39	557.41	561.97		562.01	0.000522	1.61	221.18	129.16	0.22
SPC	Reach 1	241	Max WS	535.50	555.81	561.88		561.88	0.000025	0.40	1345.22	694.68	0.05
SPC	Reach 1	-44	Max WS	528.28	553.84	561.88		561.88	0.000004	0.24	2240.64	568.28	0.02
SPC	Reach 1	-220	Max WS	520.40	551.94	561.88		561.88	0.000002	0.20	2604.75	487.24	0.02
SPC	Reach 1	-549	Max WS	515.12	549.84	561.88		561.88	0.000001	0.18	2877.28	398.04	0.01
SPC	Reach 1	-783	Max WS	508.42	548.00	561.88	549.40	561.88	0.000001	0.17	3044.91	333.05	0.01
NPC	Reach 1	4041	Max WS	69.82	560.50	563.75		563.78	0.000390	1.41	49.35	26.51	0.18
NPC	Reach 1	3541	Max WS	69.59	560.00	563.62		563.64	0.000158	1.06	65.37	27.98	0.12
NPC	Reach 1	3041	Max WS	69.77	559.50	563.57		563.58	0.000070	0.78	89.21	32.61	0.08
NPC	Reach 1	2543	Max WS	138.31	559.00	563.42		563.46	0.000315	1.59	86.77	34.09	0.18
NPC	Reach 1	2043	Max WS	138.26	558.50	563.31		563.34	0.000170	1.27	108.61	37.48	0.13
NPC	Reach 1	1542	Max WS	209.51	558.00	563.15		563.20	0.000271	1.71	122.72	38.63	0.17
NPC	Reach 1	1053	Max WS	209.45	557.50	563.09		563.10	0.000089	1.09	191.45	51.14	0.10
NPC	Reach 1	1043	Max WS	372.93	557.50	563.00		563.06	0.000298	1.99	187.08	50.43	0.18
NPC	Reach 1	867	Max WS	372.02	557.40	562.99		563.02	0.000139	1.37	271.08	73.93	0.13
NPC	Reach 1	545	Max WS	371.63	557.20	562.78		562.85	0.000983	2.16	172.29	103.89	0.30
NPC	Reach 1	45	Max WS	446.38	557.00	562.25		562.34	0.001038	2.29	194.68	111.88	0.31
NPC	Reach 1	-320	Max WS	444.78	556.50	561.93		562.02	0.000779	2.32	191.74	87.29	0.28
NPC	Reach 1	-534	Max WS	511.18	556.03	561.88		561.89	0.000054	0.54	952.51	530.00	0.07
NPC	Reach 1	-747	Max WS	510.18	553.97	561.88		561.88	0.000005	0.28	1794.51	463.10	0.03
NPC	Reach 1	-848	Max WS	509.70	553.86	561.88		561.88	0.000002	0.22	2277.88	448.93	0.02
NPC	Reach 1	-1057	Max WS	507.78	551.78	561.88		561.88	0.000001	0.17	2912.33	422.65	0.01
NPC	Reach 1	-1379	Max WS	504.75	548.00	561.88	549.14	561.88	0.000000	0.15	3437.34	361.31	0.01

Appendix B

PERIODIC HAZARD POTENTIAL CLASSIFICATION ASSESSMENT
MONTOUR ASH BASIN NO. 1 (OCTOBER 2021)

GFT

Talen Energy
Derry Township, Montour County, PA

Montour Ash Basin No. 1.
Periodic Hazard Potential Classification Assessment



October 2021

Prepared By:

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TALEN ENERGY

MONTOUR STEAM ELECTRIC STATION
MONTOUR ASH BASIN NO. 1
PERIODIC HAZARD POTENTIAL CLASSIFICATION ASSESSMENT

OCTOBER 2021

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TALEN ENERGY

Periodic Hazard Potential Classification Assessment

Montour Ash Basin no.1 Dam

Derry Township, Pennsylvania

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Gannett Fleming

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TALEN ENERGY

Periodic Hazard Potential Classification Assessment

Montour Ash Basin no.1 Dam

Derry Township, Pennsylvania

REPORT

Gannett Fleming

1. AUTHORIZATION

1.1 General

Gannett Fleming was authorized by Talen Energy/Montour, LLC (Montour) to perform a dam breach flood inundation study for Montour Ash Basin No. 1 Dam located in Derry Township, Montour County, Pennsylvania, in conformance with Pennsylvania Department of Environmental Protection (PADEP) and the Environmental Protection Agency guidelines. The purpose of the study is to assess the hazard potential of the dam. This study also includes a report and inundation mapping that summarizes the analyses and findings of the two-dimensional dam break modeling.

1.2 Scope of Work

The scope of work included the following tasks:

1. *Collect data:* Review previous reports, studies, drawings, and other data related to modeling the breach of Montour Ash Basin No.1 Dam.
2. *Develop hydraulic model:* Perform a two-dimensional dam break analysis for Montour Ash Basin No. 1 Dam using LiDAR terrain data. The two-dimensional hydraulic model will be used to determine water depths and velocities at the downstream areas.
3. *Simulations:* Perform hazard potential analysis and develop recommendations for hazard potential classification of Montour Ash Basin No.1 Dam.
4. *Develop inundation maps:* Assess the extent of downstream inundation during a breach of Montour Ash Basin No.1 Dam based on the results of the two-dimensional modeling and PADEP guidelines.
5. *Document analysis and share results:* Present the findings of this analysis in a report.

2. BACKGROUND

Talen owns and operates the Montour Steam Electric Station (MSES), which is located in Derry Township, Montour County, Pennsylvania. Basin No.1 was constructed to dispose of coal combustion residuals (CCR) and to treat wastewater from the MSES. The location of Basin No.1 is shown on Figure 1 – Site Location Map in Appendix A.

Basin No.1 is permitted by Pennsylvania Department of Environmental Protection (PADEP) as a Class II Residual Waste Disposal Impoundment under Permit No. 301315, which expires on October 5, 2027. Basin No.1 is also regulated by the PADEP Bureau of Waterways Engineering Division of Dam Safety (PADEP Division of Dam Safety) under Permit No. 47-009 and National Pollutant Discharge Elimination System (NPDES) Permit No. PA0008443.

Basin No.1 is an unlined, earthen dike disposal impoundment. The permitted disposal area is approximately 155 acres. Basin No.1 went into service in 1971 and was developed by excavating site soils to construct an embankment dike around the excavation. The perimeter of Basin No.1 is approximately 11,000 feet in length and up to approximately 40 feet high. The dike ties into a bedrock ridge along the eastern side of the basin. A slurry wall was subsequently installed in the perimeter dike except in the bedrock ridge area. Originally, Basin No.1 was divided into Subbasins A, B, and C by internal dikes referred to as the Median Dike and the Splitter Dike, respectively.

The CCR disposed in Basin No.1 have historically included fly ash (ceased in 1982), bottom ash (presently managed elsewhere), Stabil-Fil (lime-amended fly ash placed as beneficial use), and mill rejects. Bottom ash and mill rejects are currently sluiced in separate pipes to concrete-lined sluice troughs located in Subbasin B. The bottom ash and mill rejects are separated from the sluice water in the troughs and the water is discharged into Subbasin B which functions as a settling and cooling basin. The bottom ash is processed into different gradations and beneficially used in accordance with Pennsylvania Residual Waste Regulations, Chapter 290 (Beneficial Use of Coal Ash) of the Pennsylvania Code. The mill rejects are transported off-site for disposal.

From Subbasin B, the water is decanted by culverts through the splitter dike into Subbasin C. Water is discharged from Subbasin C through a riser and outlet pipe to the on-site detention basin before discharging under NPDES Permit No. PA0008443.

In preparing for eventual basin closure, Montour submitted a Major Permit Modification (MPM) Application to PADEP in November 2014 which PADEP approved by a permit modification dated June 18, 2015. The MPM Application proposed the following:

- Placement of Conditioned Fly Ash (fly ash conditioned with moisture) as a beneficial use to increase final grades to a maximum of 3 percent to promote surface water run-off and decrease the potential for long-term ponding of water on the final cover.
- Installation of a surface water management system designed in accordance with PADEP regulations.
- Placement of an alternative final cover system consisting of a geomembrane, geotextile cushion/drainage layer, and final cover soil.

In accordance with the MPM Application, Montour has been placing Conditioned fly ash (CFA) in Basin No.1 as structural fill to increase the final grades in preparation for basin closure. The placement of fly ash is considered beneficial use of coal ash as structural fill per Chapter 290.102 of the Pennsylvania Code. CFA has been placed in Subbasin A to increase grades to a minimum slope of 1 percent. Refer to Sheet 3 of the Overflow Section Construction Plans provided in Appendix A for the Existing Conditions Site Plan.

Modifications to allow Basin No.1 to safely pass the Inflow Design Flood were constructed in 2020. These modifications included an armored overflow section on the perimeter dike, lowering of a portion of the splitter dike, modifications to the perimeter conveyance channels, and intermediate diversion channels and berms. The overflow section between Subbasin B and C. is 200 feet wide with 10H:1V slopes and an invert elevation of 562.0 feet. The armored overflow section to convey flow out of Subbasin C is 150 feet wide with 4H:1V slopes and an invert of 562.0 feet. This section is armored with articulating concrete blocks (ACBs) through the control section and down the downstream embankment slope. The overflow section would be activated by a storm greater than the 1,000-year storm event. Modifications to the perimeter conveyance channels and intermediate diversion channels and berms are not relevant for the hazard potential classification because the reservoir of Montour Ash Basin No.1 Dam was modeled using the bathymetric contours available in the Plant Site Grading drawings dated March 15, 1968, provided in Appendix A, to maximize the potential water storage volume within the basin. With the 2020 modifications, Basin No.1 has adequate capacity to safely pass the Inflow Design Flood (probable maximum flood [PMF] event) without overtopping the non-armored portions of the perimeter dike at El. 564.0 feet. Construction drawings for the overflow sections, perimeter channels, and diversion berms, are provided in Appendix A. Table 1 provides a summary of pertinent details of the dam.

Table1. Pertinent Details of Montour Ash Basin No.1 Dam

Dam Name	Montour Ash Basin No.1 Dam
Drainage Area	Approximately 155 acres
Dam Height x Perimeter Length	Approximately 40 feet x 11,000 feet
Normal Pool Elevation/Overtop Elevation	553.7 feet / 564.0 feet

The "Initial Hazard Potential Classification Assessment for Ash Basin No. 1" dated October 14, 2016 concluded that failure of the Basin 1 embankment has the potential to result in the loss of life downstream and classified the basin as high hazard. The design storm event of the basin is the probable maximum flood (PMF). This report documents the analyses completed to re-evaluate the hazard potential of the dam and develop updated dam break inundation maps for inclusion in the EAP.

3. INFLOW HYDROLOGY

In 2020, Gannett Fleming evaluated and updated the Initial Inflow Design Flood Control System Plan for the MSES Ash Basin No. 1 prepared by Civil & Environmental Consultants, Inc. (CEC) dated October 2016. The findings from the Gannett Fleming study are documented in the report titled *Periodic Inflow Design Flood Control System Plan for Montour Ash Basin No. 1*, dated November 2020. As part of the Gannett Fleming study in 2020, detailed hydrologic modeling was performed to simulate the PMF conditions at the reservoir, and a peak PMF pool level of 563.9 feet was estimated. No additional hydrologic computations were performed as part of the current study. Table 2 presents the relevant pool elevations used in the current study.

Table 2. Relevant pool elevations used in the current study

Breach Scenario	**Assumed Pool Level**	**Pool Elevation** (feet)
Sunny Day Breach	Normal Pool	553.7
PMF Plus Breach	Peak PMF Pool	563.9

In order to simulate concurrent flooding in the downstream creeks during a PMF event in the reservoir of Montour Ash Basin No.1 Dam, 100-year flows were input into the hydraulic model in the downstream reaches including the East, the West, and the Main Branch of Chillisquaque Creek. In PMF simulations, it is normal practice to select the 100-year flood event as the concurrent flood level in downstream tributaries while the PMF event is simulated in the study watershed. This is done to approximate flood conditions in the downstream channels prior to the dam breach. The 100-year event peak flows were developed using a regression-based flood-frequency analysis using the USGS Streamstats software program. Table 3 presents the 100-year peak flow assumed in the downstream stream reaches. Results from the Streamstats peak flows analysis are provided in Appendix B.

Table 3. Modeled 100-Year Peak Flows in Downstream Stream Reaches

Location	Modeled 100-Year Flow (cfs)
Approximately 2,000 feet northeast of the dam on East Branch Chillisquaque Creek	3,640
Approximately 7,000 feet downstream of the dam on Main Branch Chillisquaque Creek	7,320
Approximately 16,000 feet downstream of the dam on Main Branch Chillisquaque Creek	9,460
Approximately 30,000 feet downstream of the dam on Main Branch Chillisquaque Creek	10,100

4. DAM BREAK ANALYSES

A dam breach analysis was performed to model the inundation area downstream of Montour Ash Basin No.1 Dam. Prior to performing a breach analysis, the terrain was analyzed using GIS to identify and evaluate potential flow paths during a dam breach event. Preliminary model runs were also performed to assess the sensitivity of the results to the topographic features located in the area downstream of the dam. Photographs of relevant site features are provided in Appendix A.

4.1 Flow Conditions Downstream of Montour Ash Basin No.1 Dam

The area downstream of Montour Ash Basin No. 1 Dam consists of natural and man-made topographic features that complicate the hydraulic conditions during high flow events, such as a dam breach event. A topographic map showing the terrain features in the area immediately downstream of the dam, and an aerial photograph showing the land cover features in the area downstream of the dam, are provided on Figures 1 and 2, respectively.

The embankment of Montour Ash Basin No. 1 Dam consists of a perimeter dike located above ground. Due to this feature of the embankment, breach flows have the potential to travel multi-directionally in the downstream receiving areas. Other noteworthy terrain features include the confluence of the East and the West Branch Chillisquaque Creeks, and the presence of multiple road and railroad embankments in the downstream areas that act as flow constrictions during high flow events, backing up water in the upstream reaches of the Chillisquaque Creek.

Sixteen (16) road bridges and three (3) railroad bridges are located in the study area.

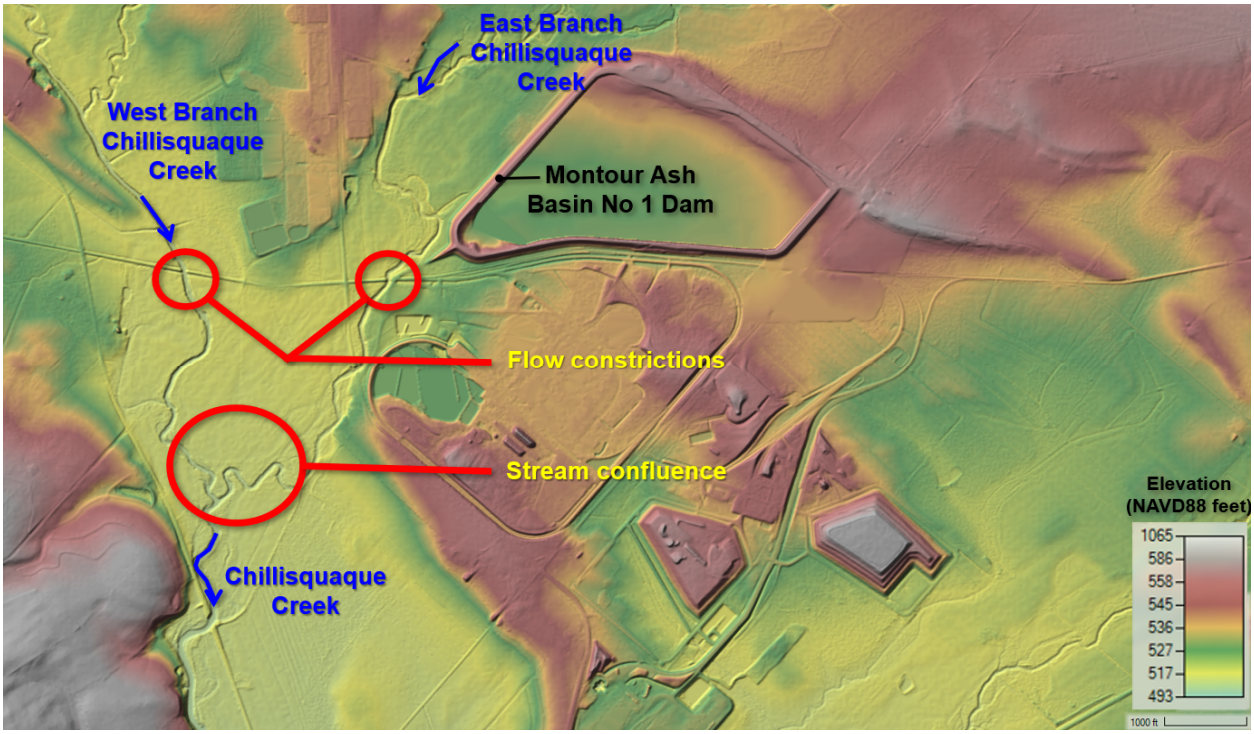


Figure 1. Topographic Map Showing Terrain of the Area Immediately Downstream of Montour Ash Basin No. 1 Dam



Figure 2 – Aerial Photograph Showing the Area Downstream of Montour Ash Basin No. 1 Dam

4.2 Hydraulic Modeling Approach

A two-dimensional model hydraulic was used to simulate the complex flow conditions downstream of Montour Ash Basin No. 1 Dam. One-dimensional hydraulic models do not have the capability to accurately model hydraulic scenarios where multi-dimensional flow occurs due to flat terrain downstream. The two-dimensional hydraulic model was developed using the U.S. Army Corps of Engineers' HEC-RAS Software Version 6.0.

For the purpose of modeling the reach downstream of Montour Ash Basin No.1 Dam, a two-dimensional model was defined starting from the reservoir of Montour Ash Basin No.1 Dam and extending to a location approximately nine (9) miles downstream on the Chillisquaque Creek, to analyze the flow conditions in the floodplains downstream of the dam. The location for the downstream boundary of the model was selected by a trial-and-error approach to assess the location where the failure and non-failure hydrographs converge within a foot in water surface elevation. In addition to the benefit of understanding multi-directional flow hydraulics in the reach under study, a significant advantage of using a two-dimensional model includes the ability to quantify and assess the potential hydraulic hazard at locations in the downstream inundation area. The two-dimensional hydraulic analysis also allows improved comparison of incremental damages and a quantitative assessment of maximum depths and flow velocities.

The two-dimensional model was used to simulate two breach scenarios; namely a Sunny Day failure and the PMF plus failure event of Montour Ash Basin No.1 Dam. A 100-year without failure event was also simulated for comparison. The three simulation runs that were performed are listed below.

- Sunny Day failure of Montour Ash Basin No.1 Dam
- PMF plus failure of Montour Ash Basin No.1 Dam
- 100-year event without dam failure

Detailed descriptions of the two-dimensional HECRAS model developed to simulate the hydraulics of the reach downstream of Montour Ash Basin No.1 Dam, and the scenarios modeled are discussed below.

4.3 Hydraulic Modeling Inputs

A two-dimensional hydraulic model to simulate the hydraulic conditions downstream of Montour Ash Basin No.1 Dam, including the lateral flow spread areas near the Town of Washingtonville, was developed using the U.S. Army Corps of Engineers' HECRAS software version 6.0.

The inputs to the two-dimensional hydraulic model include a terrain grid encapsulating the entire area of analysis upstream and downstream of Montour Ash Basin No.1 Dam, Manning's surface roughness coefficients for the area under study, geometry data for the downstream bridge embankments, study boundary locations, and inflows for the PMF event. LiDAR terrain data was obtained from Pennsylvania Spatial Data Access (PASDA) LiDAR repository, and was used to generate the terrain grid for the two-dimensional hydraulic model. The area downstream of Montour Ash Basin No.1 Dam was defined as a two-dimensional flow area with cells ranging in area from a minimum of 3,919 square feet to a maximum of 12,863 square feet, and an average area of 4,957 square feet. (approximately 70-foot x 70-foot cells), with elevations sampled from LiDAR data. A total of 54,854 cells were used within the HECRAS model. The reservoir of Montour Ash Basin No.1 Dam was modeled using the bathymetric contours available in the Plant Site Grading drawings dated March 15,1968, and is provided in Appendix A. It is noted that the reservoir volume was conservatively modeled to be based on the available volume presented in the Plant Site Grading drawings of 1968, and not based on the existing conditions where residual waste is present. This conservative assumption was made as there is a potential this residual waste may be fluidized and released during an extreme hydrologic event.

Manning's roughness values for the two-dimensional flow grid were input based on land use and aerial cover data from aerial photography. A composite Manning's "n" value of 0.06 was used for the areas downstream of Montour Ash Basin No.1 Dam. Downstream bridge embankments were modeled as part of the LiDAR terrain. The flow impediment effects of bridge decks and piers were not considered in this study. The upstream boundary condition location was set at the reservoir of Montour Ash basin No.1. The downstream boundary was set at a location approximately 1.5 miles downstream of Interstate 80 and approximately 9 miles downstream of Montour Ash basin No.1 Dam. The two-dimensional model was run for a time step increment of 2 seconds. The two-dimensional model was used to simulate:

(1) Sunny Day Failure of Montour Ash Basin No.1 Dam,
(2) PMF plus Failure of Montour Ash Basin No.1 Dam, and
(3) 100-year flows in the downstream creeks, without a dam failure event.

4.4 Breach Parameters for Montour Ash Basin No.1 Dam

Breach parameters for this study were provided to Gannett Fleming by Talen, based on the parameters provided by PADEP to Talen as documented in an electronic mail dated March 30, 2012.

Failure and breaching of Montour Ash Basin No.1 Dam during the Sunny Day breach scenario was assumed to occur as a result of a sudden failure of a section of the embankment, during normal pool conditions with the reservoir at Elevation 553.7 feet. Failure and breaching of Montour Ash Basin No.1 Dam during the PMF event was assumed to occur as a result of a sudden failure of a section of the embankment with the reservoir at the PMF peak pool level of 563.9 feet, and by assuming a breach similar to a "Sunny Day failure" to occur. Breach widths for the Sunny Day and PMF plus breach events were assumed to be three times the height of the dam at the break location. A total breach time of 30 minutes was assumed for all the modeled breach scenarios. Table 4 shows the assumed breach parameters for Montour Ash Basin No.1 Dam.

Table 4. Breach Parameters for Montour Ash Basin No.1 Dam (as provided by PADEP)

Parameter	Sunny Day Breach	PMF plus Breach
Breach Bottom Width (feet)	3 times the height of the dam at the break location	3 times the height of the dam at the break location
Breach Side Slopes	1V:1H	1V:1H
Breach Formation Time (minutes)	30	30

A sensitivity analysis for selecting the breach location was performed as part of this study. This sensitivity analysis was performed by varying the breach location around the perimeter of Ash Basin No.1 Dam to evaluate the locations that will result in maximum downstream hazard conditions. As a result of this sensitivity study, three locations were selected for simulating a dam breach. The selected locations that were evaluated to result in the most critical downstream hazard conditions are presented in Figure 3.

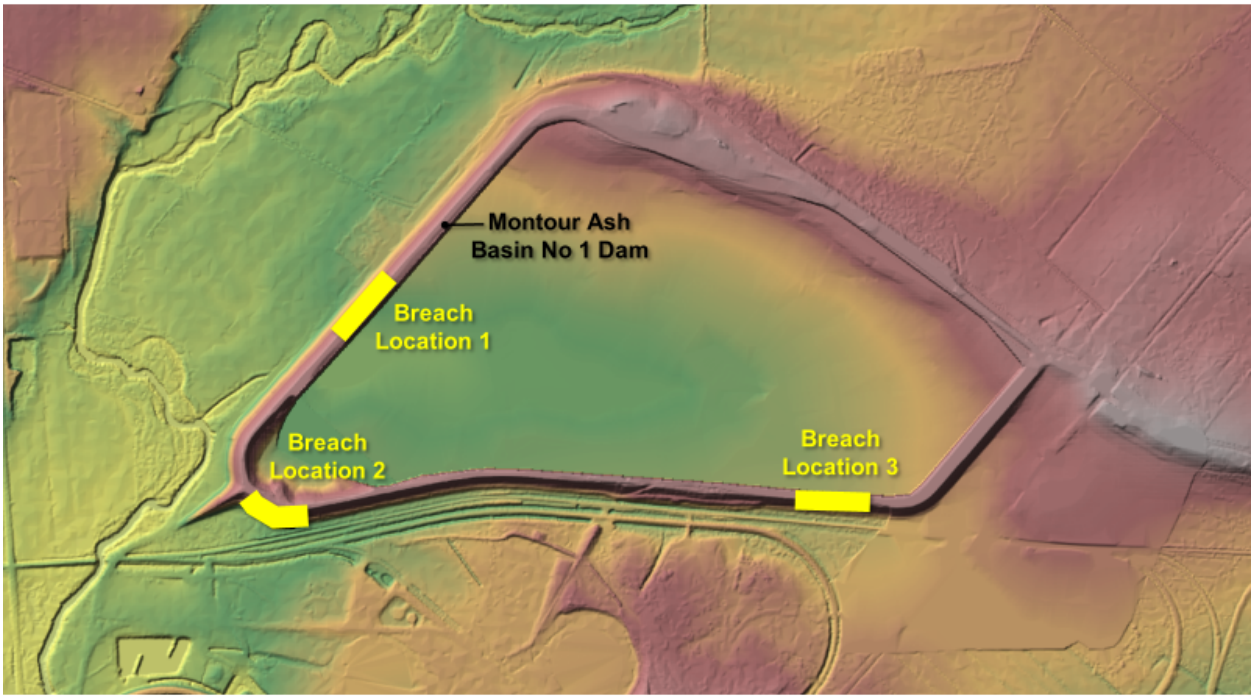


Figure 3 – Selected Locations for Breach of Montour Ash Basin No.1 Dam

5. HYDRAULIC MODEL RESULTS

The hydrographs of a Sunny Day failure and the PMF failure of Montour Ash Basin No.1 Dam, and the non-failure 100-year hydrograph on the Chillisquaque Creek were routed approximately 9 miles downstream of Montour Ash Basin No.1 Dam, through the modeled reaches of the East, the West, and the Main Branches of the Chillisquaque Creek. Even though a large storage volume of the reservoir would be released during a dam breach, significant storage of the flood wave is computed to occur in the channels and the flood plains of the East, the West, and the Main Branches of the Chillisquaque Creek, and other relatively smaller downstream tributaries and water bodies.

Since the downstream flooding conditions from failures at the three breach locations as described in section 4.4 of the report are anticipated to result in the most conservative estimate of the breach consequences, the failure scenarios corresponding to these three breach locations during a Sunny Day failure and the PMF plus failure were used to create the breach inundation mapping that is considered to be inclusive of all scenarios for the purpose of assessing the breach consequences.

Sunny Day Breach:

The failure flood wave was analyzed within the study reach to a location nine (9) miles downstream from the dam. Twelve (12) downstream roads and one (1) railroad crossing are estimated to be overtopped due to the flood wave resulting from a Sunny Day failure. Between ten (10) to fifteen (15) inhabitable structures in the affected reach downstream of Montour Ash Basin No.1 Dam are estimated to be impacted by the breach outflows from a Sunny day failure of the dam. By the time the flood wave reaches the downstream extent of the model at a location approximately 9 miles from the dam, breach outflows from a Sunny Day breach are estimated to be less than one foot deep in the floodplain of the Chillisquaque Creek, and are not anticipated to cause hazardous conditions in the floodplain further downstream. The maximum computed peak breach outflow from a Sunny Day failure scenario, measured at the breach location of the dam is approximately 36,000 cfs. By the time the flood wave reaches a point approximately 9 miles downstream of the dam, the flood peak is estimated to be attenuated to approximately 11% of the peak breach outflow, to approximately 4,000 cfs.

Due to the relatively flat nature of the stream reach, along with a characteristic broad river valley in the immediate downstream reaches from the dam, outflows from a dam breach are estimated to have travel velocities in the range of 5 to 12 fps in the first mile downstream of the dam, but which

relatively quickly slows down to 1 to 5 fps further downstream. The breach flood wave is anticipated to travel the first 2 miles where a majority of the consequences are located in Washingtonville, within approximately 1.5 hours from a breach, allowing limited time for warning and evacuation. Water levels in the downstream creeks and water bodies are estimated to reach their peak and recede back to normal levels within 12 hours from the time of breach.

PMF Breach:

Modeling results from a non-failure event, where 100-year flood conditions in the East, the West, and the Main Branches of the Chillisquaque Creek were simulated, indicate that significant flooding can occur in the downstream floodplains of the East, the West, and the Main Branches of the Chillisquaque Creek even without a dam breach. The computed peak breach outflow from a PMF plus failure scenario, measured at the breach location of Montour Ash Basin No.1 Dam is approximately 52,000 cfs. Since the storage volume of the dam released during the PMF plus breach is relatively small in comparison with the total volume from natural flooding (simulated to be 100-year event conditions), incremental flooding of less than 6 feet in depth is shown to occur in the areas immediately downstream of the dam during a PMF plus failure scenario. This difference in the water surface elevations between the breach and no-breach conditions is further dissipated as the flood wave travels downstream. Incremental flooding from a PMF failure scenario over a 100-year non-breach scenario is estimated to be approximately 4 feet close to Washingtonville. At the downstream extent of the model located approximately 9 miles downstream from the dam, the incremental flooding from a PMF failure scenario over a 100-year non-breach scenario is estimated to be less than 2 feet.

Breach hydrographs corresponding to the Sunny Day breach and PMF plus failure events are presented in Appendix B. Water surface profiles along the East and the Main Branches of the Chillisquaque Creek from the dam site to the downstream extent of the model corresponding to a Sunny Day breach, the PMF plus breach, and the 100-year no breach scenarios are presented in Appendix B.

Hazard Potential Classification:

The most recent study on the hazard potential classification of Montour Ash Basin No.1 Dam titled "*Initial Hazard Potential Classification Assessment for Ash Basin No. 1*", dated October 14, 2016, concluded that failure of the Basin No.1 embankment has the potential to result in the probable loss of life downstream and classified the basin as high hazard. The design storm event of the basin that was used for this classification was the probable maximum flood (PMF).

Based on the results from the current study and the hazards in the downstream floodplain in 2021, the hazard potential of the dam was re-evaluated according to PADEP and United States Environmental Protection Agency (USEPA) guidelines. The PADEP provides guidelines for assigning a hazard classification to a dam in Title 25, Chapter 105, Pa Code for the Classification of Dams and Reservoirs. The current PADEP guidelines for size and hazard potential classification of a dam is summarized in Table 5. Montour Ash Basin No.1 Dam is currently classified as B-1, with respect to Pennsylvania DEP's size and potential hazard classification, as noted in the 2016 report.

Table 5. PADEP Dam Size and Hazard Potential Categories

Size Category

Category	*Impoundment Storage (Acre Feet)*	*Dam Height (Feet)*
A	Equal to or greater than 50,000	Equal to or greater than 100
B	Less than 50,000 but greater than 1000	Less than 100 but greater than 40
C	Equal to or less than 1000	Equal to or less than 40

Hazard Potential Category

Category	*Population at Risk*	*Economic Loss*
1	**Substantial** (Numerous homes or small businesses or a large business or school)	Excessive such as extensive residential, commercial, or agricultural damage, or substantial public inconvenience
2	**Few** (A small number of homes or small businesses)	Appreciable such as limited residential, commercial, or agricultural damage, or moderate public inconvenience
3	**None expected** (no permanent structures for human habitation or employment)	Significant damage to private or public property and short duration public inconvenience such as damage to storage facilities or loss of critical stream crossings
4	**None expected** (no permanent structures for human habitation or employment)	Minimal damage to private or public property and no significant public inconvenience

The USEPA defines hazard potential of Coal Combustion Residual (CCR) impoundments in 44 CFR § 257. A high hazard potential CCR surface impoundment would have probable loss of human life due to failure or mis-operation. If failure or mis-operation would result in no probable loss of human life, but could cause economic loss, environmental damage, disruption of lifeline facilities or impact other concerns, the impoundment is classified as a significant hazard potential CCR surface impoundment. The hazard potential classification of Montour Ash Basin No. 1 has

not changed from the initial hazard potential classification assessment for Ash Basin No. 1 dated October 14, 2016.

Results from the two-dimensional hydraulic model include water depth, flow velocity, and flow direction in each grid cell for every two-second time step. These results were overlaid on a geo-referenced orthophoto to assess the hydraulic conditions downstream of the dam including at critical areas in Washingtonville. These findings were then evaluated against the criteria given in PADEP and EPA guidelines.

Based on the hydraulic model results, between 10 to 15 inhabitable structures are impacted during a Sunny Day breach of Montour Ash Basin No.1 Dam. The impacted inhabitable structures are subjected to maximum flooding depths ranging between 0.2 to 4 feet, and flooding velocities ranging between 1 to 4 fps. The flood wave arrival times to all these structures are within 6 hours of a dam breach. Based on this information, it is estimated that there could be a few lives at risk during a Sunny Day dam breach scenario, especially if the breach were to occur at night where there could be limited warning time, and which only allows for reduced time to exit hazardous conditions. During a PMF plus breach event, even though additional structures compared to a Sunny Day breach scenario are impacted, the incremental depths from a breach event over a non-breach event are comparatively less. Therefore, the Sunny Day breach scenario was used in evaluating the hazard classification potential of Montour Ash Basin No.1 Dam.



Figure 4 – Photograph of one of the inhabited structures considered for hazard potential classification of Montour Ash Basin No.1 Dam

One of the inhabited structures located in the Sunny Day breach inundation zone that was used in the evaluation of hazard potential is a structure located near the intersection of Continental Boulevard and Strawberry Ridge Road in Washingtonville. A photograph of this structure is presented in Figure 4. A cross-section showing the water surface elevations during the Sunny Day breach, the PMF plus breach, and 100-year non-breach conditions is presented in Figure 5. A peak flow depth and a peak flow velocity of 3 feet and 3 fps, respectively, are computed at the location of this structure, for the Sunny Day breach scenario. Incremental flow depths of approximately 3 feet are anticipated during a PMF plus breach event in comparison to a 100-year non-breach event.

Based on the above assessment, it is estimated that hazardous conditions could exist impacting a few houses in the downstream floodplain areas, and there is a potential for loss of human life during a failure of Montour Ash Bain No.1 Dam. Therefore, the dam is recommended to be considered as a "high hazard structure" as defined in PA Code Title 25 Chapter 105.1. Based on this study, the current PADEP Hazard Potential Category of B-1 is appropriate. Additionally, Montour Ash Basin No. 1 Dam is recommended to be classified as a "high hazard potential CCR surface impoundment" according to USEPA regulations.

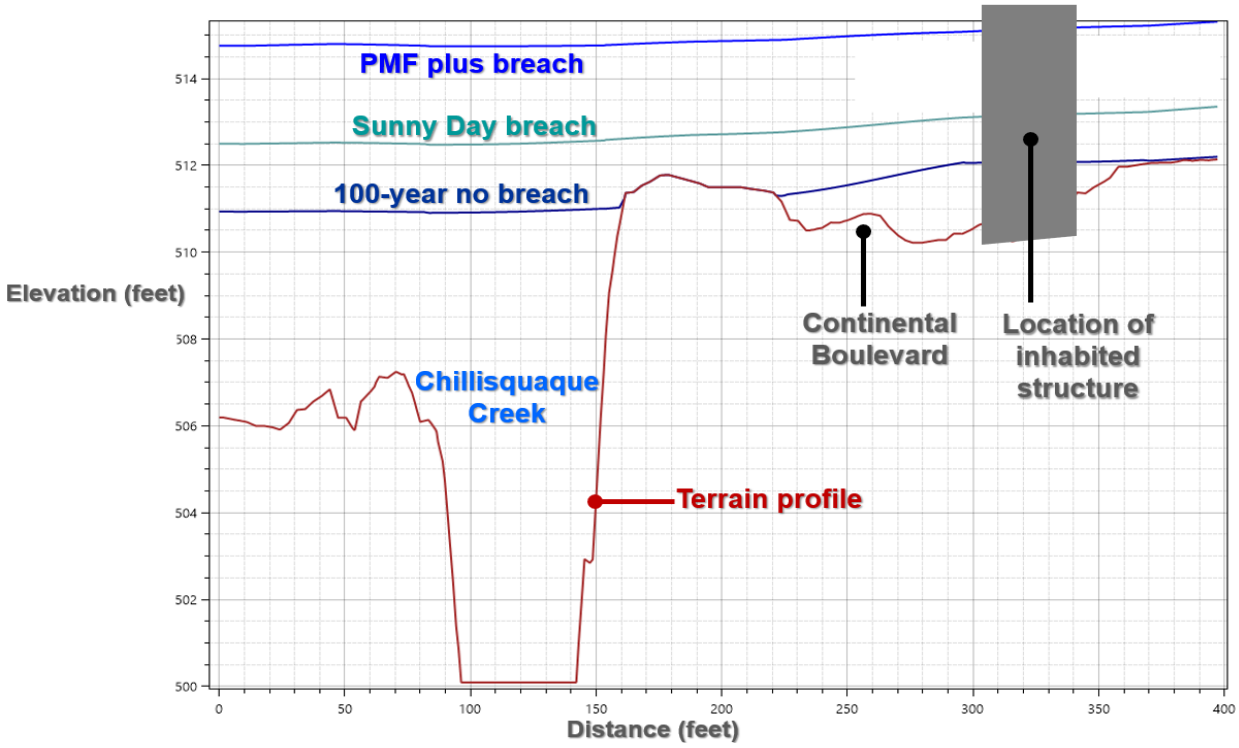


Figure 5 – Cross-section showing water surface elevations in the vicinity of one of the inhabited structures considered for hazard potential classification of Montour Ash Basin No.1 Dam

Inundation Mapping:

The two-dimensional breach hydraulic model results were processed in ArcGIS using LiDAR terrain data to develop inundation maps that show the maximum extent of inundation in the areas downstream of Montour Ash Basin No.1 Dam. Considering the PADEP guidelines, one set of maps which incorporates the worst-case the extents of both Sunny Day breach and PMF failure scenarios was prepared. The inundation maps show the worst-case extent of inundation with Bing aerial maps used as a base map. In addition to the maximum inundation extents, inundation maps are also presented with Traffic Control Points (TCP) at critical road and railroad crossings downstream of the dam. The inundation maps developed are provided in Appendix C. Breach hydrographs downstream of the Montour Ash Basin No.1 Dam corresponding to a Sunny Day breach and a PMF failure are presented in Appendix B.

The breach inundation maps provide an approximation of areas that would be flooded if the dams were to fail. Note that the mapped limits of flooded areas are approximate and are subject to certain assumptions and generalizations that are necessary for and intrinsic to the dam failure flood wave modeling and mapping process. Modifications to floodplain features can alter the inundation limits and the extent of inundation resulting from an actual dam failure event and may differ from the information presented on the maps. It is prudent to assume that peripheral areas located outside of the demarcated inundation limits could also be subject to flood inundation.

6. CERTIFICATION

The following is provided in accordance with Section 257.73(a)(2)(ii) of the CCR Rule.

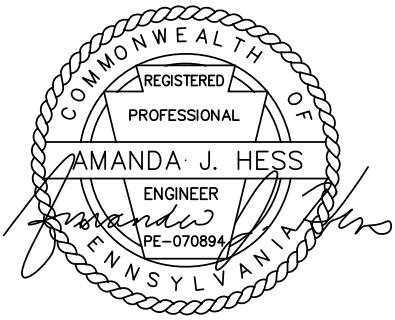
> By affixing my seal to this, I do hereby certify to the best of my knowledge, information and belief that the information contained in this report is true and correct. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment.

Amanda J. Hess, P.E.

P.E. License Number: 070894

Signature

Date: 10/31/2021



7. REFERENCES

1. *Hydrologic and Hydraulic Report with Dam Break Analysis for Montour S.E.S. Ash Basin 1*, prepared by G. David Hopfer, February 2012.
2. *U.S. Army Corps of Engineers, HEC-RAS Version 6.0 user's manual.*
3. *Periodic Inflow Design Flood Control System Plan for Montour Ash Basin No. 1*, prepared for Talen Energy by Gannett Fleming, November 2020.
4. *Initial inflow design flood control system plan – Montour Ash Basin No. 1.* Technical Report prepared for Talen Energy by Civil & Environmental Consultants, Inc. (2016).

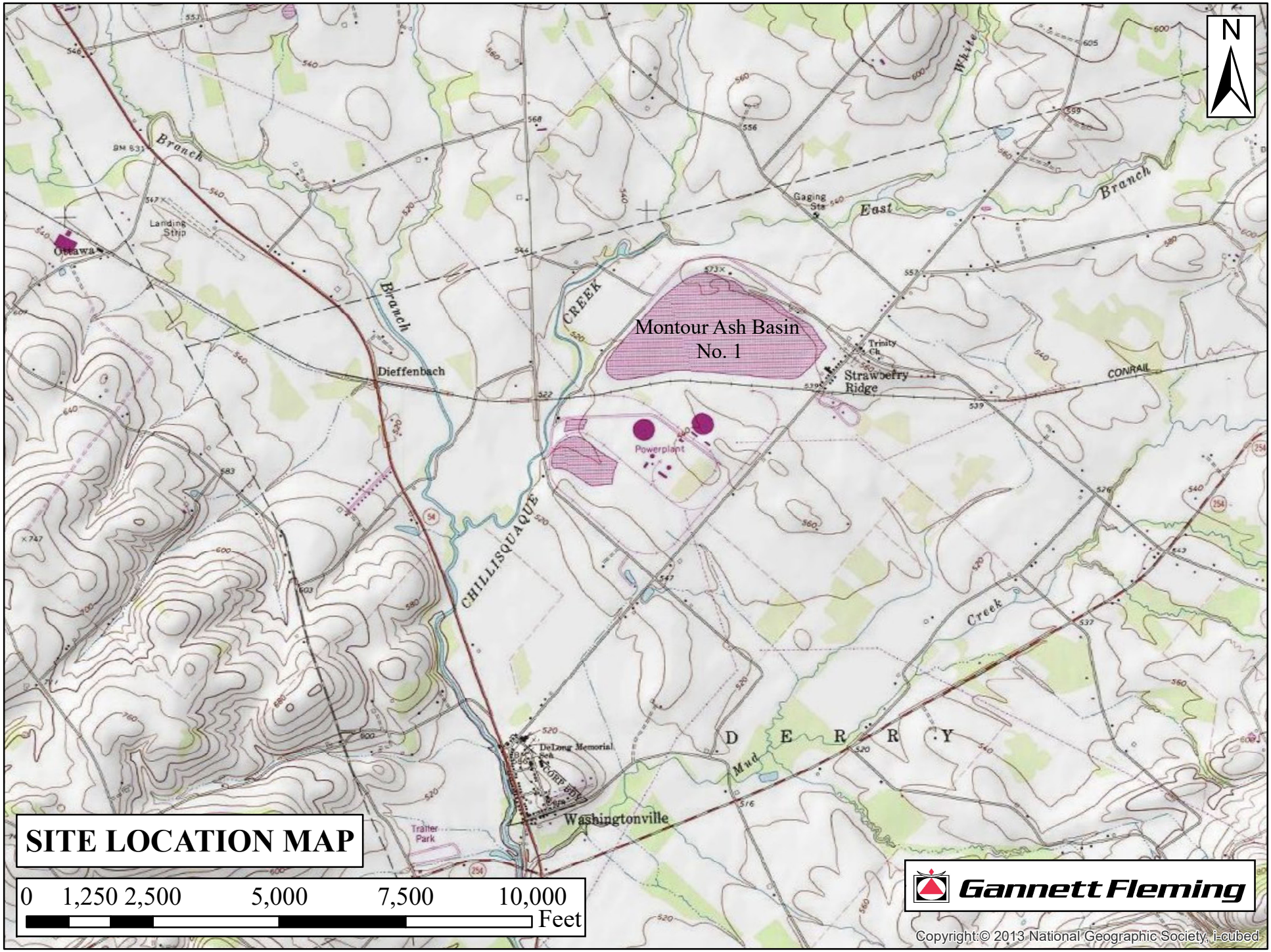
Periodic Hazard Potential Classification Assessment

Montour Ash Basin no.1 Dam

Derry Township, Pennsylvania

Appendix A
DRAWINGS AND PHOTOGRAPHS

SITE MAP


N
Montour Ash Basin
No. 1
Powerplant
Dieffenbach
Strawberry
Ridge
Trinity
Ch
Gaging
Sta
Landing
Strip
Ottawa
East
Branch
White
Branch
Branch
CREEK
CHILLISQUAQUE
CONRAIL
Mud
Creek
D E R R Y
Washingtonville
DeLong Memorial
Park
Trailer
Park
SITE LOCATION MAP
0 1,250 2,500 5,000 7,500 10,000
Feet
Gannett Fleming
Copyright:© 2013 National Geographic Society, i-cubed

OVERFLOW SECTION CONSTRUCTION PLANS

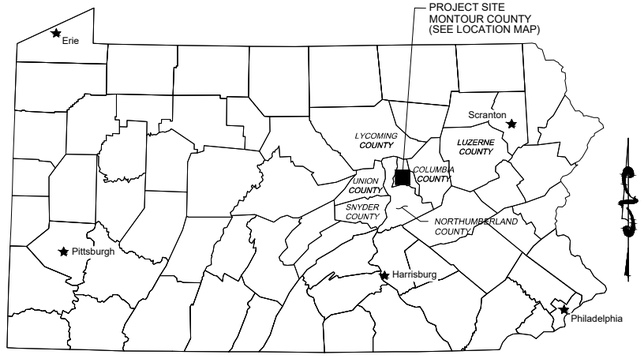
PERMIT DRAWINGS (CONSTRUCTION SET)
GANNETT FLEMING PROJECT NO. 66982
SEPTEMBER 2020

TALEN ENERGY

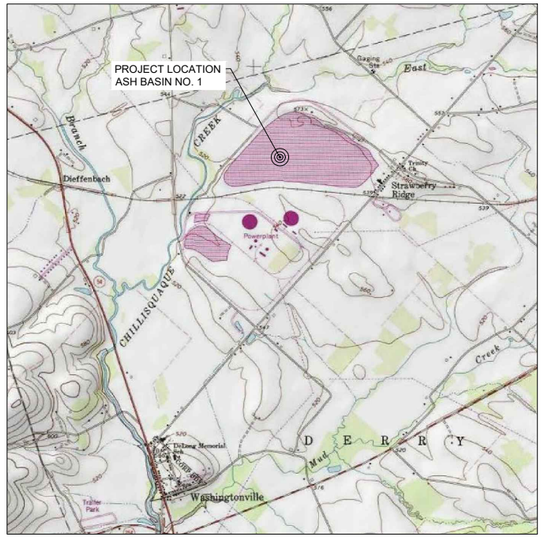
600 HAMILTON STREET, SUITE 600, ALLENTOWN, PA. 18101

OVERTOPPING PROTECTION FOR ASH BASIN NO. 1
MONTOUR STEAM ELECTRIC STATION

18 McMICHEAL RD. WASHINGTONVILLE, PA. 17884
MONTOUR COUNTY, PA



PENNSYLVANIA STATE MAP
NOT TO SCALE



LOCATION MAP
36000 -0- 36000 72000
SCALE IN FEET



VICINITY MAP
1000 -0- 1000 2000
SCALE IN FEET

PUBLIC UTILITIES

SERVICE ELECTRIC CABLE

COMCAST CABLE

UNITED STATES GYPSUM CORPORATION

WASHINGTONVILLE MUNICPAL AUTHORITY

MONTOUR LLC

PPL ELECTRIC UTILITIES CORPORATION

VERIZON PENNSYLVANIA INC.

CONTACT INFORMATION

MONTOUR SES - TALEN ENERGY
ATTENTION: JOHN L MCCABE III, ENVIRONMENTAL & LOGISTICS ENGINEERING MANAGER
PHONE: 1-570-437-1362
LOCATION: MONTOUR, LLC
MONTOUR SES
18 McMICHAEL RD. P.O. BOX 128
WASHINGTONVILLE PA 17884-0128

PENNSYLVANIA ONE CALL SYSTEM

CALL BEFORE YOU DIG
PENNSYLVANIA LAW REQUIRES 3 WORKING DAYS NOTICE FOR CONSTRUCTION PHASE AND 10 WORKING DAYS IN DESIGN STAGE
STOP CALL

PA 1 SYSTEM, INC.
1-800-242-1776

POCS SERIAL NUMBER: 20202600515
POCS CALL DATE: 2020-09-16

PA ONE CALL NOTE:
GANNETT FLEMING, INC. (GANNETT FLEMING) ADVISES THAT IT HAS COMPLIED WITH THE PROVISIONS OF THE PENNSYLVANIA UNDERGROUND UTILITY LINE PROTECTION LAW, ACT 287 OF 1974 AS AMENDED, IN PREPARING THESE PLANS. ALTHOUGH GANNETT FLEMING MADE THE TELEPHONE CALL(S) LISTED ON THESE PLANS ON THE DATE(S) SHOWN, THE INFORMATION SHOWN MAY BE PRELIMINARY AS OF THE DATE OF BIDDING. THE DATA PERTAINING TO UTILITIES SHOWN ON THE PLANS IS FOR GENERAL INFORMATION AND GUIDANCE ONLY AND GANNETT FLEMING MAKES NO REPRESENTATIONS, WARRANTY, GUARANTY OR ASSURANCES THAT THE INFORMATION RECEIVED PURSUANT TO SAID CALL(S) AND REFLECTED ON THE PLANS IS COMPLETE, CORRECT OR ACCURATE, BUT IS REFLECTING SAID INFORMATION IN ACCORDANCE WITH THE REQUIREMENTS OF SUCH ACT AS OF THE DATE OF SAID CALL(S). THE AREAS IN WHICH NEW UNDERGROUND FACILITIES AND APPURTENANCES ARE TO BE CONSTRUCTED UNDER THIS CONTRACT MAY CONTAIN EXISTING UNDERGROUND UTILITIES AND STRUCTURES THAT ARE NOT SHOWN ON THE PLANS OR ARE IN LOCATIONS OTHER THAN AS SHOWN. CONTRACTORS ARE ADVISED OF THEIR OBLIGATIONS TO NOTIFY ALL FACILITY OWNERS, NOT LESS THAN 3 OR MORE THAN 10 DAYS PRIOR TO EXCAVATION, VIA ONE CALL(S) IN ACCORDANCE WITH THE REQUIREMENTS OF THE ACT 1-800-242-1776 OR 412-464-7100 (PITTSBURGH)], AND TO PRECISELY IDENTIFY THE LOCATION OF, AVOID DAMAGE TO AND REPAIR DAMAGED UNDERGROUND UTILITIES.

INDEX OF DRAWINGS

SHEET NO.	SHEET TITLE
1	COVER SHEET
2	GENERAL NOTES AND LEGEND
3	EXISTING CONDITIONS SITE PLAN OVERALL MAP
4	EXISTING CONDITIONS SITE PLAN PROJECT AREA
5	PROJECT CONTROL PLAN
6	FOUNDATION EXPLORATION PLAN
7	PROPOSED CONDITIONS PERIMETER BERM OVERTOPPING SECTION PLAN
8	EXCAVATION PLAN PERIMETER BERM OVERTOPPING SECTION
9	PROFILE & CROSS SECTION PERIMETER BERM OVERTOPPING SECTION
10	CROSS SECTIONS PERIMETER BERM OVERTOPPING SECTION
11	PROPOSED CONDITIONS SPLITTER DIKE OVERTOPPING SECTION
12	PROFILE & CROSS SECTION SPLITTER DIKE OVERTOPPING SECTION
13	ARTICULATED CONCRETE BLOCK DETAILS 1 OF 4
14	ARTICULATED CONCRETE BLOCK DETAILS 2 OF 4
15	ARTICULATED CONCRETE BLOCK SYSTEM DETAILS 3 OF 4
16	ARTICULATED CONCRETE BLOCK SYSTEM DETAILS 4 OF 4 GEOWEB DETAILS
17	MISCELLANEOUS DETAILS

SHEET NO.	SHEET TITLE
	EROSION AND SEDIMENT CONTROL
ESC1	EROSION AND SEDIMENT CONTROL PLAN
ESC2	EROSION AND SEDIMENT CONTROL PLAN
ESC3	EROSION AND SEDIMENT CONTROL NOTES
ESC4	EROSION AND SEDIMENT CONTROL NOTES
ESC5	EROSION AND SEDIMENT CONTROL DETAILS
ESC6	EROSION AND SEDIMENT CONTROL DETAILS

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
PAUL G SCHWEIGER
ENGINEER
PE-040000-E

9-25-2020

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

W:\426\66982-Talen_Energy\5_Working\CAD\Design Set\Cover.dwg
Plot Date: 9/24/2020 8:11 AM, Plotted By: Lewis, Christopher B

ABBREVIATIONS

A

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ACI	AMERICAN CONCRETE INSTITUTE
AC-FT	ACRE-FOOT (FEET)
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AL	ALUMINUM
ALLOW.	ALLOWABLE
ALT	ALTERNATE
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
APPROX	APPROXIMATE(LY)
ASW	AUXILIARY SPILLWAY
AVG	AVERAGE
AWWA	AMERICAN WATER WORKS ASSOCIATION
@	AT

B

BF	BLIND FLANGE OR BACK FACE
BFF	BELOW FINISHED FLOOR
BFG	BELOW FINISHED GRADE
BFV	BUTTERFLY VALVE
℄	BASELINE
BM	BENCHMARK
BOT	BOTTOM
B.P.	BEGINNING POINT

C

C/C, C.C., C TO C	CENTER TO CENTER
℄	CENTERLINE
CI	CAST IRON
CIP	CAST IN PLACE OR CAST IRON PIPE
CJ	CONSTRUCTION JOINT
CLR	CLEARANCE, CLEAR, CLEAR DISTANCE
CMP	CORRUGATED METAL PIPE
CONC	CONCRETE
CONST, CONSTR	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTION
CORR	CORRUGATED
CF	CUBIC FOOT(FEET)
CFM	CUBIC FEET PER MINUTE
CFS	CUBIC FEET PER SECOND
CY	CUBIC YARD(S)

D

DEPT	DEPARTMENT
DI	DUCTILE IRON
DIP	DUCTILE IRON PIPE
DIA, Ø	DIAMETER
DWG	DRAWING

E

E	EAST/EASTING COORDINATE
EA	EACH
EF	EACH FACE
EL, EL.	ELEVATION
EXP	EXPANSION
EXP JT	EXPANSION JOINT
EXT	EXTERIOR
E&SC	EROSION AND SEDIMENT CONTROL
EQ	EQUAL
EW	EACH WAY

F

FF	FRONT FACE
FM	FORCE MAIN
FTG	FOOTING
FT, FT/FT	FOOT/FEET, FEET PER FOOT

G

GALV.	GALVANIZED
GIS	GEOGRAPHICAL INFORMATION SYSTEM
GPD	GALLONS PER DAY
GPM	GALLONS PER MINUTE

H

HEX	HEXAGONAL
HDPE	HIGH DENSITY POLYETHYLENE
HH	HAND HOLE
HORIZ	HORIZONTAL

I

ID	INSIDE DIAMETER
IN	INCH(ES)
INTR	INTERIOR
INV	INVERT

J

JT	JOINT
JB	JUNCTION BOX

L

LB	POUND
LBS	POUNDS
LF,	LINEAR FEET

M

MAX	MAXIMUM
MH	MANHOLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MJ	MECHANICAL JOINT
MSE	MECHANICALLY STABILIZED EMBANKMENT

N

N	NORTH/NORTHING COORDINATE
N/A	NOT APPLICABLE
NAD	NORTH AMERICAN DATUM
NAVD	NORTH AMERICAN VERTICAL DATUM
NGVD	NATIONAL GEODETIC VERTICAL DATUM
NTS	NOT TO SCALE
No., #	NUMBER

O

OC	ON CENTER
OD	OUTSIDE DIAMETER
OE	OVERHEAD ELECTRIC
OPNG	OPENING
OZ	OUNCE

P

P.C.	POINT OF CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PCF	POUNDS PER CUBIC FOOT
PE	PLAIN END
P.I.	POINT OF INFLECTION
PL	PLATE
POB	POINT OF BEGINNING
POI	POINT OF INTERSECTION
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSW	PRINCIPAL SPILLWAY
P.T.	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE OR POINT VERTICAL CURVATURE
PVI	POINT VERTICAL INTERSECTION
PVT	POINT VERTICAL TANGENCY

Q

QTY	QUANTITY

R

R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REIN	REINFORCED
REQ'D	REQUIRED
RGS	RIGID GALVANIZED STEEL
RJ	RESTRAINED JOINT
ROW	RIGHT OF WAY

S

SECT	SECTION
SF	SQUARE FOOT (FEET)
SHT	SHEET
SPA	SPACING
SQ	SQUARE
SS	STAINLESS STEEL
STA	STATION
STD	STANDARD
SY	SQUARE YARD

T

TEMP	TEMPORARY
TOPO	TOPOGRAPHY
TYP, TYP., (TYP)	TYPICAL

U

UNO	UNLESS OTHERWISE NOTED
USGS	U.S. GEOLOGICAL SURVEY
U/S	UPSTREAM

V

VC	VERTICAL CURVE
VERT	VERTICAL
VOL	VOLUME

W

WM	WATERMAIN
W/	WITH
W/O	WITHOUT
WT	WEIGHT

Y

YD	YARD

ABBREVIATIONS NOTE:

1. THIS IS A STANDARD LIST OF ABBREVIATIONS AND ALL THE ABBREVIATIONS SHOWN ARE NOT USED IN THIS SET OF DRAWINGS.

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EXISTING LEGEND

20 MAJOR CONTOUR	TREE - DECIDUOUS
MINOR CONTOUR	TREE - CONIFEROUS
UE UNDERGROUND ELECTRIC	SHRUB
OE OE OVERHEAD ELECTRIC	BORING INSTRUMENTED WITH PIEZOMETER
G GAS	BORING
UTC UNDERGROUND TELECOMMUNICATIONS	TEST PIT
TC OVERHEAD TELECOMMUNICATIONS	IRON PIN
UTV UNDERGROUND CABLE TV	CONTROL POINT
TV OVERHEAD CABLE TV	BENCHMARK
W WATERMAIN	MARKER POST
FO FIBER OPTIC	RAILROAD SPIKE
FM FORCE MAIN	SURVEY MONUMENT
S SANITARY SEWER	PK NAIL
ST STORM SEWER	POST
AIR AIR LINE	WELL
RIPRAP	WATER VALVE
SWALE / DITCH	WATER METER
LIMIT OF DETAILED FIELD SURVEY	WATER CURB BOX
PROPERTY LINE	FIRE HYDRANT
RIGHT OF WAY	CLEANOUT
EASEMENT LINE	SPIGOT
CENTERLINE / BASELINE	DOWNSPOUT
EDGE OF WATER	STORM MANHOLE
VEGETATION	STORM INLET
BRUSH	SANITARY MANHOLE
HEDGE ROW	VENT
X FENCE	GAS VALVE
GUIDE RAIL	GAS METER
HANDRAIL	GAS CURB BOX
RAILROAD	CABLE TV UTILITY BOX
PF PROTECTIVE FENCE	TELECOMMUNICATIONS UTILITY BOX
SF SILT FENCE	TELECOMMUNICATIONS MANHOLE
SHEETPILE	ELECTRICAL MANHOLE
WETLAND	ELECTRICAL UTILITY BOX
BPA BASIN PERMIT AREA LIMIT	LIGHT POST
	UTILITY POLE
	GUY WIRE
	GUY POLE
	MANHOLE - UNKNOWN UTILITY
	JUNCTION BOX
	MAILBOX
	SIGN
	STUMP
	WEIR

PROPOSED AND MISCELLANEOUS LEGEND

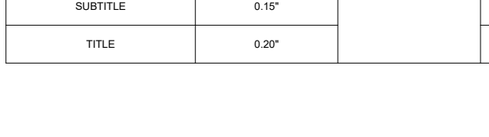
20 MAJOR CONTOUR	APPROXIMATE TOP OF BEDROCK
MINOR CONTOUR	EARTH SUBGRADE
GEOTEXTILE	WATER LEVEL (FOR SECTIONS AND PROFILES)
LIMIT OF WORK	FLOW ARROW
CULTURAL RESOURCES	BORING INSTRUMENTED WITH PIEZOMETER
EARTH SLOPE (SLOPING ↓)	BORING
	TEST PIT

ACB	ARTICULATED CONCRETE BLOCK
PB	PERIMETER BERM BASELINE
PBOS	PERIMETER BERM OVERTOPPING SECTION BASELINE
SD	SPLITTER DIKE BASELINE
SDOS	SPLITTER DIKE OVERTOPPING SECTION BASELINE

GENERAL DRAFTING NOTES:

1. GREY OR LIGHT LINEWORK GENERALLY REPRESENT EXISTING FEATURES, WHEREAS DARKER BLACK LINEWORK IS GENERALLY INTENDED TO DEPICT NEW CONSTRUCTION.
2. DIMENSION AND TEXT CALLOUTS
   a. EXISTING FEATURES TEXT IS SLANTED AS SHOWN HERE.

SECTION SYMBOLS:



NORTH ARROW:

SCALE BARS:

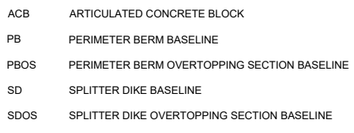


TABLE STYLE AND FONTS:

TEXT AND DIMENSION STYLES

FEATURE	TEXT HEIGHT	FONT	EXAMPLE
EXISTING DIMENSION	0.1"	ARIAL	1.5'
EXISTING CALL-OUT			EXISTING CALL-OUT
NOTES			NOTES
PROPOSED DIMENSION			1.5'
PROPOSED CALL-OUT			PROPOSED CALL-OUT
SUBTITLE	0.15"		SUBTITLE
TITLE	0.20"		TITLE

NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO. 1

GENERAL NOTES AND LEGEND

JOB NO.	SHEET NO.
66982	2
DATE	DRAWING NO.
MAY 2020	2 OF 23

W:\426\66982\Talen_Energy\5_Working\CADD\Design Set\General Notes and Legend.dwg
Print Date: 5/4/2020 9:11 AM, Printed By: kwest



200 -0- 200 400

SCALE IN FEET

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ENGINEER
PE-048000-E

W:\426\066982-Talen_Energy\5_Working\CADD\Design Set\Existing Conditions.dwg
Plot Date: 9/24/2020 8:12 AM, Plotted By: Israel, Christopher B.

NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	**CHECKED**	**APPROVED**
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

EXISTING CONDITIONS SITE PLAN
OVERALL MAP

JOB NO.	SHEET NO.
66982	3
DATE	**DRAWING NO.**
MAY 2020	3 OF 23

APPROXIMATE
TOP OF PERIMETER BERM/
LIMIT OF COAL COMBUSTION RESIDUAL

FEMA FLOODPLAIN
BOUNDARY

CONCRETE VAULT

42" WATERLINE

ACCESS ROAD

BPA

SUBBASIN B
NORMAL POOL EL. 558.5'

24" PIPE

MB-39

SPLITTER DIKE

MPZ-12S

MOMW-14

MOMW-13

DOCK AND PIER

DUAL 18" DIA. PIPE

MW1-2

PERIMETER BERM

ACCESS ROAD

MPZ-24S

SUBBASIN C
NORMAL POOL EL. 553.7'

LIMIT OF SURVEY

FLOODWAY BOUNDARY
(50' FROM TOP OF BANK)

MPZ-18S

MPZ-18I

FLOW

STREAM

FLOW

EXISTING OVERHEAD
ELECTRIC POLE

B-103

B-102

MOMW-12

B-101

MW1-3

DISCHARGE STRUCTURE
AND PIPE TO DETENTION BASIN
(NPDES OUTFALL)

MOMW-11

BPA

BPA

NOTES:

1. THE EXISTING TOPOGRAPHY, DATED MAY 17, 2019 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FORM PPL DRAWING NO. E376172 REV 3, DATED JUNE 2013.
2. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
3. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
4. THE LIMITS OF THE BASIN PERMIT AREA IS FROM PPL DRAWING E244381, DATED SEPTEMBER 2007.
5. EXISTING CONTOURS TO SOUTH OF BASIN 1 WERE DERIVED FROM THE PAMAP PROGRAM 3.2 FT. DIGITAL ELEVATION MODEL OF PENNSYLVANIA; DEVELOPED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY; DATED 2008.
6. PIPE BRIDGE AND SLUICE PIPE LOCATIONS WERE TAKEN FROM PPL MONTOUR, LLC DWG. NO. D324541 SHEET 1 OF 3, DATED SEPTEMBER 19, 2008.
7. THE APPROXIMATE TOP OF DIKE/LIMIT OF COAL COMBUSTION RESIDUALS (CCR) SHOWN IS AN ESTIMATED LOCATION BASED ON REFERENCES FROM PPL DRAWINGS.
8. PROPERTY BOUNDARIES AND OWNERS HAVE BEEN PROVIDED BY PPL THROUGH A GIS DATA RELEASE AGREEMENT, DATED SEPTEMBER 4, 2014. COPYRIGHT 2011, ALL RIGHTS RESERVED. THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF THE CONTRIBUTOR SUPPLIED UNDER LICENSE AND MAY NOT BE REPRODUCED EXCEPT AS LICENSED BY DIGITAL MAP PRODUCTS.
9. CONTRACTOR TO BE AWARE THE BPA LINE SHOWN REPRESENTS THE EXISTING PADEP PERMIT BOUNDARY ASSOCIATED WITH THE ASH BASIN.

50 -0- 50 100
SCALE IN FEET

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040000-E

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

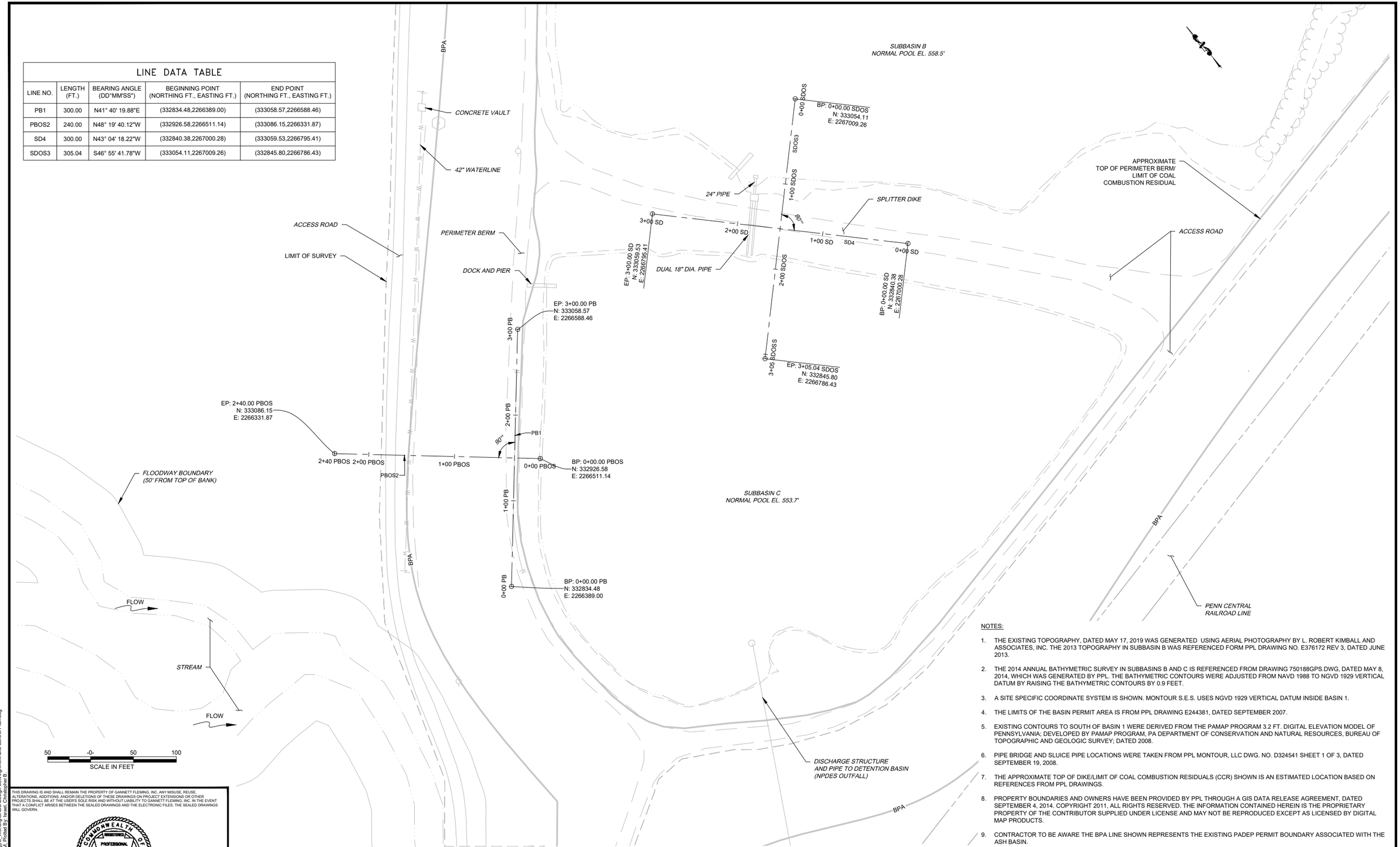
EXISTING CONDITIONS SITE PLAN

PROJECT AREA

JOB NO.	SHEET NO.
66982	4
DATE	DRAWING NO.
MAY 2020	4 OF 23

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Plotted: 8/24/2020 8:24 AM, Plotted By: Christine Hill

LINE DATA TABLE				
LINE NO.	LENGTH (FT.)	BEARING ANGLE (DD°MM'SS")	BEGINNING POINT (NORTHING FT., EASTING FT.)	END POINT (NORTHING FT., EASTING FT.)
PB1	300.00	N41° 40' 19.88"E	(332834.48,2266389.00)	(333058.57,2266588.46)
PBOS2	240.00	N48° 19' 40.12"W	(332926.58,2266511.14)	(333086.15,2266331.87)
SD4	300.00	N43° 04' 18.22"W	(332840.38,2267000.28)	(333059.53,2266795.41)
SDOS3	305.04	S46° 55' 41.78"W	(333054.11,2267009.26)	(332845.80,2266786.43)



NOTES:

1. THE EXISTING TOPOGRAPHY, DATED MAY 17, 2019 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FORM PPL DRAWING NO. E376172 REV 3, DATED JUNE 2013.
2. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS.DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
3. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
4. THE LIMITS OF THE BASIN PERMIT AREA IS FROM PPL DRAWING E244381, DATED SEPTEMBER 2007.
5. EXISTING CONTOURS TO SOUTH OF BASIN 1 WERE DERIVED FROM THE PAMAP PROGRAM 3.2 FT. DIGITAL ELEVATION MODEL OF PENNSYLVANIA; DEVELOPED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY; DATED 2008.
6. PIPE BRIDGE AND SLUICE PIPE LOCATIONS WERE TAKEN FROM PPL MONTOUR, LLC DWG. NO. D324541 SHEET 1 OF 3, DATED SEPTEMBER 19, 2008.
7. THE APPROXIMATE TOP OF DIKE/LIMIT OF COAL COMBUSTION RESIDUALS (CCR) SHOWN IS AN ESTIMATED LOCATION BASED ON REFERENCES FROM PPL DRAWINGS.
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9. CONTRACTOR TO BE AWARE THE BPA LINE SHOWN REPRESENTS THE EXISTING PADEP PERMIT BOUNDARY ASSOCIATED WITH THE ASH BASIN.

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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PAUL G SCHWEIGER PE-044000-E

NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

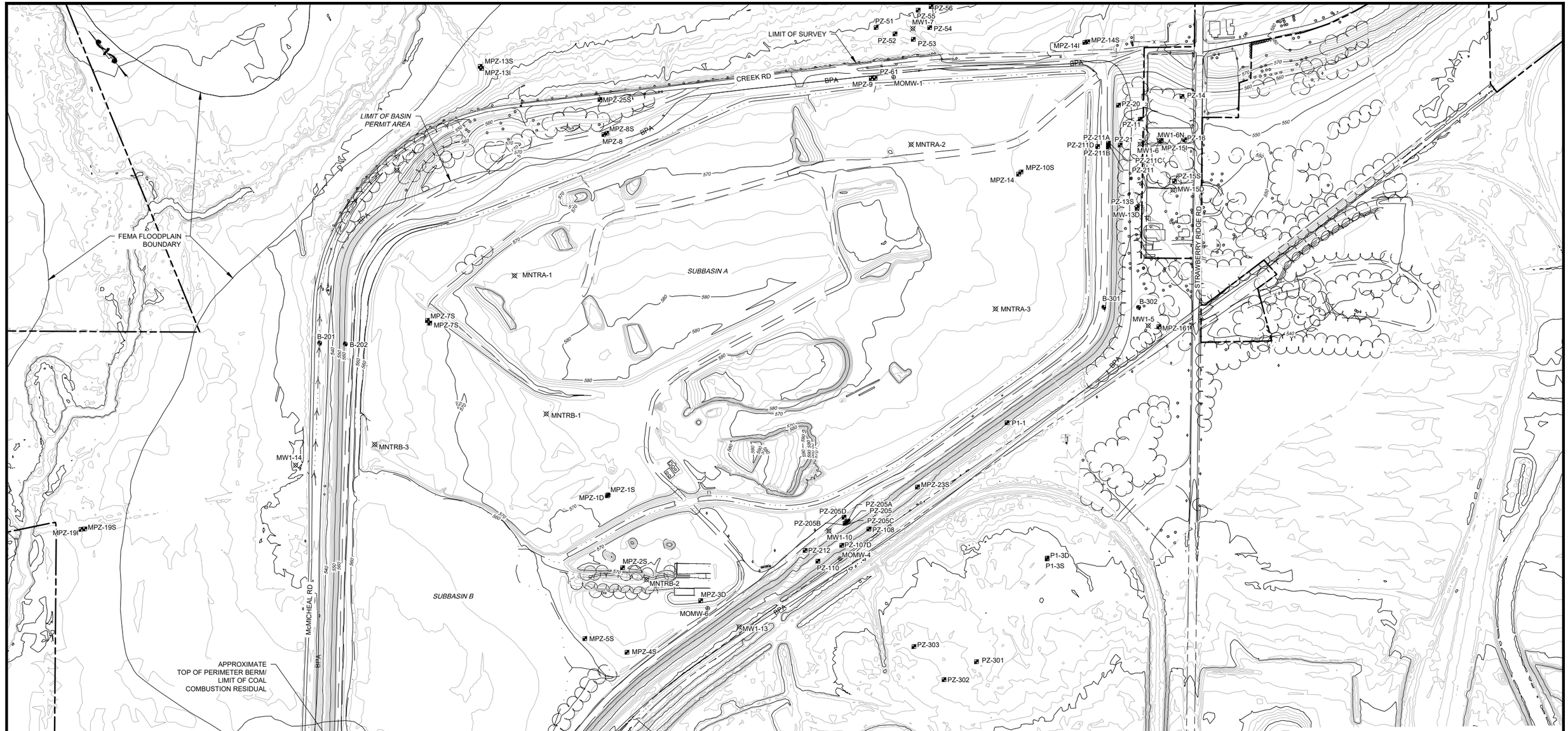
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

PROJECT CONTROL PLAN

JOB NO.	SHEET NO.
66982	5
DATE	DRAWING NO.
MAY 2020	5 OF 23

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Plot Date: 5/29/2020 9:12 AM, Plotted By: kwelsh



LEGEND

- 2015 BORINGS
- MONITORING WELL
- MONITORING WELL/PIEZOMETER
- PIEZOMETER

NOTE:

1. ALL BORINGS SHOWN ON THIS PLAN WERE COMPLETED BY OTHERS. THE LOCATIONS SHOWN ARE FOR REFERENCE ONLY.

200 -0- 200 400
SCALE IN FEET

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040930-E

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

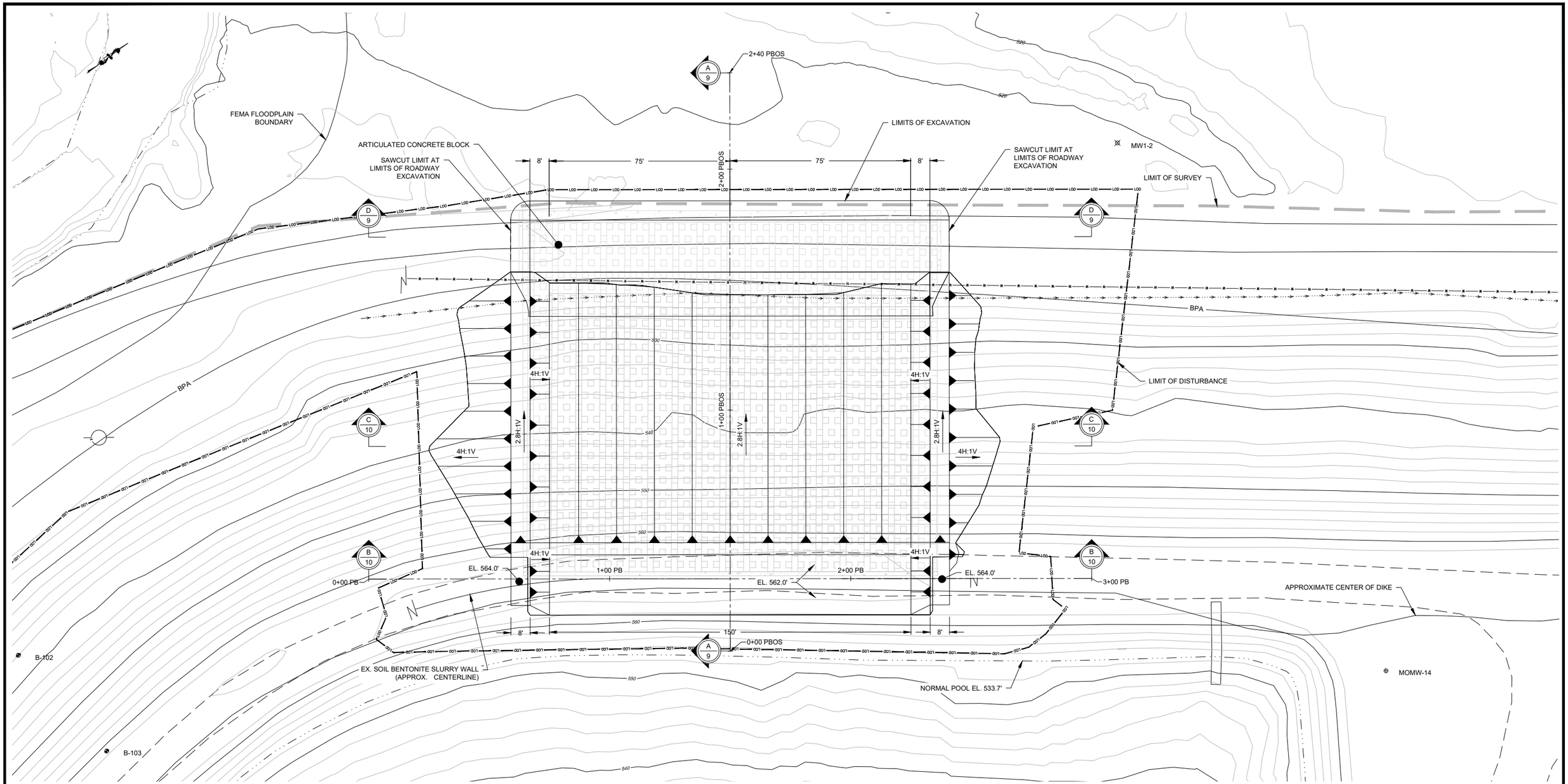
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

FOUNDATION EXPLORATION PLAN

JOB NO.	SHEET NO.
66982	6
DATE	DRAWING NO.
MAY 2020	6 OF 23

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Plot Date: 5/6/2020 3:12 PM Plotted By: Jason Hall



LEGEND AND ABBREVIATIONS

	ARTICULATED CONCRETE BLOCK SYSTEM
ACB	ARTICULATED CONCRETE BLOCK
PB	PERIMETER BERM BASELINE
PBOS	PERIMETER BERM OVERTOPPING SECTION BASELINE
SD	SPLITTER DIKE BASELINE
SDOS	SPLITTER DIKE OVERTOPPING SECTION BASELINE

20 -0- 20 40
SCALE IN FEET

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	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

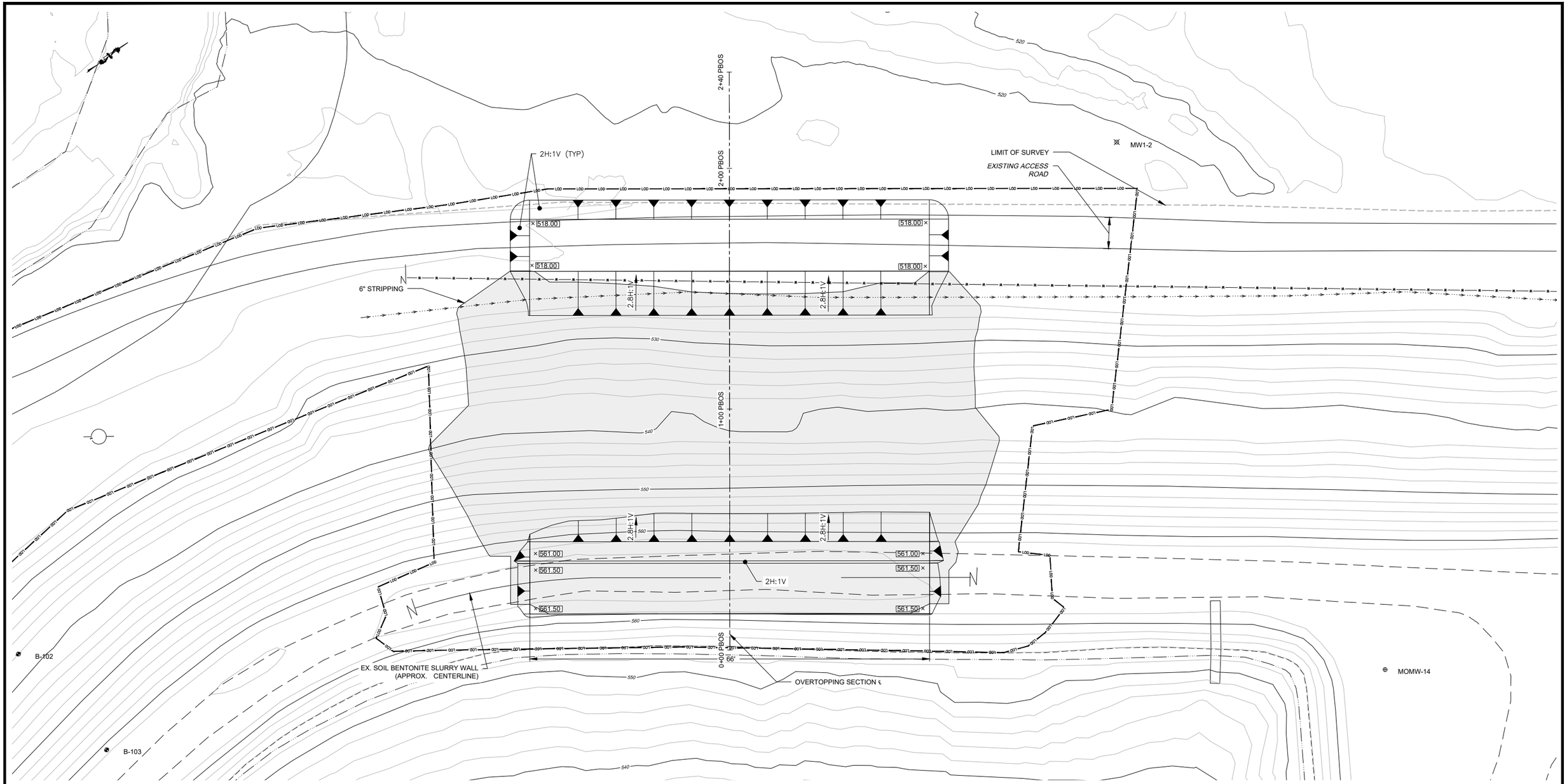
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

PROPOSED CONDITIONS
PERIMETER BERM OVERTOPPING SECTION PLAN

JOB NO.	SHEET NO.
66982	7
DATE	DRAWING NO.
MAY 2020	7 OF 23

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Plot Date: 27/2020 8:46 AM Plotted By: Jeffrey Hines



LEGEND

- 6" STRIPPING
- EARTH SLOPE (SLOPING ↓)

NOTES:

1. SEE DWG 2 FOR PROJECT NOTES.
2. CONTRACTOR IS RESPONSIBLE FOR MAINTAINING STABLE TEMPORARY SLOPES FOR COMMON EXCAVATION AND FOR ROCK EXCAVATION. THE DOWNSTREAM SLOPE OF THE EMBANKMENT DAM SHALL NOT BE EXCAVATED STEEPER THAN THE 2.8H:IV SLOPE SHOWN HERE.
3. INSTALL AND MAINTAIN ORANGE CONSTRUCTION FENCING AROUND EXISTING MONITORING WELLS WITHIN LIMIT OF DISTURBANCE.
4. IN ADDITION TO THE STRIPPING LIMITS SHOWN, STRIP TOPSOIL FROM SURFACES WITHIN THE LIMITS OF EXCAVATION PRIOR TO EXCAVATION.
5. EXCAVATION AND TRENCHING FOR UTILITIES NOT SHOWN.

20 -0- 20 40
SCALE IN FEET

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REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040100-E

NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

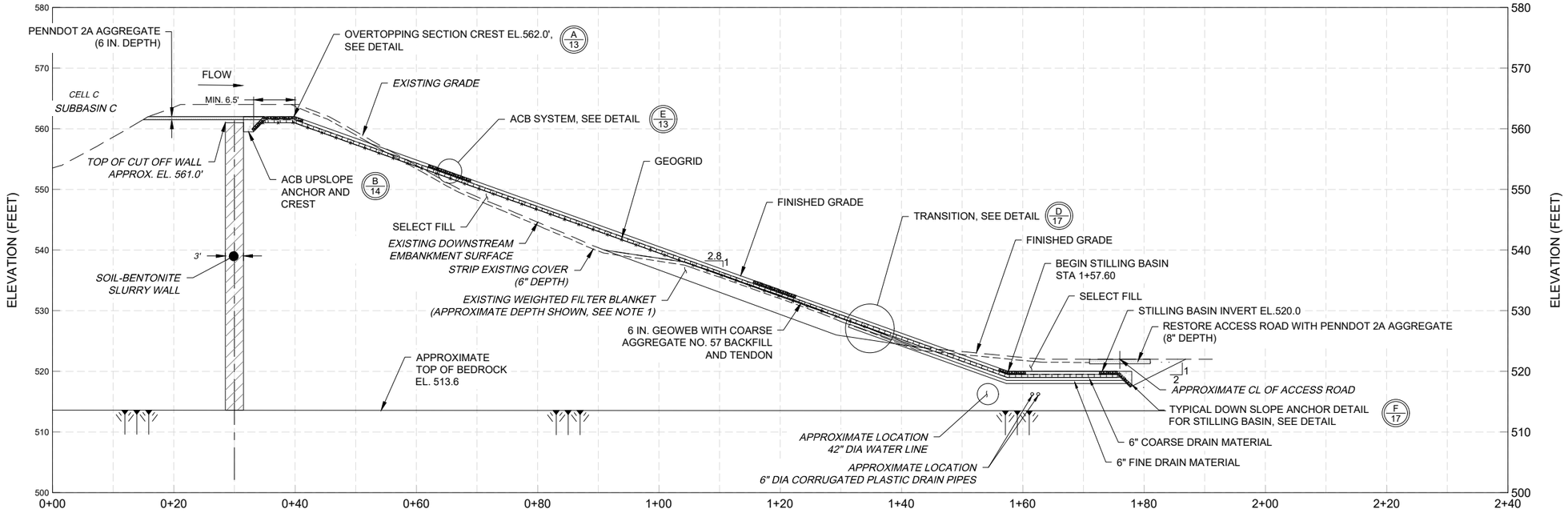
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

EXCAVATION PLAN
PERIMETER BERM OVERTOPPING SECTION PLAN

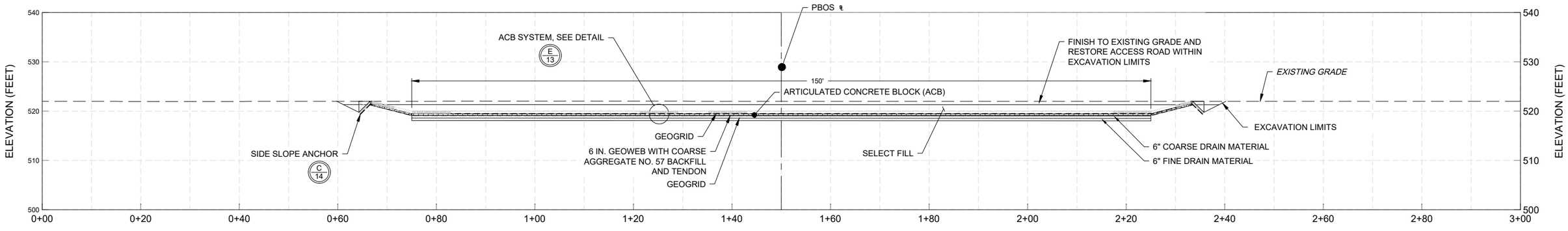
JOB NO.	SHEET NO.
66982	8
DATE	DRAWING NO.
MAY 2020	8 OF 23

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Print Date: 5/26/2020 11:14 AM Printed By: Jarod Christian Shaffer, EIT



SECTION A/7

10 -0- 10 20
SCALE IN FEET



SECTION D/7

10 -0- 10 20
SCALE IN FEET

NOTES:

1. STRIP THE TOP 6" OF WEIGHTED FILTER BLANKET AND RESTORE THE ACB SUBGRADE AS-NEEDED USING COMPACTED COARSE AGGREGATE NO. 57 BACKFILL.

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040930-E

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
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DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

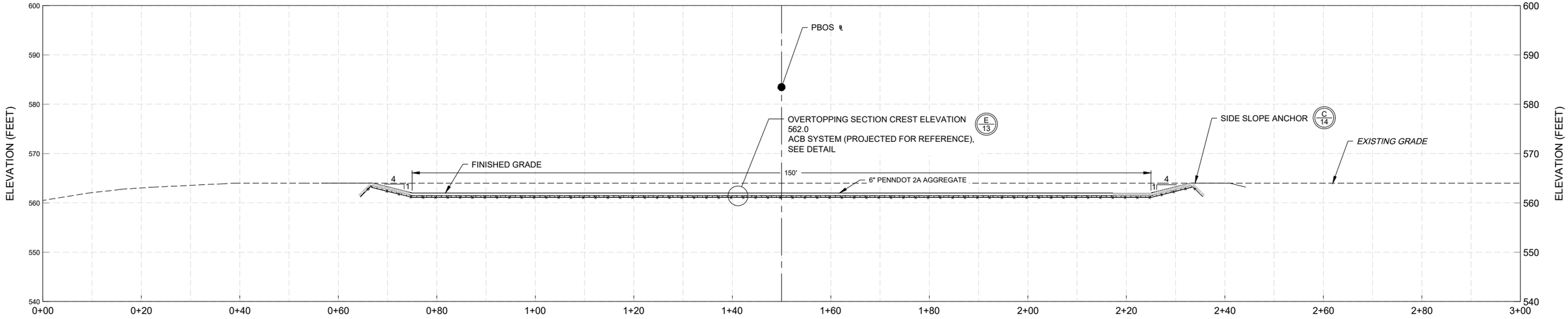
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

PROFILE & CROSS SECTION
PERIMETER BERM OVERTOPPING SECTION

JOB NO.	SHEET NO.
66982	9
DATE	DRAWING NO.
MAY 2020	9 OF 23

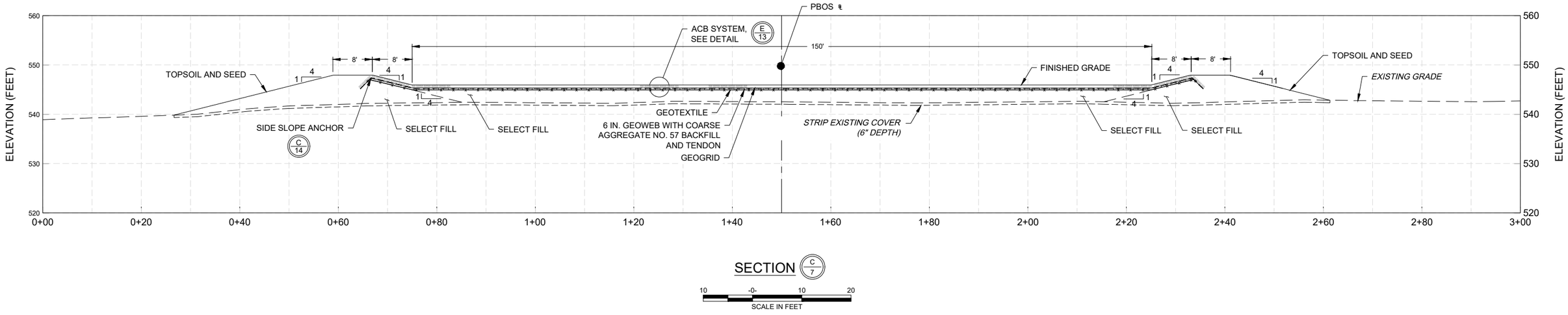
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SECTION B/7

10 -0- 10 20

SCALE IN FEET



SECTION C/7

10 -0- 10 20

SCALE IN FEET

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040810-E

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

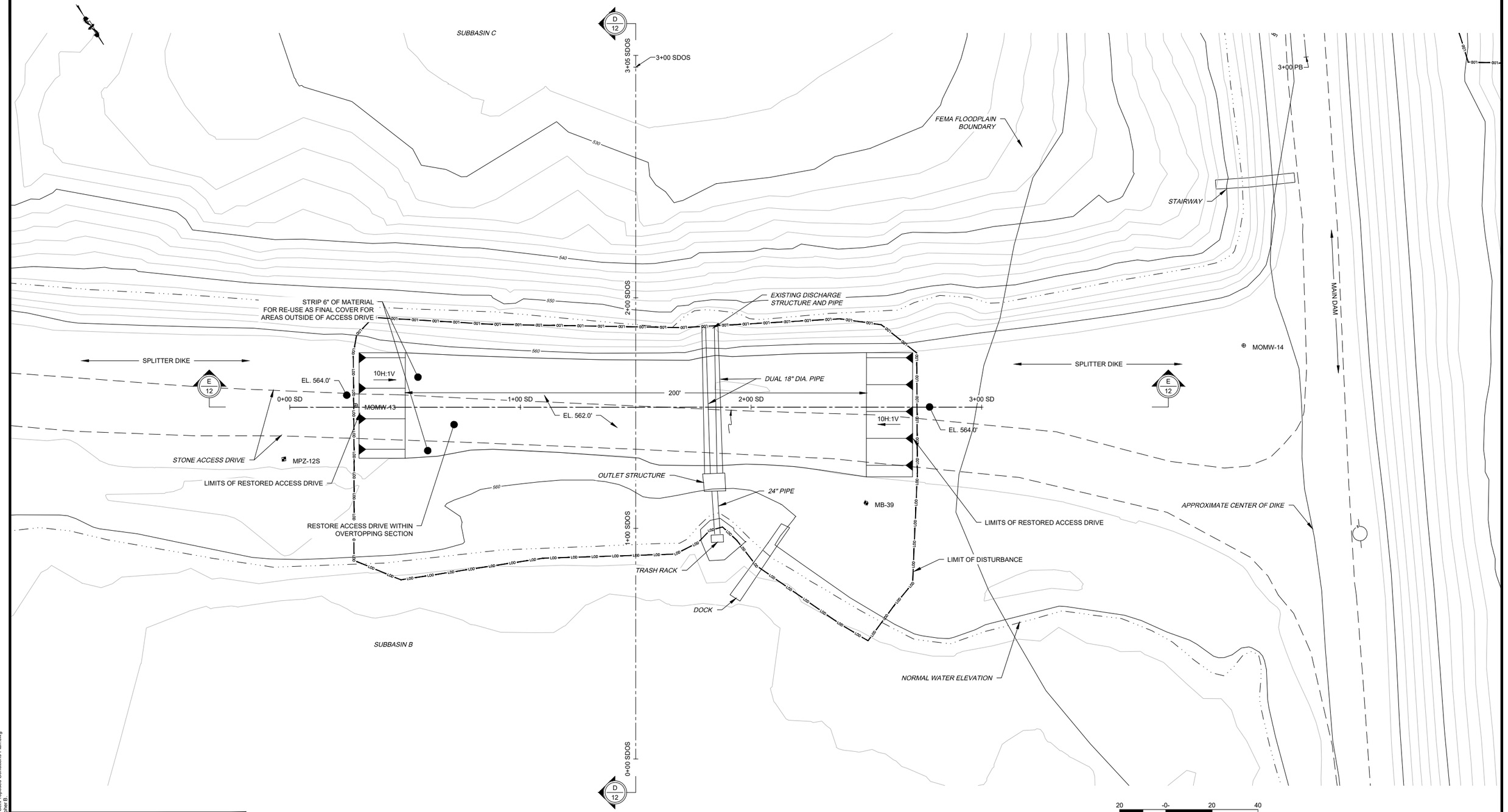
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

CROSS SECTIONS

PERIMETER BERM OVERTOPPING SECTION

JOB NO.	SHEET NO.
66982	10
DATE	DRAWING NO.
MAY 2020	10 OF 23

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NO.	DESCRIPTION	DATE	BY
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DESIGNED	CADD	SCALE
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DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

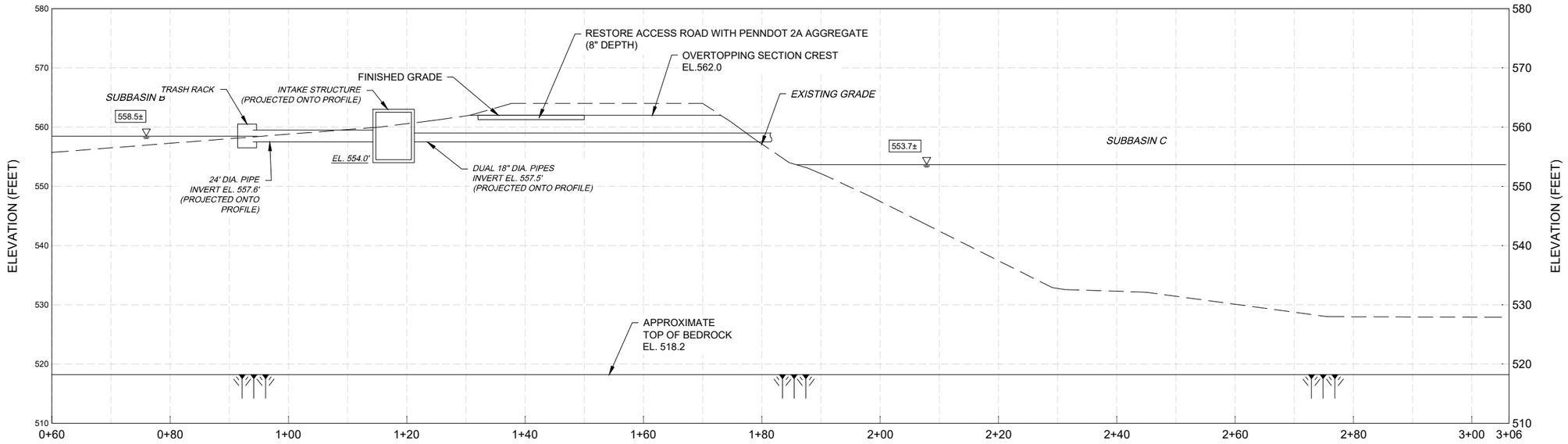
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

PROPOSED CONDITIONS
SPLITTER DIKE OVERTOPPING SECTION PLAN

JOB NO.	SHEET NO.
66982	11
DATE	DRAWING NO.
MAY 2020	11 OF 23

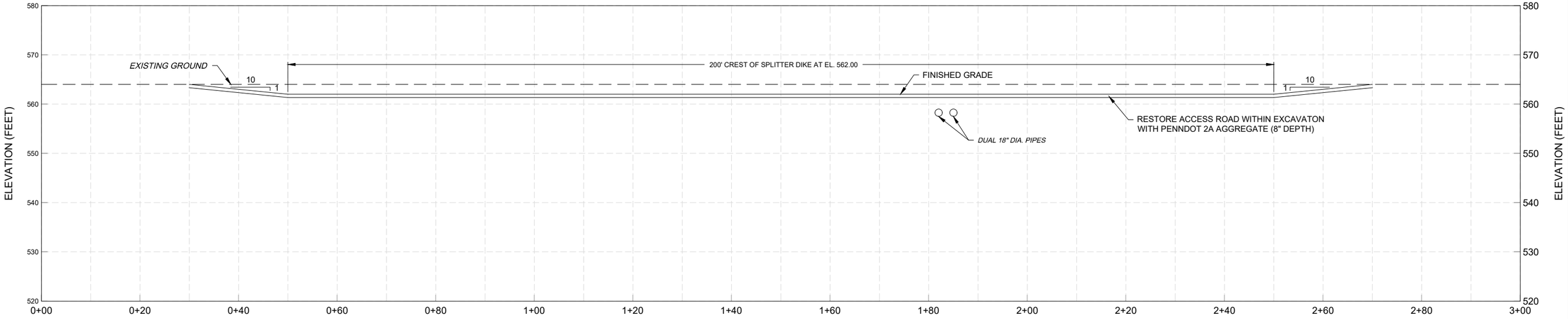
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SECTION D/11

10 -0- 10 20

SCALE IN FEET



SECTION E/11

10 -0- 10 20

SCALE IN FEET

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REGISTERED PROFESSIONAL ENGINEER
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PE-040003-E

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

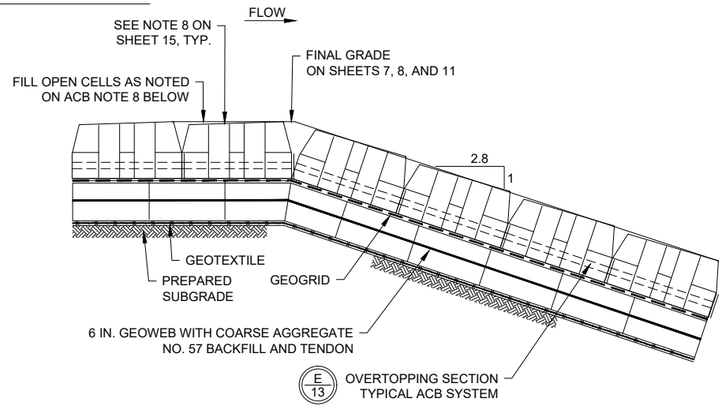
PROFILE & CROSS SECTION

SPLITTER DIKE OVERTOPPING SECTION

JOB NO.	SHEET NO.
66982	12
DATE	DRAWING NO.
MAY 2020	12 OF 23

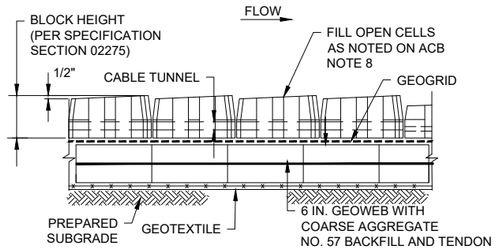
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ABBREVIATIONS



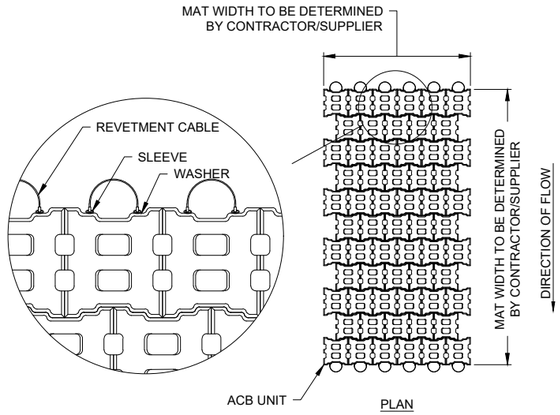
A — OVERTOPPING SECTION CREST-SLOPE TRANSITION DETAIL

NOT TO SCALE



E — OVERTOPPING SECTION SIDE VIEW TYPICAL ACB SYSTEM DETAIL

NOT TO SCALE



TYPICAL ARTICULATED CONCRETE BLOCK MAT DETAIL

NOT TO SCALE

ARTICULATED CONCRETE BLOCK (ACB) NOTES:

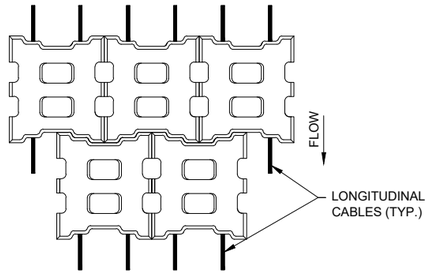
1. SEE SPECIFICATION SECTION 02275 FOR ACCEPTABLE ACB SYSTEM(S).
2. PRIMARY REQUIREMENTS OF THE ACB UNITS, AS DETAILED IN THE SPECIFICATION, ARE AS FOLLOWS: CONCRETE BLOCKS THAT HAVE A NOMINAL HEIGHT OF 4.75-INCHES, INTERLOCKING, TAPERED, OPEN CELL AND CABLED.
3. PREPARATION OF THE SUBGRADE IS CRITICAL TO THE SUCCESSFUL PERFORMANCE OF THE ACB SYSTEM. FILL TESTING AND INSTALLATION REQUIREMENTS ARE DETAILED IN THE SPECIFICATIONS.
4. MANUFACTURER TO PROVIDE ON-SITE CONSULTING DURING CONSTRUCTION AS INDICATED IN SPECIFICATIONS.
5. CONTRACTOR TO SUBMIT MANUFACTURER'S SPECIFICATIONS AND INSTALLATION PROCEDURES/ RECOMMENDATIONS TO ENGINEER FOR APPROVAL PER SPECIFICATION SECTION 02275.
6. MANUFACTURER TO CERTIFY THAT INSTALLATION WAS PERFORMED IN ACCORDANCE WITH MANUFACTURER'S PROCEDURES/RECOMMENDATIONS.
7. EACH SIDE OF EACH MAT SHALL BE TIED TO ADJACENT MAT USING THE LACING DETAILS SHOWN ON SHEET 15.
8. ON DAM EMBANKMENT SLOPES, OPEN CELLS OF EACH BLOCK AND SPACES BETWEEN THE BLOCKS SHALL BE FILLED TOPSOIL AND SEEDED.

   ON THE DAM EMBANKMENT CREST, OPEN CELLS OF EACH BLOCK AND SPACES BETWEEN BLOCKS SHALL BE FILLED WITH NO. 57 MATERIAL.
9. ACB MATS ARE TO BE PLACED DIRECTLY ON THE GEOGRID. DO NOT WALK ON OR DISTURB GEOGRID AS INDICATED IN SPECIFICATIONS.
10. PROVIDE MINIMUM 3 IN. CONCRETE COVER ON ALL SIDES OF REBAR ANCHOR.

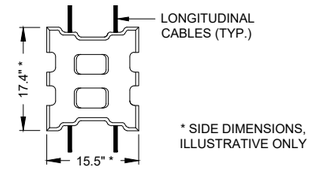


REFERENCE PHOTO:
GEOGRID OVER GEOWEB DURING INSTALLATION

NOT TO SCALE



PLAN VIEW



INDIVIDUAL BLOCK

PLAN VIEW
TYPICAL ACB SYSTEM DETAIL

NOT TO SCALE

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NO.	DESCRIPTION	DATE	BY
	REVISIONS		

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DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

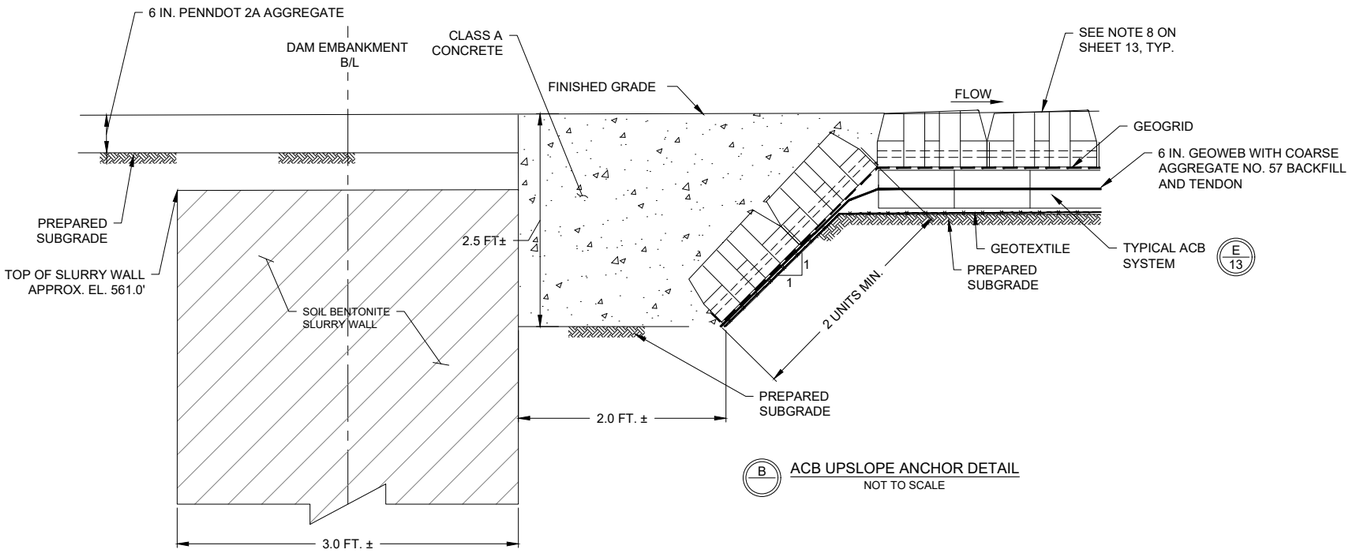
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

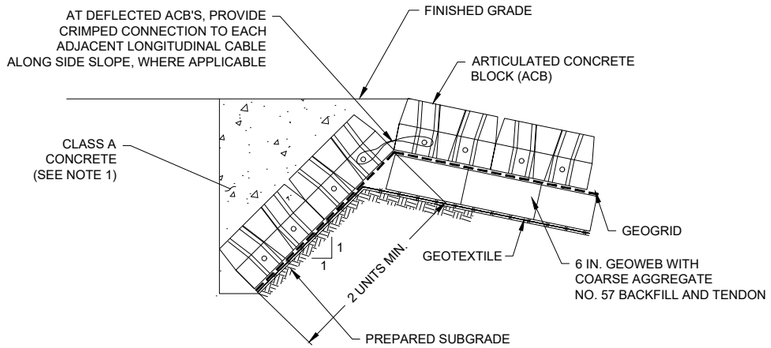
ARTICULATED CONCRETE BLOCK DETAILS
1 OF 4

JOB NO.	SHEET NO.
66982	13
DATE	DRAWING NO.
MAY 2020	13 OF 23

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Print Date: 6/24/2020 11:14 AM, Printed By: JMcCullough, Checked By:



B ACB UPSLOPE ANCHOR DETAIL
NOT TO SCALE



NOTES:
1. CLASS A CONCRETE ANCHOR IS ONLY TO BE INSTALLED AS A SIDE SLOPE ANCHOR ALONG THE STILLING BASIN. STATION 1+57.60 TO THE DOWNSLOPE ANCHOR OF THE STILLING BASIN.

C TYPICAL SIDE SLOPE ANCHOR DETAIL
NOT TO SCALE



TYPICAL TRANSITION PHOTO
NOT TO SCALE

TYPICAL ANCHOR DETAILS
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COMMONWEALTH OF PENNSYLVANIA REGISTERED PROFESSIONAL ENGINEER PE-044000-E PAUL G SCHWEIGER

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Gannett Fleming

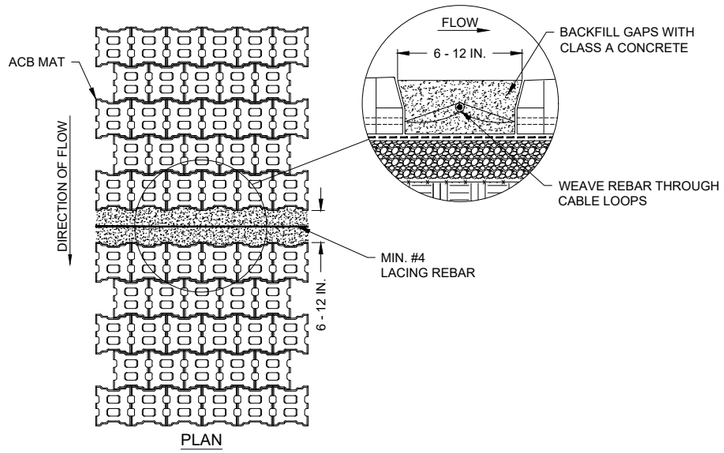
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MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

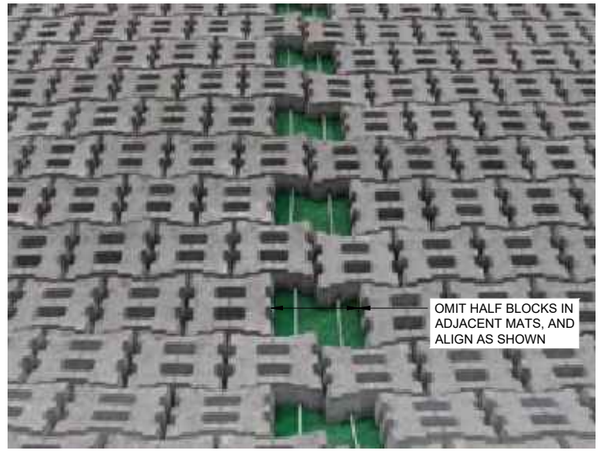
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2 OF 4

JOB NO.	SHEET NO.
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MAY 2020	14 OF 23

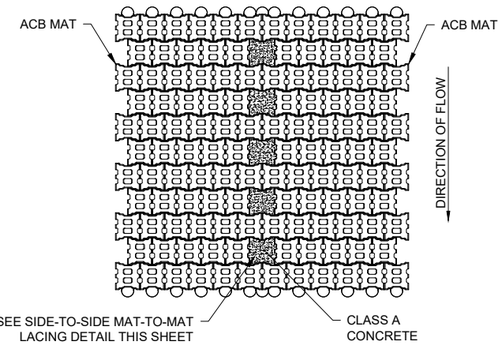
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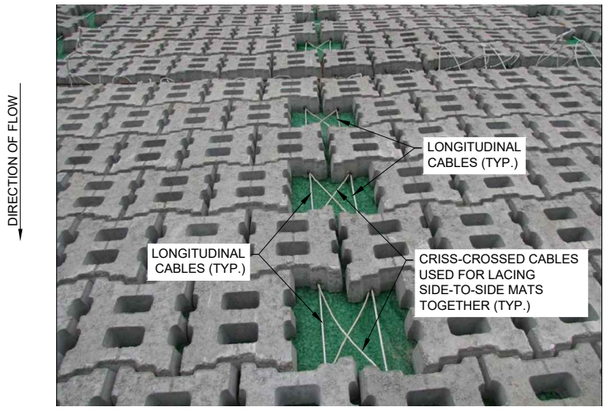
UPSTREAM-TO-DOWNSTREAM
MAT-TO-MAT CONNECTION DETAIL
NOT TO SCALE



PLACING DETAIL



CONNECTION DETAIL



SIDE-TO-SIDE MAT-TO-MAT LACING DETAIL



FINISHED CONDITION DETAIL

SIDE-TO-SIDE MAT-TO-MAT DETAILS
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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040810-E

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JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

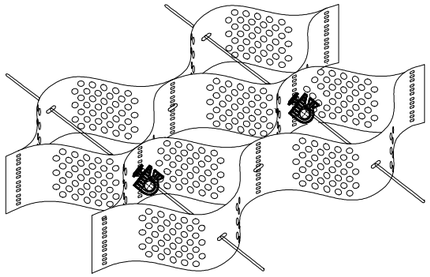
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

ARTICULATED CONCRETE BLOCK SYSTEM
DETAILS 3 OF 4

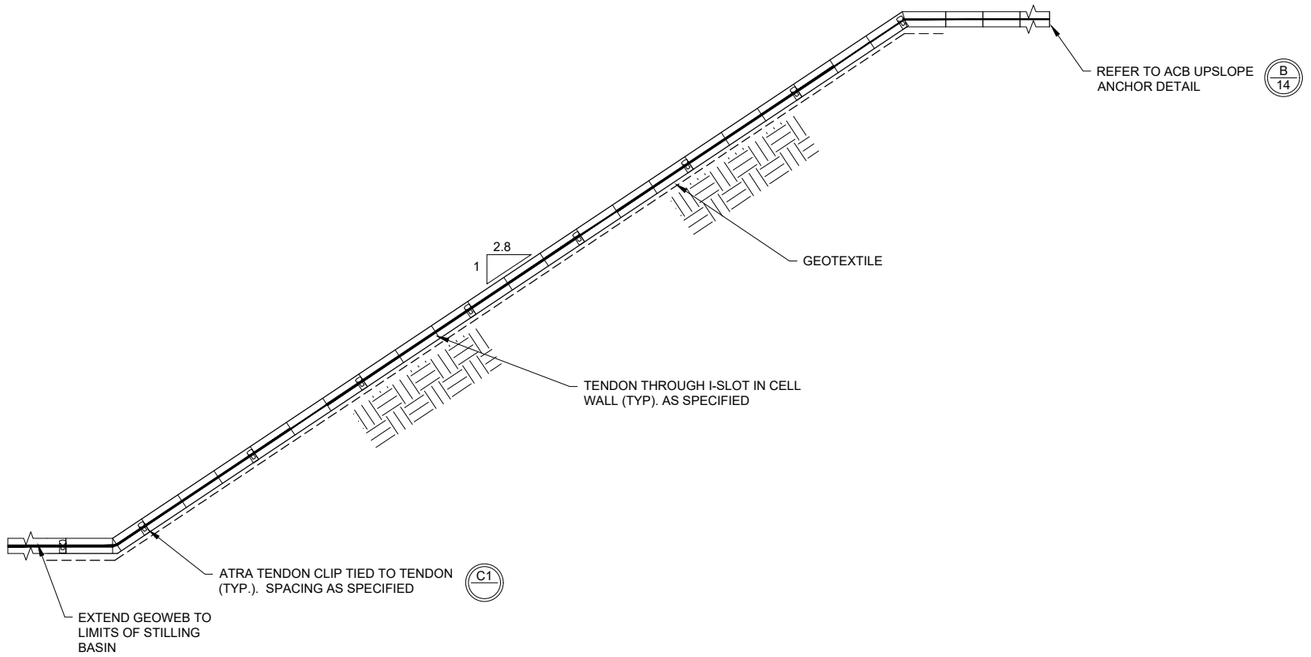
JOB NO.	SHEET NO.
66982	15
DATE	DRAWING NO.
MAY 2020	15 OF 23

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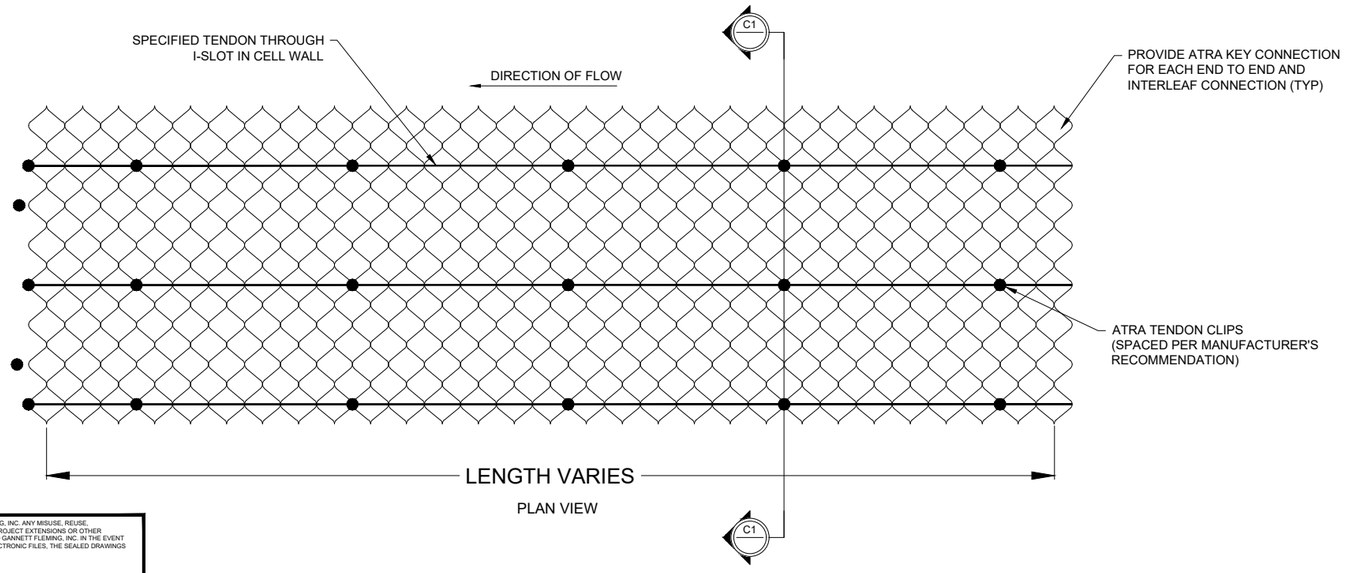
NOTES:
1. THE TYPE AND QUANTITY OF TENDONS SHALL BE AS SPECIFIED.
2. TENDONS SHALL CONSIST OF POLYESTER TENDONS WITH A MINIMUM BREAK STRENGTH OF 1500 LBF.
3. THE GEOWEB® SHALL BE FILLED WITH COARSE AGGREGATE NO. 57.
4. THE GEOWEB® SECTIONS SHALL BE ANCHORED TO RESIST SLIDING DUE TO DRIVING AND HYDRAULIC FORCES.
5. THE GEOWEB® PANELS SHALL BE CONNECTED WITH ATRA KEYS AT EACH INTERLEAF AND END TO END CONNECTION.
6. REFER TO THE DETAIL DRAWINGS ON THIS SHEET FOR CLIP AND CONNECTION DETAILS.



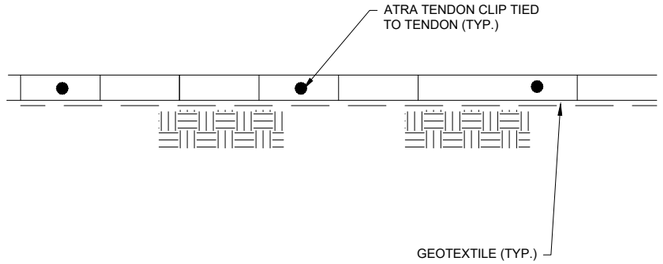
A1 TYPICAL GEOWEB SYSTEM
ISOMETRIC VIEW
NOT TO SCALE



B1 TYPICAL TENDON AND CLIP SYSTEM
NOT TO SCALE



PLAN VIEW



SECTION C1

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040000-E

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	REVISIONS		

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JPH	PGS	JPH

Gannett Fleming

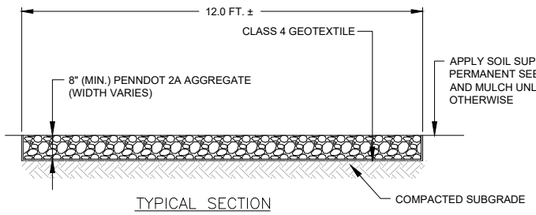
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR MONTOUR ASH BASIN NO.1

ARTICULATED CONCRETE BLOCK SYSTEM
DETAILS 4 OF 4
GEOWEB DETAILS

JOB NO.	SHEET NO.
66982	16
DATE	DRAWING NO.
MAY 2020	16 OF 23

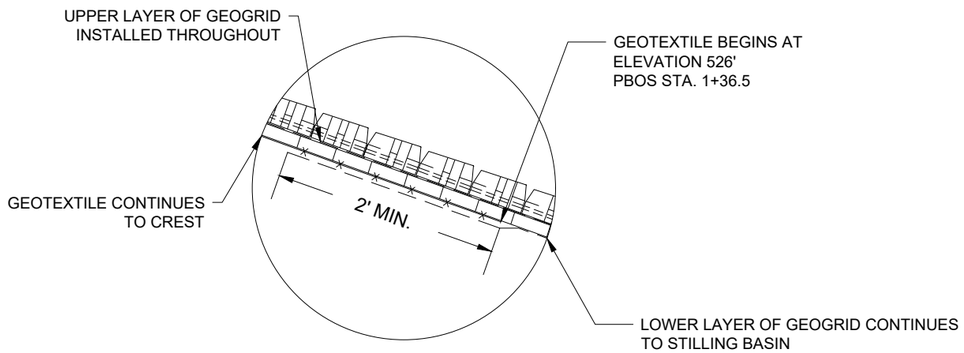
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TYPICAL SECTION

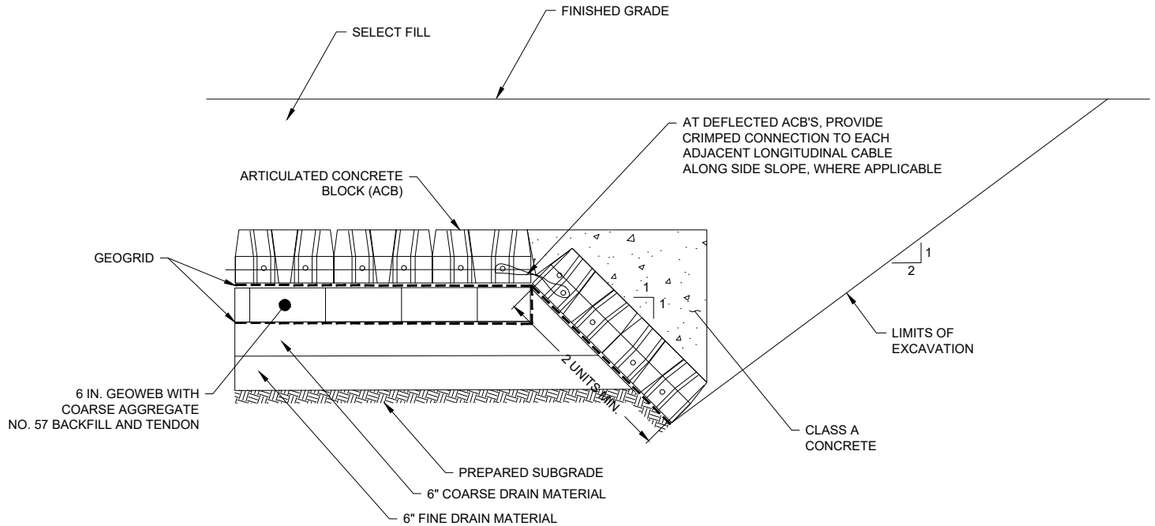
ACCESS ROAD RESTORATION

NOT TO SCALE



(D) GEOTEXTILE TO GEOGRID TRANSITION DETAIL

NOT TO SCALE



(F) TYPICAL DOWN SLOPE ANCHOR DETAIL FOR STILLING BASIN

NOT TO SCALE

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NO.	DESCRIPTION	DATE	BY

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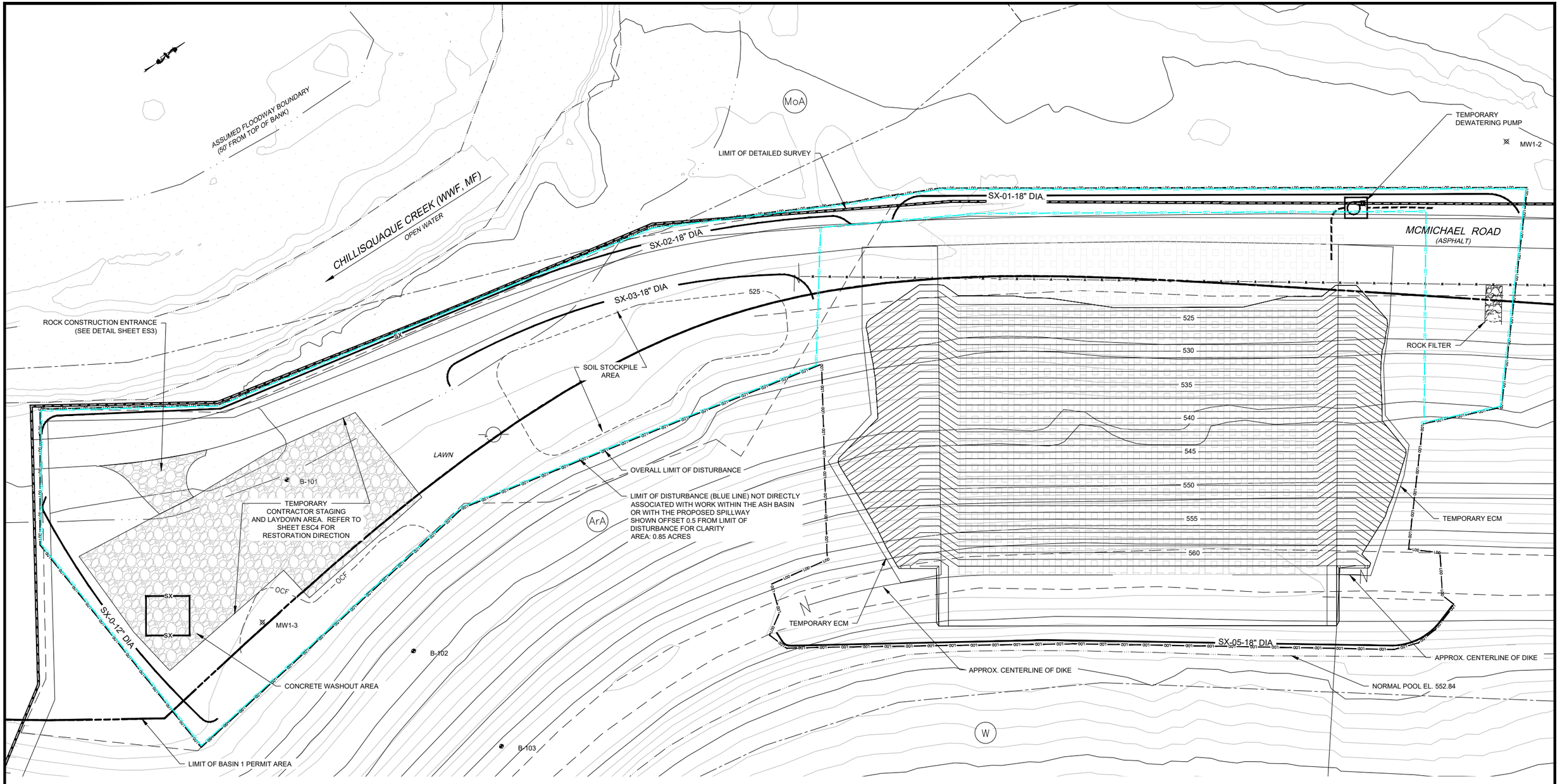
TALEN ENERGY
MONTOUR COUNTY, PA

OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO.1

MISCELLANEOUS DETAILS

JOB NO.	SHEET NO.
66982	17
DATE	DRAWING NO.
MAY 2020	17 OF 23

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EROSION AND SEDIMENT CONTROL PLAN LEGEND

- SX — COMPOST FILTER SOCK
- STABILIZED ACCESS ROAD
- ARTICULATED CONCRETE BLOCK
- LOD — LOD — LIMIT OF DISTURBANCE
- ROCK FILTER
- OCF — ORANGE CONSTRUCTION FENCE
- MONITORING WELL / BORING
- ArA / MoA — SOIL CLASSIFICATION AND BOUNDARY
- PUMP LINE
- ASSUMED FLOODWAY (50' FROM TOP OF BANK)

20 -0- 20 40
SCALE IN FEET

SHEET NOTES:
1. REFER TO SHEET 3 FOR EXISTING CONDITIONS LEGEND AND GENERAL NOTES.

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REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-044000-E

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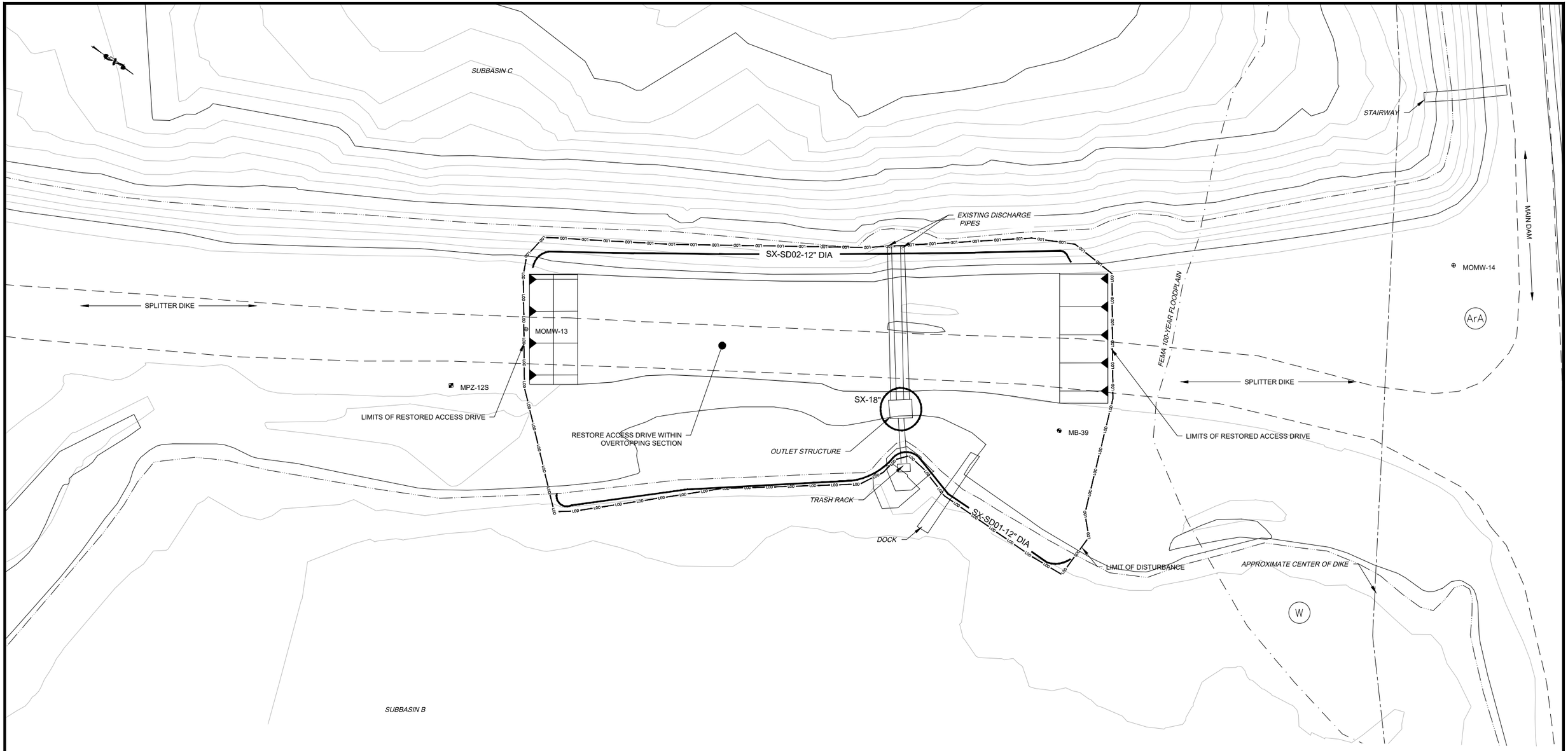
TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL PLAN

JOB NO.	SHEET NO.
66982	ESC1
DATE	DRAWING NO.
MAY 2020	18 OF 23

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EROSION AND SEDIMENT CONTROL PLAN LEGEND

- SX — COMPOST FILTER SOCK
- STABILIZED ACCESS ROAD
- ARTICULATED CONCRETE BLOCK
- LOD — LOD — LIMIT OF DISTURBANCE
- ROCK FILTER
- OCF — ORANGE CONSTRUCTION FENCE
- MONITORING WELL / BORING
- ArA / MoA — SOIL CLASSIFICATION AND BOUNDARY
- PUMP LINE
- ASSUMED FLOODWAY (50' FROM TOP OF BANK)

20 -0- 20 40
SCALE IN FEET

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DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL PLAN

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66982	ESC2
DATE	DRAWING NO.
MAY 2020	19 OF 23

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Plot Date: 05/21/2020 10:16 AM - Plotted By: Heather Bell

EROSION AND SEDIMENT POLLUTION CONTROL PLAN NARRATIVE

GENERAL STATEMENT OF THE PROJECT

A1. TALEN ENERGY IS PROPOSING TO MAKE IMPROVEMENTS TO MONTOUR STEAM ELECTRIC STATION BASIN 1 LOCATED IN WASHINGTONVILLE, MONTOUR COUNTY, PENNSYLVANIA. REFER TO THE COVER SHEET FOR THE LOCATION OF THE PROJECT.

A2. ASH BASIN NO. 1 WAS CONSTRUCTED IN 1971 TO DISPOSE COAL COMBUSTION RESIDUALS (CCRS). BASIN 1 COVERS APPROXIMATELY 144 ACRES AND UTILIZES A PERIMETER EARTHEN BERM WITH A BERM HEIGHT RANGING FROM 4 FEET TO 40 FEET. BASIN 1 CONSISTS OF A SERIES OF THREE (3) SUB-BASINS (A, B, AND C) WHICH DISCHARGE THROUGH A PRINCIPAL RISER SPILLWAY AND PRESSURE PIPE TO A DETENTION BASIN LOCATED APPROXIMATELY 1,000 FEET TO THE SOUTH OF BASIN 1.

A3. THE PROPOSED IMPROVEMENTS INCLUDE CONSTRUCTION OF AN OVERTOPPING SECTION AT BASIN 1. THE OVERTOPPING SECTION WILL DISCHARGE TO CHILLISQUAQUE CREEK FROM SUB-BASIN C. AN OVERTOPPING SECTION WILL BE CONSTRUCTED ON THE SPLITTER DIKE BETWEEN SUB-BASINS B AND C AS WELL.

A4. THE PRIMARY EROSION CONTROL MEASURES FOR THIS PROJECT WILL INCLUDE, BUT ARE NOT LIMITED TO, COMPOST FILTER SOCK, ROCK CONSTRUCTION ENTRANCE(S), MINIMIZING THE DURATION AND AMOUNT OF DISTURBED AREA, IMMEDIATELY STABILIZING DISTURBED AREAS, UTILIZING FILTERING DEVICES AS PART OF DEWATERING OPERATIONS, AND OTHER MEASURES AS DESCRIBED WITHIN THIS EROSION CONTROL PLAN.

A5. THE ENTIRE PROJECT IS LOCATED WITHIN THE MUNCY-CHILLISQUAQUE CREEK WATERSHED. AT THE PROJECT SITE, CHILLISQUAQUE CREEK IS CLASSIFIED AS A WARM WATER FISHERY (WWF) AND A MIGRATORY FISHERY (MF) WITHIN THE PA CODE, TITLE 25, CHAPTER 93 WATER QUALITY STANDARDS.

A6. THE ONSITE SOILS WITHIN THE IMMEDIATE PROJECT AREA ARE MAPPED AS AIVIRA SILT LOAM (ArA), MONONGAHELA SILT LOAM (MoA), AND WATSON SILT LOAM (WbA), AS IDENTIFIED WITHIN THE USDA NRCS WEB SOIL SURVEY.

A7. CONSTRUCTION IS ANTICIPATED TO BEGIN IN FALL OF 2020 AND TAKE APPROXIMATELY 2 MONTHS TO COMPLETE.

GENERAL EROSION CONTROL NOTES

B1. IN ALL CASES, THE SMALLEST PRACTICAL AREA OF STABLE LAND SURFACE WILL BE DISTURBED.

B2. EXCAVATED MATERIAL SHALL BE PLACED UP SLOPE FROM THE EXCAVATION WHENEVER POSSIBLE. SHOULD A SOIL PILE BE CREATED FROM THE EXCAVATION THAT IS NOT LOCATED WITHIN THE DRAINAGE AREA OF A PERIMETER EROSION CONTROL FACILITY, COMPOST FILTER SOCK SHALL BE INSTALLED ALONG THE DOWN SLOPE TOE OF SAID SOIL PILE, OR THE PILE SHALL BE COVERED WITH AN IMPERMEABLE TARP UNTIL SUCH TIME THAT THE PILE IS REMOVED. CONTRACTOR SHALL COORDINATE WITH THE OWNER WITH REGARDS TO SOIL PILE LOCATIONS.

B3. TEMPORARY SOIL/TOPSOIL STOCKPILES SHALL BE IMMEDIATELY SEEDED (TEMPORARY SEED MIXTURE) AND MULCHED. STOCKPILES ARE TO BE PLACED IN A LOCATION WHERE THEY WILL NOT INTERFERE WITH CONSTRUCTION ACTIVITIES AND ARE NOT TO BE LOCATED WITHIN THE FLOW PATH OF A NATURAL OR CONSTRUCTED WATERWAY. STOCKPILES ARE TO HAVE SIDE SLOPES OF 2H:1V OR FLATTER AND SHALL NOT EXCEED 35 FEET IN HEIGHT.

B4. ACCELERATED EROSION AND SEDIMENTATION WILL BE LIMITED BY IMMEDIATELY STABILIZING DISTURBED AREAS AND BY KEEPING THE AMOUNT OF DISTURBED AREA TO A MINIMUM. REFER TO THE TEMPORARY AND PERMANENT STABILIZATION NOTES THIS SHEET.

B5. SHOULD UNFORSEEN CIRCUMSTANCES ARISE POSING THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION, THE CONTRACTOR SHALL IMMEDIATELY IMPLEMENT APPROPRIATE BEST MANAGEMENT PRACTICES (BMP'S) TO ELIMINATE THE POTENTIAL FOR ACCELERATED EROSION AND/OR SEDIMENT POLLUTION. STOCKPILES OF WOOD CHIPS, HAYBALES, CRUSHED STONE AND OTHER MULCHES SHALL BE HELD IN READINESS TO DEAL IMMEDIATELY WITH EMERGENCY PROBLEMS OF EROSION.

B6. CONTRACTOR SHALL CONTROL DUST FROM THE PROJECT AREA BY APPLYING WATER OR IMPLEMENTING OTHER METHODS AS APPROVED BY THE OWNER/ENGINEER.

B7. ALL PUMPING OF SEDIMENT-LADEN WATER SHALL BE THROUGH A SEDIMENT CONTROL BEST MANAGEMENT PRACTICE, SUCH AS A PUMPED WATER FILTER BAG OR EQUIVALENT SEDIMENT REMOVAL FACILITY. SAID BMP SHALL BE LOCATED ON AND DISCHARGE OVER UNDISTURBED VEGETATED AREAS. DISCHARGE POINTS SHOULD BE ESTABLISHED TO PROVIDE FOR MAXIMUM DISTANCE TO ACTIVE WATERWAYS.

B8. EROSION CONTROL MATTING SHALL BE PLACED ON DISTURBED SLOPES THAT ARE STEEPER THAN 3H:1V. SHOULD CONSTRUCTION PROCEDURES AND/OR LOCALIZED SITE CONDITIONS DISTURB AND/OR CREATE DISTURBED SLOPES THAT ARE STEEPER THAN 3H:1V, THESE SLOPES SHALL BE PROTECTED WITH EROSION CONTROL MATTING.

B9. SHOULD SITE STABILIZATION OCCUR OUTSIDE OF THE ALLOWABLE SEEDING DATES, ALL DISTURBED AREAS TO BE VEGETATED SHALL BE STABILIZED WITH AN ANCHORED MULCH. AREAS WITHIN 50 FEET OF A WATERWAY SHALL BE STABILIZED WITH EROSION CONTROL MATTING. TEMPORARY OR PERMANENT STABILIZATION (AS APPROPRIATE) SHALL BE APPLIED TO THESE AREAS ONCE WITHIN THE ALLOWABLE SEEDING DATES.

B10. SEEPS OR SPRINGS ENCOUNTERED DURING CONSTRUCTION SHALL BE HANDLED TO MAINTAIN A DRY WORK AREA, AND TO PREVENT EROSION AND OFF-SITE SEDIMENTATION. MANAGE SEEPS OR SPRINGS THROUGH THE USE OF SUBSURFACE DRAINS, SPRING BOXES, SUMP PITS OR OTHER MEASURES AS APPROVED BY THE ENGINEER. SEEPAGE THROUGH THE DAM EMBANKMENT SHALL BE FILTERED. FILTER MATERIAL SHALL BE APPROVED BY THE ENGINEER.

B11. A COPY OF THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES THROUGHOUT THE TERM OF THE PROJECT.

B12. THE CONTRACTOR IS ADVISED TO BECOME THOROUGHLY FAMILIAR WITH THE EROSION CONTROL RULES AND REGULATIONS, TITLE 25, PART 1, DEPARTMENT OF ENVIRONMENTAL PROTECTION, SUBPART C, PROTECTION OF NATURAL RESOURCES, ARTICLE III, WATER RESOURCES, CHAPTER 102, EROSION CONTROL.

B13. ALL EARTH DISTURBANCES, INCLUDING CLEARING AND GRUBBING, AS WELL AS CUTS AND FILLS SHALL BE DONE IN ACCORDANCE WITH THE APPROVED PLAN. A COPY OF THE APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN SHALL BE KEPT AVAILABLE FOR INSPECTION ON THE CONSTRUCTION SITE AT ALL TIMES THROUGHOUT THE TERM OF THE PROJECT.

B14. SHOULD THE CONTRACTOR CHOOSE TO DEVIATE FROM THE APPROVED EROSION CONTROL PLAN, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL APPROVALS FOR THE MODIFICATION FROM PADEP, COUNTY CONSERVATION DISTRICT, LOCAL MUNICIPALITY OR OTHER REVIEWING AGENCY AS APPROPRIATE, PRIOR TO INITIATING SAID REVISIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH SAID APPROVALS (I.E., ENGINEER'S DESIGN COSTS, APPLICATION FEES, ETC.).

GENERAL E&S INSTALLATION PROCEDURES

C1. ALL MATERIALS NEEDED TO COMPLETELY CONSTRUCT AN EROSION CONTROL FACILITY SHALL BE AVAILABLE ON SITE PRIOR TO THE ANTICIPATED DISTURBANCE OF THE DRAINAGE AREA TO BE CONTROLLED BY SAID FACILITY.

C2. EROSION AND SEDIMENT CONTROL FACILITIES SHALL BE CONSTRUCTED, STABILIZED, AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS, INCLUDING CLEARING AND GRUBBING, WITHIN THE TRIBUTARY AREAS OF THOSE FACILITIES.

C3. ONLY LIMITED DISTURBANCE WILL BE PERMITTED TO PROVIDE ACCESS FOR CONSTRUCTING EROSION CONTROL FACILITIES AND FOR GRADING AND ACQUIRING BORROW TO CONSTRUCT THOSE CONTROLS.

C4. EARTH DISTURBANCE ACTIVITIES, INCLUDING MOVEMENT OF CONSTRUCTION VEHICLES, SHALL BE BE AVOIDED/MINIMIZED BELOW THE LOCATION OF THE PERIMETER EROSION CONTROL FACILITIES. SHOULD EARTH DISTURBANCE OCCUR BELOW THE PERIMETER EROSION CONTROL FACILITIES, PERMANENT STABILIZATION SHALL BE IMMEDIATELY APPLIED TO THOSE DISTURBED AREAS.

C5. AT NO TIME WILL SEDIMENT OR SEDIMENT-LADEN RUNOFF BE ALLOWED TO LEAVE THE SITE AND ENTER COMMONWEALTH WATERS WITHOUT FIRST PASSING THROUGH A SEDIMENT FILTERING DEVICE. SHOULD SITE CONDITIONS, CONSTRUCTION PROCEDURES, ETC. ALTER THE EROSION CONTROL PLAN TO THE POINT WHERE SEDIMENT AND SEDIMENT-LADEN RUNOFF IS NOT BEING CONTROLLED AND FILTERED BEFORE IT LEAVES THE SITE, ADDITIONAL EROSION CONTROL MEASURES ARE TO BE IMPLEMENTED AT NO ADDITIONAL COST TO THE OWNER. ALL MODIFICATIONS TO THE APPROVED EROSION CONTROL PLAN SHALL BE REVIEWED AND APPROVED BY THE COUNTY CONSERVATION DISTRICT PRIOR TO IMPLEMENTING SAID MEASURES. REFER TO NOTE B10 ON THIS SHEET.

C6. EROSION AND SEDIMENT CONTROL FACILITIES REQUIRED OR NECESSARY TO PROTECT AREAS FROM EROSION DURING THE STABILIZATION PERIOD SHALL BE MAINTAINED UNTIL PERMANENT STABILIZATION OF THE CONTRIBUTING DRAINAGE AREA IS COMPLETED. UPON COMPLETION OF PERMANENT STABILIZATION AND UPON APPROVAL FROM THE CONSERVATION DISTRICT, ALL TEMPORARY OR UNUSABLE CONTROL MEASURES AND FACILITIES SHALL BE REMOVED, THE DISTURBED AREAS CREATED BY THIS ACTIVITY SHALL BE BROUGHT TO FINAL GRADE AND PERMANENT STABILIZATION SHALL BE IMMEDIATELY APPLIED TO ALL DISTURBED AREAS CREATED BY THIS ACTIVITY.

FILL/DISPOSAL OF MATERIAL NOTES

D1. ALL CLEAN FILL DEMOLITION MATERIAL INCLUDING CLEARING AND GRUBBING DEBRIS ACCUMULATION WILL BE PROPERLY DISPOSED OF IN A LAWFUL MANNER.

D2. ALL BUILDING MATERIALS AND WASTES MUST BE REMOVED FROM THE SITE AND RECYCLED OR DISPOSED OF IN ACCORDANCE WITH THE PADEP'S SOLID WASTE MANAGEMENT REGULATIONS AT 25 PA CODE SUBSECTION 260.1 ET SEQ., SUBSECTION 271.1 ET SEQ., AND SUBSECTION 287.1 ET SEQ. NO BUILDING MATERIAL OR WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURNED, BURIED, DUMPED, OR DISCHARGED AT THE SITE.

D3. OFFSITE BORROW AREAS, STOCKPILE AREAS AND/OR WASTE DISPOSAL AREAS SHALL HAVE AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN PRIOR TO THE START OF ANY EARTHMOVING ACTIVITIES IN THOSE OFFSITE AREAS. THE CONTRACTOR, IN THEIR PROPOSAL, SHALL MAKE PROVISIONS FOR THESE OFFSITE AREAS AND SHALL BE RESPONSIBLE FOR ENSURING THAT EACH OFFSITE AREA HAS AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN BY THE COUNTY CONSERVATION DISTRICT IN WHICH THE OFFSITE AREA IS LOCATED. THE CONTRACTOR SHALL NOTIFY THE COUNTY CONSERVATION DISTRICT OF ALL OFFSITE SPOIL, STOCKPILE AND/OR BORROW AREAS THAT ARE ANTICIPATED TO BE USED.

D4. IF FILL MATERIAL IS BROUGHT ONTO THE SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PERFORMING ENVIRONMENTAL DUE DILIGENCE AND DETERMINING IF SAID MATERIAL IS CLEAN FILL. CLEAN FILL IS DEFINED AS UNCONTAMINATED, NON-WATER SOLUBLE, NON-DECOMPOSABLE, INERT, SOLID MATERIAL. ENVIRONMENTAL DUE DILIGENCE SHALL INCLUDE INVESTIGATIVE TECHNIQUES, INCLUDING, BUT NOT LIMITED TO, VISUAL PROPERTY INSPECTIONS, ELECTRONIC DATA BASE SEARCHES, REVIEW OF PROPERTY OWNERSHIP, REVIEW OF PROPERTY USE HISTORY, SANBORN MAPS, ENVIRONMENTAL QUESTIONNAIRES, TRANSACTION SCREENS, ANALYTICAL TESTING, ENVIRONMENTAL ASSESSMENTS OR AUDITS.

D5. SEDIMENT REMOVED FROM EROSION CONTROL FACILITIES SHALL BE DISPOSED OF IN LANDSCAPED OR LAWN AREAS LOCATED UPSLOPE OF SAID FACILITIES AND SHALL BE IMMEDIATELY STABILIZED. REMOVED SEDIMENTS SHALL NOT BE PLACED ON STEEP SLOPES, IN WETLANDS, OR DRAINAGE SWALES. REMOVED SEDIMENTS MAY ALSO BE PLACED IN AN APPROVED TOPSOIL STOCKPILE.

D6. THE CONTRACTOR AND PERMITTEE MUST ATTEMPT, WHENEVER POSSIBLE, TO RECYCLE ALL WASTE GENERATED ONSITE DURING THIS PROJECT. ALL WASTE MATERIAL NOT RECYCLED, MUST BE DISPOSED OF AT AN APPROVED WASTE SITE.

TEMPORARY STABILIZATION NOTES

E1. WHERE IT IS NOT POSSIBLE TO PERMANENTLY STABILIZE A DISTURBED AREA IMMEDIATELY AFTER FINAL EARTHMOVING HAS BEEN COMPLETED OR WHERE CONSTRUCTION ACTIVITIES CEASE, TEMPORARY STABILIZATION MEASURES SHALL BE IMMEDIATELY IMPLEMENTED.

E2. TEMPORARY STABILIZATION, AS REFERRED TO IN THIS NARRATIVE, INVOLVES THE STABILIZATION AND PROTECTION OF THE SOIL SURFACE TO AN EXTENT THAT WILL PREVENT EROSION AND ELIMINATE OFFSITE SEDIMENTATION. TYPICAL TEMPORARY STABILIZATION IS OBTAINED BY ESTABLISHING A VEGETATIVE COVER ACROSS THE DISTURBED AREA. ESTABLISH TEMPORARY VEGETATIVE COVER IN ACCORDANCE WITH THE FOLLOWING:

A. PREPARE THE SOIL SURFACE IN ACCORDANCE WITH PENNDOT PUB 408, SECTION 804. APPLY SOIL SUPPLEMENTS AS RECOMMENDED BY SOIL TEST RESULTS. IN THE ABSENCE OF SOIL TEST RESULTS, APPLY AGRICULTURAL GRADE LIMESTONE AT A RATE OF ONE (1) TON/ACRE AND APPLY 10-20-20 COMMERCIAL FERTILIZER AT A RATE OF 140 POUNDS PER 1,000 SQUARE YARDS.

B. SOW ERNMX-104 AT THE RATE OF 50 POUNDS PER ACRE (TEN POUNDS PER 1,000 SQ. YARDS) OR WINTER WHEAT AT THE RATE OF 180 POUNDS PER ACRE (37 POUNDS PER 1,000 SQ. YARDS) BY THE HELICOPTER, HYDRAULIC PLACEMENT, BROADCASTING, DRILLING, OR HAND SEEDING METHODS. COVER GRASS SEED WITH 1/4" OF SOIL USING SUITABLE EQUIPMENT FOR THAT PURPOSE.

C. IMMEDIATELY AFTER SEEDING, PROVIDE AN ANCHORED STRAW MULCH SPREAD UNIFORMLY IN A CONTINUOUS BLANKET AT A RATE OF 1,240 POUNDS PER 1,000 SQUARE YARDS (3 TONS PER ACRE). REFER TO ITEM F.3 OF THIS NARRATIVE FOR MULCH PLACEMENT AND ANCHORING REQUIREMENTS.

D. SPREAD SEED BETWEEN MARCH 15 AND OCTOBER 15. UNLESS APPROVED OTHERWISE

E3. IF TEMPORARY STABILIZATION ACTIVITIES FALL OUTSIDE OF THE ALLOWABLE SEEDING DATES, AN ANCHORED MULCH IS TO BE PLACED WITHOUT SEEDING. APPLY TEMPORARY OR PERMANENT SEED MIXTURES ONCE WITHIN THE ALLOWABLE SEEDING DATES.

PERMANENT STABILIZATION NOTES

F1. ALL AREAS THAT HAVE BEEN BROUGHT TO FINAL GRADE AND THOSE DISTURBED AREAS THAT WILL NOT BE WORKED WITHIN ONE YEARS TIME, SHALL HAVE PERMANENT STABILIZATION MEASURES IMMEDIATELY APPLIED.

F2. PERMANENT STABILIZATION OF LAWN AREAS, AS REFERRED TO IN THIS NARRATIVE, INVOLVES THE STABILIZATION AND PROTECTION OF THE SOIL SURFACE TO AN EXTENT THAT WILL PREVENT EROSION AND ELIMINATE OFFSITE SEDIMENTATION. TYPICAL PERMANENT STABILIZATION IS OBTAINED BY ESTABLISHING A VEGETATIVE COVER ACROSS THE DISTURBED AREA. ESTABLISH PERMANENT VEGETATIVE COVER IN ACCORDANCE WITH THE FOLLOWING:

A. PREPARE THE SOIL SURFACE AND SPREAD TOPSOIL (SIX-INCH MINIMUM DEPTH) IN ACCORDANCE WITH PENNDOT PUB 408, SECTION 804. APPLY SOIL SUPPLEMENTS AS RECOMMENDED BY SOIL TEST RESULTS. IN THE ABSENCE OF SOIL TEST RESULTS, APPLY AGRICULTURAL GRADE LIMESTONE AT A RATE OF SIX (6) TONS/ACRE AND APPLY 10-20-20 COMMERCIAL FERTILIZER AT A RATE OF 1,000 POUNDS PER ACRE.

B. SOW THE PERMANENT SEED MIXTURES AT THE RATE SPECIFICIED BELOW PER ACRE BY THE HELICOPTER, HYDRAULIC PLACEMENT, BROADCASTING, DRILLING, OR HAND SEEDING METHODS. COVER GRASS SEED WITH 1/4" OF SOIL USING SUITABLE EQUIPMENT FOR THAT PURPOSE.

MIX	RATE OF APPLICATION (LBS/1,000 SQ. YD)
RED FESCUE CHEWINGS (30%) KENTUCKY BLUEGRASS (45%) PERENNIAL RYEGRASS (20%) ANNUAL RYEGRASS (5%)	44

F3. IMMEDIATELY AFTER SEEDING, PROVIDE AN ANCHORED STRAW MULCH SPREAD UNIFORMLY IN A CONTINUOUS BLANKET AT A RATE OF 1,240 POUNDS PER 1,000 SQUARE YARDS (3 TONS PER ACRE).

A. MULCH MAY BE SPREAD BY HAND OR WITH AN ACCEPTABLE MECHANICAL BLOWER. MACHINES WHICH CUT MULCH INTO SHORT PIECES WILL NOT BE PERMITTED.

B. MULCH SHALL BE ANCHORED BY USE OF CRIMPING, NETTING, OR A NONASPHALTIC EMULSION MULCH BINDER IMMEDIATELY FOLLOWING MULCH SPREADING. IF A NONASPHALTIC EMULSION MULCH BINDER IS USED, THE NUMBER OF PASSES OVER THE MULCH AS NEEDED TO SECURE IT FIRMLY SHALL NOT EXCEED THREE PASSES WITH MAXIMUM APPLIED BINDER NOT EXCEEDING TEN GALLONS PER 1,000 SQUARE FEET.

F4. PERMANENT STABILIZATION OF LAWN AREAS IS CONSIDERED TO BE A UNIFORM EROSION RESISTANT PERENNIAL VEGETATION ESTABLISHED TO THE POINT WHERE THE SURFACE SOIL IS CAPABLE OF RESISTING EROSION DURING RUNOFF EVENTS AND SUBSURFACE CHARACTERISTICS ARE SUFFICIENT TO RESIST SLIDING AND OTHER MOVEMENTS. THE STANDARD FOR THIS VEGETATIVE COVER WILL BE A UNIFORM COVERAGE OR DENSITY OF 70% ACROSS THE ENTIRE DISTURBED AREA.

PROPOSED IMPERVIOUS AREAS WILL BE CONSIDERED PERMANENTLY STABILIZED ONCE THE IMPERVIOUS SURFACE (I.E., GRAVEL FOR DRIVEWAYS, CONCRETE SURFACES) HAS BEEN PLACED.

MAINTENANCE/CONTRACTOR'S RESPONSIBILITIES

G1. THE CONTRACTOR SHALL ASSURE THAT THE EROSION AND SEDIMENT POLLUTION CONTROL PLAN IS PROPERLY AND COMPLETELY IMPLEMENTED IN ACCORDANCE WITH THE APPROVED EROSION CONTROL PLAN DRAWINGS AND THE TECHNICAL SPECIFICATIONS.

G2. MAINTENANCE INSPECTIONS SHALL BE PERFORMED AND DOCUMENTED, ON ALL CONTROLS, AFTER EACH RAINFALL EVENT AND AT A MINIMUM ON A WEEKLY BASIS, USING AN INSPECTION LOG SHEET. ALL PREVENTATIVE AND REMEDIAL MAINTENANCE WORK, INCLUDING CLEAN OUT, REPAIR, REPLACEMENT, REGRADING, RESEEDING, REMULCHING, OR RENETTING, MUST BE PERFORMED IMMEDIATELY. CONTRACTOR SHALL DOCUMENT IN WRITING ALL INSPECTIONS AND REMEDIAL ACTIONS ASSOCIATED WITH THE EROSION CONTROL FACILITIES. CONTRACTOR SHALL BE PREPARED TO PROVIDE THE INSPECTION LOG SHEETS TO THE OWNER AND/OR THE COUNTY CONSERVATION DISTRICT UPON REQUEST.

G3. ONCE AN EROSION CONTROL FACILITY BECOMES CLOGGED WITH SEDIMENTS AND CAN NO LONGER PERFORM AS INTENDED, SAID FACILITY SHALL BE CLEANED OF SEDIMENTS OR REPLACED WITH A NEW FACILITY. SEDIMENT COLLECTED FROM THE EROSION CONTROL FACILITIES SHALL BE PLACED UPSTREAM OF THOSE CONTROLS AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH OR HAULED OFFSITE TO A DISPOSAL AREA WITH AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN. SEDIMENT SHALL BE DEPOSITED OUTSIDE OF STEEP SLOPES, WETLANDS, OR DRAINAGE SWALES.

G4. REFER TO EACH EROSION CONTROL FACILITY DETAIL FOR ADDITIONAL INSTALLATION AND MAINTENANCE REQUIREMENTS ASSOCIATED WITH SAID FACILITY.

G5. ALL PERMANENTLY SEEDED AREAS THAT BECOME ERODED SHALL IMMEDIATELY HAVE THE TOPSOIL REPLACED, THE EROSION CONTROL MATTING REPLACED (IF APPLICABLE), THE GRASS RESOWN AND MULCH REAPPLIED AND ANCHORED. IF EROSION PERSISTS, THE AREA SHALL BE EITHER LINED WITH SOD OR STABILIZED WITH ROCK RIPRAP AT THE DISCRETION OF THE ENGINEER/OWNER.

G6. MAINTENANCE OF ALL PERMANENT BEST MANAGEMENT PRACTICES BECOMES THE RESPONSIBILITY OF THE OWNER IN PERPETUITY UPON COMPLETION OF CONSTRUCTION AND ACCEPTANCE BY OWNER, SUBJECT TO THE TERMS OF THE WARRANTY PERIOD SPECIFIED IN THE CONTRACT DOCUMENTS.

G7. FINES AND RELATED COSTS RESULTING FROM THE CONTRACTOR'S FAILURE TO PROVIDE ADEQUATE PROTECTION AGAINST SOIL EROSION AND FOR ANY VIOLATIONS OF THE CLEAN STREAMS LAW AND THE RULES AND REGULATIONS PROMULGATED THEREUNDER SHALL BE BORNE BY THE CONTRACTOR.

G8. THE INTENT OF THIS PLAN/NARRATIVE IS TO INDICATE GENERAL MEANS OF COMPLIANCE WITH THE REQUIREMENTS OF THE RULES AND REGULATIONS OF CHAPTER 102, THE DEPARTMENT OF ENVIRONMENTAL PROTECTION (AS AUTHORIZED UNDER THE CLEAN STREAMS LAW). IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO IMPLEMENT THESE METHODS, PLUS ADDITIONAL METHODS, AS MAY BE NECESSARY BECAUSE OF CONDITIONS CREATED BY LOCALIZED SITE CONDITIONS AND/OR CONSTRUCTION PROCEDURES IN ORDER TO ASSURE COMPLIANCE WITH APPLICABLE LAW. IT WILL FURTHER BE THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN ALL EROSION AND SEDIMENT CONTROL FACILITIES SO THAT THEY PERFORM AS REQUIRED BY APPLICABLE LAW.

EROSION CONTROL PLAN PREPARER INFORMATION:
NAME:_____JOSHUA P. HANES, P.E.
FIRM: _____GANNETT FLEMING, INC.
ADDRESS:_____P.O. BOX 67100
HARRISBURG, PA 17106-7100
PHONE NUMBER:____717-763-7212, EXT. 2828
QUALIFICATIONS: 12+ YEARS OF EXPERIENCE IN PREPARING EROSION CONTROL PLANS

THIS DRAWING IS AND SHALL REMAIN THE PROPERTY OF GANNETT FLEMING, INC. ANY MISUSE, REUSE, ALTERATIONS, ADDITIONS, AND/OR DELETIONS OF THESE DRAWINGS ON PROJECT EXTENSIONS OR OTHER PROJECTS SHALL BE AT THE USER'S SOLE RISK AND WITHOUT LIABILITY TO GANNETT FLEMING, INC. IN THE EVENT THAT A CONFLICT ARISES BETWEEN THE SEALED DRAWINGS AND THE ELECTRONIC FILES, THE SEALED DRAWINGS WILL GOVERN.

COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL — PAUL G SCHWEIGER — ENGINEER — PE-044000-E

NO.	DESCRIPTION	DATE	BY

REVISIONS

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL NOTES

JOB NO.	SHEET NO.
66982	ESC3
DATE	DRAWING NO.
MAY 2020	20 OF 23

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STAGING OF EARTHMOVING ACTIVITIES

THE INTENT OF THIS STAGING NARRATIVE IS TO DESCRIBE THE CRITICAL EARTHMOVING/CONSTRUCTION ACTIVITIES WHICH MUST OCCUR IN ORDER TO PROVIDE A COMPREHENSIVE PLAN FOR THE CONTROL OF SEDIMENT–LADEN RUNOFF FROM THE PROJECT AREA. THIS STAGING NARRATIVE IS NOT INTENDED TO DESCRIBE ALL THE WORK ACTIVITIES ASSOCIATED WITH THE PROPOSED CONSTRUCTION PROJECT.

ALL EARTH DISTURBANCE ACTIVITIES SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING SEQUENCE. UNLESS STATED OTHERWISE, EACH CONSTRUCTION STAGE SHALL BE COMPLETED AND ALL DISTURBED AREAS STABILIZED BEFORE ANY FOLLOWING STAGE IS INITIATED. DEMOLITION, CLEARING, GRUBBING AND TOPSOIL STRIPPING SHALL BE LIMITED ONLY TO THOSE AREAS DESCRIBED IN EACH STAGE.

PRECONSTRUCTION ACTIVITIES

1. AT LEAST SEVEN (7) DAYS BEFORE STARTING EARTHMOVING AND DEMOLITION ACTIVITIES, THE CONTRACTOR SHALL INVITE ALL CONTRACTORS INVOLVED IN THOSE ACTIVITIES, THE OWNER, ALL APPROPRIATE MUNICIPAL OFFICIALS, THE EROSION CONTROL PLAN PREPARER, AND THE COUNTY CONSERVATION DISTRICT(S) AND PADEP TO AN ONSITE PRE–CONSTRUCTION MEETING.
2. AT LEAST THREE (3) DAYS BEFORE STARTING EARTHMOVING AND DEMOLITION ACTIVITIES, ALL CONTRACTORS INVOLVED IN SAID ACTIVITIES SHALL NOTIFY THE PENNSYLVANIA ONE CALL SYSTEM, INC. AT 1–800–242–1776 FOR BURIED UTILITIES LOCATION. THE CONTRACTOR SHALL COORDINATE THEIR WORK ACTIVITIES WITH THE UTILITY COMPANIES AND THE OWNER. PA ONE CALL 20202600515–000 HAS BEEN ASSIGNED TO THIS PROJECT.
3. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER TO DEVELOP A VEHICULAR/PEDESTRIAN SAFETY PLAN TO PREVENT VEHICULAR/PEDESTRIAN TRAFFIC FROM ENTERING THE WORK AREA. THE PLAN MAY INCLUDE SUCH THINGS AS SIGNS, BARRICADES, FENCING, TEMPORARY WALKWAYS, FLAGGING PERSONNEL, ETC.
4. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER WITH REGARDS TO WHERE THE CONTRACTOR'S STAGING/PARKING AREA(S) ARE TO BE LOCATED. STAGING AREAS NOT LOCATED ON EXISTING PAVEMENT SHALL BE STABILIZED WITH A 6" (MIN.) LAYER OF PENNDOT 2A AGGREGATE. REFER TO THE STAGING AREA DETAIL THIS SHEET.
5. SCHEDULE CONSTRUCTION SO AS TO MINIMIZE THE EXTENT AND DURATION OF DISTURBED GROUND SURFACES.
6. CLEARLY MARK AREAS WHICH ARE NOT TO BE DISTURBED BY FLAGS, SIGNS, FENCING, ETC. CLEARLY IDENTIFY THE LIMIT OF DISTURBANCE LINE IN THE FIELD.

STAGE 1: INSTALLATION OF INITIAL EROSION CONTROL FACILITIES

1. EARTH DISTURBANCE ASSOCIATED WITH THE STAGE 1 ACTIVITIES SHALL BE LIMITED TO ONLY THOSE AREAS ABSOLUTELY NEEDED TO INSTALL THE INITIAL EROSION CONTROL FACILITIES.
2. INSTALL ROCK CONSTRUCTION ENTRANCE(S) AND STAGING AREAS AT THE LOCATIONS SHOWN ON THE DRAWINGS. SHOULD THE CONTRACTOR CHOOSE TO RELOCATE OR ADD ADDITIONAL INGRESS/EGRESS LOCATIONS TO THE PROJECT AREA, THESE LOCATIONS SHALL ALSO BE EQUIPPED WITH ROCK CONSTRUCTION ENTRANCES AND STABILIZED ROUTES TO THE CONSTRUCTION AREA.
3. INSTALL PROTECTIVE FENCING AS SHOWN ON THE DRAWINGS AND AROUND ALL TREES AND FACILITIES WHICH ARE TO BE PROTECTED. FENCING IS TO BE LOCATED AT THE DRIP LINE OF THE TREE UNLESS DIRECTED OTHERWISE.
4. INSTALL COMPOST FILTER SOCK RUNS AS SHOWN ON THE DRAWINGS.
5. CONTRACTOR SHALL HAVE PUMPING EQUIPMENT AND A SUPPLY OF SEDIMENT FILTERING DEVICES FOR PUMPED WATER ONSITE AND IN WORKING ORDER FOR DEWATERING OPERATIONS.
6. ALL DISTURBED AREAS CREATED BY THE STAGE 1 ACTIVITIES SHALL BE IMMEDIATELY STABILIZED.

STAGE 2A: SUB–BASIN C OVERTOPPING SECTION WORK ACTIVITIES

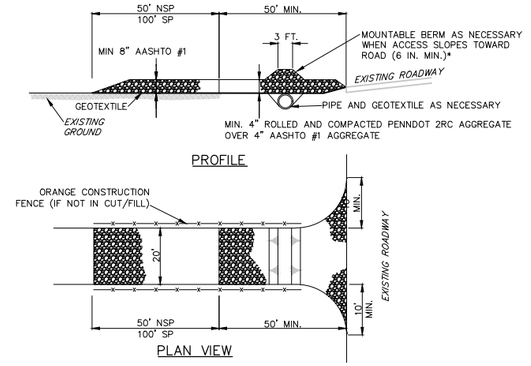
1. STAGE 2A ACTIVITIES MAY NOT OCCUR UNTIL THE STAGE 1 ACTIVITIES ARE COMPLETE AND ALL EROSION CONTROL FACILITIES ARE INSTALLED, STABILIZED, AND FUNCTIONAL.
2. EXCAVTE AND FIELD CONFIRM THE LOCATION AND DEPTH OF THE WATERLINE AND FRENCH DRAIN LOCATED ALONG THE TOE OF THE EMBANKMENT. ONCE EARTH DISTURBANCE ACTIVITIES BEGIN, ALL PUMPED WATER SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE, SUCH AS A PUMPED WATER FILTER BAG, BEFORE BEING DISCHARGED FROM THE SITE.
3. STRIP RIPRAP, FILTER BLANKET OR AND 6" OF TOPSOIL FROM THE WORK AREA AND STOCKPILE ON–SITE FOR FUTURE USE.
4. PERFORM EXCAVATION AND DEMOLITION ACTIVITIES FOR OVERTOPPING SECTION, AND ACB INSTALLATION. DISPOSE OF ALL MATERIAL IN A LAWFUL MANNER (REFER TO THE "FILL/DISPOSAL OF MATERIAL NOTES" ON SHEET ES3).
5. CONSTRUCT THE OVERTOPPING SECTION IMPROVEMENTS (I.E., ACB EMBANKMENT PROTECTION).
6. BRING ALL AREAS TO FINAL GRADE AND IMMEDIATELY APPLY PERMANENT STABILIZATION TO ALL DISTURBED AREAS.

STAGE 2B: SPLITTER DIKE WORK ACTIVITIES

1. STAGE 2B ACTIVITIES MAY NOT OCCUR UNTIL THE STAGE 1 ACTIVITIES ARE COMPLETE AND ALL EROSION CONTROL FACILITIES ARE INSTALLED, STABILIZED, AND FUNCTIONAL. THIS STAGE MAY OCCUR CONCURRENTLY WITH STAGE 2A.
2. DEWATER THE SUB–BASIN B AS NEEDED TO PERFORM THE CONSTRUCTION ACTIVITIES. ALL PUMPED WATER SHALL PASS THROUGH A SEDIMENT FILTERING DEVICE, SUCH AS A PUMPED WATER FILTER BAG, BEFORE BEING DISCHARGED FROM THE SITE. STRIP RIPRAP FROM THE WORK AREA AND STOCKPILE ON–SITE FOR FUTURE USE.
3. PERFORM EXCAVATION AND DEMOLITION ACTIVITIES FOR THE SUB–BASIN B/C SPLITTER DIKE.
4. DISPOSE OF ALL MATERIAL IN A LAWFUL MANNER (REFER TO THE "FILL/DISPOSAL OF MATERIAL NOTES" ON SHEET ES3).
5. BRING ALL AREAS TO FINAL GRADE AND IMMEDIATELY APPLY PERMANENT STABILIZATION TO ALL REMAINING DISTURBED AREAS.

STAGE 3: CLEANUP ACTIVITIES

1. STAGE 3 ACTIVITIES MAY NOT OCCUR UNTIL THE STAGE 1 AND STAGE 2 ACTIVITIES ARE COMPLETED AND ALL DISTURBED AREAS HAVE BEEN STABILIZED.
2. REMOVE ALL GRAVEL STAGING AREAS, AND ACCESS ROADS AND RESTORE THE AREA PER THE DETAIL ON THIS SHEET.
3. REMOVE ALL SEDIMENT DEPOSITS COLLECTED BEHIND THE INSTALLED EROSION CONTROL FILTERING DEVICES (I.E., FILTER SOCK, ROCK FILTER AND FILTERING DEVICES FOR PUMPED WATER) AND EITHER USE FOR ONSITE GRADING AND STABILIZE WITH SEED AND AN ANCHORED MULCH OR HAUL THIS MATERIAL OFFSITE TO A SPOIL AREA WITH AN APPROVED EROSION AND SEDIMENT POLLUTION CONTROL PLAN. IMMEDIATELY PROVIDE PERMANENT STABILIZATION TO ALL DISTURBED AREAS CREATED BY THIS ACTIVITY.
4. NOTIFY THE MONTOUR COUNTY CONSERVATION DISTRICT TO REQUEST A FINAL SITE INSPECTION. THE DISTRICT SHALL DETERMINE IF THE SITE IS STABILIZED AND IF THE TEMPORARY EROSION CONTROL MEASURES CAN BE REMOVED.
5. UPON PERMANENT STABILIZATION OF ALL CONTRIBUTING UPSTREAM AREAS, REMOVE ALL TEMPORARY EROSION CONTROL FACILITIES (I.E., FILTER SOCK, ROCK FILTER, FILTERING DEVICES FOR PUMPED WATER). IMMEDIATELY STABILIZE ALL DISTURBED AREAS CREATED BY THIS ACTIVITY.
6. ONCE ALL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE SITE HAS CEASED, REMOVE ALL REMAINING STAGING/STOCKPILE AREAS AND THE ROCK CONSTRUCTION ENTRANCE(S). IMMEDIATELY APPLY PERMANENT STABILIZATION TO ANY DISTURBED AREAS CREATED BY THIS ACTIVITY.



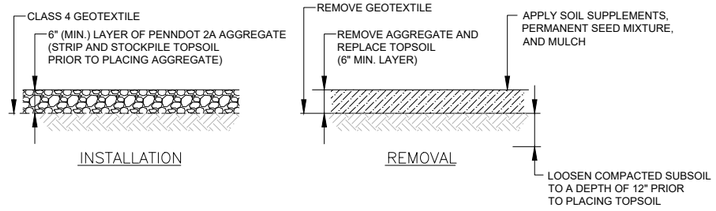
* MOUNTABLE BERM USED TO PROVIDE PROPER COVER FOR PIPE

ROCK CONSTRUCTION ENTRANCE

NOT TO SCALE

ROCK CONSTRUCTION ENTRANCE NOTES:

1. ROCK CONSTRUCTION ENTRANCE(S) SHALL BE PLACED AT THE LOCATIONS SHOWN ON THE PLAN AND CONSTRUCTED TO THE MINIMUM DIMENSIONS AS SHOWN ON THE DETAIL.
2. REMOVE TOPSOIL PRIOR TO INSTALLATION OF ROCK CONSTRUCTION ENTRANCE. EXTEND ROCK OVER FULL WIDTH OF ENTRANCE. AT LOCATIONS WHERE ROCK CONSTRUCTION ENTRANCES ARE LOCATED OVER EXISTING PAVEMENT, THE PAVEMENT SHALL BE REMOVED UNDER THE FOOTPRINT OF THE FACILITY PRIOR TO INSTALLING SAID CONSTRUCTION ENTRANCE.
3. RUNOFF SHALL BE DIVERTED FROM ROADWAY TO A SUITABLE SEDIMENT REMOVAL BMP PRIOR TO ENTERING ROCK CONSTRUCTION ENTRANCE.
4. MOUNTABLE BERM SHALL BE INSTALLED WHEREVER OPTIONAL CULVERT PIPE IS USED AND PROPER PIPE COVER AS SPECIFIED BY MANUFACTURER IS NOT OTHERWISE PROVIDED. PIPE SHALL BE SIZED APPROPRIATELY FOR SIZE OF DITCH BEING CROSSED.
5. THE ENTRANCE THICKNESS SHALL BE CONSTANTLY MAINTAINED TO THE SPECIFIED DIMENSION BY ADDING ROCK. A STOCKPILE OF ROCK MATERIAL WILL BE MAINTAINED ONSITE FOR THIS PURPOSE. PROVIDE MOUNTABLE BERM AS NEEDED TO PROVIDE ADEQUATE COVER OVER DRAINAGE PIPE.
6. AT THE END OF EACH CONSTRUCTION DAY, ALL SEDIMENT DEPOSITED ON PUBLIC ROADWAYS SHALL BE REMOVED AND RETURNED TO THE CONSTRUCTION SITE. REMOVAL SHALL BE COMPLETED THROUGH THE USE OF MECHANICAL OR HAND TOOLS. WASHING OF THE ROADWAY WITH WATER OR SWEEPING THE DEPOSITS INTO ROADWAY DRAINAGE FACILITIES IS NOT PERMITTED.
7. IF EXCESSIVE AMOUNTS OF SEDIMENT ARE BEING DEPOSITED ON THE PUBLIC ROADWAY, EXTEND THE LENGTH OF THE ROCK CONSTRUCTION ENTRANCE IN 50-FOOT INCREMENTS UNTIL CONDITION IS ALLEVIATED OR INSTALL WASH RACK. WASH RACK SHALL MATCH THE TOTAL WIDTH OF THE ENTRANCE AND SHALL BE AT LEAST 6-FEET IN LENGTH. WASH RACK SHALL BE CONSTRUCTED OF REINFORCED CONCRETE OR WELDED STEEL PIPE AND DESIGNED TO ACCOMMODATE THE ANTICIPATED TRAFFIC LOADING. WASH RACK SHALL COMPLY WITH STANDARD CONSTRUCTION DETAIL NO. 3-2 OF THE PENNSYLVANIA EROSION AND SEDIMENT POLLUTION CONTROL PROGRAM MANUAL, MARCH 2012.
8. STABILIZE ALL DISTURBED AREAS CREATED BY THE REPAIR / REMOVAL OF THE ROCK CONSTRUCTION ENTRANCE(S) WITH SEED AND MULCH, GRAVEL OR WITH PAVEMENT AS INDICATED ON THE DRAWINGS.



TEMPORARY GRAVEL CONTRACTOR STAGING AREA

NOT TO SCALE

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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — PAUL G SCHWEIGER — PE-040810-E

NO.	DESCRIPTION	DATE	BY
	REVISIONS		

DESIGNED	CADD	SCALE
JPH	JLS	AS SHOWN
DRAWN	CHECKED	APPROVED
JPH	PGS	JPH

Gannett Fleming

TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL NOTES

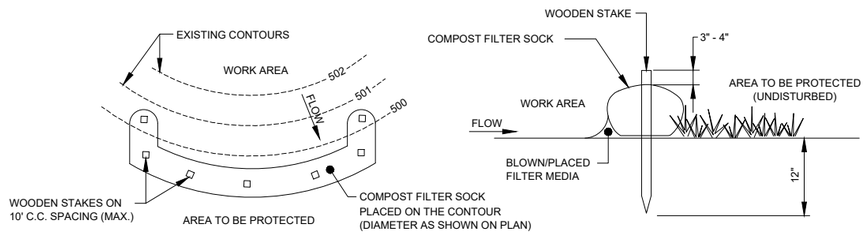
JOB NO.	SHEET NO.
66982	ESC4
DATE	DRAWING NO.
MAY 2020	21 OF 23

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SOILS LEGEND

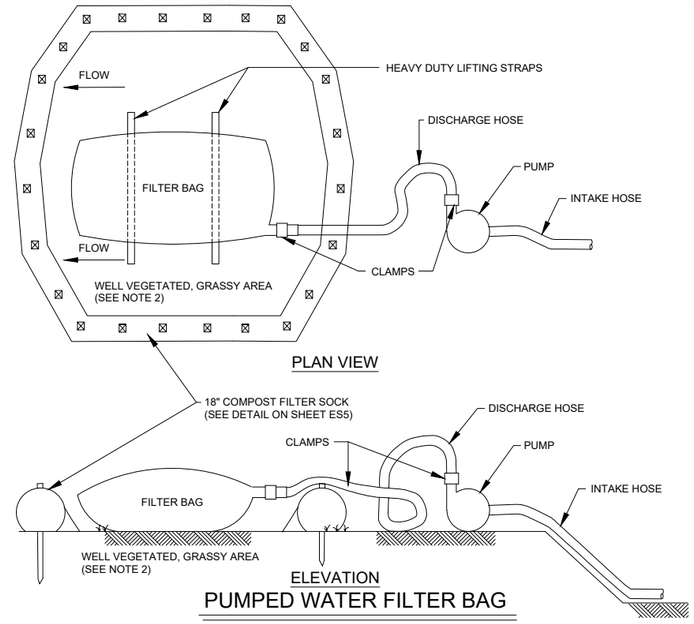
SOIL SERIES	MAP SYMBOL	DESCRIPTION	ENGINEERING CLASSIFICATION UNIFIED	ENGINEERING CLASSIFICATION AASHTO	DEPTH TO WATER TABLE	PLASTICITY INDEX	SOIL REACTION (Ph)	LIQUID LIMIT (%)	AVAILABLE WATER CAPACITY (IN/IN)	SUITABILITY AS A SOURCE OF... TOPSOIL	SAND & GRAVEL	ROAD FILL	SOIL FEATURES AFFECTING ENGINEERING PRACTICES FOR... ROADWAYS	LAWNS	POND STORAGE AREAS	POND EMBANKMENTS	DWELLING UNITS	POTENTIAL FROST ACTION	HYDROLOGIC SOIL GROUP
ALVIRA	ArA	ALVIRA SILT LOAM, 0 TO 3 % SLOPES	CL-ML	A-4	12"±	9	4.6	29	0.18	FAIR	POOR	FAIR	MODERATELY SUITED WETNESS	SOMEWHAT LIMITED DEPTH TO SAT. ZONE	SOMEWHAT LIMITED SEEPAGE	VERY LIMITED DEPTH TO SATURATED ZONE	VERY LIMITED DEPTH TO SATURATED ZONE	HIGH	D
MONONGAHELA	MoA	MONONGAHELA SILT LOAM, 0 TO 3 % SLOPES	CL-ML	A-4	23"±	5.5	5	27.5	0.21	FAIR	POOR	FAIR	MODERATELY SUITED LOW STRENGTH	SOMEWHAT LIMITED LOW EXCHANGE CAP.	SOMEWHAT LIMITED SEEPAGE	VERY LIMITED DEPTH TO SATURATED ZONE	VERY LIMITED DEPTH TO SATURATED ZONE	MODERATE	C/D
WATSON	WbA	WATSON SILT LOAM, 0 TO 3 % SLOPES	CL-ML	A-4	26"±	12	5	33	0.16	FAIR	POOR	POOR	MODERATELY SUITED LOW STRENGTH	SOMEWHAT LIMITED LOW EXCHANGE CAP.	SOMEWHAT LIMITED DEPTH TO CEMENTED PAN	SOMEWHAT LIMITED DEPTH TO SATURATED ZONE	VERY LIMITED DEPTH TO SATURATED ZONE	MODERATE	C

SOURCE: NRCS WEB SOIL SURVEY.



COMPOST FILTER SOCK DETAIL

NOT TO SCALE



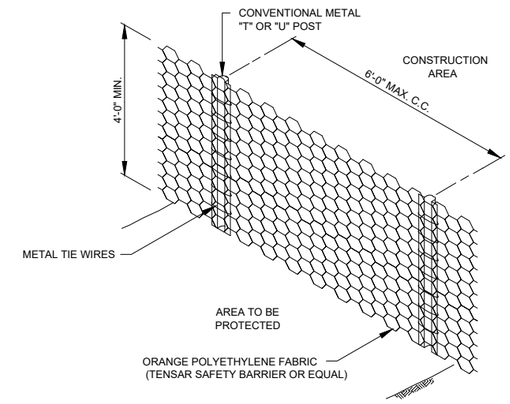
PUMPED WATER FILTER BAG

NOT TO SCALE

PROPERTY	TEST METHOD	MINIMUM STANDARD
AVG. WIDE WIDTH STRENGTH	ASTM D-4884	60 LB/IN
GRAB TENSILE	ASTM D-4632	205 LB
PUNCTURE	ASTM D-4833	110 LB
MULLEN BURST	ASTM D-3786	350 PSI
UV RESISTANCE	ASTM D-4355	70%
AOS % RETAINED	ASTM D-4751	80 SIEVE

PUMPED WATER FILTER BAG NOTES:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DEWATERING OPERATIONS, INCLUDING THE SELECTION, SIZING, AND OPERATION OF THE FILTERING DEVICE. IF CLAY SOILS ARE PRESENT, THE ADDITION OF A FLOCCULANT MAY BE NECESSARY TO EFFECTIVELY TREAT THE PUMPED WATER AND PREVENT OFFSITE SEDIMENTATION. THE CONTRACTOR SHALL CONSIDER THE ONSITE SOILS AND INCLUDE FILTERING MEASURES IN HIS BASE BID THAT WILL EFFECTIVELY TREAT THE PUMPED WATER. IF A PUMPED WATER FILTER BAG IS UTILIZED, IMPLEMENT SAID DEVICE IN COMBINATION WITH A SUMP PIT AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE INFORMATION PROVIDED WITHIN THE CONTRACT DOCUMENTS.
2. CONTRACTOR SHALL VERIFY LOCATION OF FACILITY WITH ENGINEER PRIOR TO CONSTRUCTION OF SAID FACILITY. FACILITY SHALL BE PLACED AT A LOCATION WHERE THE FILTERED OUTFLOW WILL NOT INTERFERE WITH ONGOING CONSTRUCTION ACTIVITIES OR CAUSE FLOODING OR EROSION PROBLEMS. FILTER BAGS SHALL DISCHARGE ONTO STABLE, EROSION RESISTANT AREAS. WHERE THIS IS NOT POSSIBLE, A GEOMEMBRANE-LINED FLOW PATH SHALL BE PROVIDED TO CONVEY FLOW TO A WELL VEGETATED AREA OR NATURAL WATERWAY IN A MANNER THAT WILL NOT RESULT IN EROSION.
3. THE PUMPING RATE SHALL BE NO GREATER THAN 750 GPM OR ONE HALF THE MAXIMUM RATE SPECIFIED BY THE MANUFACTURER, WHICHEVER IS LESS. PUMPED INTAKES SHALL BE FLOATING AND SCREENED.
4. FILTER BAGS SHALL BE REPLACED WHEN THEY BECOME HALF FULL. A SUPPLY OF SPARE FILTER BAGS SHALL BE KEPT AVAILABLE ONSITE FOR REPLACEMENT OF THOSE BAGS WHICH HAVE BEEN USED OR WHICH HAVE FAILED.
5. SEDIMENT COLLECTED FROM THE DEVICE SHALL BE REMOVED AND USED FOR ONSITE GRADING AND IMMEDIATELY STABILIZED WITH SEED AND AN ANCHORED MULCH.
6. REMOVE FACILITY WHEN NO LONGER NEEDED. REMOVE ALL MATERIALS AND UNSTABLE SEDIMENT AND EITHER SALVAGE OR DISPOSE OF PROPERLY. IMMEDIATELY STABILIZE ALL DISTURBED AREAS CREATED BY THE INSTALLATION, USE, AND REMOVAL OF THIS FACILITY.
7. FILTER BAGS SHALL BE INSPECTED DAILY. IF A PROBLEM IS DETECTED, PUMPING SHALL CEASE IMMEDIATELY AND NOT RESUME UNTIL THE PROBLEM IS CORRECTED.
8. FILTER BAGS SHALL BE MADE FROM NON-WOVEN GEOTEXTILE MATERIAL SEWN WITH HIGH STRENGTH, DOUBLE STITCHED "J" TYPE SEAMS. THEY SHALL BE CAPABLE OF TRAPPING PARTICLES LARGER THAN 150 MICRONS.
9. THE PUMP DISCHARGE HOSE SHALL BE INSERTED INTO THE BAGS IN THE MANNER SPECIFIED BY THE MANUFACTURER AND SECURELY CLAMPED SO AS TO PREVENT LEAKAGE FROM THIS CONNECTION POINT.
10. A SUITABLE MEANS OF ACCESSING THE BAG WITH MACHINERY REQUIRED FOR DISPOSAL PURPOSES MUST BE PROVIDED.
11. ALL PUMPING OF WATER FROM THE WORK AREA SHALL BE DONE ACCORDING TO THE PROCEDURE DESCRIBED IN THIS PLAN, OVER VEGETATED AREAS.



PROTECTIVE FENCE

NOT TO SCALE

PROTECTIVE FENCE NOTES:

1. LOCATE PROTECTIVE FENCE AS SHOWN ON THE DRAWINGS AND/OR AS DIRECTED BY THE OWNER. AT A MINIMUM, THE PROTECTIVE FENCING AROUND EXISTING TREES SHOULD BE LOCATED OUTSIDE OF THE DRIP LINE OF TREE TO BE RETAINED AND, IN NO CASE, CLOSER THAN FIVE (5) FEET TO THE TRUNK OF ANY TREE. NO CLEARING OR GRUBBING ACTIVITIES ARE PERMITTED WITHIN THIS RADIUS.
2. FENCING TO BE USED SHALL BE 48-INCH-HIGH "INTERNATIONAL ORANGE" PLASTIC (POLYETHYLENE) WEB FENCING SECURED TO CONVENTIONAL METAL "T" OR "U" POSTS DRIVEN TO A MINIMUM DEPTH OF 18 INCHES ON SIX-FOOT-MAXIMUM CENTERS.
3. THE FENCE SHALL HAVE THE FOLLOWING PROPERTIES:

TENSILE YIELD:	AVG. 2,000 LBS PER 4-FOOT WIDTH
ULTIMATE TENSILE YIELD:	AVG. 2,900 LBS PER 4-FOOT WIDTH
ELONGATION AT BREAK (%):	GREATER THAN 1,000%
CHEMICAL RESISTANCE:	INERT TO MOST CHEMICALS AND ACIDS

4. PROTECTIVE FENCING SHALL BE IN PLACE BEFORE ANY GRADING ACTIVITIES BEGIN AND IS TO BE KEPT IN GOOD REPAIR FOR THE DURATION OF THE CONSTRUCTION ACTIVITIES.

   REMOVE FENCING MATERIALS ONLY AFTER CONSTRUCTION ACTIVITY HAS CEASED ON THE SITE.

SUMMARY OF INSPECTION AND MAINTENANCE REQUIREMENTS FOR EROSION CONTROL FACILITIES

FACILITY TYPE	INSPECTION INTERVAL	KEY MAINTENANCE REQUIREMENTS
ROCK CONSTRUCTION ENTRANCE	SEE NOTES 2B AND 2C	MAINTAIN SPECIFIED ROCK THICKNESS CLEAN OR REPLACE ROCK IF FACILITY IS NOT PERFORMING AS INTENDED REMOVE SEDIMENT DEPOSITS TRACKED ONTO PUBLIC ROADWAYS
FILTER SOCK (OR SILT FENCE)	SEE NOTES 2A AND 2C	REMOVE COLLECTED SEDIMENT DEPOSITS WHEN ACCUMULATIONS REACH 1/2 HEIGHT OF FILTER SOCK REPAIR FILTER SOCK THAT HAS BEEN UNDERMINED OR OVERTOPPED AND ADD SECOND FILTER SOCK RUN
TEMPORARY PROTECTIVE FENCE	SEE NOTE 2A	REINSTALL FENCE WHICH HAS BEEN DISLODGED OR REMOVED REPLACE DAMAGED FENCE/POSTS WITH NEW FENCE/POSTS
DEWATERING FACILITIES (PUMPS, FILTER BAGS)	SEE NOTE 2B	REPAIR DEWATERING PUMPS AS NEEDED KEEP SPARE DEWATERING PUMPS, HOSES, ETC. ONSITE REPLACE FILTER BAGS ONCE THEY BECOME HALF FULL
TURBIDITY BARRIER	SEE NOTES 2A AND 2C	REPLACE DAMAGED PORTIONS OF THE BARRIER WITH NEW BARRIER REPAIR LOCATIONS WHERE BARRIER IS ANCHORED AS NEEDED TO KEEP THE BARRIER FUNCTIONAL
TEMPORARY/PERMANENT VEGETATION	SEE NOTES 2A AND 2C	TOPSOIL, RESEED, APPLY SOIL SUPPLEMENTS AND MULCH BARE AREAS AND AREAS WHICH HAVE BEEN ERODED PROBLEM AREAS SHALL BE STABILIZED WITH SOD OR RIPRAP.
ROCK RIPRAP	SEE NOTES 2A AND 2C	REPLACE RIPRAP WHICH HAS BEEN DISLODGED AS NEEDED TO MAINTAIN THE DESIGN ROCK THICKNESS

NOTES:

1. KEY MAINTENANCE REQUIREMENTS REPRESENT THE MOST COMMON MAINTENANCE ACTIVITIES REQUIRED FOR EACH FACILITY. ADDITIONAL MAINTENANCE SHALL BE PROVIDED AS NEEDED TO KEEP EACH FACILITY FUNCTIONAL AT NO ADDITIONAL COST TO THE OWNER.
2. INSPECTION INTERVAL LEGEND
   A = INSPECT ON A WEEKLY BASIS
   B = INSPECT ON A DAILY BASIS
   C = INSPECT AFTER EACH RAINFALL EVENT
3. REPAIRS TO EROSION CONTROL BMP'S SHALL BE PERFORMED IMMEDIATELY.

RESOLUTIONS FOR SOIL LIMITATIONS

HIGH WATER TABLE: CONTRACTOR SHALL DEWATER EXCAVATIONS BY PUMPING TO A PUMPED WATER FILTER BAG OR OTHER APPROVED FILTERING DEVICE. CONTRACTOR SHALL PROVIDE SUFFICIENT NUMBER OF PUMPS AND FILTER BAGS TO KEEP EXCAVATIONS DRY AND PREVENT OFFSITE EROSION AND SEDIMENTATION.

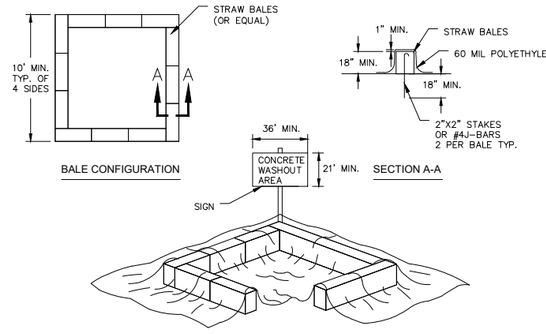
SHALLOW BEDROCK: CONTRACTOR SHALL RIP BEDROCK AS NEEDED TO BRING AREAS TO FINAL GRADE. ALL AREAS TO HAVE PERMANENT VEGETATIVE STABILIZATION SHALL BE OVER-EXCAVATED TO ACCOUNT FOR TOPSOIL PLACEMENT. REFER TO THE CONTRACT DOCUMENTS REGARDING BLASTING REQUIREMENTS.

EMBANKMENT STABILITY: STRUCTURAL EMBANKMENTS (TEMPORARY AND PERMANENT) SHALL BE PLACED IN LIFTS AND COMPACTED AS REQUIRED BY THE GEOTECHNICAL ENGINEER. FILL SLOPES EXCEEDING 10 FEET IN HEIGHT SHALL BE PERMANENTLY STABILIZED AT REGULAR VERTICAL INCREMENTS OF 10 FEET (MAXIMUM) AS EACH FILL AREA IS BEING CONSTRUCTED.

LOW SOIL PH: IN THE ABSENCE OF SOIL TEST RESULTS, THE CONTRACTOR SHALL PROVIDE LIME AT THE FOLLOWING RATES TO PROMOTE VEGETATIVE GROWTH:

TEMPORARY SEEDING: ONE (1) TON PER ACRE

PERMANENT SEEDING: SIX (6) TONS PER ACRE



CONCRETE WASHOUT DETAIL

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COMMONWEALTH OF PENNSYLVANIA — REGISTERED PROFESSIONAL ENGINEER — PAUL G SCHWEIGER — PE-040503-E

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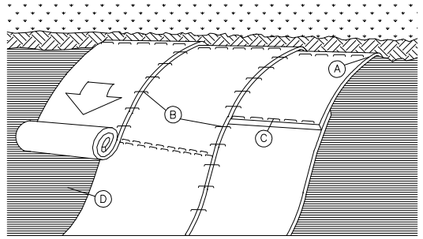
TALEN ENERGY
MONTOUR COUNTY, PA

MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL DETAILS

JOB NO.	SHEET NO.
66982	ESC5
DATE	DRAWING NO.
MAY 2020	22 OF 23

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STARTING AT TOP OF SLOPE, ROLL BLANKETS IN DIRECTION OF WATER FLOW

PREPARE SEED BED (INCLUDING APPLICATION OF LIME, FERTILIZER, & SEED) PRIOR TO INSTALLATION OF BLANKET.

REFER TO MANUFACTURER'S RECOMMENDED STAPLING PATTERN FOR STEEPNESS AND LENGTH OF SLOPE BEING BLANKETED.

INSTALL BEGINNING OF ROLL IN 6"X6" ANCHOR TRENCH, STAPLE, BACKFILL AND COMPACT SOIL.

BLANKET EDGES OVERLAPPED 4" (MIN.) AND STAPLED

OVERLAP BLANKET ENDS 6" (MIN.) WITH THE UPSLOPE BLANKET OVERLYING THE DOWNSLOPE BLANKET (SHINGLE STYLE). STAPLE SECURELY.

THE BLANKET SHOULD NOT BE STRETCHED; IT MUST MAINTAIN GOOD SOIL CONTACT

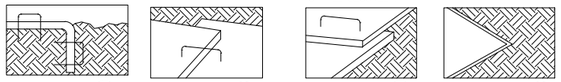


DIAGRAM (A) DIAGRAM (B) DIAGRAM (C) DIAGRAM (D)

SEED AND SOIL AMENDMENTS SHALL BE APPLIED ACCORDING TO THE RATES IN THE PLAN DRAWINGS PRIOR TO INSTALLING THE BLANKET.

PROVIDE ANCHOR TRENCH AT TOE OF SLOPE IN SIMILAR FASHION AS AT TOP OF SLOPE.

SLOPE SURFACE SHALL BE FREE OF ROCKS, CLODS, STICKS, AND GRASS.

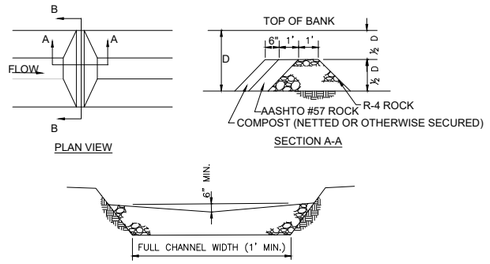
BLANKET SHALL HAVE GOOD CONTINUOUS CONTACT WITH UNDERLYING SOIL THROUGHOUT ENTIRE LENGTH. LAY BLANKET LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH SOIL. DO NOT STRETCH BLANKET.

THE BLANKET SHALL BE STAPLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

BLANKETED AREAS SHALL BE INSPECTED WEEKLY AND AFTER EACH RUNOFF EVENT UNTIL PERENNIAL VEGETATION IS ESTABLISHED TO A MINIMUM UNIFORM 70% COVERAGE THROUGHOUT THE BLANKETED AREA. DAMAGED OR DISPLACED BLANKETS SHALL BE RESTORED OR REPLACED WITHIN 4 CALENDAR DAYS.

EROSION CONTROL BLANKET INSTALLATION DETAIL

NOT TO SCALE



FOR 3' ≤ D USE R-4
FOR 2' ≤ D < 3' USE R-3
NOT APPLICABLE FOR D < 2'

ROCK FILTER NUMBER	LOCATION	D (FT)	RIPRAP SIZE
1	ADJACENT TO ACB OVERTOPPING SECTION	2	R-3

SEDIMENT SHALL BE REMOVED WHEN ACCUMULATIONS REACH 1/2 THE HEIGHT OF THE FILTER.

IMMEDIATELY UPON STABILIZATION OF EACH CHANNEL, INSTALLER SHALL REMOVE ACCUMULATED SEDIMENT AND STABILIZE DISTURBED AREAS.

ROCK FILTER

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COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
PAUL G SCHWEIGER
PE-040810-E

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MONTOUR COUNTY, PA

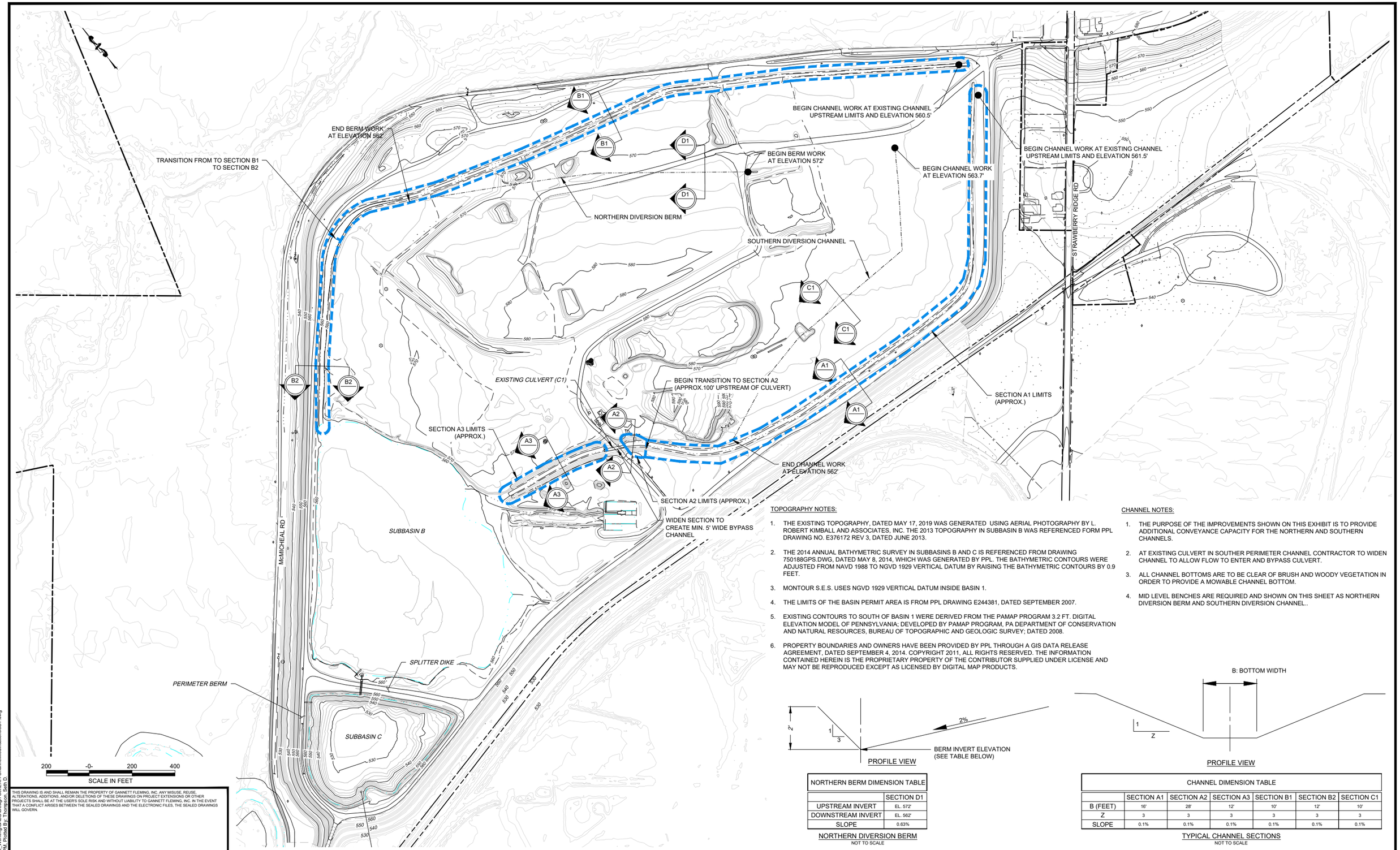
MONTOUR STEAM ELECTRIC STATION
OVERTOPPING PROTECTION FOR
MONTOUR ASH BASIN NO. 1

EROSION AND SEDIMENT CONTROL DETAILS

JOB NO.	SHEET NO.
66982	ESC6
DATE	DRAWING NO.
MAY 2020	23 OF 23

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CHANNEL MODIFICATION EXHIBIT



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TOPOGRAPHY NOTES:

1. THE EXISTING TOPOGRAPHY, DATED MAY 17, 2019 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FORM PPL DRAWING NO. E376172 REV 3, DATED JUNE 2013.
2. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS.DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
3. MONTOUR S.E.S. USES NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
4. THE LIMITS OF THE BASIN PERMIT AREA IS FROM PPL DRAWING E244381, DATED SEPTEMBER 2007.
5. EXISTING CONTOURS TO SOUTH OF BASIN 1 WERE DERIVED FROM THE PAMAP PROGRAM 3.2 FT. DIGITAL ELEVATION MODEL OF PENNSYLVANIA; DEVELOPED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY; DATED 2008.
6. PROPERTY BOUNDARIES AND OWNERS HAVE BEEN PROVIDED BY PPL THROUGH A GIS DATA RELEASE AGREEMENT, DATED SEPTEMBER 4, 2014. COPYRIGHT 2011, ALL RIGHTS RESERVED. THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF THE CONTRIBUTOR SUPPLIED UNDER LICENSE AND MAY NOT BE REPRODUCED EXCEPT AS LICENSED BY DIGITAL MAP PRODUCTS.

CHANNEL NOTES:

1. THE PURPOSE OF THE IMPROVEMENTS SHOWN ON THIS EXHIBIT IS TO PROVIDE ADDITIONAL CONVEYANCE CAPACITY FOR THE NORTHERN AND SOUTHERN CHANNELS.
2. AT EXISTING CULVERT IN SOUTHER PERIMETER CHANNEL CONTRACTOR TO WIDEN CHANNEL TO ALLOW FLOW TO ENTER AND BYPASS CULVERT.
3. ALL CHANNEL BOTTOMS ARE TO BE CLEAR OF BRUSH AND WOODY VEGETATION IN ORDER TO PROVIDE A MOWABLE CHANNEL BOTTOM.
4. MID LEVEL BENCHES ARE REQUIRED AND SHOWN ON THIS SHEET AS NORTHERN DIVERSION BERM AND SOUTHERN DIVERSION CHANNEL..

PROFILE VIEW

NORTHERN BERM DIMENSION TABLE	
	SECTION D1
UPSTREAM INVERT	EL. 572'
DOWNSTREAM INVERT	EL. 562'
SLOPE	0.63%

NORTHERN DIVERSION BERM
NOT TO SCALE

PROFILE VIEW

CHANNEL DIMENSION TABLE						
	SECTION A1	SECTION A2	SECTION A3	SECTION B1	SECTION B2	SECTION C1
B (FEET)	16'	28'	12'	10'	12'	10'
Z	3	3	3	3	3	3
SLOPE	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%

TYPICAL CHANNEL SECTIONS
NOT TO SCALE

NO.	DESCRIPTION	DATE	BY
REVISIONS			

DESIGNED	CADD	SCALE
JPH		AS SHOWN
DRAWN	CHECKED	APPROVED
JPH		

Gannett Fleming

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MONTOUR COUNTY, PA

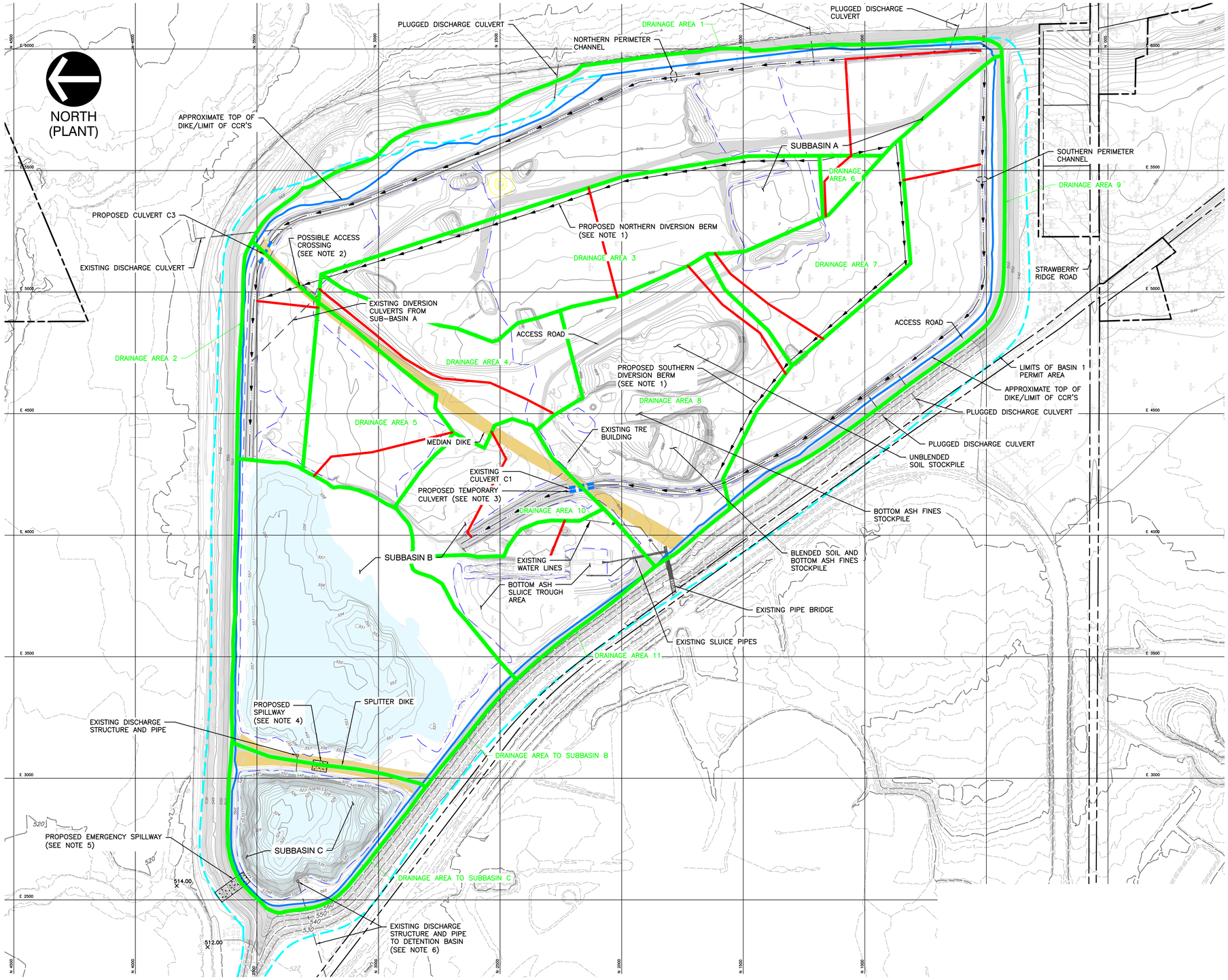
MONTOUR ASH BASIN NO.1

CHANNEL MODIFICATION EXHIBIT

JOB NO.	SHEET NO.
66982	EXH-1
DATE	DRAWING NO.
MAY 2020	1 OF 1

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PRE- AND FINAL CLOSURE DRAINAGE PLANS



LEGEND

- PROPERTY LINE
- LIMITS OF BASIN 1 PERMIT AREA
- APPROXIMATE TOP OF DIKE/LIMIT OF CCR'S
- 570 EXISTING CONTOUR
- EXISTING DISCHARGE CULVERT
- EXISTING SLUICE PIPING
- EXISTING WATER LINE
- ACCESS ROAD
- MEDIAN/SPLITTER DIKE
- EXISTING POOL AREA
- PROPOSED CULVERT
- PROPOSED DIVERSION BERM
- SURFACE WATER PERIMETER CHANNEL
- EXISTING CONDITIONS DRAINAGE AREA
- TIME OF CONCENTRATION PATH

NOTES

1. THE DIVERSION BERMS WILL BE CONSTRUCTED DURING CONDITIONED FLY ASH PLACEMENT.
2. TO MAINTAIN ACCESS, AN ADDITIONAL CULVERT MAY BE USED TO CONVEY FLOW FROM THE NORTHERN DIVERSION BERM IN SUBBASIN A INTO SUBBASIN B.
3. THE SOUTHERN DIVERSION BERM WILL DISCHARGE TO THE SOUTH PERIMETER CHANNEL. AN ADDITIONAL TEMPORARY CULVERT WILL BE INSTALLED TO CONVEY FLOW FROM THE DIVERSION BERM INTO SUBBASIN B.
4. A SPILLWAY WILL BE INSTALLED BETWEEN SUBBASIN B AND C. THE SPILLWAY WILL BE 40-FEET WIDE WITH 2H:1V SLOPES AND AN INVERT ELEVATION OF 558.0-FEET.
5. AN EMERGENCY SPILLWAY FOR SUBBASIN C WILL BE INSTALLED AND WILL DISCHARGE TO CHILLISQUAQUE CREEK. THE SPILLWAY WILL BE 22-FEET WIDE WITH 2H:1V SLOPES AND AN INVERT ELEVATION OF 557.0-FEET.
6. THE PRINCIPAL SPILLWAY FOR SUBBASIN C DISCHARGES TO THE DETENTION BASIN, WHICH IS A NPDES OUTFALL.

REFERENCE

1. THE EXISTING TOPOGRAPHY, DATED MAY 17, 2019 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FROM PPL DRAWING NO. E376172 REV 3, DATED 6/2013.
2. THE 2014 ANNUAL BATHYMETRIC SURVEY IN SUBBASINS B AND C IS REFERENCED FROM DRAWING 750188GPS.DWG, DATED MAY 8, 2014, WHICH WAS GENERATED BY PPL. THE BATHYMETRIC CONTOURS WERE ADJUSTED FROM NAVD 1988 TO NGVD 1929 VERTICAL DATUM BY RAISING THE BATHYMETRIC CONTOURS BY 0.9 FEET.
3. A SITE SPECIFIC COORDINATE SYSTEM IS SHOWN. MONTOUR S.E.S. USES A NGVD 1929 VERTICAL DATUM INSIDE BASIN 1.
4. THE LIMITS OF THE PERMIT AREA IS FROM PPL DRAWING E244381, DATED 9/2007.
5. EXISTING CONTOURS TO SOUTH OF BASIN 1 WERE DERIVED FROM THE PAMAP PROGRAM 3.2 FT DIGITAL ELEVATION MODEL OF PENNSYLVANIA; DEVELOPED BY PAMAP PROGRAM, PA DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES, BUREAU OF TOPOGRAPHIC AND GEOLOGIC SURVEY; DATED 2008.
6. PIPE BRIDGE AND SLUICE PIPE LOCATIONS WERE TAKEN FROM PPL MONTOUR, LLC DWG. NO. D324541 SHEET 1 OF 3, DATED 9/19/08.
7. THE APPROXIMATE TOP OF DIKE/LIMIT OF CCR'S SHOWN IS AN ESTIMATED LOCATION BASED ON REFERENCES FROM PPL DRAWINGS.
8. PROPERTY BOUNDARIES AND OWNERS HAVE BEEN PROVIDED BY PPL THROUGH A GIS DATA RELEASE AGREEMENT, DATED SEPTEMBER 4, 2014. COPYRIGHT 2011, ALL RIGHTS RESERVED THE INFORMATION CONTAINED HEREIN IS THE PROPRIETARY PROPERTY OF THE CONTRIBUTOR SUPPLIED UNDER LICENSE AND MAY NOT BE REPRODUCED EXCEPT AS LICENSED BY DIGITAL MAP PRODUCTS.

SCALE IN FEET
0 200 400

REVISION RECORD

NO	DATE	DESCRIPTION

Civil & Environmental Consultants, Inc.
333 Baldwin Road · Pittsburgh, PA 15205
412-429-2324 · 800-365-2324
www.cecinc.com

MONTOUR , LLC
MONTOUR STEAM ELECTRIC STATION
INFLOW DESIGN FLOOD CONTROL SYSTEM PLAN
HYDROLOGIC AND HYDRAULIC CAPACITY
MONTOUR COUNTY, PA

EXISTING CONDITIONS
DRAINAGE AREA MAP

DATE:	
DRAWN BY:	MJI
CHECKED BY:	AMR
DWG SCALE:	1" = 200'
PROJECT NO:	185-443.0001
APPROVED BY:	RJB *

FIGURE NO.: 3

P:\2018\185-443\-CAD\Dwg\CIVIL\185443-CIVIL-ExistingConditionsDrainageArea.dwg[J] LS:(3/12/2020 - mapstuff) - LP: 3/10/2020 4:41 PM

NORTH
(PLANT)

NORTHERN PERIMETER CHANNEL
(SEE NOTE 1)

APPROXIMATE TOP OF
DIKE/LIMIT OF CCR'S

CULVERT C3

SUBBASIN A

PROPOSED NORTHERN DIVERSION BERM
(SEE NOTE 1)

SOUTHERN PERIMETER CHANNEL
(SEE NOTE 1)

STRAWBERRY
RIDGE ROAD

MEDIAN DIKE

PROPOSED SOUTHERN DIVERSION BERM
(SEE NOTE 1)

LIMITS OF BASIN 1 PERMIT AREA

APPROXIMATE TOP OF
DIKE/LIMIT OF CCR'S

SUBBASIN B

BOTTOM ASH SLUICE
TROUGH AREA (TO BE
REMOVED)

CULVERT C1

CULVERT C4
(SEE NOTE 2)

PROPOSED EMERGENCY SPILLWAY

SUBBASIN C

CULVERT C2
(SEE NOTE 2)

PROPOSED 25-FT WIDE
EMBANKMENT

PROPOSED SURFACE
WATER CONTROL BASIN

EXISTING DISCHARGE STRUCTURE
AND PIPE TO DETENTION BASIN
(SEE NOTE 3)

LEGEND

- PROPERTY LINE
- LIMITS OF BASIN 1 PERMIT AREA
- APPROXIMATE TOP OF DIKE/LIMIT OF CCR'S
- 570 EXISTING CONTOUR
- 570 PROPOSED CONTOUR
- APPROXIMATE GRADING LIMIT
- EXISTING DISCHARGE CULVERT
- PROPOSED CULVERT
- PROPOSED DIVERSION BERM
- SURFACE WATER PERIMETER CHANNEL
- FINAL CONDITIONS DRAINAGE AREA
- TIME OF CONCENTRATION PATH

NOTE

1. THE PERIMETER CHANNELS AND DIVERSION BERMS WILL BE CONSTRUCTED DURING FINAL COVER PLACEMENT.
2. THE DIVERSION BERMS WILL DISCHARGE DIRECTLY TO THE SURFACE WATER CONTROL BASIN IN SUBBASIN C. IF THE BERMS ARE ROUTED TO THE PERIMETER CHANNEL, ADDITIONAL CULVERTS WILL BE INSTALLED.
3. THE PRINCIPAL SPILLWAY FOR SUBBASIN C DISCHARGES TO THE DETENTION BASIN WHICH IS A NPDES OUTFALL BUT MAY BE REROUTED TO DISCHARGE DIRECTLY TO CHILLISQUAQUE CREEK AFTER BASIN CLOSURE UPON RECEIPT OF THE NECESSARY PERMITS.

REFERENCE

1. THE EXISTING TOPOGRAPHY, DATED MAY 1, 2013 WAS GENERATED USING AERIAL PHOTOGRAPHY BY L. ROBERT KIMBALL AND ASSOCIATES, INC. THE 2013 TOPOGRAPHY IN SUBBASIN B WAS REFERENCED FROM PPL DRAWING NO. E376172 REV 3, DATED 6/2013.
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SCALE IN FEET
0 200 400

REVISION RECORD

NO	DATE	DESCRIPTION

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MONTOUR , LLC
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HYDROLOGIC AND HYDRAULIC CAPACITY
MONTOUR COUNTY, PA

FINAL CONDITIONS
DRAINAGE AREA MAP

DRAWN BY:	MJI
CHECKED BY:	AMR
PROJECT NO:	185-443.0001
APPROVED BY:	RJB *
DWG SCALE:	1" = 200'
DATE:	

FIGURE NO.:
4

P:\2018\185-4691-0401\dwg\3903-DSN FLOOD PLAN\185891-3903-001-FinalConditionsDrainageArea.dwg[M] LS(3/12/2020 - mbastuscj) - LP: 3/12/2020 4:59 PM

G-199943

PLANT N

GRID N

49°09'00"

PIPE ABANDONED & PLUGGED WITH CONCRETE

SEEPAGE CONTROL TRENCH. LENGTH BY FIELD.

EXIST CREEK

SUBMERSIBLE SEEPAGE PUMP BASIN SEE SECT. EE G-199947

REINFORCED SLURRY WALL CAP (SEE DETAIL BELOW)

EXTENDED DRAIN TRENCH - SEE SK9190 F 361

REROUTED ROAD CURVE DATA (FROM FIELD) Δ: 81°40'07.5" D: 57.30' T: 782.28' L: 1259.51'

PROPERTY LINE (TYP)

GRADE TO MATCH EXIST ROAD (BY FIELD)

ABANDON EXIST ROAD

EAST BRANCH CHAULK SLOUGH CREEK

EXIST. BRIDGE

ENTRANCE ROAD EL 574.00 (TYP)

TIE INTO EXIST ROAD BY FIELD

DIKE W.P. 36+34.61 N. 18+99.91 E.

R.O.W.

APPROX. START COORD. FOR WALL N34+98, E 14+72 0+00 FOR NORTH DIKE SLURRY WALL

ABUTMENT (TYP) ANT EL (BY FIELD)

TURN-AROUND (TYP)

TEMP 24'ϕ CULVERT PIPE (BY FIELD)

TOP OF DIKE EL 554.00 (TYP)

TOP OF SLOPE & NATURAL GRADE (TYP)

TOP OF SLOPE & BERM

APPROX. END COORD FOR PROP REINF OF DIKE

N36°34'41" E 50.24'E

ϕ DITCH (BY FIELD)

ϕ DIKE

50.00'± BERM & NATURAL GRADE

EMERGENCY SKIMMER HOOD & OVERFLOW PIPE

ASH DISPOSAL DECANTING SYSTEM ASSEMBLY (SEE G-200111)

SEEPAGE DISCHARGE PIPING

BOTTOM ASH BENCH IS NOT SHOWN

LIMITS OF SOIL-BENTONITE SLURRY WALL

APPROX. LOCATION OF BOTTOM ASH DIKE

LIMITS OF 10/98 DIKE PRESSURE GROUTING SEE SECT. AA E-213173

NEW ROAD TO CLEAR ASH DIKES (LOC & DET'S BY FIELD) TYP

SEE E-156109 FOR DIKES IN ASH DISPOSAL AREA

ASH DISPOSAL AREA

DETAIL "A"

DIKE W.P. 24+55.00 N. 34+16.15 E.

DIKE FILL BORROW AREA

NOTE:
FIELD TO STRIP ALL UNUSABLE TOP SOIL (APPROX 1.00' AVG DEPTH) IN BORROW AREA AS SHOWN, AND THEN REMOVE THE FULL DEPTH OF USABLE FILL MATERIAL (APPROX. 3.00' TO 5.00' AVG. DEPTH) TO CONSTRUCT ASH DIKES. ALL TOPSOIL STRIPPING MAY BE DISPOSED OF IN BORROW AREA AFTER USABLE FILL HAS BEEN REMOVED.

TOP OF SLOPE (BORROW AREA EXCAVATION) TYP

TOE OF DIKE

LIMITS OF 12/98 DIKE PRESSURE GROUTING (SEE SECT. BB ON E-213173)

DIKE SLID OUTWARDS DURING SLURRY WALL CONSTRUCTION

STABILIZING DIKE BUILT TO ELEVATION BETWEEN RAILROAD AND ASH BASIN DIKE

ϕ COAL TRACK (TYP)

DETAIL "B"

REROUTED DIKE CURVE DATA (FROM FIELD) Δ: 23°50' D: 200.58' T: 59.10' L: 114.32' R: 274.83'

DIKE CURVE DATA Δ: 19°00' D: 19°00' T: 50.66' L: 100.46' R: 302.94

ROAD STATION (BY FIELD) STA 0+00.00'

DIKE W.P. 4+20.00 N. BY FIELD E.

DIKE W.P. 4+20.00 N. 49+04.18 E.

PLANT AREA FENCE (FOR DET'S SEE G-200062)

PROPERTY LINE

STRAWBERRY RIDGE

ROAD P.I. STA 7+00

DIKE P.I. 0+47.89

STA. 0+00 FOR 1987 SLURRY WALL

TOP OF ROAD EL 564.00

TOP OF ROAD EL VARIES

ROAD P.I. STA 18+15.00

ROAD P.I. STA 21+50.00

ROAD P.I. STA 25+00.00

ROAD P.I. STA 28+15.00

K (G-199944)

PLAN LEGEND

- 000.00 DENOTES ELEV BOTTOM OF DITCH
- DENOTES DITCH, FLOW
- DENOTES NEW PLANT COAL TRACK
- DENOTES PLANT AREA FENCE
- DENOTES REINF CONC PIPE, DIA. & FLOW DIRECTION
- G DENOTES GRADE PERCENT SLOPE
- R.O.W. DENOTES R.R. RIGHT OF WAY
- DIKE WITH SLURRY WALL
- DIKE WITH SLURRY WALL & REINFORCED CAP

QUANTITIES (NET BY FIELD UNLESS NOTED)

	AREA	1.00' STRIPPING	CUT	FILL
	PLANT, COAL STORAGE, & SWITCHYARD AREA	—	267,350 YD³	255,250 YD³
B	EXCAVATION FOR ALL CONC SUB-STRUCTURES	—	21,000 YD³	—
A	PLANT, COAL STORAGE, & SWITCHYARD-TOTALS	—	288,350 YD³	255,250 YD³
	ASH DISPOSAL AREA	187,300 YD³	382,400 YD³	—
	ASH DIKES (INCLUDING WASTE WATER AREA)	51,000 YD³	—	382,400 YD³
	ASH DISPOSAL AREA & DIKES - TOTAL	238,300 YD³	382,400 YD³	382,400 YD³
	COAL TRACK EARTH-WORK	15,300 YD³	91,600 YD³	107,600 YD³
B	GRAND TOTAL EARTH-WORK (ALL AREAS)	253,600 YD³	1,297,350 YD³	1,245,250 YD³

TOTAL EXCAVATION = 1,525,950 YD³ (1.00' STRIPPING + CUT)

ASH DIKE FILL & R.R. EARTH-WORK INCLUDES STRIPPING VOID (APPROX 1.00' AVG DEPTH)

(A) NECESSARY STRIPPING IN THESE AREAS TO BE USED AS FILL IN AREA'S AS DESIGNATED IN EBASCO SPECIFICATION CH - (EXCAVATION & BACK-FILL)

(B) THE DIFFERENCE OF 17,100 CU.YD. BETWEEN CUT & FILL REPRESENTS MATERIAL TO BE USED AS BACKFILL AT COOLING TOWER & PLANT FDNS AFTER CONC. STRUCT. ARE PLACED

MAX ASH DISPOSAL VOLUME	8,177,400 CU.YD.
30"ϕ REINF. CONC PIPE (A.S.T.M. C-76 TYPE III)	290 LIN FT
36"ϕ SKIMMER HOOD (AS PER DET 'A' - DWG G-199944)	1 REQ'D
18"ϕ CULVERT PIPE	610 LIN.FT.
24"ϕ CULVERT PIPE	375 LIN. FT.
30"ϕ CULVERT PIPE	60 LIN.FT.
36"ϕ CULVERT PIPE	990 LIN.FT.
FOR ROAD QUANTITIES SEE DWG G-199945	
18"ϕ CULVERT PIPE - PERFORATED - CLASS V	1550 LIN.FT.

NOTES

ORIGIN OF CO-ORDINATE SYSTEM AND EXISTING TOPOGRAPHY ARE BASED ON "TOPOGRAPHIC PLAN - PLANT SITE (PENN POWER & LIGHT COMPANY DWG. LG-7G951-O)

ALL CO-ORDINATE LOCATIONS ARE REFERRED TO THE NORTH-SOUTH AND EAST-WEST BASELINES OF THE PLANT.

CONTOUR LINES INDICATE ORIGINAL GRADES

ALL SIDE SLOPES, H.R. & L.P. ELEVATIONS, GRADED LINES, AND CENTER-LINE ELEVATIONS SHOWN IN PLAN ARE TO THE FINAL GRADE ELEVATIONS CONSISTING OF STONE & EARTH MATERIALS AS INDICATED IN SECTIONS AND DETAILS ON DWG G-199944

MINIMUM DITCH SLOPE SHALL BE 0.003'/FT. UNLESS OTHERWISE NOTED

MINIMUM DITCH RADIUS SHALL BE 30.00' UNLESS OTHERWISE NOTED

MINIMUM CULVERT PIPE SLOPE SHALL BE 0.01'/FT UNLESS NOTED

FOR DITCH DETAILS SEE DWG G-199944

FOR FINAL PLANT SITE GRADING SEE DWGS G-199945 & G-199946

ALL CULVERT PIPE SHALL BE 12 GA., GALVANIZED CORRUGATED METAL OR REINF CONC PIPE (A.S.T.M. C-76 TYPE IV)

RIPRAP SIDE SLOPES AROUND CULVERT PIPE

COAL STORAGE EXPANSION -

ADD'L FILL (OBTAINED FROM WASTE WATER EXC) 55,000 YD³

SLURRY WALL INSTALLED IN ASH BASIN NORTH DIKE 1985

SLURRY WALL INSTALLED IN ASH BASIN SOUTH, EAST & WEST DIKES - 1987

REFERENCE DRAWINGS

LIST OF DRAWINGS	A-199846
PLANT SITE GRADING - SECT'S & DET'S	G-199944
PLANT AREA - ROADS	G-199945
PLANT AREA - GRADING & DRAINAGE	G-199946
COAL TRACK LAYOUT - SH 1	G-200062
PLOT PLAN (MECH)	G-199858
TOPOGRAPHIC PLAN - PLANT SITE (PENN POWER & LIGHT CO.)	LG-7G951-O
WASTE WATER DECANTING BASINS - PLAN	G-200111
FIELD SKETCH	SK 7872 F 153
ASH DISPOSAL & DIKES	E-156109
SLURRY WALL PROFILE	E-213173
ASH POND SEEPAGE CONTROL	SK 9190 F 361

ORIGIN OF CO-ORDINATE SYSTEM N. 328,439.66 E. 2,798,814.58

EAST - WEST BASE LINE 0+00 N.

NORTH - SOUTH BASE LINE 0+00 E.

MONUMENT I N. 329,514.04 E. 2,799,618.52

MONUMENT II N. 330,212.51 E. 2,799,309.61

NOTE: LOCATION OF MONUMENTS I & II ARE TAKEN FROM "TOPOGRAPHIC PLAN - PLANT SITE (PENN POWER & LIGHT CO. DWG LG-7G951-O)

ABANDON 30"ϕ CULVERT & PLUG THIS END

30"ϕ CULVERT PIPE

TIE INTO EXIST DITCH (BY FIELD)

NORTH LOOP ROAD

EAST LOOP ROAD

WEST LOOP ROAD

COAL STORAGE AREA ROAD

TEMP. ROAD

TOP OF SLOPE EL 538.00 (TYP)

EXCAVATION DRAINAGE OUTLET BY FIELD

TOE OF SLOPE (TYP)

BOILER N1 (G+00.00 N.)

W.P.

H.R. EL 534.00

L.P. EL 533.50

R.R. TRACK (14+39.00 N.)

UNIT N1

PLANT AREA - UNIT N1

COAL STORAGE AREA

TEMP CONSTR DITCH & PIPE (FOR FINAL DRAINAGE SEE G-200111)

18'ϕ RCCP CLASS V (PERFORATED)

18'ϕ TEMP CULVERT

H.R. EL VARIES

ϕ DITCH (TYP)

ϕ TRACK (14+39.00 N.)

TEMP ROAD

TEMP CONSTR TRUCK SPUR

FUTURE PLANT AREA UNIT N2

EDGE OF CUT (10+30.00 N.)

UNDISTURBED WOODED AREA

TOP OF SLOPE & NATURAL GRADE (TYP)

ϕ COAL TRACK (TYP)

SWITCHYARD AREA UNITS N1 & N2

SWITCHYARD AREA ROAD

FOR PLANT EXCAVATION SEE PLAN A (N-S)

FOR CULVERT PIPE & DITCH SEE G-199945

FOR TRACK UNDERPASS & GRADING DET'S SEE G-199945

FOR COAL TRACK LAYOUT & R.R. GRADING DET'S SEE DWG G-200062

TRACK CURVE DATA D= 9°22'28.5" Δ= 180°00' R= 611.85 L= 1920.04'

WASTE WATER TREATMENT AREA (FOR DET'S SEE G-200111)

PLANT ACCESS ROAD (TYP)

DIKE ROAD EL 551.00

TRACK UNDERPASS ROAD EL VARIES

TOP OF DIKE EL 551.00

L.H. EL 518.00

R.H. EL 538.00

EXIST. BRIDGE

EXIST ROAD

EXIST. CULVERT 2-36"ϕ CMP

EXIST. CULVERT 36"ϕ CMP

EXIST. CULVERT PIPE & DITCH SEE G-199945

P.I. 33+20.07 N. 8+10.22 E.

P.I. 36+00.00 N. 12+97.47 E.

R= 250.00' (TIE INTO EXIST ROAD BY FIELD)

R= 1000.00' (TIE INTO EXIST ROAD BY FIELD)

P.I. 29+18.15 N. 8+14.15 E.

P.I. 26+99.16 N. 13+01.95 E.

P.I. 21+50.00 N. 13+50.00 E.

P.I. 21+00.19 N. 15+05.04 E.

P.I. 20+34.55 N. 15+00.00 E.

P.I. 18+00.00 N. 15+00.00 E.

P.I. 16+85.00 N. 15+00.00 E.

P.I. 14+00.00 N. 15+00.00 E.

P.I. 13+00.00 N. 22+25.00 E.

P.I. 13+00.00 N. 75+00.00 E.

P.I. 24+00.00 N. 25+00.00 E.

P.I. 24+03.86 N. 20+40.00 E.

P.I. 18+00.00 N. 20+40.00 E.

P.I. 24+02.00 N. 72+08.21 E.

P.I. 21+34.80 N. 01+24.17 E.

TOP OF SLOPE (21+50.00 N.)

TOE OF SLOPE EL 530.00

COOLING TOWER UNIT N1

EL 537.00

L.P. EL 537.00 (TYP)

TOP OF SLOPE (18+00.00 N.)

25.00' MIN (TYP)

TOE OF SLOPE (BORROW AREA EXCAVATION) TYP

TOE OF DIKE

16°07'50"

Δ= 16°07'30" R= 1764.60 T= 250.00' L= 496.77

Δ= 63°49'30" R= 293.51 T= 150.00' L= 277.61'

Δ= 68°00' R= 313.94' T= 200.00' L= 356.15'

Δ= 143°15' R= 130.97' T= 850.00' L= 109.29'

Δ= 13°07'30" R= 1764.60 T= 250.00' L= 496.77

PLAN

1"=200'

SECTION Z-Z

SEE DWG. E-244381

N.T.S.

DETAIL X-X

N.T.S.

PLAN "A" (PLANT FOUNDATION EXCAVATION) G-8

1"=100'

DETAIL "A"

N.T.S.

1987 SLURRY WALL DETAIL-NO ACCESS ROAD (REINFORCED CAP)

DETAIL OF DIKE CAP

N.T.S.

(STA. 21+50± TO STA. 26+50± 1985 SLURRY WALL)

1987 SLURRY WALL DETAIL-NO ACCESS ROAD (UNREINFORCED CAP)

DETAIL "B"

N.T.S.

NO.	DATE	REVISION	BY	CH.	APPROVED
97016529	10	8-26-97	ADDED SECT. Z-Z & REV. DETA	PM	
103396	9	10-31-89	ADDED SLURRY WALL TO SOUTH, EAST AND WEST ASH BASIN DIKES. E-213173	JGB	EMP
7570 93	8	2-7-00	EXTEND DRAINAGE TRENCH (B15)	PM	
102526	12	4-6-99	ADDED SLURRY WALL NOTES	PM	
6			ADD: (B11) SEEPAGE CONTROL TRENCH	S.C.	
5	10-21-70		REV: (B3,10A) COAL STORAGE AREA & ENLARGE, (B8) QUANT; (B6) NOTES (D4) E.E. EMBANK.	PW	MLH
4	9-23-69		RELOCATED ASH DIKE (I 17)	CM	FF
3	5-1-69		ADD: (B8,9) ASH DISPOSAL AREA ROAD DATA FROM FIELD (G8) SWITCHYARD AREA GRADING DET'S & QUANTITIES REV: (C6) EMERGENCY SKIMMER HOOD & PIPE LOC (B4 & B8) ASH DIKE W.P. CO-ORDINATES (F7) COOLING TOWER LOC & EXCAV. (C9) QUANTITIES (B4,10A) AREA ENLARGING (D7) SWITCHYARD GRADING	A.J.P.	N.V.
2	8-6-68		GENERAL REVISION: ADD: (E18) 18'ϕ CULVERT PIPE TO QUANTITIES; (C7) INDEX & DIKE ACCESS RAMPS; (D5) NOTE FOR DRAINAGE @ UNDERPASS ROAD; (C10) NEW ROAD BY FIELD; REV: (C18) QUANTITIES (D7) (B2) FUTURE ASH DIKE LOCATION & DET'S (D4&C2) 36'ϕ CULVERT PIPE INVERT ELEVATION DELETED: (D6) DRAINAGE DITCH @ UNDERPASS ROAD	A.J.P.	N.V.
1	5-29-68		GENERAL REVISION: ADD: (E) ASH WASTE TREATMENT AREA, DIKE, & SECT G-G REV: (D4) NOTE FOR TEMP DRAINAGE - COAL STOR AREA (F8) TRACK UNDER PASS ROAD - GRADING (F7) (D) 10'ϕ TOWER LOC & GRADING (D6) NOTE & PAGE AREA	A.J.P.	F.H.S.
97016529	11	3/8/98	ADDED SECTION X-X	PM	

WORK THIS DWG WITH DWG G-199944

PENNSYLVANIA POWER & LIGHT COMPANY
MONTOUR STEAM ELECTRIC STATION
1972 - 814,000 KW INSTALLATION-UNIT NO.1

PLANT SITE GRADING

EBASCO SERVICES INCORPORATED NEW YORK

SCALE: AS NOTED | APPROVED | DATE MAR 15, 1965

DIV. CONE-HYD | DR. A. GALLIND | CH. | G-199943-13

H1H70

PHOTOGRAPHS

MONTOUR ASH BASIN NO. 1
(DEP ID NO. D47-009)



Photo No. 1: Right Training Embankment – Looking Down



Photo No. 2: Right Training Embankment – Looking Up



Photo No. 3: Left Training Embankment – Looking Down



Photo No. 4: Left Training Embankment – Looking Up



Photo No. 5: ACB Overtopping Embankment – Looking Right



Photo No. 6: ACB Overtopping Embankment – Looking Left



Photo No. 7: Berm Overtopping Section – Looking Right



Photo No. 8: Berm Overtopping Section – Looking Left

MONTOUR ASH BASIN NO. 1
(DEP ID NO. D47-009)



Photo No. 9: Splitter Dike Overtopping Section – Looking Left

TALEN ENERGY

Periodic Hazard Potential Classification Assessment

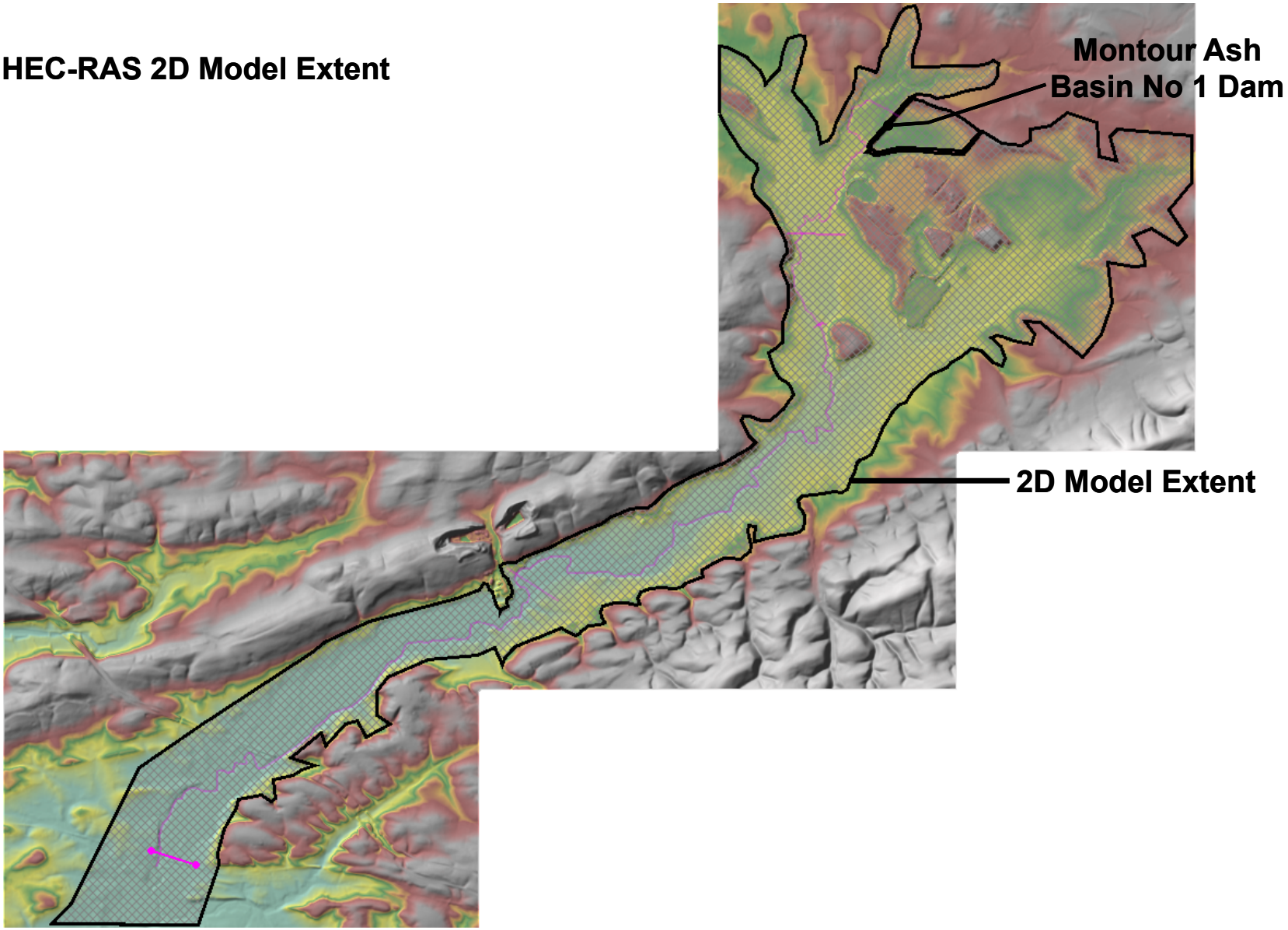
Montour Ash Basin no.1 Dam

Derry Township, Pennsylvania

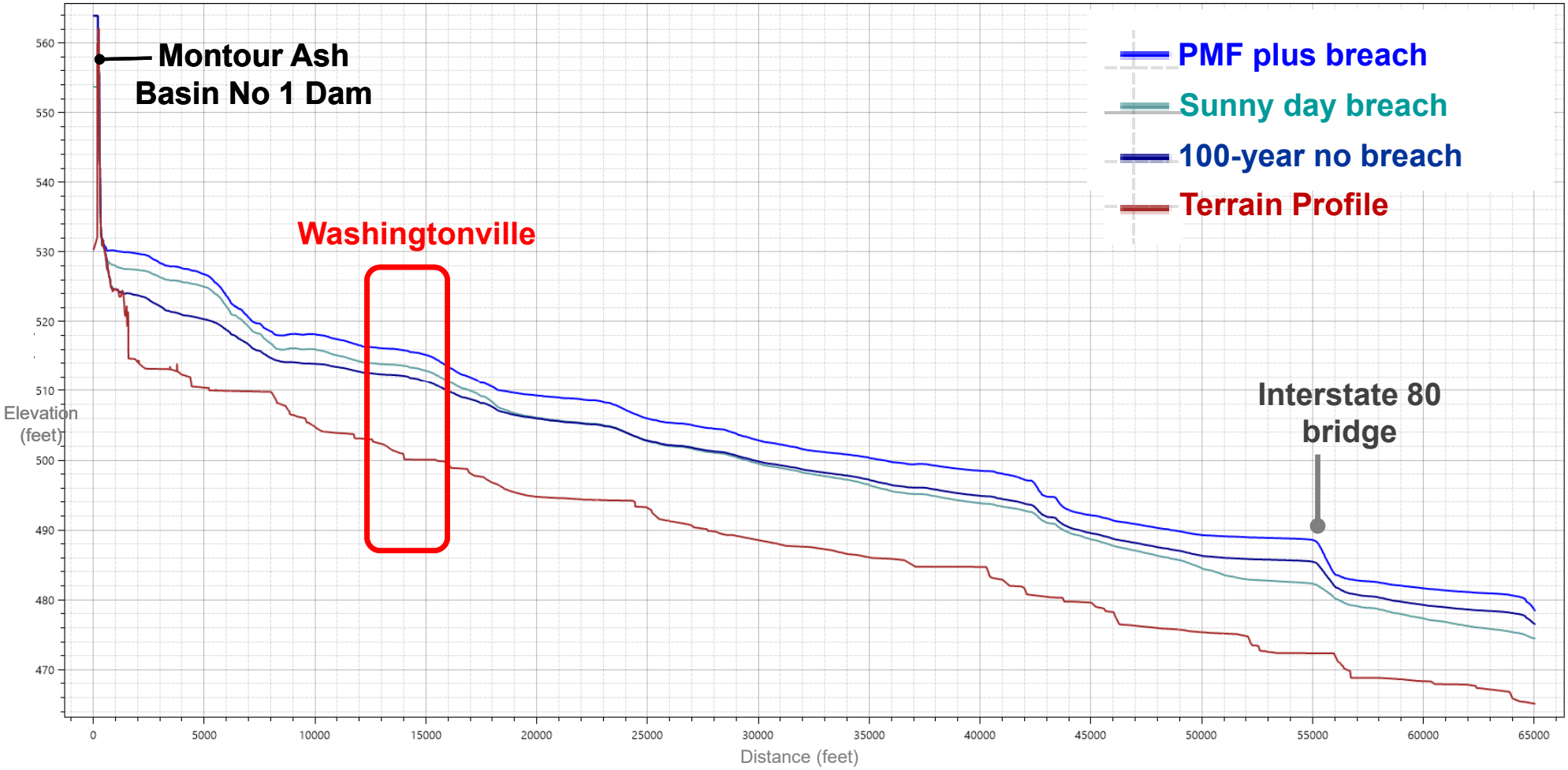
Appendix B
HYDROLOGIC AND HYDRAULIC DATA

Gannett Fleming

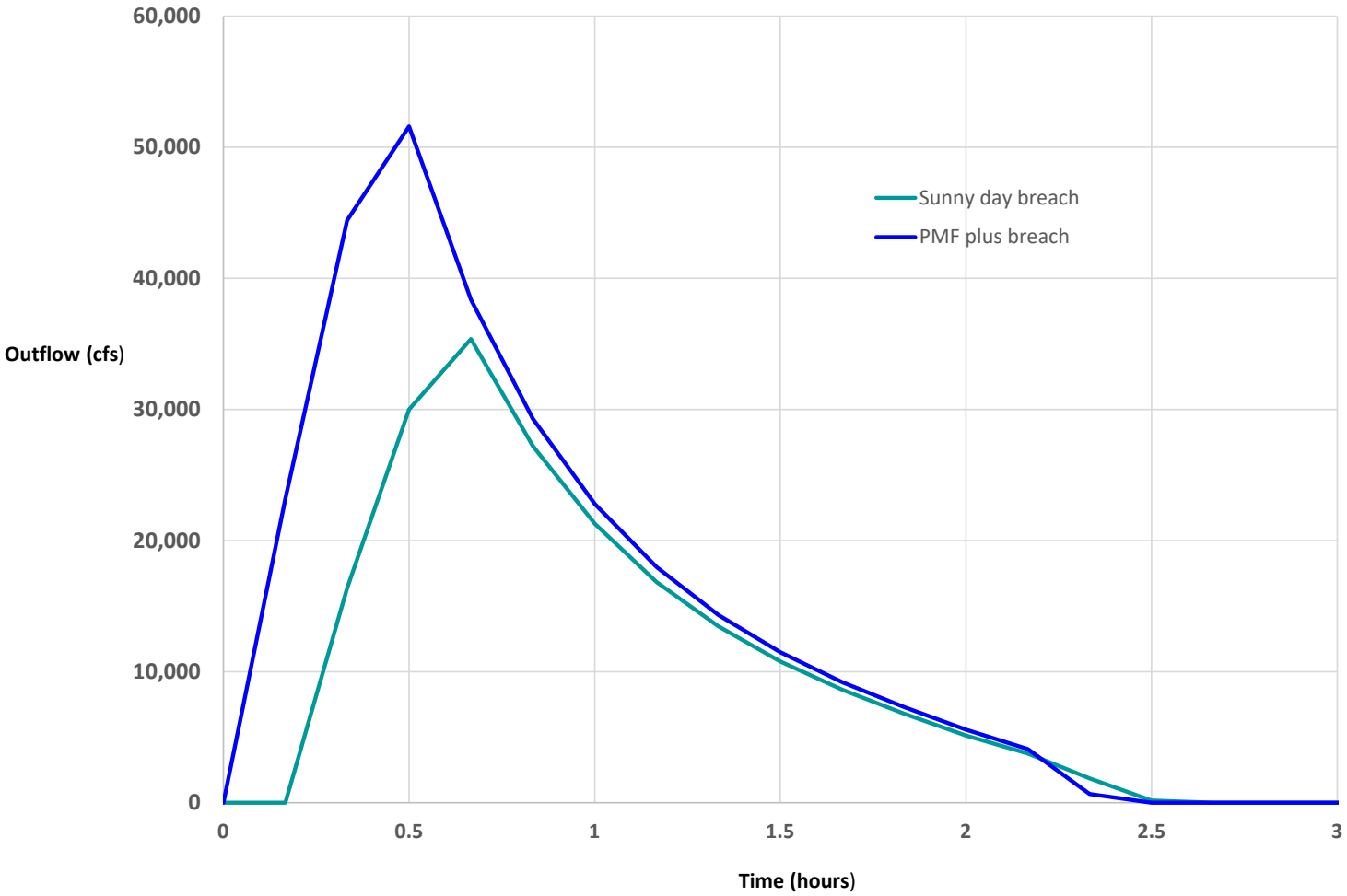
HEC-RAS 2D Model Extent



Sunny Day Breach, PMF Plus Breach, and 100-year No Breach Water Surface Profiles



Sunny Day Breach and PMF Plus Breach Outflow Hydrographs measured at the breach location

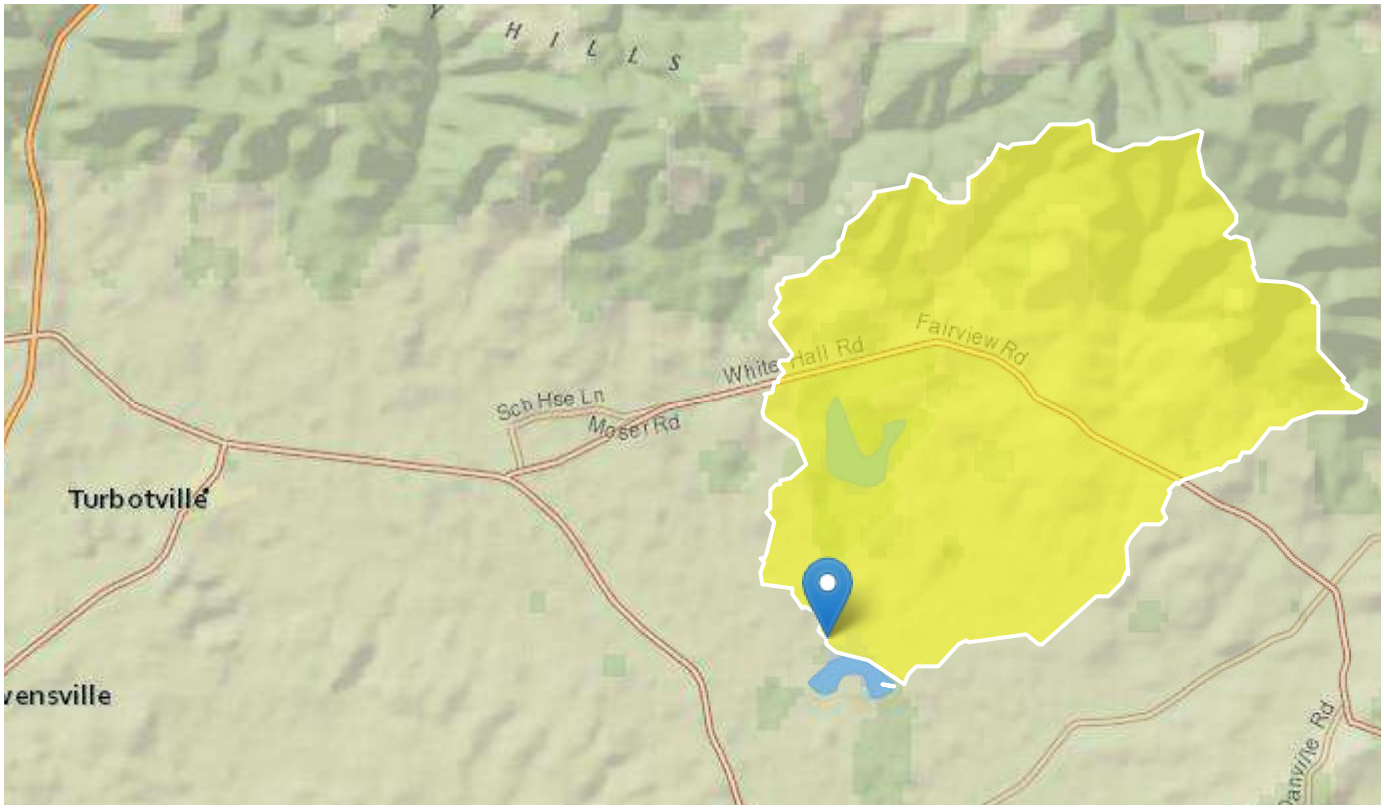


STREAMSTATS DATA

100-YEAR FLOW ESTIMATION

StreamStats Report

Region ID: PA
Workspace ID: PA20210712184420659000
Clicked Point (Latitude, Longitude): 41.08202, -76.66498
Time: 2021-07-12 14:44:35 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	16.7	square miles
CARBON	Percentage of area of carbonate rock	0	percent

General Disclaimers

This watershed has been edited, computed flows and basin characteristics may not apply. For more information, submit a support request from the 'Help' button in the upper-right of the screen, attach a pdf of this report and request assistance from your local streamstats regional representative.

Peak-Flow Statistics Parameters [Peak Flow Region 3 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	16.7	square miles	1.42	1280
CARBON	Percent Carbonate	0	percent	0	100

Peak-Flow Statistics Flow Report [Peak Flow Region 3 SIR 2019 5094]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
50-percent AEP flood	695	ft^3/s	41.7
20-percent AEP flood	1230	ft^3/s	39.6
10-percent AEP flood	1680	ft^3/s	38.3
4-percent AEP flood	2370	ft^3/s	38.5
2-percent AEP flood	2970	ft^3/s	38.9
1-percent AEP flood	3640	ft^3/s	40.1
0.5-percent AEP flood	4400	ft^3/s	41.3
0.2-percent AEP flood	5540	ft^3/s	43.7

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https:// doi.org/10.3133/sir20195094)

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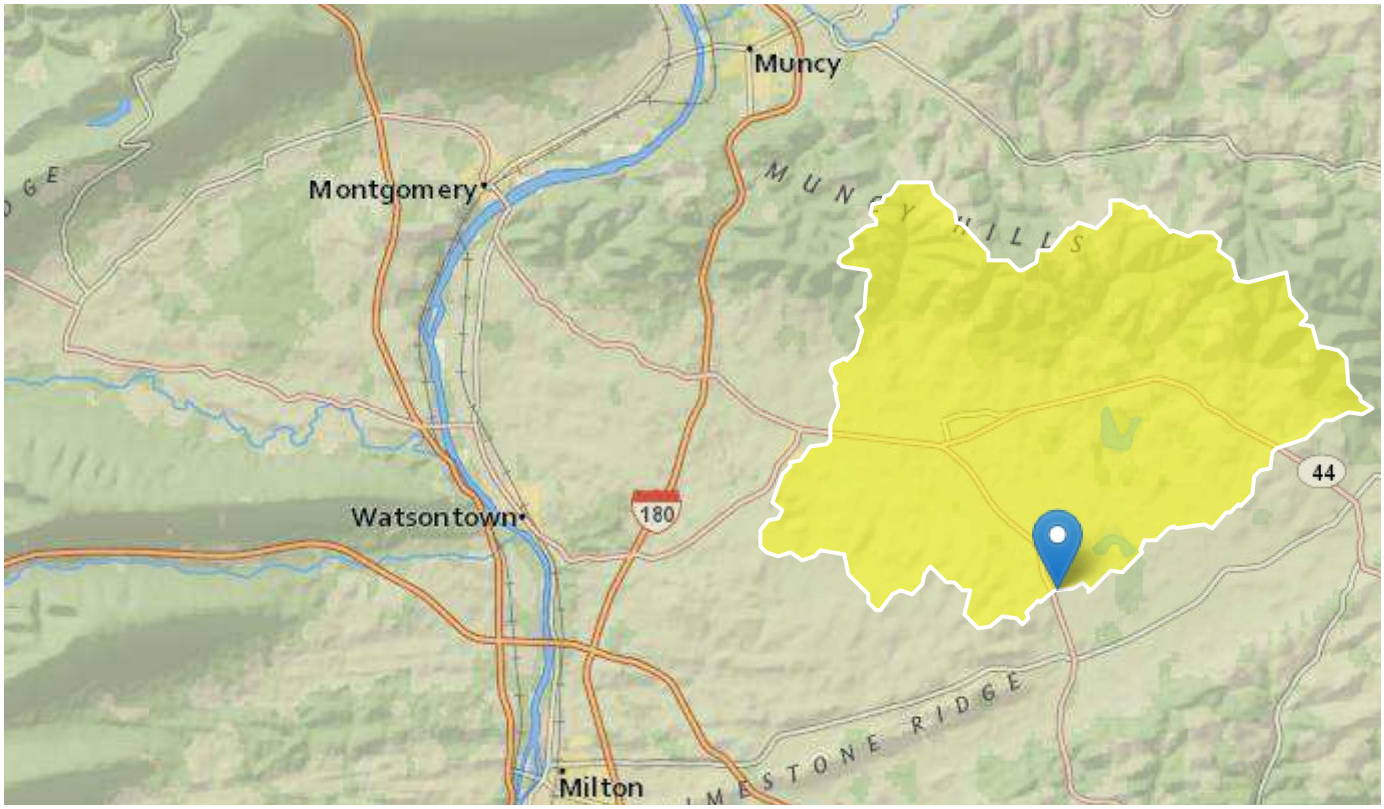
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Application Version: 4.6.0
StreamStats Services Version: 1.2.22
NSS Services Version: 2.1.2

StreamStats Report

Region ID: PA
Workspace ID: PA20210712193123198000
Clicked Point (Latitude, Longitude): 41.06539, -76.68047
Time: 2021-07-12 15:32:42 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	51.3	square miles
CARBON	Percentage of area of carbonate rock	6.67	percent

Peak-Flow Statistics Parameters [Peak Flow Region 3 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	51.3	square miles	1.42	1280

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	6.67	percent	0	100

Peak-Flow Statistics Flow Report [Peak Flow Region 3 SIR 2019 5094]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
50-percent AEP flood	1460	ft^3/s	41.7
20-percent AEP flood	2530	ft^3/s	39.6
10-percent AEP flood	3430	ft^3/s	38.3
4-percent AEP flood	4800	ft^3/s	38.5
2-percent AEP flood	5990	ft^3/s	38.9
1-percent AEP flood	7320	ft^3/s	40.1
0.5-percent AEP flood	8800	ft^3/s	41.3
0.2-percent AEP flood	11000	ft^3/s	43.7

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https:// doi.org/10.3133/sir20195094)

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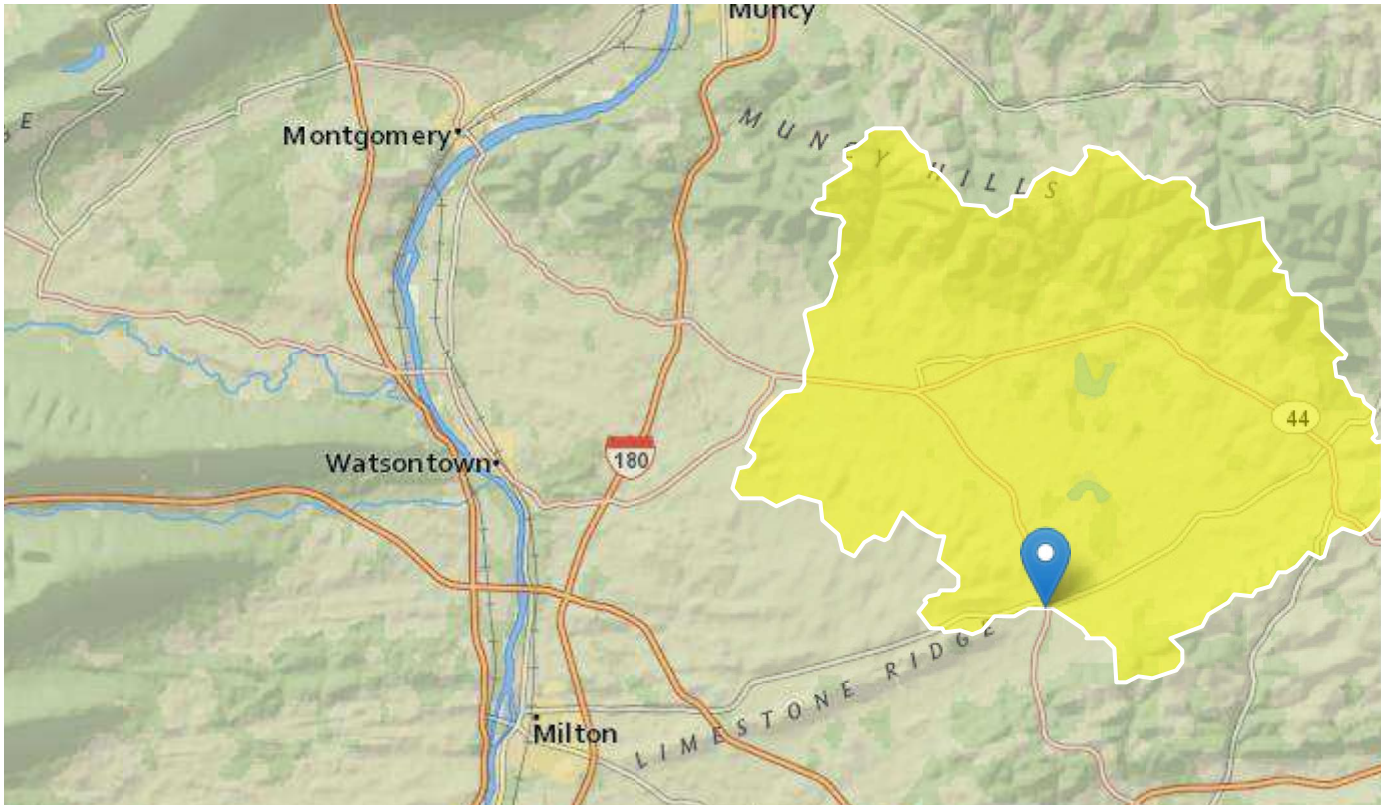
Application Version: 4.6.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

StreamStats Report

Region ID: PA
Workspace ID: PA20210714155835702000
Clicked Point (Latitude, Longitude): 41.04651, -76.67571
Time: 2021-07-14 11:58:52 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	71.2	square miles
CARBON	Percentage of area of carbonate rock	5.74	percent

Peak-Flow Statistics Parameters [Peak Flow Region 3 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	71.2	square miles	1.42	1280

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	5.74	percent	0	100

Peak-Flow Statistics Flow Report [Peak Flow Region 3 SIR 2019 5094]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
50-percent AEP flood	1930	ft^3/s	41.7
20-percent AEP flood	3310	ft^3/s	39.6
10-percent AEP flood	4480	ft^3/s	38.3
4-percent AEP flood	6240	ft^3/s	38.5
2-percent AEP flood	7750	ft^3/s	38.9
1-percent AEP flood	9460	ft^3/s	40.1
0.5-percent AEP flood	11300	ft^3/s	41.3
0.2-percent AEP flood	14200	ft^3/s	43.7

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https:// doi.org/10.3133/sir20195094)

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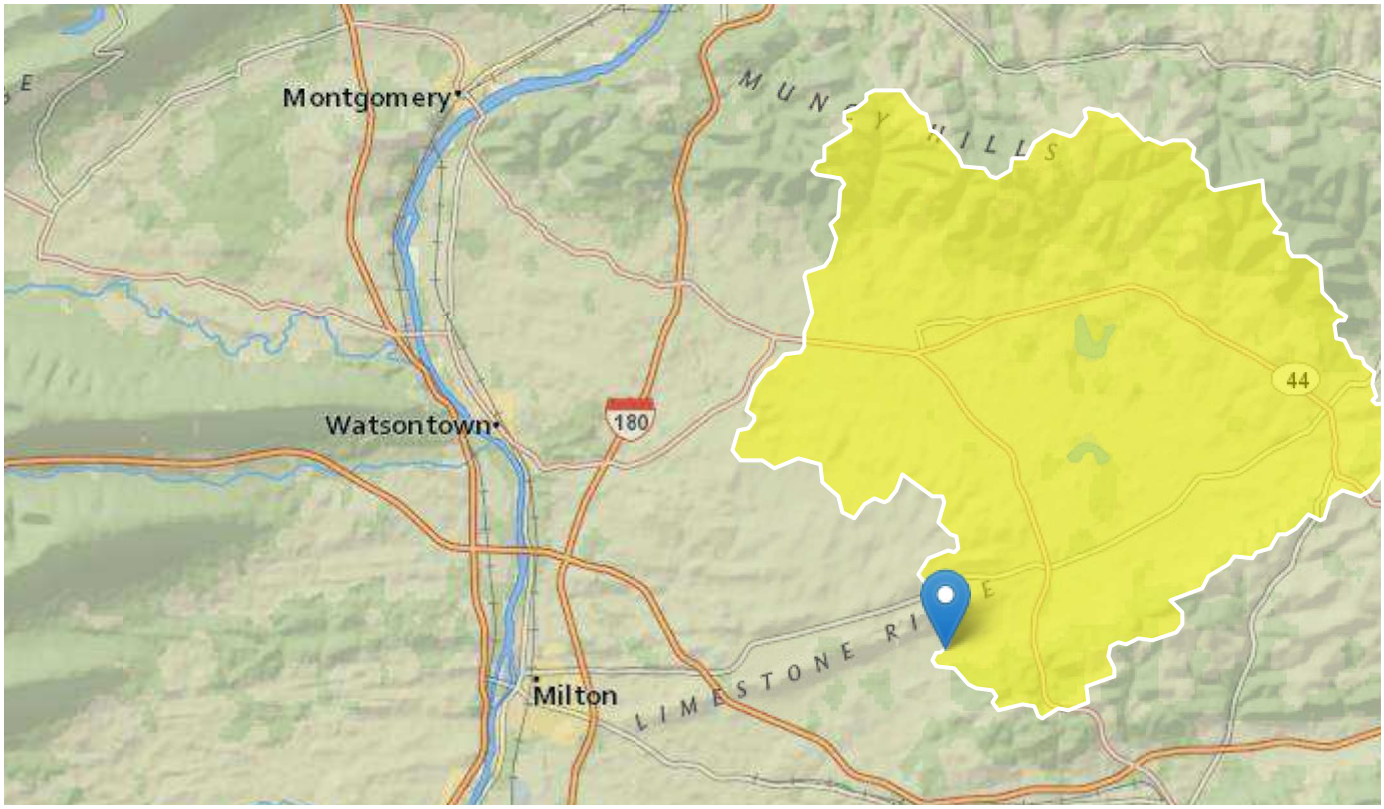
Application Version: 4.6.0

StreamStats Services Version: 1.2.22

NSS Services Version: 2.1.2

StreamStats Report

Region ID: PA
Workspace ID: PA20210714160809183000
Clicked Point (Latitude, Longitude): 41.02613, -76.71026
Time: 2021-07-14 12:08:25 -0400



Basin Characteristics

Parameter Code	Parameter Description	Value	Unit
DRNAREA	Area that drains to a point on a stream	77.2	square miles
CARBON	Percentage of area of carbonate rock	5.37	percent

Peak-Flow Statistics Parameters [Peak Flow Region 3 SIR 2019 5094]

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
DRNAREA	Drainage Area	77.2	square miles	1.42	1280

Parameter Code	Parameter Name	Value	Units	Min Limit	Max Limit
CARBON	Percent Carbonate	5.37	percent	0	100

Peak-Flow Statistics Flow Report [Peak Flow Region 3 SIR 2019 5094]

PIl: Prediction Interval-Lower, PIu: Prediction Interval-Upper, SEp: Standard Error of Prediction, SE: Standard Error (other -- see report)

Statistic	Value	Unit	ASEp
50-percent AEP flood	2070	ft^3/s	41.7
20-percent AEP flood	3540	ft^3/s	39.6
10-percent AEP flood	4790	ft^3/s	38.3
4-percent AEP flood	6660	ft^3/s	38.5
2-percent AEP flood	8270	ft^3/s	38.9
1-percent AEP flood	10100	ft^3/s	40.1
0.5-percent AEP flood	12100	ft^3/s	41.3
0.2-percent AEP flood	15100	ft^3/s	43.7

Peak-Flow Statistics Citations

Roland, M.A., and Stuckey, M.H.,2019, Development of regression equations for the estimation of flood flows at ungaged streams in Pennsylvania: U.S. Geological Survey Scientific Investigations Report 2019–5094, 36 p. (https:// doi.org/10.3133/sir20195094)

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Application Version: 4.6.0

StreamStats Services Version: 1.2.22

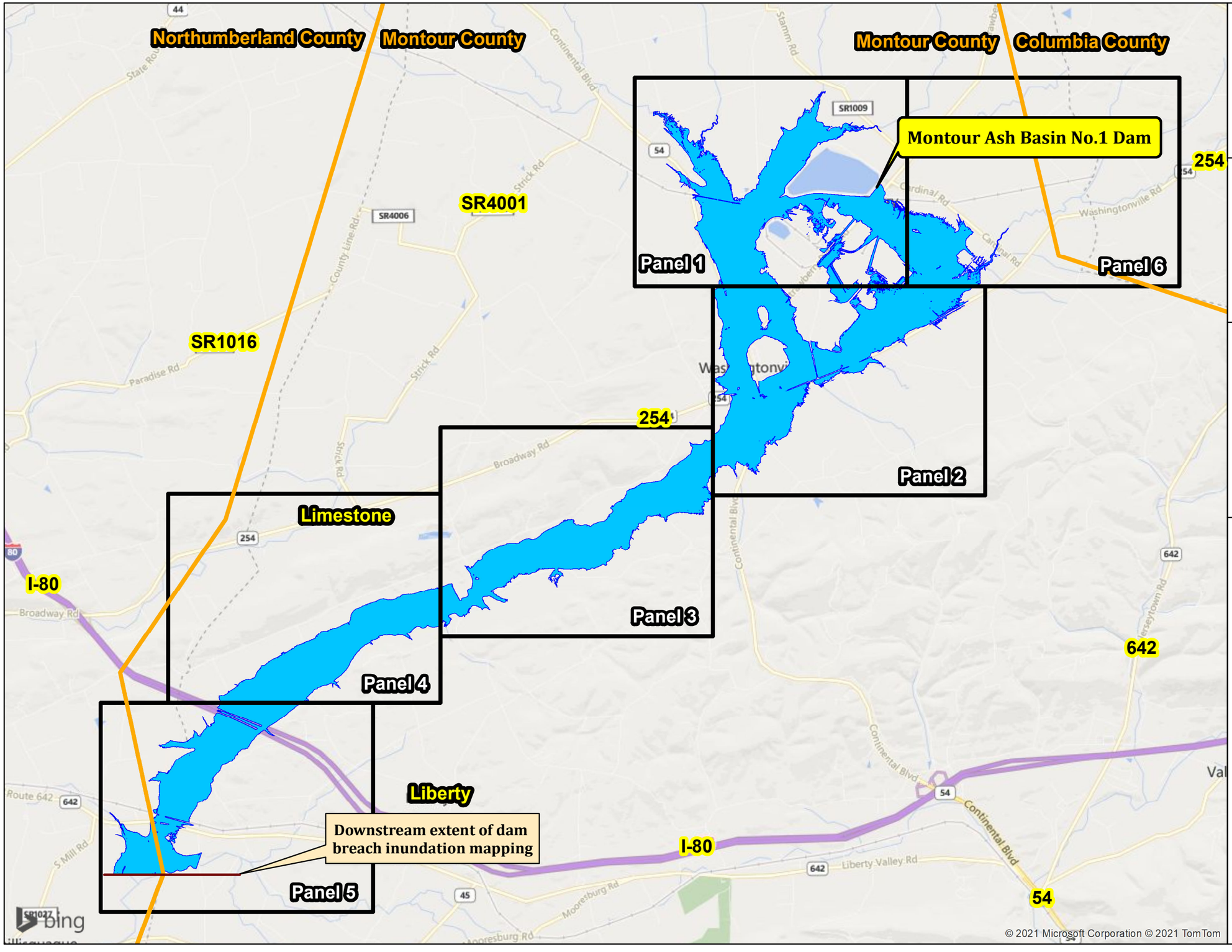
NSS Services Version: 2.1.2

Periodic Hazard Potential Classification Assessment

Montour Ash Basin no.1 Dam

Derry Township, Pennsylvania

Appendix C
BREACH INUNDATION MAPS



Montour Ash Basin No.1 Dam

Derry Township, Montour County

Dam Breach Inundation Mapping

Miles

0 1 2

SOURCE DATA: BING MAP ORTHO IMAGERY MADE AVAILABLE FROM ARCGIS ONLINE FREE USGS WEB MAPPING SERVICE. **INUNDATION AREAS AND ELEVATIONS REFERENCED TO NAVD 1988**, DELINEATED USING A SURFACE CREATED FROM LIDAR DIGITAL TERRAIN MODEL.

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NOTES TO MAP USERS:

1. THE INFORMATION CONTAINED IN THIS MAP IS INTENDED FOR USE IN NOTIFICATION OF THE DOWNSTREAM POPULATION AT RISK BY EMERGENCY MANAGEMENT PERSONNEL.
2. INUNDATION LIMITS CORRESPOND TO A COMPOSITE MAP DEVELOPED FROM THE MODELING OF SUNNY DAY AND PMF PLUS BREACH SCENARIOS.
3. BREACH ASSUMED WITH A 100-YEAR STORM EVENT BASE FLOOD ON THE RECEIVING DOWNSTREAM AREAS.

INDEX MAP

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL ENGINEER
AMANDA J. HESS
PE-070894

September 2021

Gannett Fleming

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Railroad	
Maximum Depth or Stage Above Railroad	2 feet
Time to Floodwave **Arrival** / **Peak** Flood Stage	0 hours 15 mins/ 0 hours 30 mins
Approximate Max. Water Surface Elevation	***525.8** feet*

Arrowhead Rd.
PPL Rd.
Stamm Rd.
Chillisquaque Creek
TCP-4
Continental Blvd.
TCP-3
Creek Rd.
Montour Ash Basin No.1
Strawberry Ridge Rd.
TCP-1
TCP-2 (Railroad)
TCP-5 (Railroad)
West Branch Chillisquaque Creek
Delong Rd.
TCP-6
Strawberry Ridge Rd.
TCP-7
bing
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Montour Ash Basin No.1 Dam

Derry Township, Montour County

Dam Breach Inundation Mapping

LEGEND:

- Traffic Control Points (7 in total)
- Structures / Dwellings in Inundation Area
- Stream
- 100-Year Flood Boundary

Miles 0 0.2 0.4

Map Panel 1 of 6

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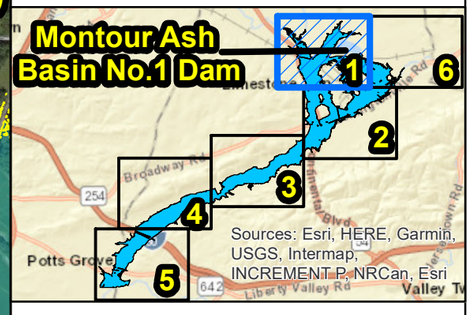
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3.BREACH ASSUMED WITH A 100-YEAR STORM EVENT BASE FLOOD ON THE RECEIVING DOWNSTREAM AREAS.

LOCATION MAP:



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Montour Ash Basin No.1 Dam

Derry Township, Montour County

Dam Breach Inundation Mapping

Strawberry Ridge Rd.

PPL Rd.

Chillisquaque Creek

Continental Blvd.

Washingtonville Rd.

Blee Hill Rd.

Steffens Rd.

Hillside Rd.

TCP-9

TCP-8

TCP-10

Washingtonville Road	
Maximum Depth or Stage Above Road	**3** feet
Time to Floodwave **Arrival** / **Peak** Flood Stage	**1** hour **0** mins/ **2** hours **0** mins
Approximate Max. Water Surface Elevation	***510.0** feet*

LEGEND:

- Traffic Control Points (3 in total)
- Structures / Dwellings in Inundation Area
- Stream
- 100-Year Flood Boundary

Miles

0 0.2 0.4

Map Panel 2 of 6

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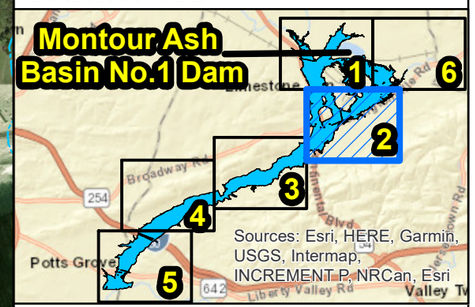
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3.BREACH ASSUMED WITH A 100-YEAR STORM EVENT BASE FLOOD ON THE RECEIVING DOWNSTREAM AREAS.

LOCATION MAP:



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Montour Ash Basin No.1 Dam

Derry Township, Montour County

Dam Breach Inundation Mapping

LEGEND:

- Traffic Control Points (5 in total)
- Structures / Dwellings in Inundation Area
- Stream
- 100-Year Flood Boundary

Miles

0 0.2 0.4

Map Panel 3 of 6

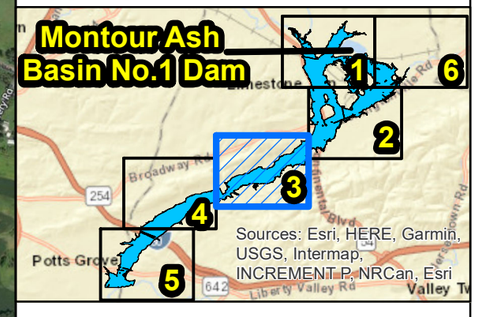
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LOCATION MAP:



Stecker Mill Road	
Maximum Depth or Stage Above Road	**5** feet
Time to Floodwave **Arrival** / **Peak** Flood Stage	**1** hour **30** mins/ **3** hours **30** mins
Approximate Max. Water Surface Elevation	***497.4** feet*

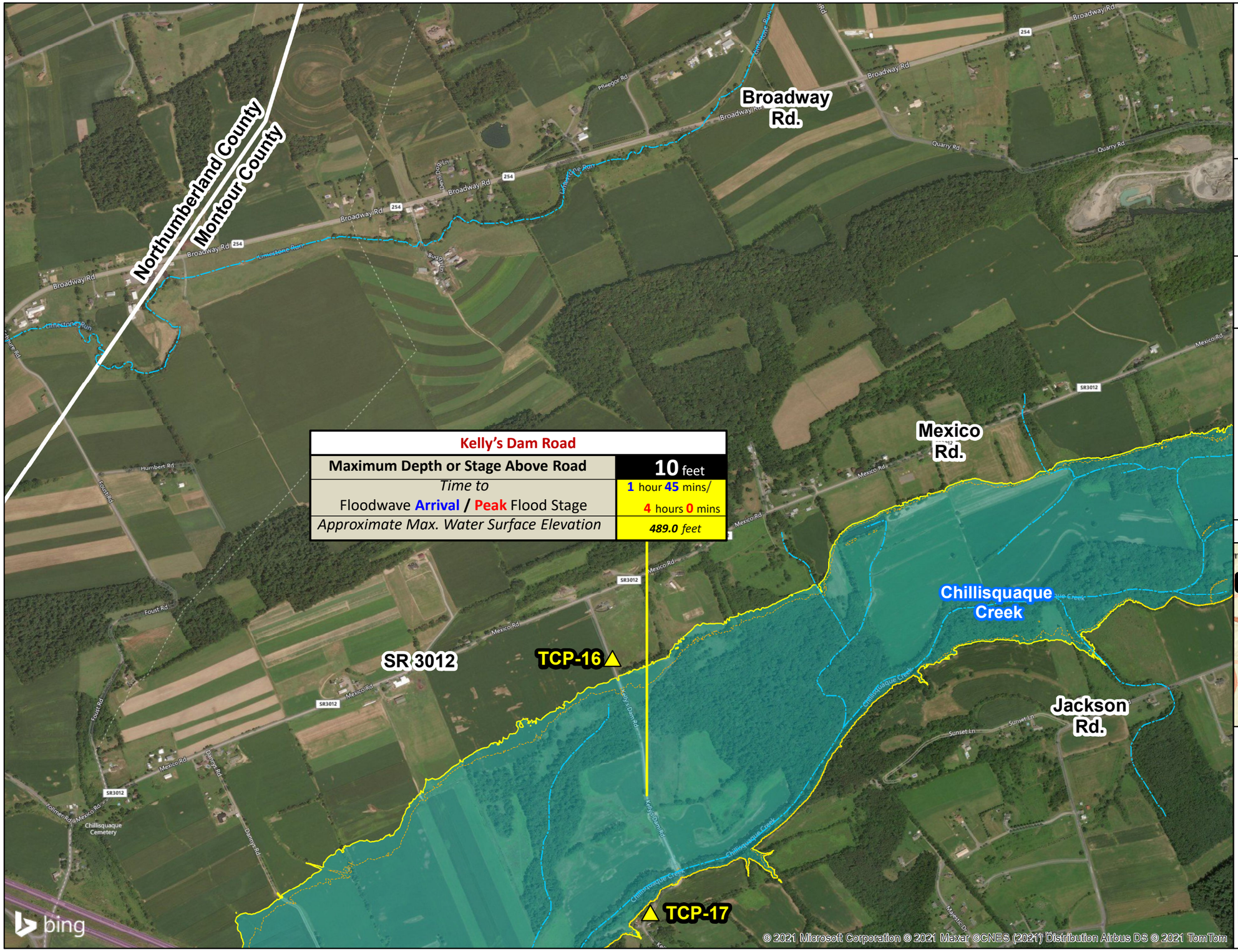
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Montour Ash Basin No.1 Dam

Derry Township, Montour County

Dam Breach Inundation Mapping

LEGEND:

- Traffic Control Points (2 in total)
- Structures / Dwellings in Inundation Area
- Stream
- 100-Year Flood Boundary

Miles

0 0.2 0.4

Map Panel 4 of 6

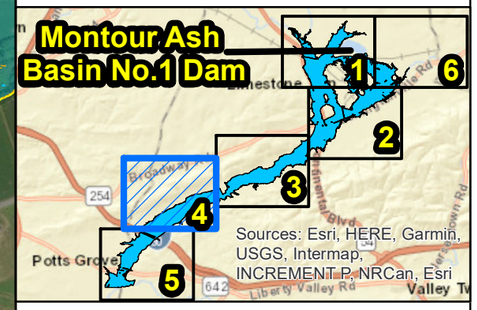
SOURCE DATA: BING MAP ORTHO IMAGERY MADE AVAILABLE FROM ARCGIS ONLINE FREE USGS WEB MAPPING SERVICE. **INUNDATION AREAS AND ELEVATIONS REFERENCED TO NAVD 1988**, DELINEATED USING A SURFACE CREATED FROM LIDAR DIGITAL TERRAIN MODEL.

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3.BREACH ASSUMED WITH A 100-YEAR STORM EVENT BASE FLOOD ON THE RECEIVING DOWNSTREAM AREAS.

LOCATION MAP:



COMMONWEALTH OF PENNSYLVANIA
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AMANDA J. HESS
PE-070884

September 2021

Gannett Fleming

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Montour Ash Basin No.1 Dam

Derry Township, Montour County

Dam Breach Inundation Mapping

Creek Rd.

TCP-18

Northumberland County

Montour County

Chillisquaque Creek

TCP-19

Bridge Rd.

I-80

Liberty Valley Road	
Maximum Depth or Stage Above Road	**2** feet
Time to Floodwave **Arrival** / **Peak** Flood Stage	**3** hours **45** mins/ **5** hours **45** mins
Approximate Max. Water Surface Elevation	***479.8** feet*

TCP-21

TCP-20

Liberty Valley Rd.

Downstream extent of dam breach inundation mapping

LEGEND:

- Traffic Control Points (4 in total)
- Structures / Dwellings in Inundation Area
- Stream
- 100-Year Flood Boundary

Miles

0 0.2 0.4

Map Panel 5 of 6

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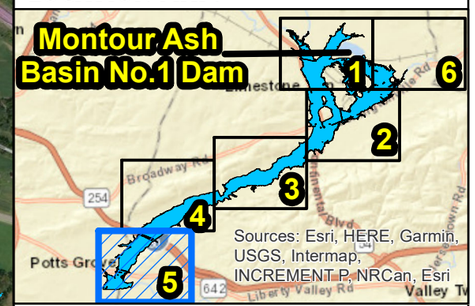
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LOCATION MAP:



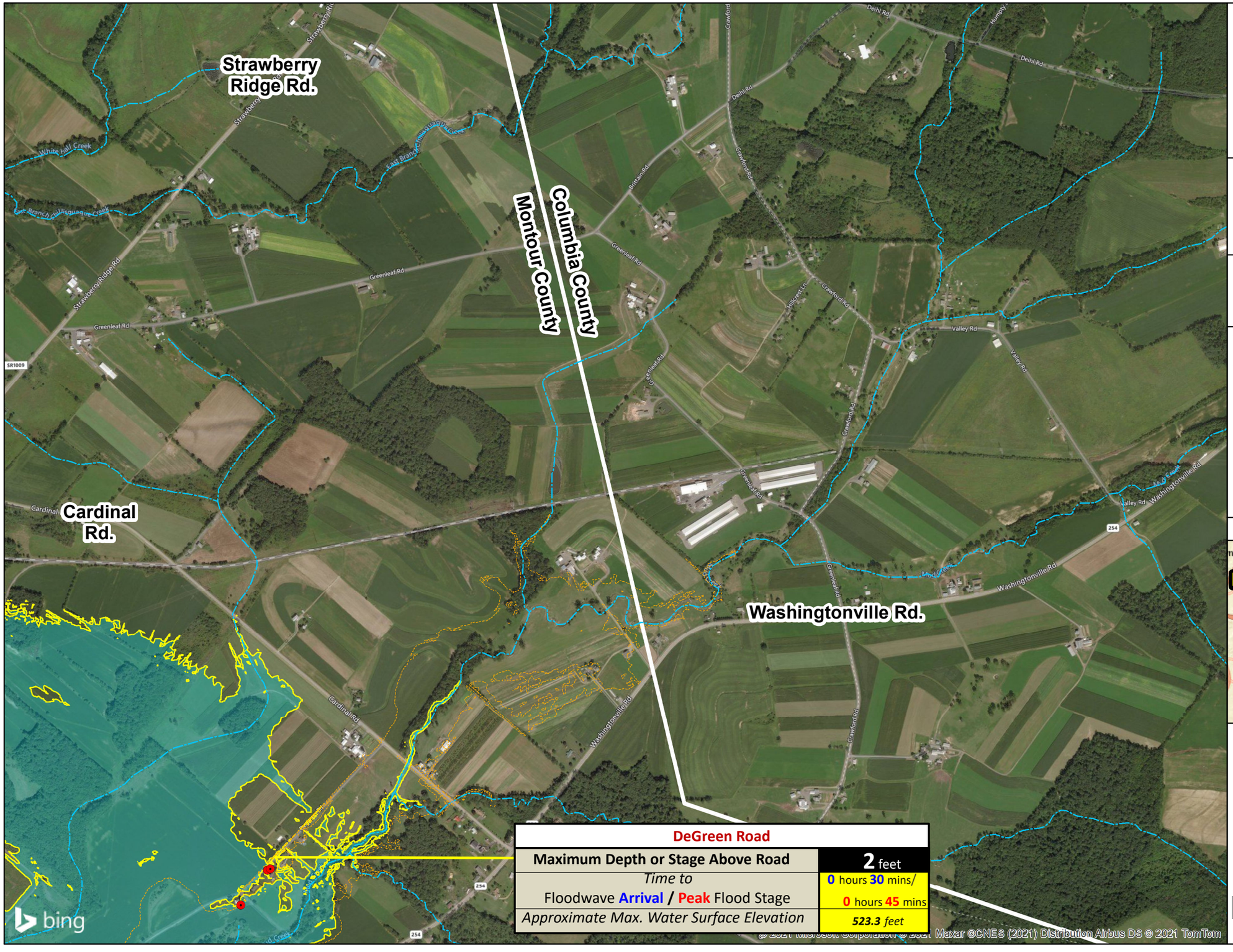
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Montour Ash Basin No.1 Dam

Derry Township, Montour County

Dam Breach Inundation Mapping

LEGEND:

- Structures / Dwellings in Inundation Area
- Stream
- 100-Year Flood Boundary

Miles

0 0.2 0.4

Map Panel 6 of 6

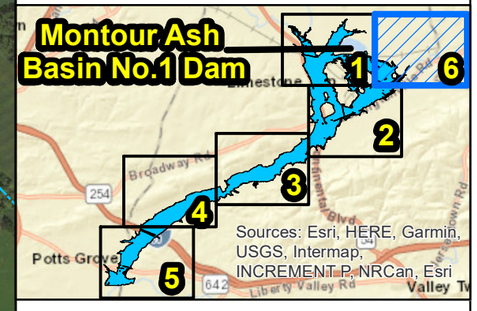
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LOCATION MAP:



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