Low Volume Waste Settling Ponds Inflow Design Flood Control System Plan

Mount Storm Power Station
Mount Storm, West Virginia

October 2021

Prepared For:

Virginia Electric and Power Company
436 Dominion Boulevard
Mount Storm, West Virginia 26739

Prepared By:

TRC
50 International Drive, Suite 150
Greenville, South Carolina 29615

Jonathan Hotstream
Senior Scientist

Nakia Addison, P.E.
Project Manager

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Revision History

Revision Number	Revision Date	Section Revised	Summary of Revisions
0	10/03/16		Initial Issue
1	10/01/21	1 through 5	Update for periodic assessment

1.0 Background

Virginia Electric and Power Company d/b/a Dominion Energy Virginia (Dominion) owns and operates the Mount Storm Power Station (Station). The Station manages coal combustion residuals (CCR) in three existing low volume waste settling ponds (LVWSP) (Pyrite Pond and Ponds A, and B). The purpose of this Inflow Design Flood Control System Plan (Plan) is to present the designed and constructed flood control features of the three existing LVWSP that are used to manage the inflow design flood as required by the United States Environmental Protection Agency's (USEPA) final coal combustion residual (CCR) rule (Title 40 Code of Federal Regulations (40 CFR) Part 257) Subpart D - "Standards for the Disposal of Coal Combustion Residuals in Landfills and Surface Impoundments." The LVWSP are considered existing CCR surface impoundments according to the CCR rule (40 CFR 257.53). The initial inflow design flood control system plan was completed on October 3, 2016. The periodic inflow design flood control system plan are to be performed every 5 years pursuant to 40 CFR 257.82(c)(4).

1.1 Existing Conditions

The Station is located in Union District, Grant County, West Virginia (refer to Figure 1). There are currently three LVWSP at the Station (refer to Figure 2.) The area including the LVWSP is approximately nine acres, with the surrounding terrain sloping down toward Mount Storm Lake to the east and south from the topographic high on the northwest side of the LVWSP. The normal water elevation for Mount Storm Lake is approximately 3245 feet NAVD88 with a maximum elevation of 3248.3 feet NAVD88. The water levels of Mount Storm Lake are controlled by the Mount Storm Lake Dam which is operated by Dominion. The Flood Insurance Rate Map for the Station (National Flood Insurance Program 2009) shows that the LVWSP are located in an area determined to be outside the 0.2% annual chance flood.

The LVWSP receive influent water from dewatering bin overflows and area sumps, along with water from plant drain systems, the oily water separator system, storm water, and other Station drains. The water flows to a pH neutralizing system before flowing to the LVWSP (Ponds A and B) for settling. From the LVWSP, water is discharged into Mount Storm Lake via a National Pollutant Discharge Elimination System (NPDES) permitted outfall. The two-pond configuration allows one pond to be dredged and cleaned while maintaining the other LVWSP in service to process wastewaters.

The Pyrite Pond receives primarily storm water inflows from sources upstream of Ponds A and B. The Pyrite Pond discharges to the pH neutralizing system prior to flowing into the primary LVWSP. The retrofit of the Pyrite Pond was completed in 2016.

The wastewater flows through several outlet structures in a circuit through the LVWSP. The water flow is driven by gravity. Station personnel can control flow to and from a pond by operating gates on the outlet structures.

The LVWSP are located on the south side of the station and are constructed with geomembrane lined earthen berms to contain the wastewater. Ponds A and B were re-constructed in 2018 and 2019. Ponds A and B each have a maximum elevation of 3,260 ft. The minimum elevations for Ponds A and B are 3,249 ft and 3,247 ft, respectively. Appendix A presents the geometry of the LVWSP.

2.0 Inflow Design Flood Control

Hydrologic and hydraulic capacity requirements for existing and new CCR surface impoundments are provided in 40 CFR 257.82. The LVWSP were classified as low hazard in accordance with 40 CFR 257.73. Based on the low hazard potential classification, the CCR units must adequately manage flow into the unit during and following the peak discharge of the 100-year flood (40 CFR 257.82(a)(3)(iii)).

The Mount Storm LVWSP were designed in a manner consistent with 40 CFR 257.82(a)(1), (2) and (3), which allows CCR units to adequately manage inflows during and following peak discharge and to manage outflows to collect and control peak discharge for a 100-year flood due to the low hazard classification.

The Flood Insurance Rate Map for the Station (National Flood Insurance Program 2009) shows that the LVWSP are located in an area determined to be outside the 0.2% annual chance flood (refer to Appendix B). Figures 1 and 2 show the extent of the 100-year flood plain is not mapped in the vicinity of the station. The LVWSP are located in an area that is above the 100-year flood elevation; therefore, a dedicated flood control system is not required. The LVWSP have been designed with several inflow design features presented in the sections below.

2.1 LVWSP Operation

The LVWSP are utilized to treat process wastewater following the pH treatment system. The LVWSP were designed to operate at a maximum water elevation of 3255.1 feet NAVD88, which is approximately five feet below the top of berm height at 3260 feet NAVD88. The maximum water level in Pond A and Pond B is limited by the flow capacity of the upgradient hydraulic system. The water level within the active LVWSP is monitored daily by on-site personnel. High level alarms are installed on the filter equipment located downstream of the LVWSP prior to discharge through the permitted outfall.

The inflow to the Pyrite Pond is the primary pond for controlling surface water discharge across the site. The Pyrite Pond discharges to the pH treatment system upstream of Ponds A and B.

The following control measures are implemented during pond operations to control the water levels in the LVWSP:

- Regularly drain and clean ash hydrobins, in a manner to not exceed designed flow rate.
- Regularly remove settled solids from Ponds A and B to provide optimal system performance and maximum capacity.
- Operate outlet structures to control the pond water levels.
- Regularly check and maintain grades surrounding the LVWSP to minimize the area contributing to storm water run-on.

2.2 System Hydraulics

The system hydraulics for the retrofit and reconstruction has been designed to provide flow capacities up to the design maximum of 26 MGD through the LVWSP.

2.3 Storm Water Control

The LVWSP were designed to control the storm water run-on from a 100-year, 24-hour storm event based upon the Precipitation Frequency Estimates from the National Oceanic and Atmospheric Administration. The Pyrite Pond collects storm water runoff from areas outside of the LVWSP and routes it through the downstream LVWSP. Culverts bring storm water into the Pyrite Pond from across the station with the most significant contribution coming from the coal pad.

The LVWSP were designed to operate with at least two feet of freeboard, height from the design water elevation to the top of berm elevation. The storm water run-on volume calculated for the design storm were compared to the storage capacity above the LVWSP design operating elevation. The evaluation determined that there is sufficient capacity in the LVWSP when operating at the design water elevations (refer to Appendix C).

2.4 Outflow from the LVWSP

The discharge from the LVWSP is conveyed via a 54-inch diameter pipe that connects to an outlet structure. This outlet structure discharges directly into Mount Storm Lake. The pipe and outlet structure convey the discharge volume in a controlled manner for the design maximum flow via the NPDES permitted outfall. Therefore, the flow from the LVWSP is adequately managed.

2.5 Conclusions

The LVWSP meet the requirements of 40 CFR 257.82 of adequately controlling the inflows during and after peak discharge of the 100-year flood at the Mount Storm Power Station for the following reasons:

- The LVWSP are located above the 100-year floodplain.
- The LVWSP were adequately designed to withstand a 100-year, 24 hour storm event.
- The LVWSP capacities are sufficient to control the water levels and provide freeboard.
- The LVWSP discharge components were designed to adequately manage the outflows from the LVWSP.

3.0 Amendment and Periodic Plan Revision

This Plan was been completed in compliance with the requirements set forth in 40 CFR 257.82. The West Virginia Department of Environmental Protection will be notified once this document has been placed in the operating record and posted to the publicly accessible website.

A periodic inflow design flood control system plan must be prepared every 5 years from the completion date of this Plan. The next periodic assessment is required by October 2026.

The Plan must be amended whenever the periodic review period is reached or if changes in site conditions occur that will sustainably affect the current written plan.

4.0 References

National Flood Insurance Program. 2009. Flood Insurance Rate Map: Grant County West Virginia, and Incorporated Areas Panel 135 of 425. Map Number 54023C0135F. Effective Date September 2, 2009. Federal Emergency Management Agency. Washington, D.C.

TRC Engineers, Inc. 2021. Hazard Potential Classification – Low Volume Waste Settling Ponds Mount Storm Power Station. October 2021.

5.0 Certification

I, the undersigned West Virginia Professional Engineer, hereby certify that I am familiar with the technical requirements of 40 CFR 257 Subpart D. I also certify that it is my professional opinion that, to the best of my knowledge, information, and belief, that the information in this demonstration is in accordance with current good and accepted engineering practice(s) and standard(s) and meets the requirements of 40 CFR 257.82.

For the purpose of this document, "certify" and "certification" shall be interpreted and construed to be a "statement of professional opinion." The certification is understood and intended to be an expression of my professional opinion as a West Virginia Licensed Professional Engineer, based upon knowledge, information, and belief. The statement(s) of professional opinion are not and shall not be interpreted or construed to be a guarantee or a warranty of the analysis herein.

Nakia Addison, P.E.	21526
Printed Name of Professional Engineer	State of West Virginia License Number
Signature of Professional Engineer	October 5, 2021
	Date

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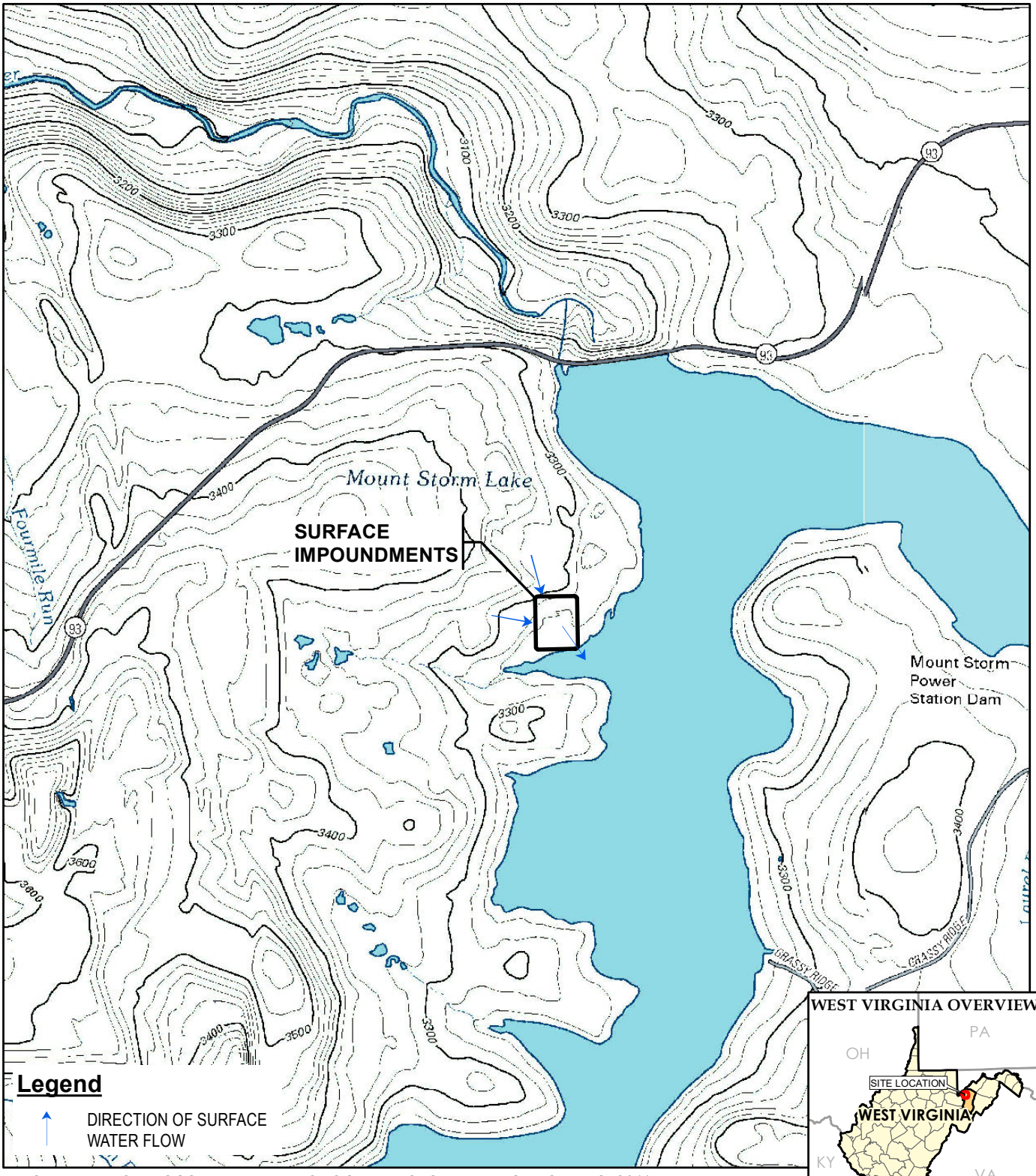
TRC - GIS



-BASE MAP FROM USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE SERIES, 2011.
-THERE ARE NO 100 YEAR FLOODPLAIN AREAS LOCATED WITHIN THE EXTENTS OF THIS MAP.

N

1 " = 2,000 '
1:24,000

0 2,000 4,000
FEET

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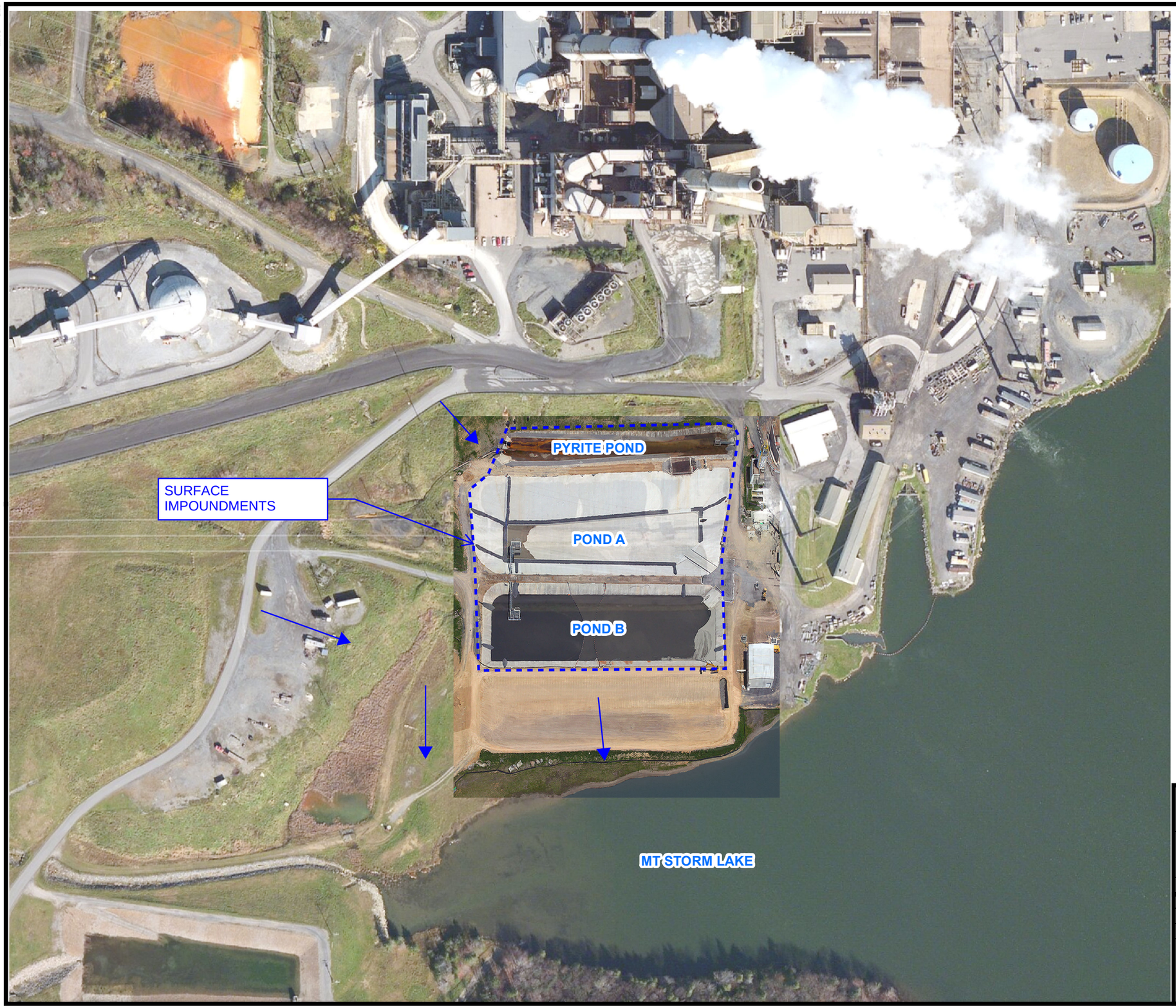
TRC
50 International Drive
Suite 150
Greenville, South Carolina 29615

DOMINION RESOURCES SERVICES, INC.
MOUNT STORM POWER STATION
MOUNT STORM, GRANT COUNTY, WEST VIRGINIA

INFLOW FLOOD CONTROL SYSTEM PLAN
SITE LOCATION MAP

DRAWN BY:	J. Hotstream
APPROVED BY:	N. Addison
PROJECT NO:	230765
FILE NO.	230765-004slm.mxd
DATE:	September 2021

FIGURE 1



NOTES:

1) AERIAL PHOTOGRAPH SOURCE: ESRI WORLD IMAGERY DATED APRIL 15, 2016.

2) INSET AERIAL PHOTOGRAPH FROM BACKUS AERIAL PHOTOGRAPHY DATED MAY 22, 2019.

DIRECTION OF SURFACE WATER FLOW

N

0 200 400 Feet

PROJECT:
DOMINION ENERGY SERVICES, INC.
MOUNT STORM POWER STATION, WEST VIRGINIA

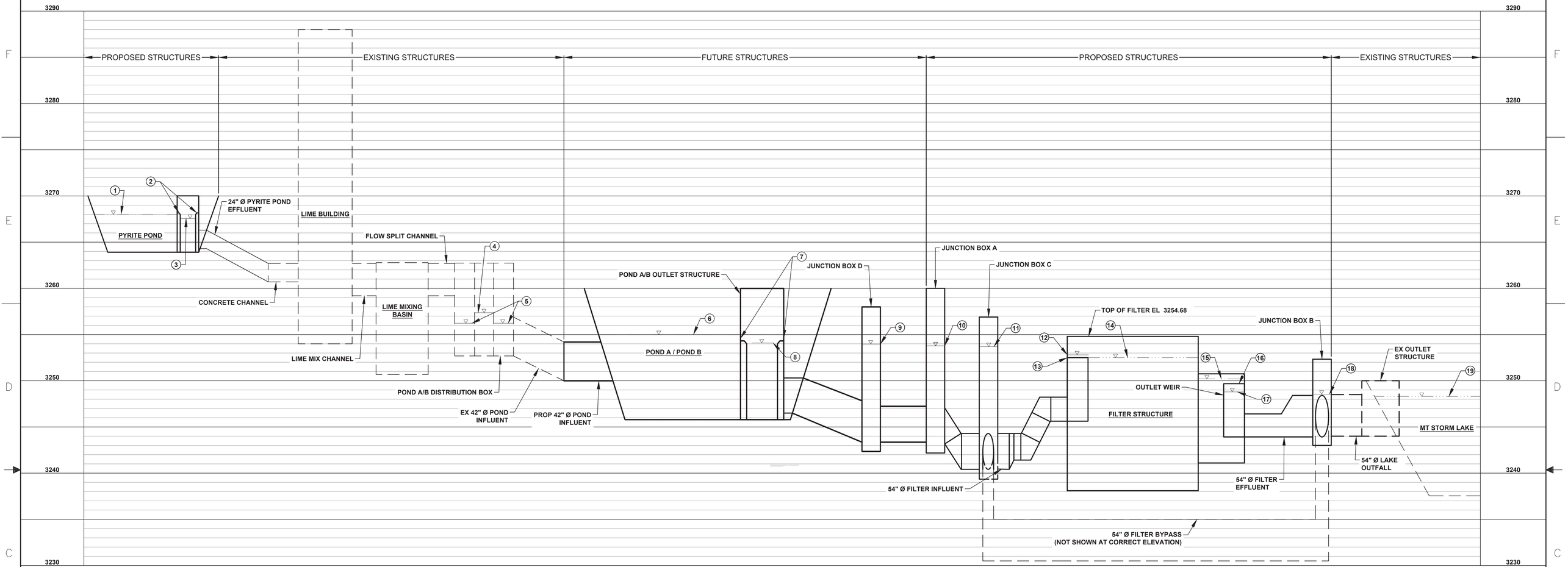
SHEET TITLE:
SITE OVERVIEW MAP

DRAWN BY:	RAM	SCALE:	1: 2,400	PROJ. NO.	230765.0.0.1
CHECKED BY:	LMC			FILE NO.	Fig1-2_AshPondLoc.mxd
APPROVED BY:	GET	DATE PRINTED:		**FIGURE 2**	
DATE:	APRIL 2020				

TRC
50 International Drive, Suite 150
Patewood Plaza Three
Greenville, SC 29615
(864) 281-0030

TRC - GIS
Coordinate System: NAD 1983 CORS96 StatePlane West Virginia North FIPS 4701 FUS (Foot US)
Map Rotation: 0
Saved By: RMAYER on 12/11/2019, 10:50:54 AM
Path: U:\Dominion\Mt Storm WV\230765\ArcGIS\10\2019\Fig1-2_AshPondLoc.mxd

Appendix A: Select Engineering Drawings



WATER SURFACE ELEVATIONS

LOCATION	DESCRIPTION	WEIR ELEVATION	WATER SURFACE ELEVATIONS		
			MIN. (10.6 MGD)	DESIGN (20 MGD)	MAX (26 MGD)
①	PYRITE POND	–	3237.68	3267.77	3267.85
②	PYRITE POND OUTLET STRUCTURE WEIR	VARIABLE	3267.62	3267.68	3267.74
③	PYRITE POND OUTLET STRUCTURE		3267.12	3267.18	3267.24
④	POND A/B DISTRIBUTION BOX OVERFLOW	–	3257.05	3257.25	3257.36
⑤	POND A/B DISTRIBUTION BOX	–	3254.03	3255.06	3256.38
⑥	POND A/B	–	3253.79	3254.24	3255.11
⑦	POND A/B OUTLET STRUCTURE WEIR	VARIABLE	3253.50	3253.80	3254.57
⑧	POND A/B OUTLET STRUCTURE	–	3252.37	3253.30	3254.09
⑨	JUNCTION BOX D	–	3252.32	3253.13	3253.97
⑩	JUNCTION BOX A		3252.24	3252.87	3253.78
⑪	JUNCTION BOX C	–	3252.20	3252.74	3253.69
⑫	FILTER INLET WEIR OVERFLOW	–	3252.07	3252.28	3252.81
⑬	FILTER INLET WEIR	3251.08 (FIXED)	–	–	–
⑭	FILTER BACKWASH INITIATE	FIXED	3252.54	3252.54	3252.54
⑮	FILTER OUTLET WEIR OVERFLOW	–	3250.07	3250.28	3250.20
⑯	FILTER OUTLET WEIR	3249.68 (FIXED)	–	–	–
⑰	FILTER OUTLET BOX	–	3248.41	3248.69	3248.95
⑱	JUNCTION BOX B	–	3248.33	3248.40	3248.54
⑲	MT STORM LAKE	MAX WSE	3248.30	3248.30	3248.30

NOTES:

1. ELEVATIONS OF EXISTING LIME BUILDING ARE APPROXIMATE.
2. MIN. FLOW = 10.6 MGD
   DES. FLOW = 20 MGD
   MAX. FLOW = 26 MGD

PLAN LEGEND

- PROPOSED STRUCTURES
- EXISTING STRUCTURES
- FUTURE STRUCTURES

STEPHEN J. MOBLEY REGISTERED 21631 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

6/16/2016

REV	DATE	DSGN	DRWN	CHKD	DSGN SUPV	PROJ ENGR	CIVIL ENGR	ELEC ENGR	MECH ENGR	ARCH	E.M. ENGR	I&C ENGR	DESCRIPTION
1	6 16 2016	SJM	DRM	HCB		NA	RKN	CBS	SM	CA			RE-ISSUED FOR BID
0	04 29 2016	SJM	DRM	HCB		NA	RKN	CS	HCB	CA			ISSUE FOR BID

Dominion

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POWER GENERATION ENGINEERING
RICHMOND, VIRGINIA

PROPOSED HYDRAULIC PROFILE

LVWSP CLOSURE & RECONSTRUCTION – PHASE 1
MOUNT STORM POWER STATION, WEST VIRGINIA

DSGN	SMOBLEY	DSGN SUPV	DATE JUNE 2016 DGNSPEC FOR FILE VERIFICATION
DRWN	AREYES	ENGR SUPV	DRAWING NO. 66703-C3 REV. 1
CHKD	CBELL	PROJ ENGR	
DISPL ENGR		SCALE: NONE	UNLESS OTHERWISE NOTED SH C3 OF 23

PYRITE POND CONCRETE CONSTRUCTION					
I.D. No.	DESIGN LOCATION		TOP OF LINER	TOP OF CONCRETE	CONCRETE THICKNESS
	NORTH	EAST	ACTUAL (ft)	ACTUAL (ft)	ACTUAL (ft)
6422	254629.40	2035355.76	3263.10	3264.40	1.30
6423	254631.83	2035349.72	3263.10	3264.40	1.30
6424	254624.54	2035300.39	3263.60	3264.40	0.83
6427	254615.65	2035228.07	3264.30	3265.10	0.83
6428	25615.39	2035200.24	3264.60	3265.30	0.83
6431	254614.26	2035100.19	3265.60	3266.40	0.83
6433	254613.21	2035000.54	3266.50	3267.30	0.83
6434	254611.96	2034897.33	3267.60	3268.60	1.00
6437	254560.62	2034896.59	a	3268.50	*
6438	254566.59	2034999.14	3266.50	3267.30	0.83
6441	254577.78	2035099.43	a	3266.30	*
6442	254590.05	2035199.33	3264.60	3265.40	0.83
6445	254602.19	2035299.36	3263.60	3264.40	0.83
6446	254608.16	2035355.75	3263.20	3264.40	1.20

NOTES:

a - Data not colleced by the contractor.

* - Unable to calculate.

NOTES

1. REFER TO PLAN SHEET 66703-2 AND C1 OF THIS PLAN SET FOR GENERAL NOTES AND CIVIL STANDARD LEGEND.
2. FULL TONE CONTOURS WEST OF POND ARE BASED ON DESIGN GRADES.
3. STORAGE VOLUMES LISTED ARE DESIGN GRADES.
4. REFER TO SUBMITTAL 16A (MINIFAB DRAWING 116360-C1) FOR CONCRETE WALL REBAR.
5. REFER TO SUBMITTAL 23A, 28, AND 46B FOR BASED CONCRETE AND JOINTING MATERIALS.

STAGE VS STORAGE MATRIX		
ELEVATION	PYRITE POND CAPACITY (GAL)	PYRITE POND CAPACITY (AC FT)
3,265	2,300	0.0
3,266	29,200	0.1
3,267	89,200	0.3
3,268	195,100	0.6
3,269	360,200	1.1
3,270	577,200	1.8

Dominion

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POWER GENERATION ENGINEERING
RICHMOND, VIRGINIA

PYRITE POND BASE AND PIPING PLAN

LVWSP CLOSURE AND RECONSTRUCTION AS-BUILT
MOUNT STORM POWER STATION, WEST VIRGINIA

REV	DESCRIPTION	DATE	DSGN	DRWN	CHKD	DSGN SUPV	PROJ ENGR	CIVIL ENGR	ELEC ENGR	MECH ENGR	ARCH	E.M. ENGR	I&C ENGR
3	AS-BUILT UPDATES	05 15 2020	DM	TAF	JNH		NA	RKN	CS	DS			
2	AS-BUILT	10 29 2019	DM	TAF	JNH		NA	RKN	CS	DS			
1	RE-ISSUED FOR BID	6 16 2016	DM	LLS	JNH		NA	RKN	CBS	SM			
0	ISSUED FOR BID	4 29 2016	DM	LLS	JNH		NA	RKN	CBS	CB			

DSGN D.MARSHALL | DSGN SUPV
DRWN L. STORMER | ENGR SUPV
CHKD | PROJ ENGR
DISPL ENGR RKN | SCALE: AS NOTED

DATE JUNE 2016
DGNSPEC FOR FILE VERIFICATION
DRAWING NO. 66703-C6
REV. 2
UNLESS OTHERWISE NOTED
SH C6 OF --

EXISTING PIPES

OUTLET STRUCTURE

EXISTING
PYRITE POND

TOP OF BERM

POND A

EXISTING 6" DIA. PVC
PIPE (FROM LANDFILL
LEACHATE PONDS)

OUTLET STRUCTURE
AREAS

TOP OF BERM

SUBBASE
FOR RAMP
EL = 3259.0

CONCRETE ACCESS
RAMP/PAD
SEE SHEET C48

CULVERT

POND B

FILTER
BUILDING

TOP OF BERM

DUCT BANK

CONSTRUCTION
DEWATERING
SECANT WALL

EXISTING 8" DIA. STEEL
PIPE (FROM STORM POND)

STORM POND

LIME
BUILDING
F.F. EL.
3262.7'

LIME
MIX

LIME
STOCKPILE

BUILDING
F.F. EL.
3258.3'

NOTES

1. REFER TO PLAN SHEET 66703-7 AND C24 OF THIS PLAN SET FOR GENERAL NOTES AND CIVIL STANDARD LEGEND.
2. REFER TO PLAN SHEET 66703-C39 FOR PROPOSED YARD PIPING PLAN.
3. THIS SHEET REPRESENTS THE DESIGN SUBGRADE PLAN FOR PONDS A AND B AND DID NOT CHANGE AS A RESULT OF AS-BUILT DRAWINGS.
4. POND CAPACITY TABLES PRESENT VOLUMES BASED ON RECORD SURVEY BY TRIAD ENGINEERING.
5. REFER TO GEOSYNTHETICS INSTALLATION DOCUMENTATION REPORT FOR GEOMEMBRANE INSTALLATION INFORMATION.

STAGE VS STORAGE MATRIX

ELEVATION	Pond A Capacity (CY)	Pond A Capacity (CF)	POND A CAPACITY (GAL)	POND A CAPACITY (AC FT)
3,249	1,258	33,965	254,100	0.8
3,250	2,946	79,532	594,900	1.8
3,251	4,861	131,240	981,700	3.0
3,252	6,908	186,519	1,395,200	4.3
3,253	9,088	245,385	1,835,500	5.6
3,254	11,404	307,899	2,303,100	7.1
3,255	13,856	374,122	2,798,400	8.6
3,256	16,449	444,119	3,322,000	10.2
3,257	19,183	517,931	3,874,100	11.9
3,258	22,060	595,610	4,455,200	13.7
3,259	25,083	677,244	5,065,800	15.5
3,260	28,256	762,917	5,706,600	17.5

STAGE VS STORAGE MATRIX

ELEVATION	POND B Capacity (CY)	Pond B Capacity (CF)	POND B CAPACITY (GAL)	POND B CAPACITY (AC FT)
3,247	611	16,507	123,500	0.4
3,248	1,806	48,765	364,800	1.1
3,249	3,347	90,356	675,900	2.1
3,250	5,105	137,848	1,031,100	3.2
3,251	7,037	190,004	1,421,200	4.4
3,252	9,104	245,807	1,838,600	5.6
3,253	11,308	305,318	2,283,800	7.0
3,254	13,653	368,634	2,757,400	8.5
3,255	16,141	435,815	3,259,900	10.0
3,256	18,775	506,914	3,791,700	11.6
3,257	21,555	581,984	4,353,200	13.4
3,258	24,485	661,095	4,945,000	15.2
3,259	27,568	744,327	5,567,600	17.1
3,260	30,806	831,758	6,221,600	19.1

R. KENT NILSSON
REGISTERED
5/15/20
21543
STATE OF
WEST VIRGINIA
PROFESSIONAL ENGINEER

0 50 100 150 200
SCALE IN FEET

REV	DATE	DESCRIPTION
2	05 15 2020	AS-BUILT UPDATES
1	10 29 2018	AS-BUILT
0	02 24 2017	ISSUED FOR BID

Dominion

TRC

POWER GENERATION ENGINEERING
RICHMOND, VIRGINIA

OVERVIEW – PYRITE POND, PONDS A AND B SUBGRADE PLAN
LVWSP CLOSURE AND RECONSTRUCTION AS-BUILT
MOUNT STORM POWER STATION, WEST VIRGINIA

DSGN D.MARSHALL	DSGN SUPV	DATE JUNE 2016 DGNSPEC FOR FILE VERIFICATION	
DRWN L. STORMER	ENGR SUPV	DRAWING NO. 66703-C30	REV. 1
CHKD	PROJ ENGR		
DISPL ENGR RKN	SCALE: AS NOTED	UNLESS OTHERWISE NOTED	SH C30 OF --

DRAWING NAME: J:\Dominion Resources\66703\Sheets\66703-C30.dwg - PLOT DATE: June 02, 2020 - 7:18PM - JAYOUT

Appendix B: Flood Insurance Rate Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Universal Transverse Mercator (UTM) Zone 17. **Horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov/ or contact the National Geodetic Survey at the following address:

Spatial Reference System Division
National Geodetic Survey, NOAA
Silver Spring Metro Center
1315 East-West Highway
Silver Spring, Maryland 20910
(301) 713-3191

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov/.

BASE MAP SOURCE: Digital data were obtained from the U.S. Census Bureau, the West Virginia Statewide Addressing and Mapping Board (WV SAMB), the WV Dept. of Environmental Protection (WV DEP), the U.S. Forest Service (USFS), and Michael Baker Jr., Inc.(Baker). Corporation boundaries and road names were obtained from Census Tiger/Line 2000 data sets. The 1:4800 scale 2003 orthophoto base map imagery was obtained from the WV SAMB, as was the orthophoto based hydrographic vector data. County boundaries were digitized by the WV DEP from the U.S. Geological Survey 1:24000 scale topographic map Digital Raster Graphics. National Forest Boundary data were created by the Monongahela National Forest Geographic Information Systems Program, (USFS) Levee data were created by Baker for The Federal Emergency Management Agency.

Based on the above mentioned digital orthophotographs, this map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables (where applicable) for South Branch Potomac River in the Flood Insurance Study report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and /or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov/.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov/business/nfip.

LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual chance flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAS)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	1% annual chance floodplain boundary
	0.2% annual chance floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL. 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

A — A	Cross section line
23 — 23	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83)
4276000 M	1000-meter Universal Transverse Mercator grid values, zone 17
600000 FT	5000-foot grid ticks: West Virginia State Plane coordinate system (FIPSZONE 4701), Lambert Conformal Conic projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
● M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE
FLOOD INSURANCE RATE MAP
SEPTEMBER 2, 2009

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0135F

FIRM
FLOOD INSURANCE RATE MAP

GRANT COUNTY, WEST VIRGINIA AND INCORPORATED AREAS

PANEL 135 OF 425

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GRANT COUNTY	540038	0135	F

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
54023C0135F

EFFECTIVE DATE
SEPTEMBER 2, 2009

Federal Emergency Management Agency

Appendix C: Storm Water Calculations

PROJECT / LOCATION: Mount Storm Power Station - Mount Storm, West Virginia - LVWSP		PROJECT / PROPOSAL NO.
SUBJECT: Storm Water Capacity Pond A and Pond B		452433.0000
PREPARED BY: S. Sellner; Revised by: K. Thelen - 9/19/21	DATE: 8/18/2016	FINAL ☐
CHECKED BY: J. Hotstream	DATE: 8/18/16; 9/20/21	REVISION ☐

Purpose: Determine if there is sufficient capacity to contain the runoff volume collected in the LVWSP from the 100-year, 24-hour storm event for the reconstructed LVWSP (Pond A and Pond B)

Methodology: Calculate inflow for the 100-year, 24-hour storm event. Determine the available capacity for the volume of storm water by estimating additional flow that can be provided from the outlet and available freeboard capacity of the reconstructed Ponds A and B.

INFLOWS

1.) Determine storm water inflows into the retrofitted Pyrite Pond

- Site storm water flows into Pyrite Pond (Refer to Attached Figure).
- The drainage area is approximately 75.4 acres.

- Volume of runoff determined by HydroCAD output (See Attached). This output was performed based upon values determined in the storm water analysis

V_{Runoff} = Volume of Runoff (acre feet)

V_{Runoff} = 32.3 acre feet

2.) Determine storm water inflow into Pond A and Pond B

- Effective area of storm water based upon midpoint of outside berms from CAD drawing. Runoff coefficient assumed to be 1.0 as the entire area flows inward and there is no infiltration

$V = iA$

V = Storm Water Inflow to Pyrite Pond
i = Precipitation Frequency (inches/day) 100 year, 24 hour storm event
A = Area (acre)

i = 6.41 inches/day
A = 5.8 acres

$V_{Pond\ Inflow}$ = 37.18 acre inches
$V_{Pond\ Inflow}$ = 3.10 acre feet

V_{Inflow} = Volume of Total Inflows
$V_{Inflow} = V_{Runoff} + V_{Pond\ Inflow}$

V_{Inflow} = 35.4 acre feet

Note:
Areas and volumes are from the Civil 3D pond model, refer to attached sheets
Design storm data from NOAA, refer to attached sheets

PROJECT / LOCATION: Mount Storm Power Station - Mount Storm, West Virginia - LVWSP		PROJECT / PROPOSAL NO.
SUBJECT: Storm Water Capacity of Reconstructed Pond A and Pond B		452433.0000
PREPARED BY: S. Sellner; Revised by: K. Thelen - 9/19/21	DATE: 8/18/2016	FINAL ☐
CHECKED BY: J. Hotstream	DATE: 8/18/16; 9/20/21	REVISION ☐

OUTFLOWS

3.) Determine volume out of the LVWSP outlet - Volume of flow based on the difference between the max flow and normal operating flow. This difference provides the additional outflow capacity from the LVWSP that is available during a storm event. The normal operational flow is based on instantaneous readings and assumed to equal the average + 2 standard deviations

- Volumes based upon design maximum outflow, see attachments
- Maximum design outflow rate is 26 million gallons per day (MGD)

$Q_{Outflow}$ = Available Outflow Rate (MGD)
Q_{design} = Design Flow Rate
Q_{Max} = Maximum Outflow Rate (MGD)
Q_{design} = 20 MGD
Q_{Max} = 26 MGD

$Q_{Outflow}$ = 6 MGD

-Convert available flow rate to available volume for Outflows (Assuming flow for 1 day)

$V_{Outflow}$ = $Q_{Outflow}$ * Days of Flow

-Convert million gallons per day (MGD) to Acre-Feet

$V_{Outflow}$ = Available Outflow Volume
$Q_{Outflow}$ = Available Outflow Rate

$V_{Outflow}$ = 18.4 acre feet/day

AVAILABLE FREEBOARD

4.) Determine volume of available freeboard in the reconstructed LVWSP (Pond A and B)

- Pond Elevations and Volumes determined by Civil 3D, see attachments
- Top of operating water level based on design maximum levels.

Pond Elevations (feet NAVD88)

	Pond A	Pond B
Top of Berm Elevation	3,260	3,260
Top of Water Elevation	3,255	3,255

PROJECT / LOCATION: Mount Storm Power Station - Mount Storm, West Virginia - LVWSP		PROJECT / PROPOSAL NO.
SUBJECT: Storm Water Capacity of Reconstructed Pond A and Pond B		452433.0000
PREPARED BY: S. Sellner; Revised by: K. Thelen - 9/19/21	DATE: 8/18/2016	FINAL ☐
CHECKED BY: J. Hotstream	DATE: 8/18/16; 9/20/21	REVISION ☐

Pond Capacities

	Pond A	Pond B
Top of Berm (cubic yards)	28,256	30,806
Top of Water (cubic yards)	13,856	16,141

Freeboard Volumes (S_{FB}) = Top of Berm Volume (cy) - Top of Water Volume (cy)

S_{FB-A} = 14,400 cy

S_{FB-B} = 14,665 cy

Total Storage of Existing Freeboard = $S_{FB-A} + S_{FB-B} + S_{FB-C} + S_{FB-D}$

S_{FB} = 29,065 cy

S_{FB} = 18 acre feet

5.) Compare the calculated inflow volumes vs. the outflow volumes considering the volume from the Freeboard Capacity

-Determine the Freeboard Volume Capacity compare to the flow difference

$V_{Inflow} < V_{outflow} + S_{FB}$

V_{Inflow} = 35.4 acre feet

$V_{outflow} + S_{FB}$ = 36.4 acre feet

35.4 < 36.4 OK

Conclusion: Based upon the inflow, outflow, and freeboard capacity of the reconstructed LVWSP, the system has sufficient capacity to accommodate the runoff associated with a 100-year, 24-hour storm event.
Note that the time of concentrations was assumed to be equal to 0 so stormwater reaches the LVWSP immediately, and no upstream storage is assumed for areas upstream of the Pyrite Pond, e.g. coal yard pond, so this is a conservative estimate on the outflow and storage.

NOAA Atlas 14, Volume 2, Version 3
Location name: Mount Storm, West Virginia, USA*
Latitude: 39.198°, Longitude: -79.2645°
Elevation: 3257.74 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.301** (0.268-0.339)	**0.353** (0.314-0.399)	**0.423** (0.375-0.476)	**0.485** (0.430-0.545)	**0.565** (0.498-0.633)	**0.634** (0.555-0.708)	**0.700** (0.609-0.779)	**0.774** (0.669-0.862)	**0.878** (0.752-0.976)	**0.966** (0.820-1.08)
10-min	**0.470** (0.418-0.529)	**0.553** (0.492-0.625)	**0.659** (0.585-0.743)	**0.750** (0.664-0.843)	**0.866** (0.762-0.969)	**0.963** (0.843-1.07)	**1.06** (0.922-1.18)	**1.16** (1.00-1.29)	**1.30** (1.11-1.44)	**1.41** (1.20-1.57)
15-min	**0.577** (0.513-0.649)	**0.678** (0.602-0.765)	**0.811** (0.720-0.913)	**0.926** (0.820-1.04)	**1.07** (0.945-1.20)	**1.19** (1.05-1.33)	**1.32** (1.15-1.47)	**1.45** (1.25-1.61)	**1.62** (1.39-1.80)	**1.77** (1.50-1.97)
30-min	**0.766** (0.681-0.862)	**0.909** (0.807-1.03)	**1.11** (0.989-1.25)	**1.29** (1.14-1.45)	**1.52** (1.34-1.70)	**1.72** (1.50-1.91)	**1.91** (1.67-2.13)	**2.12** (1.84-2.36)	**2.42** (2.07-2.69)	**2.67** (2.26-2.97)
60-min	**0.936** (0.832-1.05)	**1.12** (0.993-1.26)	**1.40** (1.24-1.58)	**1.65** (1.46-1.85)	**1.98** (1.74-2.21)	**2.27** (1.98-2.53)	**2.56** (2.23-2.86)	**2.89** (2.50-3.22)	**3.35** (2.87-3.73)	**3.76** (3.19-4.19)
2-hr	**1.11** (0.984-1.25)	**1.32** (1.18-1.49)	**1.66** (1.47-1.87)	**1.97** (1.75-2.21)	**2.40** (2.12-2.68)	**2.79** (2.44-3.11)	**3.20** (2.78-3.56)	**3.65** (3.15-4.05)	**4.32** (3.69-4.78)	**4.92** (4.15-5.44)
3-hr	**1.20** (1.07-1.36)	**1.43** (1.27-1.62)	**1.78** (1.58-2.01)	**2.11** (1.87-2.38)	**2.57** (2.26-2.88)	**2.98** (2.61-3.34)	**3.42** (2.97-3.82)	**3.92** (3.38-4.37)	**4.64** (3.96-5.16)	**5.31** (4.47-5.89)
6-hr	**1.49** (1.32-1.71)	**1.77** (1.56-2.03)	**2.18** (1.92-2.49)	**2.57** (2.26-2.93)	**3.11** (2.71-3.54)	**3.60** (3.13-4.08)	**4.13** (3.56-4.67)	**4.72** (4.03-5.33)	**5.58** (4.72-6.28)	**6.37** (5.32-7.17)
12-hr	**1.85** (1.64-2.13)	**2.19** (1.95-2.51)	**2.69** (2.38-3.08)	**3.16** (2.79-3.61)	**3.84** (3.37-4.37)	**4.46** (3.88-5.06)	**5.13** (4.43-5.82)	**5.89** (5.03-6.66)	**7.03** (5.91-7.92)	**8.07** (6.71-9.08)
24-hr	**2.22** (2.02-2.45)	**2.65** (2.42-2.93)	**3.31** (3.01-3.66)	**3.88** (3.51-4.29)	**4.76** (4.26-5.26)	**5.54** (4.89-6.14)	**6.41** (5.57-7.15)	**7.40** (6.31-8.30)	**8.93** (7.40-10.1)	**10.3** (8.32-11.7)
2-day	**2.62** (2.40-2.88)	**3.13** (2.87-3.44)	**3.87** (3.53-4.26)	**4.51** (4.10-4.98)	**5.48** (4.92-6.07)	**6.32** (5.61-7.04)	**7.26** (6.34-8.15)	**8.31** (7.12-9.41)	**9.90** (8.26-11.4)	**11.3** (9.21-13.1)
3-day	**2.84** (2.63-3.10)	**3.39** (3.13-3.69)	**4.15** (3.82-4.52)	**4.79** (4.40-5.23)	**5.74** (5.20-6.28)	**6.54** (5.86-7.20)	**7.41** (6.55-8.23)	**8.37** (7.28-9.45)	**9.95** (8.36-11.4)	**11.3** (9.26-13.2)
4-day	**3.07** (2.86-3.31)	**3.65** (3.40-3.93)	**4.42** (4.11-4.77)	**5.07** (4.69-5.47)	**5.99** (5.49-6.49)	**6.75** (6.12-7.36)	**7.56** (6.77-8.32)	**8.42** (7.43-9.50)	**10.00** (8.46-11.5)	**11.4** (9.32-13.3)
7-day	**3.55** (3.31-3.82)	**4.21** (3.93-4.53)	**5.03** (4.68-5.42)	**5.71** (5.29-6.15)	**6.64** (6.10-7.18)	**7.39** (6.73-8.04)	**8.16** (7.36-8.93)	**8.96** (7.97-9.90)	**10.1** (8.78-11.6)	**11.5** (9.50-13.4)
10-day	**4.09** (3.84-4.36)	**4.82** (4.53-5.14)	**5.67** (5.32-6.06)	**6.34** (5.93-6.78)	**7.24** (6.72-7.77)	**7.94** (7.32-8.57)	**8.64** (7.90-9.38)	**9.34** (8.46-10.2)	**10.3** (9.19-11.7)	**11.6** (9.84-13.5)
20-day	**5.76** (5.46-6.10)	**6.73** (6.38-7.13)	**7.74** (7.32-8.21)	**8.56** (8.07-9.09)	**9.65** (9.04-10.3)	**10.5** (9.75-11.2)	**11.3** (10.4-12.2)	**12.2** (11.1-13.2)	**13.2** (11.9-14.5)	**14.0** (12.5-15.6)
30-day	**7.28** (6.92-7.67)	**8.48** (8.07-8.94)	**9.61** (9.13-10.1)	**10.5** (9.97-11.1)	**11.7** (11.0-12.3)	**12.5** (11.8-13.3)	**13.4** (12.5-14.3)	**14.2** (13.2-15.2)	**15.2** (14.0-16.4)	**16.0** (14.5-17.4)
45-day	**9.33** (8.91-9.78)	**10.8** (10.4-11.4)	**12.1** (11.6-12.7)	**13.2** (12.5-13.8)	**14.5** (13.7-15.2)	**15.4** (14.5-16.3)	**16.3** (15.3-17.3)	**17.1** (16.0-18.3)	**18.2** (16.8-19.6)	**18.9** (17.4-20.5)
60-day	**11.3** (10.8-11.8)	**13.1** (12.5-13.7)	**14.5** (13.9-15.2)	**15.7** (15.0-16.5)	**17.1** (16.3-18.0)	**18.2** (17.2-19.2)	**19.2** (18.1-20.4)	**20.1** (18.8-21.5)	**21.2** (19.7-22.8)	**22.0** (20.3-23.8)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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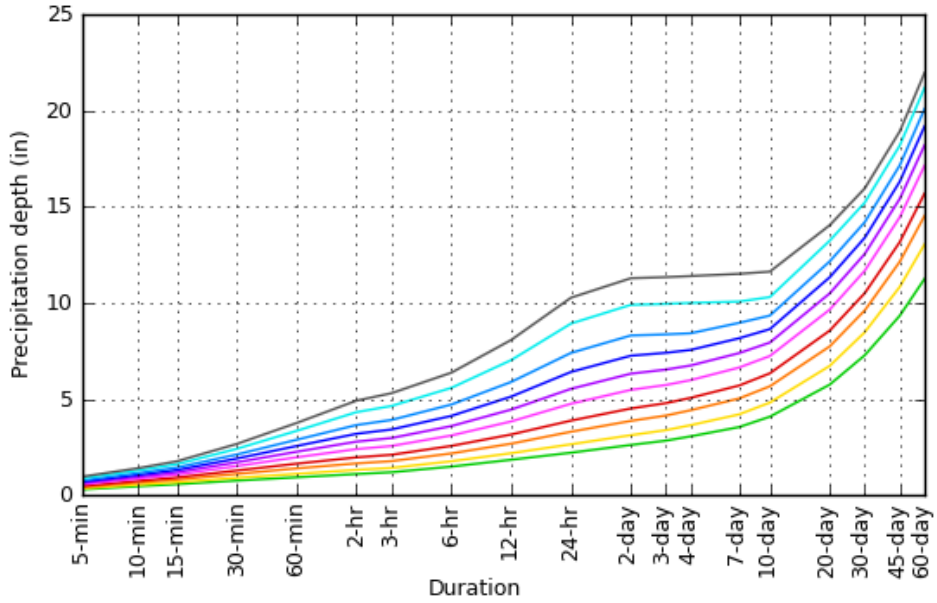
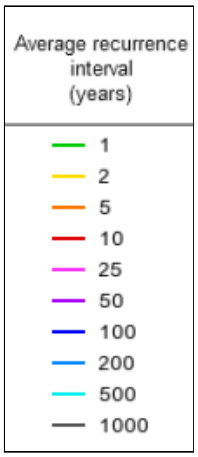
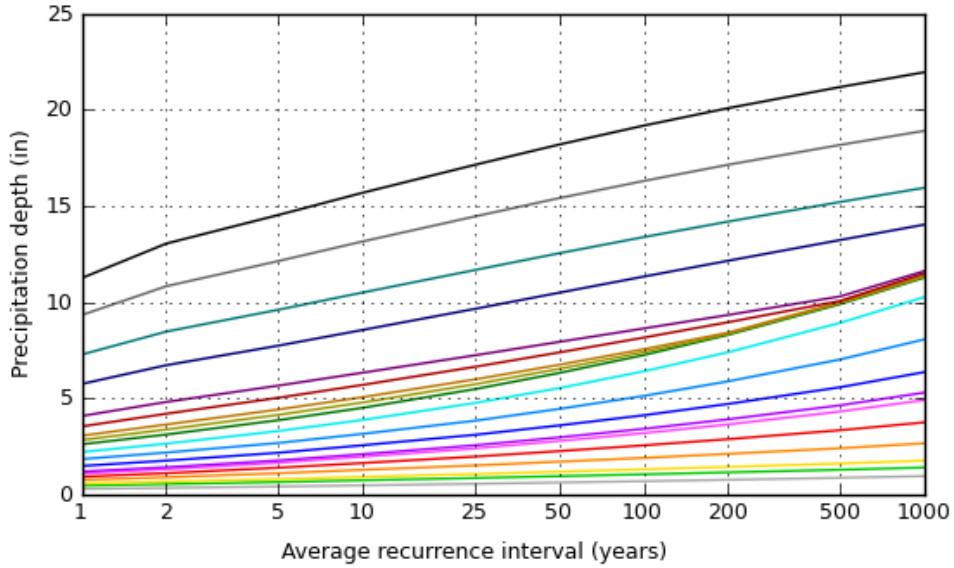
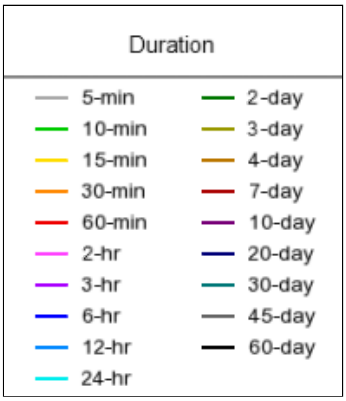
PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: 39.1980°, Longitude: -79.2645°









NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Mon Sep 20 18:45:46 2021

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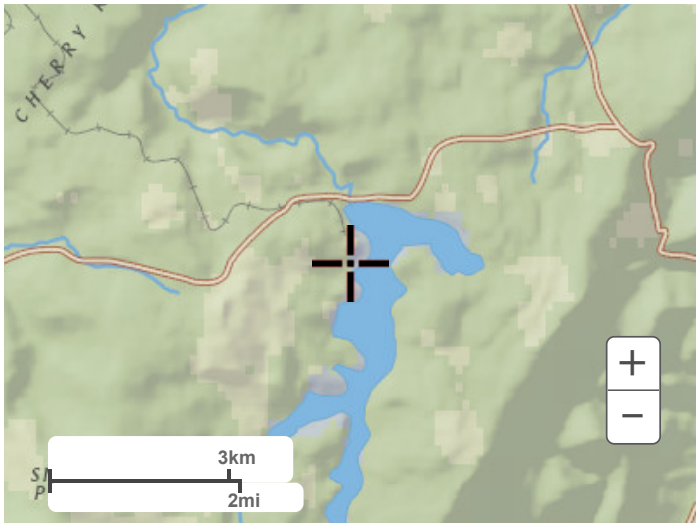
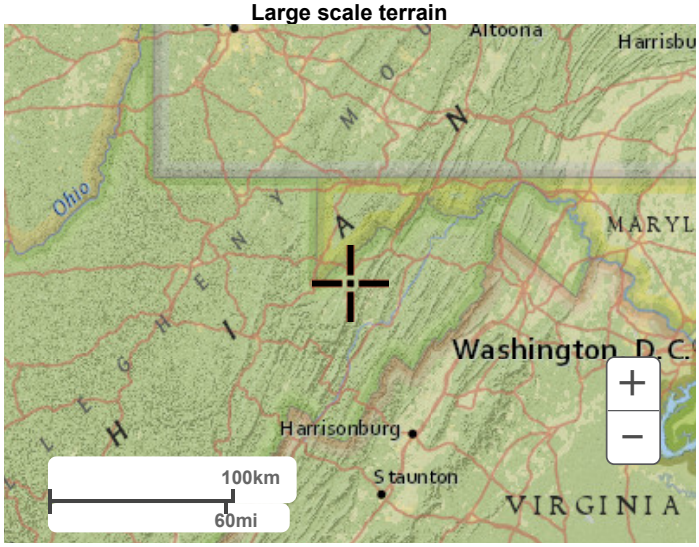
Maps & aerials

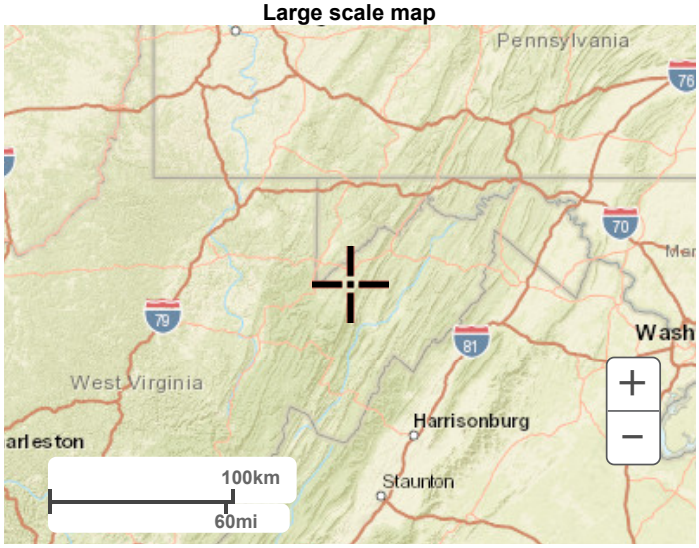
Small scale terrain



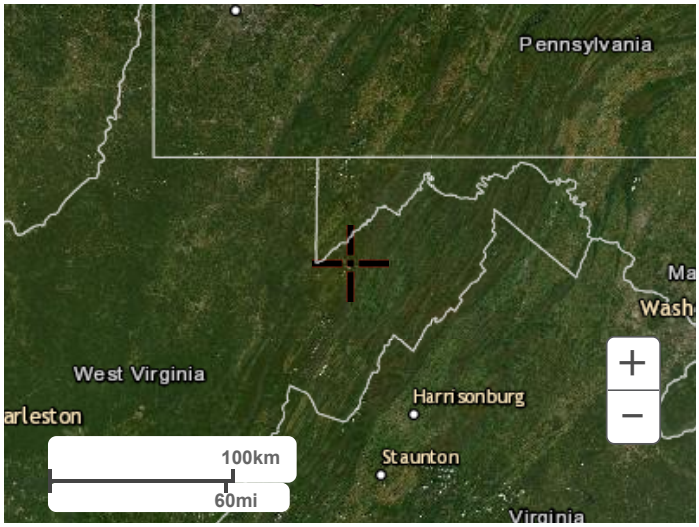
Large scale terrain



Large scale map



Large scale aerial



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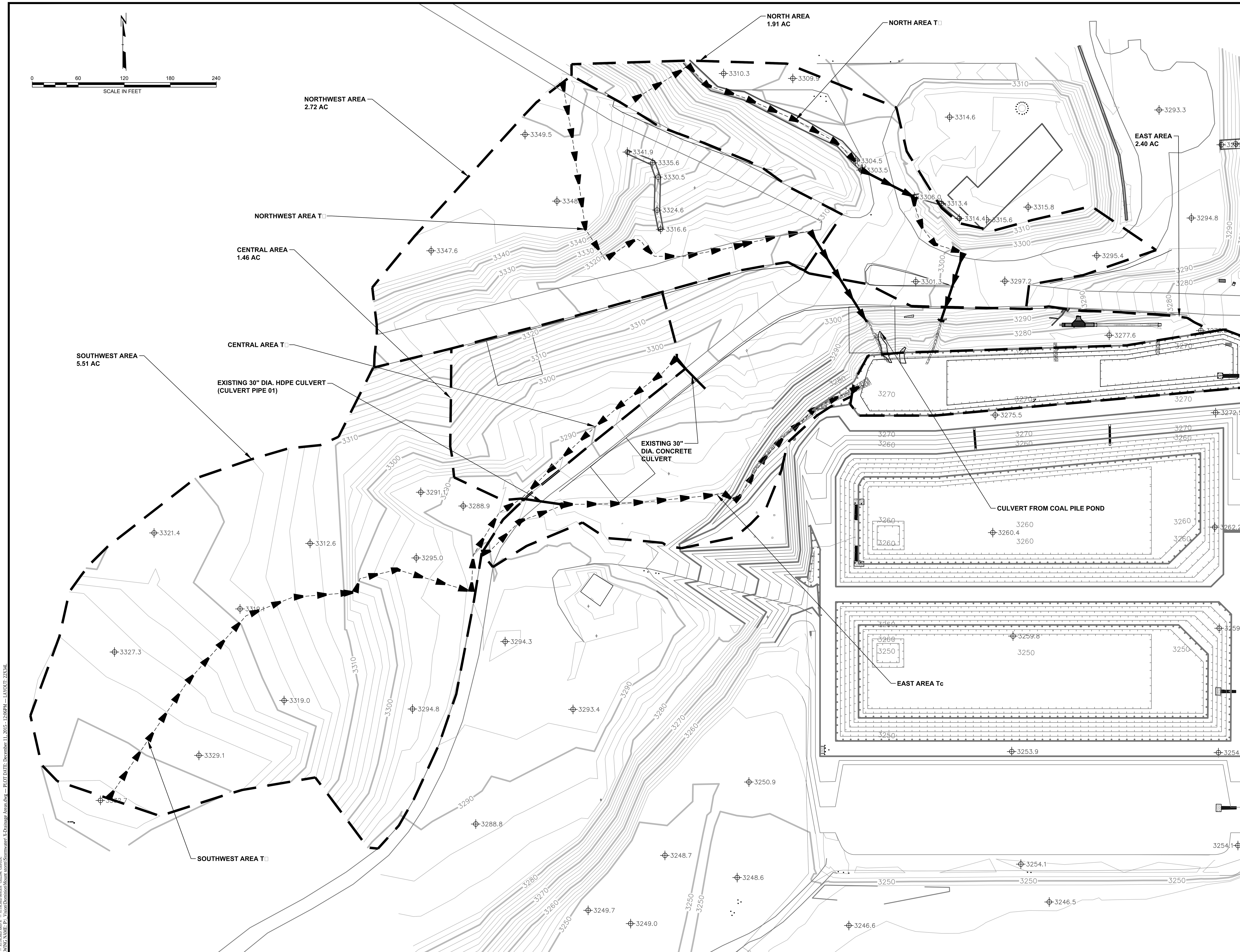
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer



PROJECT: DOMINION POWER
MT. STORM POWER STATION
MT. STORM, WV
CIVIL DESIGN

TITLE: STORM WATER RUNOFF INFLOWING TO PYRITE POND

DRAWN BY:	E. OLSON	PROJ. NO.:	230765
CHECKED BY:	D. ENGSTROM	FIGURE 01	
APPROVED BY:	J. HOTSTREAM		
DATE:	12/10/2015		

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FILE NO.: X-Dr□in□ge Are□s.d□g

Summary for Subcatchment 1S: Drainage Area to Ponds

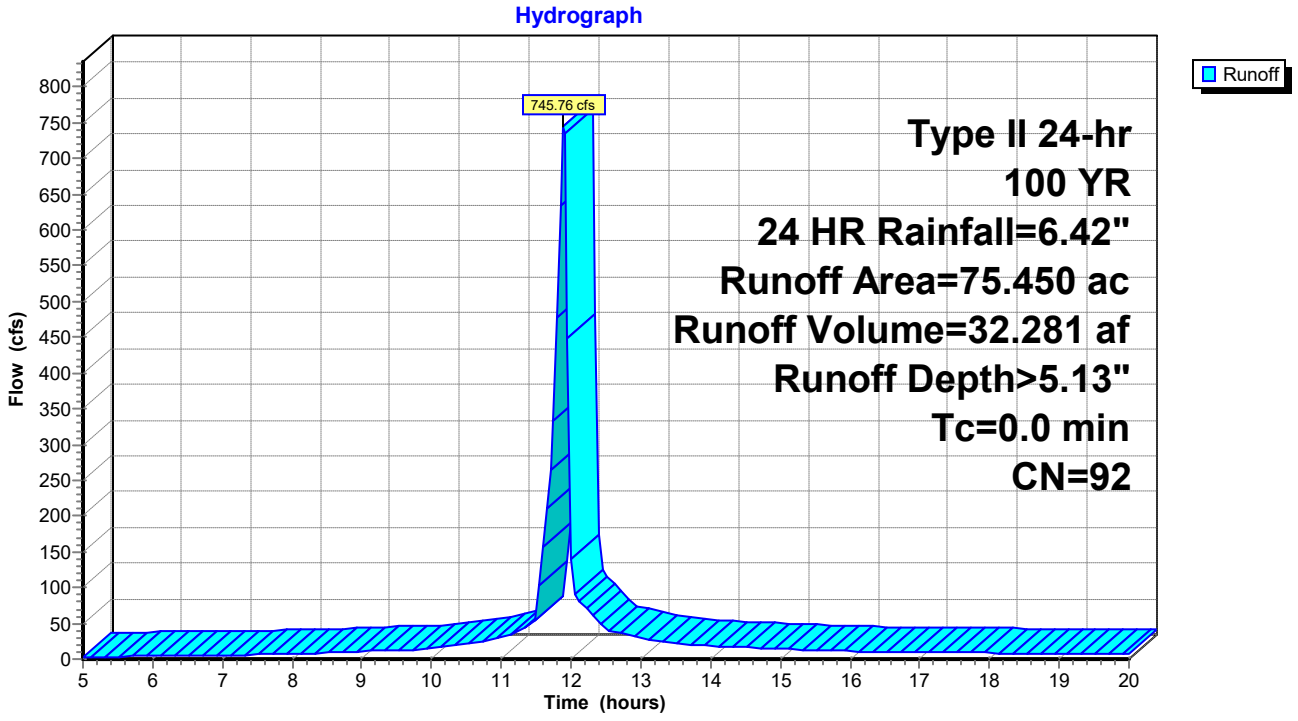
[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 745.76 cfs @ 11.89 hrs, Volume= 32.281 af, Depth> 5.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type II 24-hr 100 YR, 24 HR Rainfall=6.42"

	Area (ac)	CN	Description
*	75.450	92	Weighted Average
	75.450		100.00% Pervious Area

Subcatchment 1S: Drainage Area to Ponds



EXISTING PIPES

OUTLET STRUCTURE

EXISTING
PYRITE POND

TOP OF BERM

POND A

0.5%

EXISTING 6" DIA. PVC
PIPE (FROM LANDFILL
LEACHATE PONDS)

OUTLET STRUCTURE
AREAS

TOP OF BERM

SUBBASE
FOR RAMP
EL = 3259.0

CONCRETE ACCESS
RAMP/PAD
SEE SHEET C48

FOOTPRINT OF PONDS
A AND B = 5.8 ACRES

CULVERT

POND B

0.5%

FILTER
BUILDING

TOP OF BERM

DUCT BANK

CONSTRUCTION
DEWATERING
SECANT WALL

EXISTING 8" DIA. STEEL
PIPE (FROM STORM POND)

STORM POND

OW-3 (ABANDONED)
OW-4A
OW-4
OW-5
OW-6A
OW-6B
OW-7A
OW-7B
OW-8A
OW-8B
OW-9A
OW-9B
OW-10
OW-11
OW-12
OW-13

LIME
BUILDING
F.F. EL
3262.7

LIME
MIX

LIME
STOCKPILE

BUILDING
F.F. EL
3265.3

BUILDING

ASPHALT
GRASS
GRAVEL

NOTES

1. REFER TO PLAN SHEET 66703-7 AND C24 OF THIS PLAN SET FOR GENERAL NOTES AND CIVIL STANDARD LEGEND.
2. REFER TO PLAN SHEET 66703-C39 FOR PROPOSED YARD PIPING PLAN.
3. THIS SHEET REPRESENTS THE DESIGN SUBGRADE PLAN FOR PONDS A AND B AND DID NOT CHANGE AS A RESULT OF AS-BUILT DRAWINGS.
4. POND CAPACITY TABLES PRESENT VOLUMES BASED ON RECORD SURVEY BY TRIAD ENGINEERING.
5. REFER TO GEOSYNTHETICS INSTALLATION DOCUMENTATION REPORT FOR GEOMEMBRANE INSTALLATION INFORMATION.

STAGE VS STORAGE MATRIX

ELEVATION	Pond A Capacity (CY)	Pond A Capacity (CF)	POND A CAPACITY (GAL)	POND A CAPACITY (AC FT)
3,249	1,258	33,965	254,100	0.8
3,250	2,946	79,532	594,900	1.8
3,251	4,861	131,240	981,700	3.0
3,252	6,908	186,519	1,395,200	4.3
3,253	9,088	245,385	1,835,500	5.6
3,254	11,404	307,869	2,302,700	7.1
3,255	13,856	374,122	2,798,400	8.6
3,256	16,449	444,119	3,322,000	10.2
3,257	19,183	517,931	3,874,100	11.9
3,258	22,060	595,610	4,455,200	13.7
3,259	25,083	677,244	5,065,800	15.5
3,260	28,256	762,917	5,706,600	17.5

STAGE VS STORAGE MATRIX

ELEVATION	POND B Capacity (CY)	Pond B Capacity (CF)	POND B CAPACITY (GAL)	POND B CAPACITY (AC FT)
3,247	611	16,507	123,500	0.4
3,248	1,806	48,765	364,800	1.1
3,249	3,347	90,356	675,900	2.1
3,250	5,105	137,848	1,031,100	3.2
3,251	7,037	190,004	1,421,200	4.4
3,252	9,104	245,807	1,838,600	5.6
3,253	11,308	305,318	2,283,800	7.0
3,254	13,653	368,634	2,757,400	8.5
3,255	16,141	435,815	3,259,900	10.0
3,256	18,775	506,914	3,791,700	11.6
3,257	21,555	581,984	4,353,200	13.4
3,258	24,485	661,095	4,945,000	15.2
3,259	27,568	744,327	5,567,600	17.1
3,260	30,806	831,758	6,221,600	19.1

0 50 100 150 200
SCALE IN FEET

REV	DATE	DSGN	DRWN	CHKD	DSGN SUPV	PROJ ENGR	CIVIL ENGR	ELEC ENGR	MECH ENGR	ARCH	E.M. ENGR	I&C ENGR	DESCRIPTION
2	05 15 2020	DM	TAF	JNH	NA	RKN	CS	DS					AS-BUILT
1	10 29 2018	DM	TAF	JNH	NA	RKN	CBS	SM	BCA				AS-BUILT
0	02 24 2017	DM	LLS	JNH	NA	RKN	CBS	SM	BCA				ISSUED FOR BID

Dominion

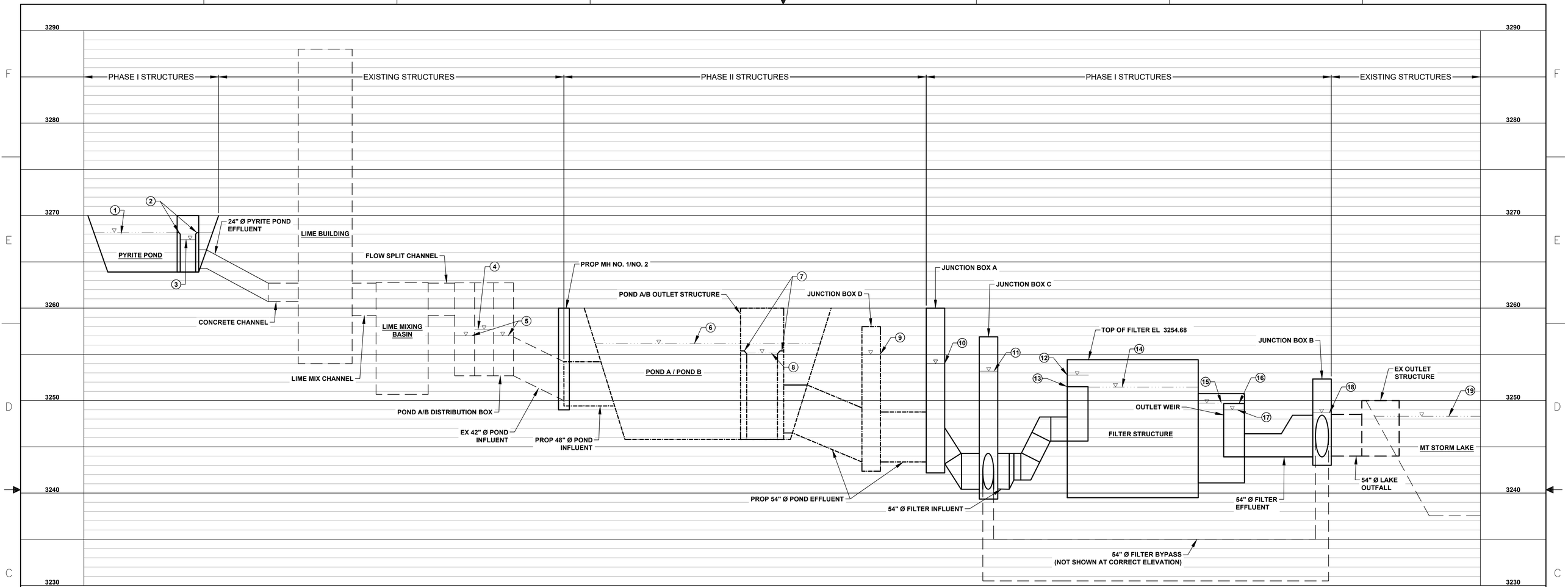
TRC

POWER GENERATION ENGINEERING
RICHMOND, VIRGINIA

OVERVIEW – PYRITE POND, PONDS A AND B SUBGRADE PLAN
LVWSP CLOSURE AND RECONSTRUCTION AS-BUILT
MOUNT STORM POWER STATION, WEST VIRGINIA

DSGN D.MARSHALL	DSGN SUPV	DATE JUNE 2016	
DRWN L. STORMER	ENGR SUPV	DGNSPEC FOR FILE VERIFICATION	
CHKD	PROJ ENGR	DRAWING NO. 66703-C30	REV. 1
DISPL ENGR RKN	SCALE: AS NOTED	UNLESS OTHERWISE NOTED	SH C30 OF --

DRAWING NAME: J:\Dominion Resources\66703\Sheets\66703-C30.dwg - PILOT DATE: May 08, 2020 - 9:49AM - LAYOUT: 66703-C30



WATER SURFACE ELEVATIONS

LOCATION	DESCRIPTION	WEIR ELEVATION	WATER SURFACE ELEVATIONS		
			MIN. (10.6 MGD)	DESIGN (20 MGD)	MAX (26 MGD)
①	PYRITE POND	–	3267.45	3267.49	3267.50
②	PYRITE POND OUTLET STRUCTURE WEIR	3267.39 (VARIABLE)	–	–	–
③	PYRITE POND OUTLET STRUCTURE	–	3266.24	3266.89	3267.36
④	POND A/B DISTRIBUTION BOX OVERFLOW	3256.67	3257.05	3257.25	3257.36
⑤	POND A/B DISTRIBUTION BOX	–	3254.89	3255.48	3256.00
⑥	POND A/B	–	3254.71	3254.86	3254.95
⑦	POND A/B OUTLET STRUCTURE WEIR	3254.42 (VARIABLE)	–	–	–
⑧	POND A/B OUTLET STRUCTURE	–	3252.21	3253.16	3253.92
⑨	JUNCTION BOX D	–	3252.19	3253.07	3253.77
⑩	JUNCTION BOX A	–	3252.14	3252.93	3253.54
⑪	JUNCTION BOX C	–	3252.13	3252.87	3253.43
⑫	FILTER EMERGENCY OVERFLOW	–	3252.01	3252.46	3252.75
⑬	FILTER INLET WEIR	3251.50 (FIXED)	–	–	–
⑭	FILTER BACKWASH INITIATE	FIXED	3251.46	3251.46	3251.46
⑮	FILTER OUTLET WEIR OVERFLOW	–	3249.57	3249.66	3249.72
⑯	FILTER OUTLET WEIR	3249.46 (FIXED)	–	–	–
⑰	FILTER OUTLET BOX	–	3248.44	3248.76	3249.05
⑱	JUNCTION BOX B	–	3248.36	3248.48	3248.59
⑲	MT STORM LAKE	MAX WSE	3248.30	3248.30	3248.30

NOTES:

1. ELEVATIONS OF EXISTING LIME BUILDING ARE APPROXIMATE.
2. MIN. FLOW = 10.6 MGD
   DES. FLOW = 20 MGD
   MAX. FLOW = 26 MGD

PLAN LEGEND

- PHASE I STRUCTURES
- PHASE II STRUCTURES
- EXISTING STRUCTURES

REV	DATE	DESCRIPTION
0	02 24 2017	ISSUED FOR BID

Dominion

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POWER GENERATION ENGINEERING
RICHMOND, VIRGINIA

PROPOSED HYDRAULIC PROFILE

LVWSP CLOSURE & RECONSTRUCTION – PHASE II
MOUNT STORM POWER STATION, WEST VIRGINIA

DSGN	SMOBLEY	DSGN SUPV	
DRWN	DMORGAN	ENGR SUPV	
CHKD	CBELL	PROJ ENGR	
		DISPL ENGR	

DATE FEBRUARY 2017
DGNSPEC FOR FILE VERIFICATION

DRAWING NO. 66703-C27 REV. 0

SCALE: NONE UNLESS OTHERWISE NOTED

SH C27 OF 31