

ATTACHMENT N

WVARNG



C&FMO

Logan-Mingo Readiness Center
WVDEP NPDES Permit

Prepared for:

West Virginia Army National Guard
Construction and Facilities Management Office
1707 Coonskin Drive
Charleston, WV 25311

Prepared by:

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February 2013



LOGAN-MINGO READINESS CENTER
CONSTRUCTION STORMWATER NPDES APPLICATION PACKAGE

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Section 1

Site Registration Application Form

REVISED: October 2009

GENERAL PERMIT REGISTRATION NO. WVR _____
(Official use only)

**SITE REGISTRATION APPLICATION FORM
WV/NPDES GENERAL PERMIT CONSTRUCTION STORMWATER
(THREE ACRES OR GREATER)**

1. PROJECT NAME Logan-Mingo Readiness Center
 2. APPLICANT'S NAME West Virginia Army National Guard
 FEDERAL EMPLOYER IDENTIFICATION NUMBER * 55-6009554

*** Required For Application Processing**

ADDRESS 1707 Coonskin Drive
Charleston, WV 25311

TELEPHONE (304) 561-6539

E-MAIL ADDRESS david.p.shafer.mil@mail.mil

3. CONTRACTOR Not available at this time (To Be Decided – TBD).
 ADDRESS TBD

TELEPHONE TBD

4. PREPARER'S NAME Capitol Engineering, Inc.
 ADDRESS 1206 Kanawha Blvd E, Suite 201
Charleston, WV 25301

TELEPHONE (304) 344-0720

E-MAIL ADDRESS rfuller@capitolengineering.com

5. ACRES DISTURBED 20
 RAINFALL ZONE 1
 APPLICATION FEE \$1,170.00

6. LATITUDE DEGREES 37° MINUTES 45' SECONDS 45"
 LONGITUDE DEGREES 82° MINUTES 06' SECONDS 43"
 TOPOGRAPHIC MAP WITH SITE LOCATED (ATTACH COPY)

7. NEAREST TOWN Logan
 COUNTY Logan and Mingo
 COUNTY ROUTE 7/10

8. RECEIVING STREAM(S) Tin Branch of Right Fork of Pine Creek
 BASIN Guyandotte
 MUNICIPAL SYSTEM OPERATOR Mingo County PSD/Logan County PSD

9. PROJECT DESCRIPTION:

Approximately 47,000 sf (+/-) Readiness Center with military equipment parking, new utility network, and stormwater management system for the project area.

10. ESTIMATED START & COMPLETION DATES FOR PROJECT

Start: 15 July 2013
 Completion: 01 July 2014 (earth disturbing activities only)

11. CUBIC YARDS OF EXCAVATION (CUT/FILL) & WASTE/BORROW SITES
 (ATTACH SOILS REPORT)

25,000 cubic yards of excavation is anticipated (balanced cut and fill)

See Section 2 Tab B for Soils Report

12. RELATIVE TIME LINE OF CONSTRUCTION ACTIVITIES

See Section 2, Tab C - Proposed Construction Schedule

NOTE: IF ANY OF THE FOLLOWING CONDITIONS APPLY, SUBMIT A NOTARIZED, SIGNED STATEMENT FOR BILLING SO THAT THE PROJECT CAN BE SENT OUT TO PUBLIC NOTICE

- GRADING PHASE OF CONSTRUCTION WILL LAST FOR 1 YEAR OR LONGER
- DISTURBANCE OF 100 ACRES OR MORE
- DISCHARGE TO OR UPSTREAM OF TIER 2.5 OR TIER 3 WATERS

SEE INSTRUCTIONS FOR DETAILS AND NOTICE PROCESS

13. NARRATIVE DESCRIPTION OF EROSION AND SEDIMENT CONTROLS

See Section 2 – Sediment Control Plan

14. SEQUENCE OF CONSTRUCTION

See Section 2, Tab D - Sequence of Construction (Phasing)

15. DETAILED SITE MAP(S) OF EROSION AND SEDIMENT CONTROLS (ATTACH)

See Section 2, Tab E

16. SITE MAP OF THE FINAL CONDITIONS SHOWING THE STORMWATER MANAGEMENT FACILITIES (ATTACH) See Section 2, Tab F

17. PRE- AND POST-DEVELOPMENT DRAINAGE AREA MAPS IDENTIFYING DISCHARGE POINTS AND SUPPORTING CALCULATIONS (ATTACH) See Section 2, Tabs G and H

PRE-DEVELOPMENT PEAK DISCHARGE RATE(S) FOR 1YR/24 HOUR STORM

3.74 CFS

POST-DEVELOPMENT PEAK DISCHARGE RATE(S) FOR 1YR/24 HOUR STORM

1.36 CFS

18. NARRATIVE DESCRIPTION OF THE FINAL STORMWATER MANAGEMENT AND POLLUTION PREVENTION

Water quantity will be kept below pre-development levels by the construction of a wet detention pond.

Water quality will be maintained through extended detention and filtering practices.

Vegetated swales will be used whenever possible to filter surface water from paved areas.

The majority of stormwater from the site will pass through a wet extended detention pond for pollutant removal.

19. DO YOU HAVE A PERMANENT STORMWATER MANAGEMENT FACILITY ON THIS PROJECT? CHECK THE APPROPRIATE BOX. IF YES, COMPLETE 19A.

☒ Yes.

☐ No.

- A. WHICH OF THE FOLLOWING BEST MANAGEMENT PRACTICES (BMPs) WILL BE UTILIZED FOR THIS PROJECT? ALSO, WHAT IS THE AMOUNT OF DRAINAGE ACREAGE (IN ACRES) THAT WILL FLOW THROUGH THESE BMPs WHILE ACTING AS PERMANENT STORMWATER MANAGEMENT FACILITIES?

LIST COORDINATES AND DRAINAGE FOR EACH POND SEPARATELY

☐ Dry Detention Pond 1 Acres Drained: _____
Latitude: _____ Longitude: _____

☐ Dry Extended Detention Ponds Acres Drained: _____
Latitude: _____ Longitude: _____

☐ Urban Infiltration Practices Acres Drained: _____

☐ Urban Filtering Practices Acres Drained: _____

☒ Wet Ponds and Wetlands Acres Drained: 20
Latitude: 37° 45' 40" Longitude: 82° 06' 04"

Definitions for the above list of BMPs may be found on Page 17 of the Instructions for Completing the Site Registration Application Form.

20. PUBLIC NOTICE SIGN (SEE INSTRUCTIONS AND SECTION G.4.b.6 OF THE GENERAL PERMIT). ALL APPLICANTS ARE REQUIRED TO POST A PUBLIC NOTICE SIGN ONSITE WITHIN 24 HOURS OF SUBMITTING AN APPLICATION. ATTACH SITE SPECIFIC TEMPLATE.

BY COMPLETING AND SUBMITTING THIS APPLICATION, I HAVE REVIEWED AND UNDERSTAND AND AGREE TO THE TERMS AND CONDITIONS OF THE GENERAL PERMIT ISSUED ON NOVEMBER 5, 2007. I UNDERSTAND THAT PROVISIONS OF THE PERMIT ARE ENFORCEABLE BY LAW. VIOLATION OF ANY TERM AND CONDITION OF THE GENERAL PERMIT AND/OR OTHER APPLICABLE LAW OR REGULATIONS CAN LEAD TO ENFORCEMENT ACTION.

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED ON THIS FORM AND ALL ATTACHMENTS AND THAT, BASED ON MY INQUIRING OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT.

OFFICIAL
SIGNATURE _____

Date _____

PRINT NAME LTC David Shafer, Construction and Facilities Management Officer

PRIOR TO FILING THIS APPLICATION, YOU MAY WISH TO OBTAIN A COPY OF THE LEGISLATIVE RULES OF THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, TITLE 47, SERIES 26, WATER POLLUTION CONTROL PERMIT FEE SCHEDULE IN ORDER TO DETERMINE THE APPROPRIATE PERMIT APPLICATION FEE REQUIRED TO ACCOMPANY YOUR SUBMISSION OF THIS APPLICATION. YOU CAN OBTAIN A COPY OF THE REGULATION FROM THE SECRETARY OF STATE'S OFFICE, STATE CAPITOL BUILDING, CHARLESTON, WV 25305. HOWEVER, YOU MAY WISH TO USE THE TABLE FOUND IN ITEM V. OF THE ATTACHED INSTRUCTIONS.

YOUR CHECK OR MONEY ORDER FOR THE APPROPRIATE APPLICATION FEE MUST BE MADE PAYABLE TO THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION.

We will process your personal information (email address, mailing address and/or telephone number) in accordance with the State of West Virginia's Privacy Policy for appropriate and customary business purposes. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. The Division of Water and Waste Management will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact the DEP's Chief Privacy officer at depprivacyofficer@wv.gov.

ALL SPILLS OR ACCIDENTAL DISCHARGES ARE REQUIRED TO BE REPORTED IMMEDIATELY TO THE EMERGENCY RESPONSE SPILL ALERT SYSTEM TOLL FREE TELEPHONE NUMBER 1-800-642-3074. CALLS FROM OUT OF STATE SHOULD BE MADE TO 304-348-8899.

Section 2

Sediment Control Plan

LOGAN-MINGO READINESS CENTER SEDIMENT CONTROL PLAN

PROJECT DESCRIPTION

The West Virginia Army National Guard (WVARNG) is planning construction of a new Readiness Center which consists of:

- Approximately 47,000 square foot (+/-) Readiness Center Building
- Military Equipment Parking
- Utility network and stormwater management system for the project area
- LEED silver certification requirement

SITE LOCATION

The site is located five miles off Corridor "G" (US 119) fifteen (15) miles south of Logan. It is a 19-acre tract of land located adjacent to the Wood Products Industrial Park in Mingo County, West Virginia. The West Virginia Army National Guard (WVARNG) owns the tract.

SITE DESCRIPTION

The proposed site for construction of the new facility is an undeveloped mountaintop removal mine site. The site is bounded to the west by County Route 7/10 and to all other sides by reclaimed mountaintop removal mine. The readiness center building will be situated in the middle of the 19-acre tract. Military Equipment Parking (MEP) is located to the east of the proposed facility.

Earthwork is estimated at 25,000 cubic yards at this time. However, the earthwork will balance within the site; requiring neither import nor export of soil materials.

Installed surface water collection and conveyance facilities will be provided primarily to accommodate runoff from buildings and impervious pavements; which will ultimately cover much of the site. This collected runoff will generally be directed to the southeast to the sediment/retention pond.

SOILS REPORT

The project area is composed entirely of Fiveblock and Kaymine soils produced by the mountaintop mining operation that existed here during the 1980s and early 1990s. This soil type is well drained, consisting predominantly of sand with many cobbles and boulders. A soils report is included as Section 2, Tab B of this permit application.

POTENTIAL EROSION PROBLEMS

There are no erosion problems expected for this project since it is a high point with no surface water running into the site and the site is nearly flat.

REQUIRED SCP ELEMENTS

Element #1: Mark clearing limits

- Prior to beginning land-disturbing activities, clearly mark all clearing limits, and tree protection zones within the construction area. These shall be clearly marked, to prevent damage and offsite impacts.
- Plastic, metal, or stake wire fence may be used to mark the clearing limits.
- BMPs:
 - Preserving natural vegetation
 - Buffer zones
 - Safety fence

Element #2: Establish construction access

- Construction vehicle access and exit should be limited to one route if possible.
- Access points shall be stabilized with crushed aggregate to minimize the tracking of sediment onto roads.
- No sediment tracking on the roadway is allowed. In the event that sediment is inadvertently tracked onto the road, the road shall be cleaned thoroughly by the end of each day. Sediment shall be removed from roads by shoveling or pickup sweeping and shall be transported to a controlled sediment disposal area. Street washing of sediments to the storm drain system is not allowed. If street wash wastewater can be controlled from entering the storm drainage system, then it shall be pumped back onto the site, contained, and disposed of properly.
- Construction access restoration shall be equal to or better than the pre-construction condition.
- BMPs:
 - Stabilized construction entrance
 - Construction road/parking area stabilization

Element #3: Install sediment controls

- The duff layer, native topsoil, and natural vegetation shall be retained in an undisturbed state to the maximum extent practicable.
- Prior to leaving a construction site, surface water runoff from disturbed areas shall pass through a sediment basin/trap or other appropriate and approved sediment removal BMP.
- BMPs intended to trap sediment on site shall be constructed as one of the first steps in grading. These BMPs shall be functional before other land disturbing activities take place.
 - Sediment Basins
 - Silt fence
 - Drop inlet protection

Element #4: Stabilize soils

- Mass excavation for this project is only expected during the months of April to October, so temporary and permanent seeding are the primary BMPs to stabilize soils.

- Exposed and unworked soils shall be stabilized by application of effective BMPs that protect the soil from the erosive forces of raindrops, flowing water, and wind. All graded areas that are at final grade must be seeded and mulched within 7 days and areas that will not be worked again for 14 days or more must be seeded and mulched within 7 days.
- Soil stockpiles must be stabilized and protected with silt fence.
- Linear construction activities such as right-of-way and easement clearing, roadway development, pipelines, and trenching for utilities, shall be conducted to meet the soil stabilization timeframe requirements. Contractors shall install the bedding materials, roadbeds, structures, pipelines, or utilities and re-stabilize the disturbed soils so that the 7-day requirements are met.
- BMPs:
 - Temporary seeding
 - Permanent seeding
 - Mulching
 - Top soiling
 - Surface roughening
 - Surface water control

Element #5: Protect slopes

- Subsurface drains shall be installed as necessary to remove ground water intersecting the slope surface of exposed soil areas.
- Excavated material shall be placed on the uphill side of trenches, consistent with safety and space considerations.
- Stabilize soils on slopes, as specified in Element #4.
- BMPs:
 - Temporary seeding
 - Permanent seeding
 - Temporary diversions
 - Temporary berms
 - Rock check dams

Element #6: Protect drain inlets

- Storm drain inlets operable during construction shall be protected so that surface water runoff does not enter the conveyance system without first being filtered or treated to remove sediment.
- Approach roads shall be kept clean.
- Inlets should be inspected weekly at a minimum and daily during storm events. Inlet protection devices should be cleaned or removed and replaced before six inches of sediment can accumulate.
- BMPs:
 - Drop inlet protection

Element #7: Convey stormwater in a non-erosive manner

- Points of discharge and receiving streams shall be protected from erosion due to increases in the volume, velocity, and peak flow rate of surface water runoff from the project site.
- During construction there will be diversions and ditches required to convey stormwater. They require various linings as detailed in the plans. The final stormwater conveyance

methods are mostly pipe, however, a few small open ditches along roadways will be permanent. Due to the minimal slope of these ditches, grass is the lining.

- BMPs:
 - Outlet protection
 - Riprap
 - Rock check dams
 - Surface water controls

Element #8: Control other pollutants

- All pollutants, including waste materials and demolition debris, that occur on site during construction shall be handled and disposed of in a manner that does not cause contamination of surface water. Woody debris may be chopped and spread on site.
- Cover, containment, and protection from vandalism shall be provided for all chemicals, liquid products, petroleum products, and non-inert wastes present on the site.
- Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into surface water runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Emergency repairs may be performed on-site using temporary plastic placed beneath and, if raining, over the vehicle.
- Application of agricultural chemicals including fertilizers and pesticides shall be conducted in a manner and at application rates that will not result in loss of chemical to surface water runoff. Manufacturers' recommendations for application rates and procedures shall be followed.
- BMPs shall be used to prevent or treat contamination of surface water runoff by pH modifying sources. These sources include bulk cement, cement kiln dust, lime, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, and concrete pumping and mixer washout waters.
- Implementation of an effective Groundwater Protection Plan is required – See Section 11.

Element #9: Control dewatering (Not expected to be a problem due to depth to groundwater at the site)

- Foundation, vault, and trench dewatering water shall be discharged into a controlled conveyance system prior to discharge to a sediment pond. Channels must be stabilized, as specified in Element #8.
- Clean, non-turbid dewatering water, such as well-point ground water, can be discharged to state surface waters, as specified in Element #7, provided the dewatering flow does not cause erosion or flooding of receiving waters. These clean waters should not be routed through surface water sediment ponds.
- Highly turbid or contaminated dewatering water from construction equipment operation, work inside a cofferdam shall be handled separately from surface water.
- Other disposal options may include:
 1. Transport off-site in vehicle, such as a vacuum flush truck, for legal disposal in a manner that does not pollute state waters;
 2. Sanitary sewer discharge with local sewer utility approval; or
 3. Use of a dewatering bag with outfall to a ditch or swale for small volumes of localized dewatering.

Element #10: Maintain BMPs

- Temporary and permanent erosion and sediment control BMPs shall be maintained and repaired as needed to assure continued performance of their intended function. Maintenance and repair shall be conducted in accordance with contract requirements and the BMPs.
- Sediment control BMPs shall be inspected every 7 days and after each storm of 0.5 inches or more.
- Temporary erosion and sediment control BMPs should be removed within 30 days after final site stabilization is achieved or after the temporary BMPs are no longer needed. Trapped sediment shall be removed or stabilized on site. Disturbed soil resulting from removal of BMPs or vegetation shall be permanently stabilized.

Element #11: Manage the project

- Clearing and grading activities shall be permitted only if conducted pursuant to the contract documents that establish areas of clearing, grading, cutting, and filling. Care shall be exercised to ensure earthwork and site disturbance are within the identified project limits and protection areas designated on the plans are not disturbed.
- Coordination with Utilities and Other Contractors - The project manager shall evaluate, with input from utilities and other contractors, the surface water management requirements for the entire project, including utilities, and adjacent projects (if any exist).
- Inspection and Monitoring - All BMPs shall be inspected, maintained, and repaired as needed to assure continued performance of their intended function.

Whenever inspection and/or monitoring reveals that the BMPs identified in the SCP are inadequate, the SCP shall be modified, as appropriate, in a timely manner.

- Reporting - Report spillage or discharge of pollutants within 24-hours.
- Equipment Maintenance - Maintenance and repair of heavy equipment and vehicles involving oil changes, hydraulic system drain down, solvent and de-greasing cleaning operations, fuel tank drain down and removal, and other activities which may result in discharge or spillage of pollutants to the ground or into surface water runoff must be conducted using spill prevention measures, such as drip pans. Contaminated surfaces shall be cleaned immediately following any discharge or spill incident. Contaminated soil must be disposed of properly. Emergency repairs may be performed on-site using temporary plastic placed beneath and, if raining, over the vehicle.
- Maintenance of the SCP - The SCP shall be retained on-site. The SCP shall be modified whenever there is a significant change in the design, construction, operation, or maintenance of any BMP. The DEP must be notified of any changes to the Construction SWPP. Depending on the significance of the revision, a permit modification may need to be submitted to the DEP.

Element #12: Stabilization

The construction site should be stabilized as soon as possible after completion. Establishment of final cover must be initiated no later than 7 days after reaching final grade. A Notice of Termination must be filed with the DEP when the site reaches final stabilization. Final stabilization means that all soil-disturbing activities are completed, and that either a permanent

vegetative cover with a density of 70% or greater has been established or the surface has been stabilized by a hard cover such as pavement or buildings. It should be noted that the 70% requirement refers to the total area vegetated and not just a percent of the site.

Specifications

Section 02495 "Erosion and Sediment Control"

Section 02920 "Lawns and Grasses"

Construction Schedule

See Tab C

Sequence of Construction (Phasing)

See Tab D

Engineering Calculations

See Tab H

Monitoring

Inspection frequencies are as follows:

Silt Fence – every seven days and after each storm of 0.5 inches or more.

Rock Check Dams – every seven days and after each storm of 0.5 inches or more.

Sediment Basins – every seven days and after each storm of 0.5 inches or more

Temporary Seeding – daily until established

Permanent Seeding – daily until established

All BMPs not listed – every seven days and after each storm of 0.5 inches or more.

Refer to the WV Erosion and Sediment Control BMP Manual (current edition) for detailed information on monitoring and maintenance requirements of BMPs.

Inspection forms are provided on the following two pages.

BMP Inspection Report

Date: _____ Time: _____
Weather conditions during inspection: _____
Name of project: _____
Name of person conducting inspection: _____
Signature: _____

FOR EACH BMP – FILL OUT THE FOLLOWING

BMP you are inspecting: _____
Condition of the BMP: _____
Does this BMP need to be repaired or have other maintenance performed? _____
What maintenance or repairs are being performed? _____

When will repair or maintenance of this BMP be complete? _____
Other Comments: _____

BMP you are inspecting: _____
Condition of the BMP: _____
Does this BMP need to be repaired or have other maintenance performed? _____
What maintenance or repairs are being performed? _____

When will repair or maintenance of this BMP be complete? _____
Other Comments: _____

For more information on specific construction site Best Management Practices (BMP's) please consult West Virginia's BMP manual. The BMP manual will provide design criteria and detailed information about maintenance of BMP's. Available Fall 2006.

For more information about West Virginia's BMP manual please visit our website:

<http://www.wvdep.org/dwwm/stormwater/index.htm>

**Addendum to BMP Inspection Report, Use as many of these BMP
inspection boxes as necessary.**

DATE:

BMP you are inspecting: _____

Condition of the BMP: _____

Does this BMP need to be repaired or have other maintenance performed? _____

What maintenance or repairs are being performed? _____

When will repair or maintenance of this BMP be complete? _____

Other Comments: _____

BMP you are inspecting: _____

Condition of the BMP: _____

Does this BMP need to be repaired or have other maintenance performed? _____

What maintenance or repairs are being performed? _____

When will repair or maintenance of this BMP be complete? _____

Other Comments: _____

BMP you are inspecting: _____

Condition of the BMP: _____

Does this BMP need to be repaired or have other maintenance performed? _____

What maintenance or repairs are being performed? _____

When will repair or maintenance of this BMP be complete? _____

Other Comments: _____

SECTION 02495**EROSION AND SEDIMENT CONTROL****PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Contract Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.
- B. West Virginia Erosion and Sediment Control Best Practices Manual 2006.

1.2 SUMMARY

- 1. This section includes measures necessary to control erosion and sediment control within the project area to the acceptance of the WV Division of Environmental Protection. The Contractor is responsible for implementation and maintenance of the erosion and sediment control plan, as approved by the authorities having jurisdiction. Erosion and sediment control details have been provided in the Contract Drawings.
- B. Related Sections include the following:
 - 1. General Environmental Specifications and Conditions – Division 1 Specification.
 - 2. Site Clearing – Section 02230.
 - 3. Earthwork – Section 02300.
 - 4. Storm Drainage – Section 02630.
- C. A meeting should be arranged prior to construction with the local inspector for the Division of Environmental Protection to assure proper and smooth implementation of the Erosion and Sediment Control Plan.

1.3 SUBMITTALS

- A. Submit one (1) original and two (2) copies of the proposed permit modification application.
- B. Submit two (2) copies of each certification that the material meets or exceeds the requirements specified in the sediment control details and specifications.

PART 2 - PRODUCTS**2.1 SILT FENCE**

- A. Fabric:
 - 1. As indicated on the Contract Drawing and shall meet the applicable requirements of AASHTO M288, Section 7.

B. Fence Posts:

1. Minimum 48" long.
2. Wood Posts: 2" x 2" posts of sound quality hardwood.
3. Steel Posts: Standard "T" or "U" sections weighing a minimum of 1.33 lb/lf.

2.2 TEMPORARY SEEDING, MULCHING AND FERTILIZER

A. Seed Mixtures:

PLANT NAMES		PLANTING DATES	APPLICATION RATE LBS/ACRE
COMMON	SCIENTIFIC		
Annual Ryegrass	<i>Lolium multiflorum</i>	2/16 – 5/15 8/1 – 11/1	40
Field Bromegrass	<i>Bromus ciliatus</i>	3/1 – 6/15 8/1 – 9/15	40
Spring Oats	<i>Avena sativa</i>	3/1 – 6/15	100
Winter Rye	<i>Secale cereale</i>	8/15 – 2/28	170
Winter Wheat	<i>Triticum aestivum</i>	8/15 – 2/28	180
Redtop	<i>Agrostis alba</i>	3/1 – 6/15	10
Annual Ryegrass and Spring Oats	<i>Lolium multiflorum</i> <i>Avena sativa</i>	3/1 – 6/15	30 70

2.3 OUTLET PROTECTION

- A. Riprap: Rock for riprap shall be of hard durable sandstone or limestone. Shale or any type of rock with high weathering potential shall not be used. The rock shall have a maximum weighted loss of thirty (30) percent when subjected to five (5) cycles of the Sulfate Soundness Test AASHTO T-104-91-I.

1. The rock sizing for the riprap used in the ditches shall range in nominal diameter from 3 inches to 18 inches with 25% of the rock 18 inches and 75% of the rock well graded with sufficient amount of rock small enough to fill the voids between the larger rocks with a minimum D50 (median diameter) of 12 inches and no more than 10% by weight less than 6 inches and less than 5% by weight passing the No. 200 sieve.

- B. Grout Materials: Grout for the riprap shall consist of a grout mixture of one part Portland Cement and three parts sand, mixed with water to produce a workable consistency. The amount of water shall be approved or as designated by the Engineer. The minimum 28 day compressive strength of the grout shall be 2,000 psi. Test cylinders shall be prepared and tested in general accordance with ASTM C 31 and C39, respectively. The compressive strength of test specimens shall be determined at 7 and 28 days. Test specimens shall be prepared for every 20 cubic yards of grout poured or for each day grout is poured.

PART 3 - EXECUTION

3.1 SILT FENCE

A. Definition:

1. A temporary barrier with a life expectancy of six months or less, installed below small disturbed areas or at the toe of a slope, or as indicated on the Contract Drawings.
2. Install silt fence at the locations indicated on the Contract Drawings.

B. Condition Where Practice Applies:

1. A silt fence may be used where:
 - a. No other practice is feasible or economical.
 - b. There is no concentration of water in a channel or other drainage way above the silt fence.
 - c. Erosion will occur in the form of sheet or rill erosion.
 - d. Protection of property line or limits of grading is required.

C. Construction Specifications:

1. The fence posts shall be spaced a maximum 10' center-to-center.
2. The fabric shall be embedded in soil to a depth of 4" and have compacted soil holding it in place.
3. Construction shall be as indicated on the Contract Drawings.
4. Maintenance and inspection shall be as indicated on the Contract Drawings.
5. Repair and/or replace damaged silt fence at no additional cost to the COTR during the life of the project.

3.2 STONE CHECK DAMS

A. Definition:

1. Small temporary dams constructed across a swell or drainage ditch.

B. Purpose:

1. To reduce the velocity of concentrated storm water flows and to trap small amounts of sediment generated in the ditch.

C. Construction Method:

1. The maximum height of the check dam should be 4'.
2. The center of the check dam must be at least 6" lower than the outer edges.
3. The side slopes of stone dams should not be steeper than 2:1.
4. Stone check dams should be constructed of Class I Riprap.
5. Remove accumulated sediment when the sediment level reaches one-half of the original height of the dam.
6. Remove check dams when permanent erosion measures are in place.

3.3 SEDIMENT/RETENTION POND

A. Definition:

1. A basin constructed to collect and store debris or sediment.

B. Purpose:

1. To preserve the capacity of reservoirs, ditches, waterways and streams; to prevent undesirable deposition on bottom lands and developed areas; to trap sediments originating from construction sites.

C. Construction Methods:

1. Construction operation shall be carried out in such a manner that erosion and water and air pollution will be minimized.
2. The embankment site shall be cleared of all brush, trees, stumps, roots and other undesirable material.
3. Sod and topsoil shall be stripped from the embankment site and stockpiled for later use on the emergency spillway and embankment.
4. Existing stream channels crossing the foundation area shall be deepened and widened as necessary to remove all stones, gravel, sand, stumps, roots and other objectionable material, and to accommodate compaction equipment. Such channels shall then be backfilled with suitable material. The excavated channels shall be kept free of standing water during backfill operations.
5. The pipe conduit shall be placed in a trench excavated in solid undisturbed ground or formed by compacted earth. The conduit, except where placed on a concrete bedding, shall be imbedded in a formed trench to a depth no less than one-tenth times the outside diameter of the pipe. Trench sides shall be sloped back no steeper than 1:1. All pipe joints and anti-seep collar connections to the conduit shall be watertight.
6. The emergency spillway shall conform to the lines, grades, bottom width and sides slopes as shown on the Contract Drawings.
7. The most impervious material shall be used in the cutoff trench and certain portions of the embankment. The distribution and gradation of materials throughout the fill shall be such that there will be no lenses, pockets, streaks, or layers of material differing substantially in texture or gradation from the surrounding material.
8. When necessary to use materials of varying texture and gradation, the more impervious material shall be placed in the upstream and center portions of the dam. Very wet or dry materials shall not be used.
9. The embankment material shall be placed in uniform 6" to 8" layers over the entire embankment area. Compaction shall be obtained by completely traversing each layer with a minimum of four passes of the construction equipment.
10. Remove accumulated sediment when the sediment level reaches one-half of the wet storage volume (minimum of once per year). Dispose of sediment in an approved manner.
11. The pond shall be cleaned out to the original lines and grades of construction upon release of the WV NPDES Stormwater Permit for continued use as a retention pond.

3.4 GROUTED RIPRAP

- A. Grout, where required to be placed on riprap, shall be applied as soon as possible after placement of riprap. The stone shall be thoroughly wet immediately before grout is applied. As soon as grout is deposited on the surface it shall be thoroughly worked into the joints to achieve 100% penetration. The stones shall then be brushed so that their top surfaces are exposed. The grout shall be protected from running water to prevent damage until sufficiently cured.

1. Curing shall be accomplished by one of two means. A liquid membrane-forming compound for curing concrete may be sprayed on the brushed grouted surface. Curing compounds shall conform to the requirements of Section 707.9 of the WVDOT Standard

Specifications for Roads and Bridges, Adopted 2010. Alternately, the grouted surface may be covered with white polyethylene sheeting (film) for curing concrete immediately after the stones have been brushed. The sheeting shall conform to the requirements of Section 707.10 of the WDOH Standard Specifications for Roads and Bridges, Adopted 2010. Grouting of riprap channels shall not be initiated unless adequate materials for curing the grouted channels are available on-site. Curing by liquid membrane-forming compound shall be left for 72 hours prior to introduction of water. Likewise, grouted riprap shall remain covered for 72 hours prior to sheeting removal and introduction of water.

3.5 TEMPORARY EROSION CONTROL MATTING

A. Definition:

1. Application of a temporary erosion control blanket to the surface of the soil.

B. Purpose:

1. Erosion control matting shall be placed over the regraded areas where natural ground is exposed, as shown on the Contract Drawings. Erosion control matting for the project shall be S75 as manufactured by North American Green, or an COTR approved equal. The matting shall be free of any chemical treatment or coating which reduces permeability and shall be inert to chemicals found in the soil and water at the site.

C. Installation:

1. The erosion control matting shall be placed where indicated on the Contract Drawings and as directed by the COTR. Prepare the subgrade according to Section 329200, Turfs and Grasses, including the application of lime, fertilizer and seed. The matting shall be anchored and overlapped as per the manufacturer's recommendation.

3.6 HYDRAULIC MULCH

A. Definition: Application of a temporary erosion control product to the surface of the soil.

B. Purpose: Hydraulically applied matrix of fibers and tackifiers designed to create a flexible erosion control matrix for rapid germination and accelerated plant growth.

C. Product: HydraCM by North American Green or an approved equal.

3.7 TEMPORARY SEEDING AND MULCHING

A. Construction Methods:

1. Apply temporary seeding mixtures to all earth-exposed areas as direct.
2. Fertilize and mulch seeded areas as directed.

3.8 IMPLEMENTATION OF THE EROSION AND SEDIMENT CONTROL PLAN

A. The foregoing procedures and all requirements of the specifications are contractual obligations of the Contractor performing the actual construction work. Said requirements also apply to any

and all subcontractors working on the project. After award and prior to the Notice to Proceed, the Contractor shall schedule a meeting with the WV Division of Environmental Protection for review and approval of the proposed modifications to the already approved Erosion and Sediment Control Plan. Said plan shall contain the final standards and specifications concerning seed mixtures, cover requirements, silt fence, and sediment basins, and any other items as may be required to complete the contract work in accordance with the rules and regulations of that agency, and in accordance with the laws, rules and/or regulations of all other authorities having jurisdiction over the required construction work.

B. Use of this Plan:

1. The handling of stormwater, the topographic and geologic features described, the types and classification of soils, the staging of earthwork, the temporary control measures, and the interpretations and opinions stated in the foregoing pages are to be used only for the purposes of eliminating, minimizing, and/or controlling pollution of the streams and waterways from materials anticipated to be eroded from the Site.
2. The information contained in this plan is general in both scope and content. The Contractor shall make his own interpretation on the information as to how it may or may not affect any or all of the work under the Contract, and shall be responsible for all construction activities relating thereto and resulting therefrom.

C. WV NPDES Groundwater Protection Plan for Construction:

1. All WV NPDES Permits are required to have an implemented Groundwater Protection Plan prepared by the Contractor. These forms are to be filled out by the Contractor and Submitted to the Office of Water Resources. These forms may be acquired from the Office of Water Resources.

END OF SECTION

SECTION 02920
LAWNS AND GRASSES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Importation of topsoil.
 - 2. Fine grading and preparing lawn areas.
 - 3. Furnishing and applying soil amendments.
 - 4. Furnishing and applying fertilizers.
 - 5. Seeding new lawns.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Section 02230, "Site Clearing", for topsoil stripping and stockpiling, and site clearing.
 - 2. Section 02300, "Earthwork", for excavation, filling, rough grading, and subsurface aggregate drainage and drainage backfill.

1.2 SUBMITTALS

- A. Certification of grass seed from seed vendor for each grass-seed mixture stating the botanical and common name and percentage by weight of each species and variety, and percentage of purity, germination, and weed seed. Include the year of production and date of packaging.
- B. Material test reports from qualified independent testing agency indicating and interpreting test results relative to compliance of the following materials with requirements indicated.
 - 1. Analysis of imported topsoil
 - 2. Sample of imported topsoil (five-gallon bucket minimum).
- C. Planting schedule indicating anticipated dates and locations for each type of planting.
- D. Maintenance instructions recommending procedures to be established by Owner for maintenance of landscaping during an entire year. Submit before expiration of required maintenance periods.

1.3 QUALITY ASSURANCE

- A. Installer Qualifications: Engage an experienced Installer who has completed landscaping work similar in material, design, and extent to that indicated for this Project and with a record of successful grass establishment.
 - 1. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on the Project site during times that grass planting is in progress.

- B. Topsoil Analysis: Furnish a soil analysis made by a qualified independent soil-testing agency stating percentages of organic matter, inorganic matter (silt, clay, and sand), deleterious material, pH, and mineral and plant-nutrient content of topsoil.

- 1. Report suitability of topsoil for lawn growth. State recommended quantities of nitrogen, phosphorus, and potash nutrients and any limestone, aluminum sulfate, or other soil amendments to be added to produce a satisfactory topsoil.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Seed: Deliver seed in original sealed, labeled, and undamaged containers.

1.5 COORDINATION AND SCHEDULING

- A. Planting Season: Sow lawn seed during normal planting seasons for type of lawn work required. Correlate planting with specified maintenance periods to provide required maintenance from date of Substantial Completion.
- B. Weather Limitations: Proceed with planting only when existing and forecast weather conditions are suitable for work.

1.6 MAINTENANCE

- A. Begin maintenance of lawns immediately after each area is planted and continue until acceptable lawn is established, but for not less than the following periods:
 - 1. Seeded Lawns: 60 days after date of Substantial Completion.
 - a. When full maintenance period has not elapsed before end of planting season, or if lawn is not fully established at that time, continue maintenance during next planting season.
- B. Maintain and establish lawns by watering, fertilizing, weeding, mowing, trimming, replanting, and other operations. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth lawn.
 - 1. Replant bare areas with same materials specified for lawns.
- C. Watering: Provide and maintain temporary piping, hoses, and lawn-watering equipment to convey water from sources and to keep lawns uniformly moist to a depth of 4 inches.
 - 1. Lay out temporary lawn-watering system and arrange watering schedule to prevent wilting, puddling, erosion, and displacement of seed or mulch. Lay out temporary watering system to avoid walking over muddy or newly seeded, plugged, or sprigged areas.
 - 2. Water lawn at the minimum rate of 1 inch per week.
- D. Mow lawns as soon as there is enough top growth to cut with mower set at specified height for principal species planted. Repeat mowing as required to maintain specified height without cutting more than 40 percent of the grass height. Remove no more than 40 percent of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over

and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain following grass height:

1. Mow grass from 1-1/2 to 2 inches high.
- E. Postfertilization: Apply fertilizer to lawn after first mowing and when grass is dry.
1. Use fertilizer that will provide actual nitrogen of at least 1 lb per 1000 sq. ft. of lawn area.

PART 2 - PRODUCTS

2.1 SEED

- A. Grass Seed: Fresh, clean, dry, new-crop seed complying with the Association of Official Seed Analysts' "Rules for Testing Seeds" for purity and germination tolerances.
1. Seed Mixture: Provide seed of grass species and varieties, proportions by weight, and minimum percentages of purity, germination, and maximum percentage of weed seed as indicated on Schedules at the end of this Section.

2.2 TOPSOIL

- A. Topsoil: ASTM D 5268, pH range of 5.5 to 7, 4 percent organic material minimum, free of stones 1 inch or larger in any dimension, and other extraneous materials harmful to plant growth.
1. Topsoil Source: Import topsoil from an approved off-site source.

2.3 SOIL AMENDMENTS

- A. Provide soil amendments as recommended in soil reports from a qualified soil-testing agency, to include but not limited to the following:
1. Lime: ASTM C 602, Class T, agricultural limestone containing a minimum 90 percent calcium carbonate equivalent, with a minimum 99 percent passing a No. 8 sieve and a minimum 75 percent passing a No. 60 sieve.
 2. Aluminum Sulfate: Commercial grade, unadulterated.
 3. Sand: Clean, washed, natural or manufactured sand, free of toxic materials.
 4. Perlite: Horticultural perlite, soil amendment grade.
 5. Peat Humus: Finely divided or granular texture, with a pH range of 6 to 7.5, composed of partially decomposed moss peat (other than sphagnum), peat humus, or reed-sedge peat.
 6. Manure: Well-rotted, unleached stable or cattle manure containing not more than 25 percent by volume of straw, sawdust, or other bedding materials; free of toxic substances, stones, sticks, soil, weed seed, and material harmful to plant growth.

2.4 FERTILIZER

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea-form, phosphorous, and potassium in the following composition:

- 1. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing agency.

2.5 EROSION-CONTROL MATERIALS

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive lawns and grass for compliance with requirements and for conditions affecting performance of work of this Section. Do not proceed with installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
- B. Provide erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 PLANTING SOIL PREPARATION

- A. Limit subgrade preparation to areas that will be planted in the immediate future.
- B. Loosen subgrade to a minimum depth of 4 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter.
- C. Mix soil amendments and fertilizers with topsoil at rates indicated by testing results. Delay mixing fertilizer if planting does not follow placing of planting soil within a few days. Either mix soil before spreading or apply soil amendments on surface of spread topsoil and mix thoroughly into top 4 inches of topsoil before planting.
- D. Spread planting soil mixture to depth required to meet thickness, grades, and elevations shown, after light rolling and natural settlement. Do not spread if planting soil or subgrade is frozen.
- E. Preparation of Unchanged Grades: Where lawns are to be planted in areas unaltered or undisturbed by excavating, grading, or surface soil stripping operations, prepare soil as follows:
 - 1. Remove and dispose of existing grass, vegetation, and turf. Do not turn over into soil being prepared for lawns.

2. Till surface soil to a depth of at least 6 inches. Apply required soil amendments and initial fertilizers and mix thoroughly into top 4 inches of soil. Trim high areas and fill in depressions. Till soil to a homogenous mixture of fine texture.
 3. Clean surface soil of roots, plants, sod, stones, clay lumps, and other extraneous materials harmful to plant growth.
 4. Remove waste material, including grass, vegetation, and turf, and legally dispose of it off the Owner's property.
- F. Grade lawn and grass areas to a smooth, even surface with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades. Limit fine grading to areas that can be planted in the immediate future. Remove trash, debris, stones larger than 1-1/2 inches in any dimension, and other objects that may interfere with planting or maintenance operations.
- G. Moisten prepared lawn areas before planting when soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- H. Restore prepared areas if eroded or otherwise disturbed after fine grading and before planting.

3.4 SEEDING NEW LAWNS

- A. Sow seed with a spreader or a seeding machine. Do not broadcast or drop seed when wind velocity exceeds 5 mph. Evenly distribute seed by sowing equal quantities in 2 directions at right angles to each other.
1. Do not use wet seed or seed that is moldy or otherwise damaged in transit or storage.
- B. Rake seed lightly into top 1/8 inch of topsoil, roll lightly, and water with fine spray.
- C. Protect seeded areas with slopes less than 1:6 against erosion by spreading straw mulch after completion of seeding operations. Spread uniformly at a minimum rate of 2 tons per acre to form a continuous blanket 1-1/2 inches loose depth over seeded areas. Spread by hand, blower, or other suitable equipment.
1. Anchor straw mulch by crimping into topsoil by suitable mechanical equipment.

3.5 SATISFACTORY LAWN

- A. Seeded lawns will be satisfactory provided requirements, including maintenance, have been met and a healthy, uniform, close stand of grass is established, free of weeds, bare spots exceeding 5 by 5 inches, and surface irregularities.
- B. Replant lawns that do not meet requirements and continue maintenance until lawns are satisfactory.

3.6 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by lawn work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto surface of roads, walks, or other paved areas.

- B. Erect barricades and warning signs as required to protect newly planted areas from traffic. Maintain barricades throughout maintenance period until lawn is established.

3.7 SEED MIXTURES SCHEDULE

- A. Seed: Provide certified grass-seed blends or mixes, proportioned by weight, as follows:

1. Type I Seed (Fine Lawns): Provide certified grass-seed blends or mixes, proportioned by weight, at 100 lbs per acre, as follows:

Proportion	Name	Min. Pct. Germ.	Min.Pct. Pure Sd.	Max.Pct. Weed Sd.
50 pct.	Kentucky bluegrass (Poa pratensis)	80	85	0.50
10 pct.	Chewings red fescue (Festuca rubra variety)	85	98	0.50
10 pct.	Perennial rye grass (Lolium perenne)	90	98	0.50
10 pct.	Annual rye grass		92	1.00
20 pct.	Turf type tall fescue		92	1.00

2. Type II Seed (Regular Lawns): Provide certified grass-seed blends or mixes, proportioned by weight, at 100 lbs per acre, as follows:

Proportion	Name	Min. Pct. Germ.	Min. Pct. Pure Sd.	Max. Pct. Weed Sd.
20 pct.	Kentucky bluegrass (Poa pratensis)	80	85	0.50
40 pct.	Chewings red fescue (Festuca rubra variety)	85	98	0.50
30 pct.	Perennial rye grass (Lolium perenne)	90	98	0.50
10 pct.	Redtop (Agrostis alba)	85	92	1.00

3. Type III Seed (Ground Cover on Slopes): Provide certified grass-seed blends or mixes, proportioned by weight, at 60 lbs per acre, as follows:

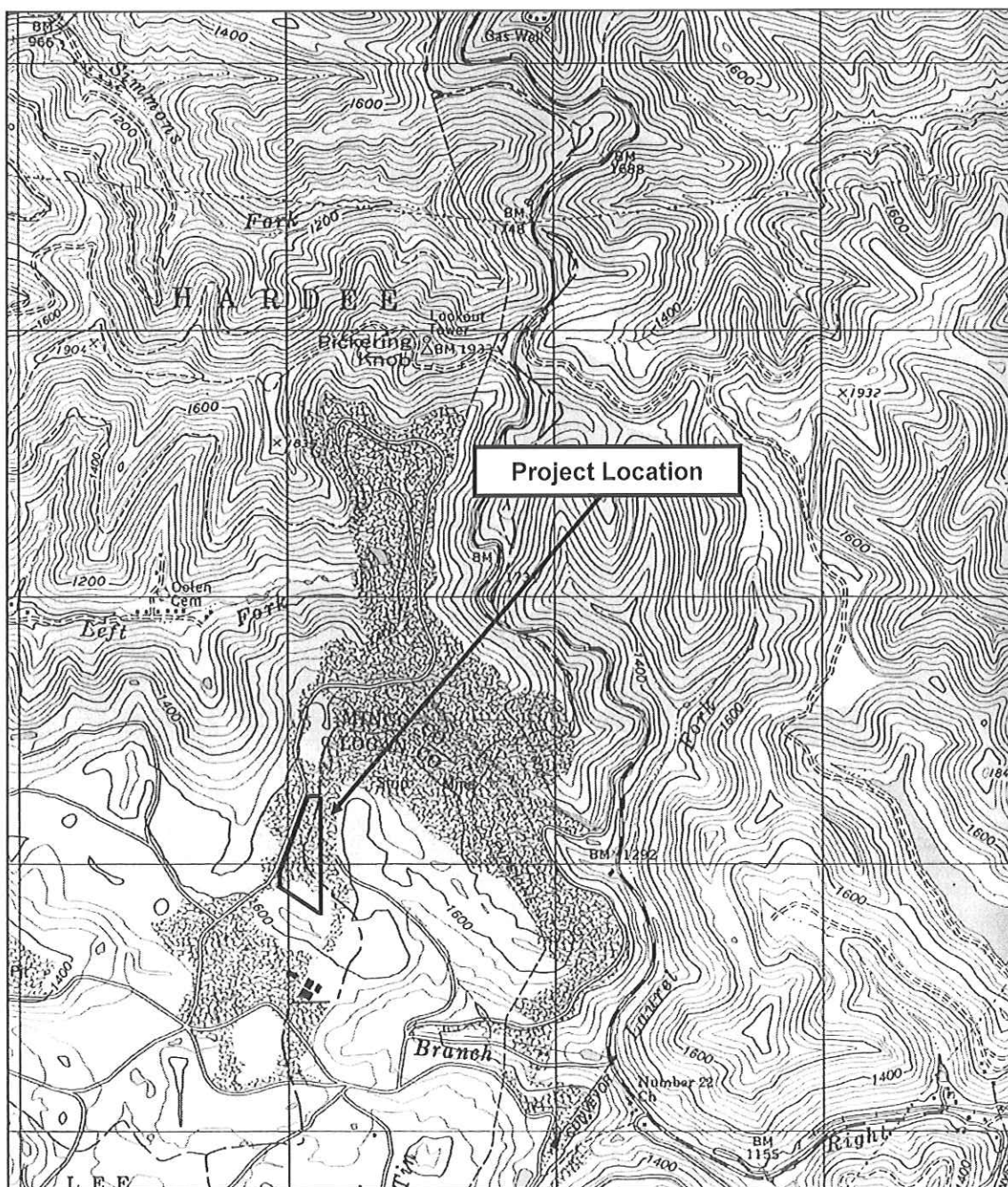
Proportion	Name	Min. Pct. Germ.	Min.Pct. Pure Sd.	Max.Pct. Weed Sd.
5 pct.	Alsike Clover	85	90	
20 pct.	Annual Ryegrass	85	90	
25 pct.	Orchardgrass	85	90	
5 pct.	Birdsfoot Trefoil	85	90	
10 pct.	Timothy/Climax	85	90	
20 pct.	Perennial Ryegrass	85	95	
10 pct.	Plowdown	80	85	
5 pct.	Redtop	85	90	

END OF SECTION

Section 2

Tab A

Vicinity Map



1 inch = 2,000 feet

USGS Topo Map
Holden Quadrangle (1996)
West Virginia
7.5-Minute Series

**Logan-Mingo Readiness Center
Project Location**

Section 2

Tab B

Soils Report



United States
Department of
Agriculture



NRCS

Natural
Resources
Conservation
Service

A product of the National
Cooperative Soil Survey,
a joint effort of the United
States Department of
Agriculture and other
Federal agencies, State
agencies including the
Agricultural Experiment
Stations, and local
participants

Custom Soil Resource⁰⁰⁰¹⁴⁷ Report for Logan and Mingo Counties, West Virginia

Logan-Mingo Readiness Center



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://soils.usda.gov/sqi/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<http://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist (http://soils.usda.gov/contact/state_offices/).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Soil Data Mart Web site or the NRCS Web Soil Survey. The Soil Data Mart is the data storage site for the official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil scientists classified and named the soils in the survey area, they compared the

Custom Soil Resource Report

individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

000154



Custom Soil Resource Report

MAP LEGEND






















Area of Interest (AOI)


 Area of Interest (AOI)

Soils

 Soil Map Units

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot

-  Very Stony Spot
-  Wet Spot
-  Other


Special Line Features

-  Gully
-  Short Steep Slope
-  Other

Political Features

-  Cities

Water Features

-  Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

MAP INFORMATION

Map Scale: 1:1,770 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Logan and Mingo Counties, West Virginia
Survey Area Data: Version 6, Apr 2, 2009

Date(s) aerial images were photographed: 8/25/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Logan and Mingo Counties, West Virginia (WV620)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FkF	Fiveblock and Kaymine soils, 35 to 80 percent slopes, extremely stony	10.3	100.0%
Totals for Area of Interest		10.3	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Custom Soil Resource Report

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Logan and Mingo Counties, West Virginia

FkF—Fiveblock and Kaymine soils, 35 to 80 percent slopes, extremely stony

Map Unit Setting

Elevation: 3,610 to 4,590 feet
Mean annual precipitation: 43 to 51 inches
Mean annual air temperature: 43 to 54 degrees F
Frost-free period: 149 to 175 days

Map Unit Composition

Fiveblock and similar soils: 45 percent
Kaymine and similar soils: 45 percent
Minor components: 10 percent

Description of Kaymine

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy-skeletal mine spoil or earthy fill

Properties and qualities

Slope: 35 to 80 percent
Surface area covered with cobbles, stones or boulders: 9.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high
(0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Low (about 4.9 inches)

Interpretive groups

Land capability (nonirrigated): 7s
Other vegetative classification: Not Suited (NS)

Typical profile

0 to 4 inches: Very channery loam
4 to 65 inches: Extremely channery loam

Description of Fiveblock

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Skeletal loamy mine spoil or earthy fill

Custom Soil Resource Report

Properties and qualities*Slope:* 35 to 80 percent*Surface area covered with cobbles, stones or boulders:* 9.0 percent*Depth to restrictive feature:* More than 80 inches*Drainage class:* Somewhat excessively drained*Capacity of the most limiting layer to transmit water (Ksat):* High to very high (1.98 to 19.98 in/hr)*Depth to water table:* More than 80 inches*Frequency of flooding:* None*Frequency of ponding:* None*Available water capacity:* Low (about 5.4 inches)**Interpretive groups***Land capability (nonirrigated):* 7s*Other vegetative classification:* Not Suited (NS)**Typical profile***0 to 10 inches:* Extremely channery sandy loam*10 to 65 inches:* Extremely channery sandy loam**Minor Components****Matewan***Percent of map unit:* 4 percent**Highsplint***Percent of map unit:* 3 percent*Other vegetative classification:* Very Rocky, Acid Soils (RA3)**Guyandotte***Percent of map unit:* 3 percent*Other vegetative classification:* Not Suited (NS)

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Erosion Factors

Soil Erosion Factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

K Factor, Whole Soil

Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and saturated hydraulic conductivity (Ksat). Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw (whole soil)" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.
























Custom Soil Resource Report
Map—K Factor, Whole Soil

000161



Custom Soil Resource Report

MAP LEGEND

Area of Interest (AOI)		Interstate Highways
Area of Interest (AOI)		US Routes
Soils		Major Roads
		Local Roads
Soil Map Units		
Soil Ratings		
	.02	
	.05	
	.10	
	.15	
	.17	
	.20	
	.24	
	.28	
	.32	
	.37	
	.43	
	.49	
	.55	
	.64	
	Not rated or not available	
Political Features		
	Cities	
Water Features		
	Streams and Canals	
Transportation		
	Rails	

MAP INFORMATION

Map Scale: 1:1,770 if printed on A size (8.5" × 11") sheet.

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for accurate map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>
Coordinate System: UTM Zone 17N NAD83

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Logan and Mingo Counties, West Virginia
Survey Area Data: Version 6, Apr 2, 2009

Date(s) aerial images were photographed: 8/25/2007

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Custom Soil Resource Report

Table—K Factor, Whole Soil

K Factor, Whole Soil— Summary by Map Unit — Logan and Mingo Counties, West Virginia (WV620)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
FkF	Fiveblock and Kaymine soils, 35 to 80 percent slopes, extremely stony	.32	10.3	100.0%
Totals for Area of Interest			10.3	100.0%

Rating Options—K Factor, Whole Soil*Aggregation Method:* Dominant Condition*Component Percent Cutoff:* None Specified*Tie-break Rule:* Higher*Layer Options:* Surface Layer

Custom Soil Resource Report

Soil Reports

The Soil Reports section includes various formatted tabular and narrative reports (tables) containing data for each selected soil map unit and each component of each unit. No aggregation of data has occurred as is done in reports in the Soil Properties and Qualities and Suitabilities and Limitations sections.

The reports contain soil interpretive information as well as basic soil properties and qualities. A description of each report (table) is included.

Soil Erosion

This folder contains a collection of tabular reports that present soil erosion factors and groupings. The reports (tables) include all selected map units and components for each map unit. Soil erosion factors are soil properties and interpretations used in evaluating the soil for potential erosion. Example soil erosion factors can include K factor for the whole soil or on a rock free basis, T factor, wind erodibility group and wind erodibility index.

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factors Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the surface horizon.

Report—RUSLE2 Related Attributes

RUSLE2 Related Attributes— Logan and Mingo Counties, West Virginia								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
FkF—Fiveblock and Kaymine soils, 35 to 80 percent slopes, extremely stony								
Fiveblock	45	66	C	.43	5	65.7	24.3	10.0
Kaymine	45	66	C	.43	5	41.6	38.4	20.0

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Custom Soil Resource Report

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Section 2

Tab C

Proposed Construction Schedule

**LOGAN-MINGO READINESS CENTER
PROPOSED CONSTRUCTION SCHEDULE**

Phase 1 – 07/15/2013

- Mobilize trailers

Phase 2 – 08/01/13 to 08/31/13

- Set staging area and establish parking area
- Build sediment/retention pond
- Install temporary diversions to ponds
- Install remaining sediment and erosion control measures

Phase 3 – 09/01/13 to 10/31/13

- Clear and grub main site
- Deep Dynamic Compaction program
- Mass excavation (cuts and fills)

Phase 4 – 11/01/13 to 05/31/14

- Stormwater piping and structures
- Site utilities
- Building foundations and structure

Phase 5 – 06/01/14 to 07/01/14

- Stone base for roads and parking areas
- Continue building structures
- Permanent and/or temporary seeding of entire site

Phase 6 – 07/01/14 to 10/31/14

- Continue building structures
- Concrete paving (all areas)
- Permanent seeding of remaining disturbed areas

Phase 7 – 11/01/14 to 06/30/15

- Finish building

Anticipated submission of Notice of Termination – 10/15/14

Total Project Completion by June 30, 2015

Section 2

Tab D

Sequence of Construction (Phasing)

LOGAN-MINGO READINESS CENTER SEQUENCE OF CONSTRUCTION (PHASING)

PHASE 1

- Install stabilized construction entrance at all locations where equipment and vehicles enter public streets/roads.
- Mobilize trailers.

PHASE 2

- Remove topsoil from the footprint of staging area and stockpile. Temporary seed & mulch topsoil stockpile.
- Install additional sediment control such as silt fence or diversions as required for construction of sediment basin.
- Install sediment/retention pond.
- Install temporary sediment control devices as shown on the drawings including temporary diversions and stone check dams.

PHASE 3

- Clear and grub areas of cut or fill.
- Remove topsoil from the footprint of fill area and stockpile. Temporary seed & mulch topsoil stockpile.
- Perform Deep Dynamic Compaction program.
- Perform bulk excavation.
- Inspect all erosion and sediment control structures and devices at least once every seven days and within 24 hours after any storm event greater than 0.5 inches of rain per 24 hour period. Any structure or device not performing adequately shall be reconstructed or replaced as necessary.
- Permanently seed & mulch within 7 days of reaching final grade all disturbed areas that will not be disturbed in later stages of construction and temporary seed & mulch areas that will not be worked for 14 days or more.

PHASE 4

- Install permanent stormwater piping.
- Continue inspection and maintenance of all sediment and erosion control devices during building construction.
- Install temporary sediment and erosion control measures such as silt fence and inlet protection as needed.
- Shape slopes and temporary seed all disturbed areas outside the building footprint.
- Begin construction of building foundations and structure.

PHASE 5

- Install temporary sediment and erosion control measures such as silt fence and inlet protection.
- Permanently seed and mulch areas at final grade.
- Continue inspection and maintenance of sediment control measures.

PHASE 6

- Install temporary sediment control devices such as inlet protection and silt fence as needed.
- Perform permanent seeding on any areas not previously seeded with final seed mix.
- Continue inspection and maintenance of sediment control measures.

PHASE 7

- Upon completion of project including adequate stabilization, remove silt fence, remove sediment from sediment basin, remove inlet protection and diversions.

PROJECT CLOSEOUT

- Convert sediment basin and submit as-built plans to WVDEP for permanent Retention Pond.
- Submit Notice of Termination to WVDEP.

Section 2

Tab E

Sediment and Erosion Control Plans

1. ALL UNDERGROUND UTILS AS SHOWN HEREON ARE APPROXIMATE LOCATIONS AND ARE BASED ON UTILITY COMPANY MAINTAINING, EXISTING STRUCTURE LOCATIONS AND PLAN INFORMATION PROVIDED BY OTHERS, IT IS THE CONTRACTORS RESPONSIBILITY TO VERIFY LOCATIONS PRIOR TO CONSTRUCTION.

2. TOPOGRAPHIC MAPPING COMPLETED FROM AERIAL SURVEY PERFORMED BY PHOTO SCIENCE INC., LEXINGTON, KY FOR THE CITY OF LEXINGTON, KY AND TOPOGRAPHIC DATA HANDMADE & CHECKED FOR ACCURACY BY CAPTOL ENGINEERING, INC. BY FIELD SURVEY.

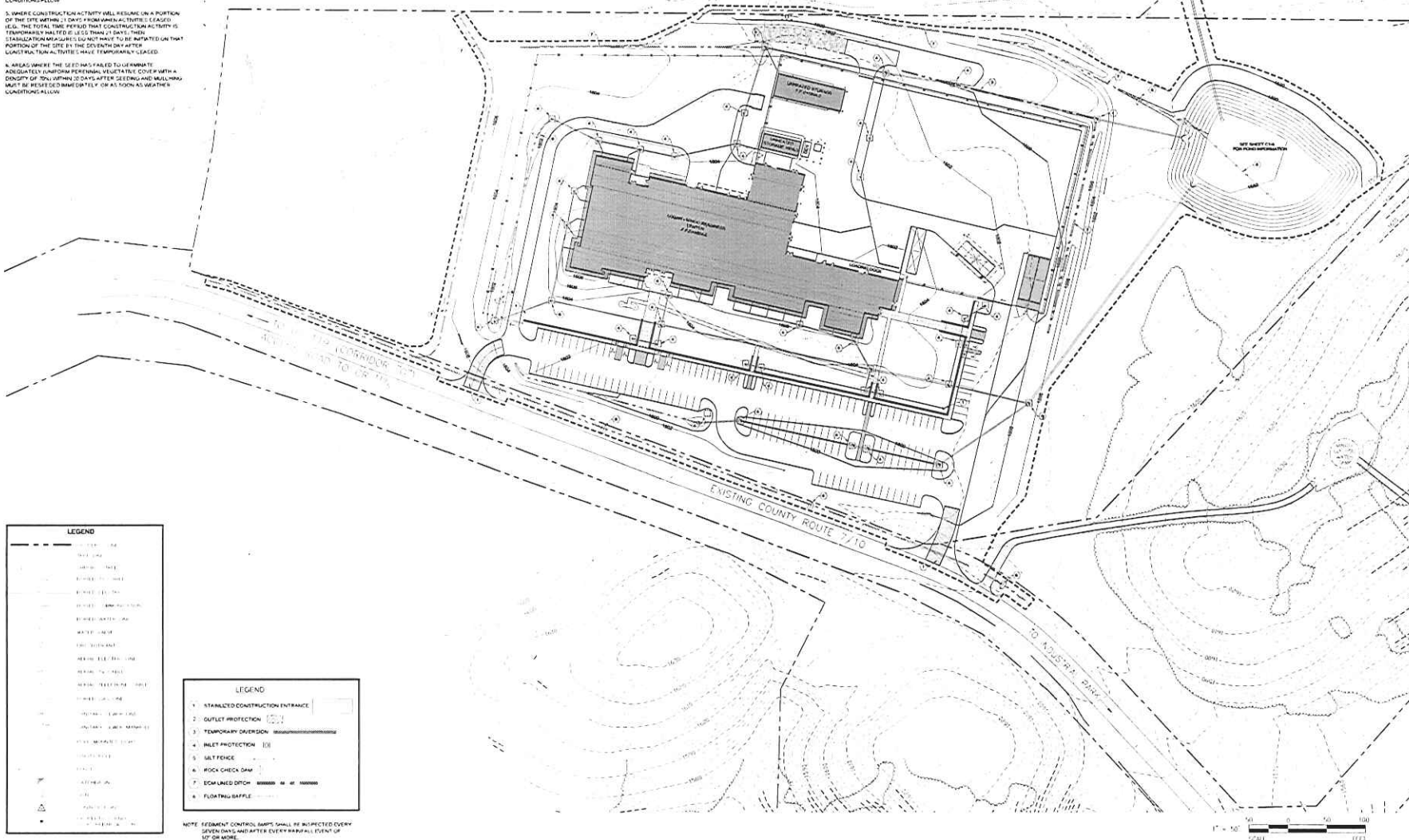
3. PROPERTY INFORMATION OBTAINED FROM A PLAT NAMED "PLAT OF SURVEY SHOWING A TRACT OF LAND CONTAINING 66 ACRES TO BE CONVEYED TO THE STATE OF WEST VIRGINIA OFFICE OF THE ADJUTANT GENERAL BY GOLF AND CRANE REAL ESTATE TRUST" PREPARED AND SURVEYED BY J. S. JORDAN ENGINEERING, INC., LEXINGTON, KY.

2. ALL DISTURBED AREAS OUTSIDE OF THE WORKING PROPERTY SHALL BE REVEGETATED WITH THE SAME SEED. SEE SPECIFICATION SECTION 32000 "TURFS AND GRASSES".

4. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASES IS PRECLUDED BY SNOW COVER STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS CONDITIONS ALLOW

3. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED (E.G., THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY HALTED IS LESS THAN 21 DAYS); THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH DAY AFTER CONSTRUCTION ACTIVITIES HAVE TEMPORARILY CEASED.

6. AREAS WHERE THE SEED HAS FAILED TO GERMINATE ADEQUATELY (UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70% WITHIN 30 DAYS AFTER SEEDING AND MULLING) MUST BE RESEED IMMEDIATELY OR AS SOON AS WEATHER CONDITIONS ALLOW.

[illegible]

1. STABILIZED CONSTRUCTION ENTRANCE
2. OUTLET PROTECTION
3. TEMPORARY DIVERSION
4. INLET PROTECTION
5. SILT FENCE
6. ROCK CHECK DAM
7. ERM LINED DITCH
8. FLOATING BAFFLE

NOTE: SEDIMENT CONTROL BARRIERS SHALL BE INSPECTED EVERY SEVEN DAYS AND AFTER EVERY RAINFALL EVENT OF 1/2" OR MORE.



CEI
Capitol Engineering, Inc.
1400 Kanawha Blvd. N. Suite 200
Charleston, WV 25304

DESCRIPTION

510



222 Lee Street, West
Charleston, West Virginia 25302
Phone: 304.342.0159
Fax: 304.345.8144
www.zmn.com

www.iron.com

The New
LOGAN - MINGO READINESS CENTER
West Virginia Army National Guard
Logan/Mingo Counties, West Virginia

CONSTRUCTION DOCUMENTS



EROSION AND
SEDIMENT
CONTROL PLAN

DRAWN
JC

CHECKED
PMF

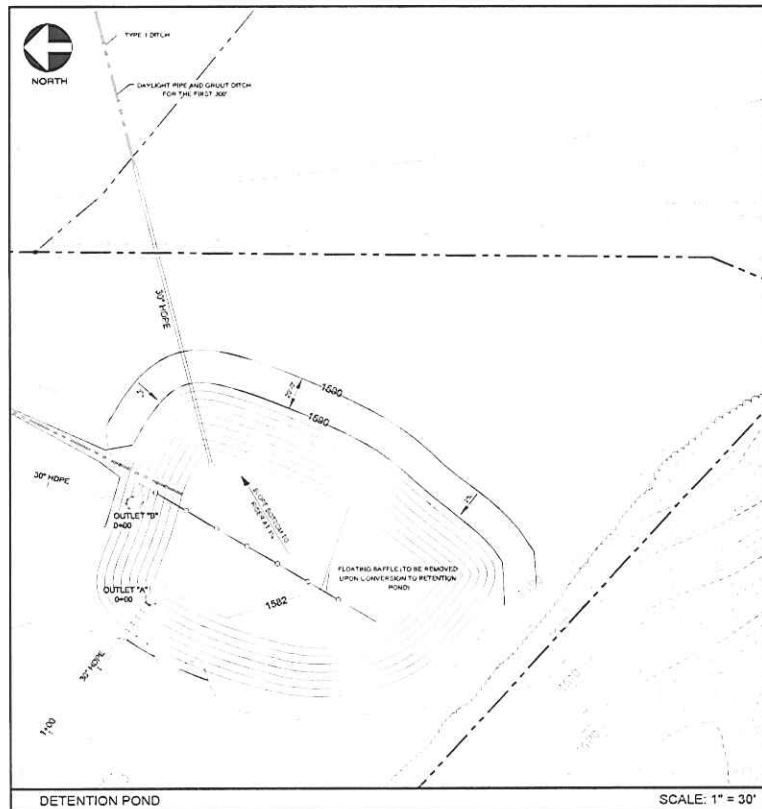
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C1-7



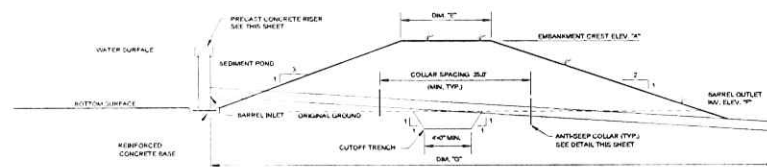


SEDIMENT BASIN MAINTENANCE REQUIREMENTS

1. GENERAL MAINTENANCE
 - A. SEDIMENT BASIN SHALL BE CLEANED OUT REGULARLY AND VEGETATIVE COVER ESTABLISHED.
 - B. CLEAN OUT INLET AREA AFTER EACH RUNOFF EVENT.
 - C. INSPECT WEEKLY, OR AFTER EVERY RUNOFF STORM PRODUCING EVENT, WHICHEVER COMES FIRST.
 - D. REMOVE DEBRIS FROM THE TRANSDUCER.
 - E. CHECK AND CLEAR THE ORIFICE OF ANY OBSTRUCTIONS.
 - F. CHECK THE RETAIN WALL SLOPES, REMOVE TRASH OR REMAIN ERODED AREAS BEFORE THE NEXT RAINFALL EVENT.
 - G. REMOVE ALL WOODEN VEGETATION FROM THE EMBANKMENT.
2. QUARTERLY OR AS REQUIRED
 - A. INSPECT THE COLLECTION SYSTEM, I.E. CATCH BASINS AND PIPING FOR PROPER FUNCTIONING.
 - B. CLEAR ACCUMULATED TRASH FROM BASIN GRATES AND BASIN BOTTOMS AND CHECK PIPING FOR OBSTRUCTIONS.
 - C. CHECK THE RETAIN WALL SLOPES, REMOVE TRASH OR REMAIN ERODED AREAS BEFORE THE NEXT RAINFALL EVENT.
 - D. REMOVE ALL WOODEN VEGETATION FROM THE EMBANKMENT.
3. FLOOD MONITORING (AS REQUIRED)
 - A. REMOVE ACCUMULATED SEDIMENT FROM THE BOTTOM OF THE OUTLET STRUCTURE.
 - B. CHECK THE POND DEPTH AT VARIOUS POINTS IN THE POND. IF THE SEDIMENTS ARE HIGHER THAN CLEANOUT ELEVATION, SEDIMENT WALLS BE REMOVED TO AT LEAST DESIGN DEPTH.
4. GENERAL
 - A. MARK THE EXISTING ELEVATIONS TO THE DESIGN MAXIMUM SURFACE HEIGHT WALL BE 4'.
 - B. ALL COMPONENTS OF THE POND SYSTEM MUST BE KEPT IN GOOD WORKING ORDER.

MAPPING NOTES

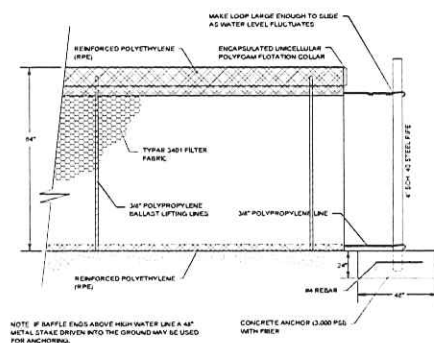
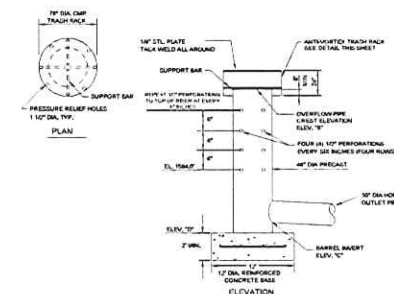
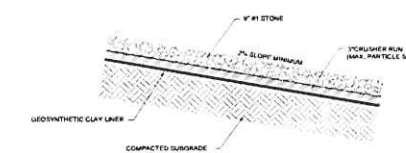
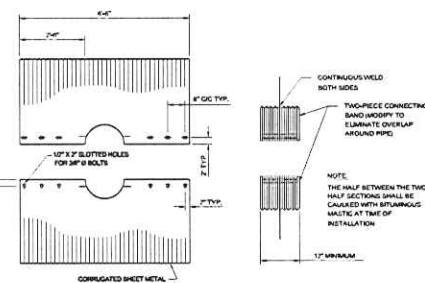
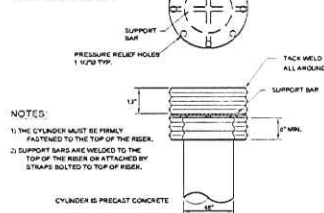
1. ALL UNDERGROUND UTILITIES AS SHOWN HEREON ARE APPROXIMATE LOCATIONS AND ARE BASED ON UTILITY COMPANY RECORDS, EXISTING STRUCTURE LOCATIONS AND PLANS PROVIDED BY OTHERS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS PRIOR TO CONSTRUCTION.
2. TOPOGRAPHIC MAPPING COMPILED FROM AERIAL SURVEY PERFORMED BY PHOTO SCIENCE INC., LEWISTON, NY ON APRIL 2, 2003. SURVEY CONTROL AND TOPOGRAPHIC DATA HANDILY CHECKED FOR ACCURACY BY CAPTOL ENGINEERING, INC. BY FIELD SURVEY.
3. PROPERTY INFORMATION OBTAINED FROM A PLAT NAMED "PLAT OF SURVEY SHOWING A TRACT OF LAND CONTAINING 6.49 ACRES TO BE CONVEYED TO THE STATE OF WEST VIRGINIA OFFICE OF THE ADJUTANT GENERAL BY COL. AND DIANE REAL ESTATE TRUST" PREPARED AND SURVEYED BY E.L. ROBINSON ENGINEERING COMPANY, CHARLESTON, WV, APRIL 14, 2008.



6
C1-5
NOT TO SCALE

DESCRIPTION	ELEV. A	ELEV. B	ELEV. C	ELEV. D	DN. E	DN. F	DN. G	DN. H	SEDIMENT CLEANOUT ELEV.
POND #1	1508	1503	1502	1508	28'	1576	1507	1503	1503.0

TOP IS 14 GAUGE CORRUGATED METAL OR 1/4" STEEL PLATE. PRESSURE RELIEF HOLES MAY BE OMITTED IF ENDS OR CORRUGATIONS ARE LEFT FULLY OPEN WHEN CORRUGATED TOP IS WELDED TO CYLINDER.



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REVISIONS	DATE	DESCRIPTION



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www.zmm.com

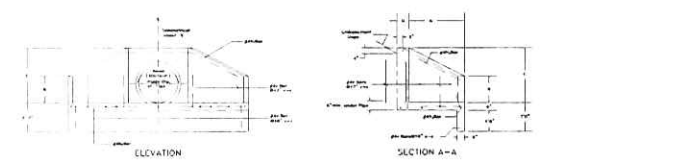
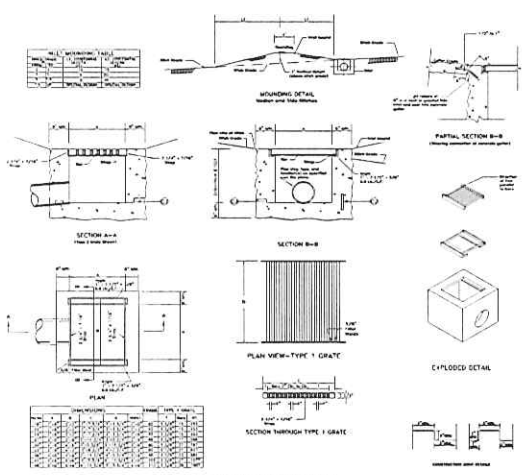
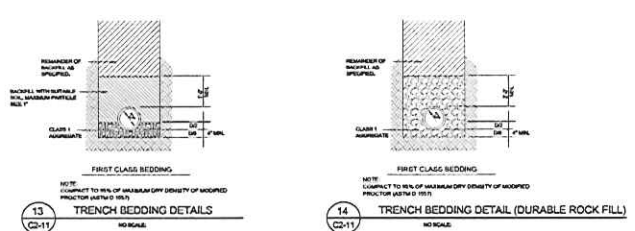
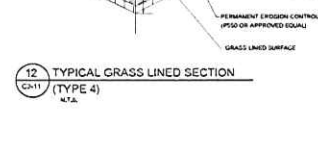
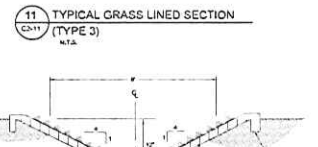
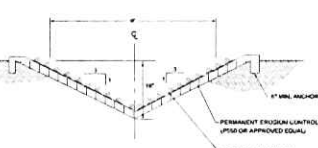
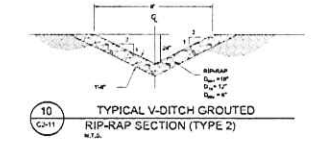
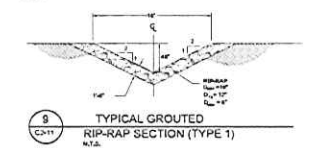
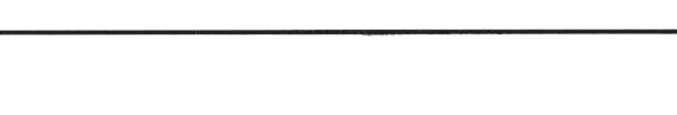
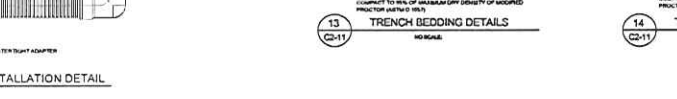
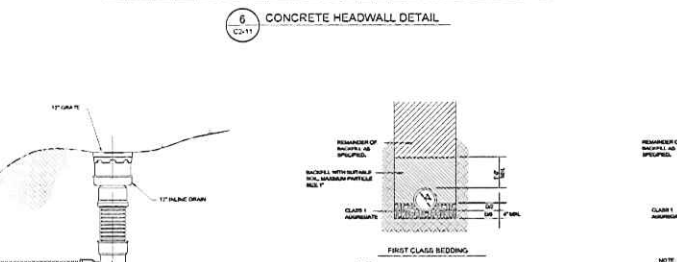
The New
LOGAN - MINGO READINESS CENTER
West Virginia Army National Guard
Logan/Mingo Counties, West Virginia



DETENTION POND PLAN

DESIGNED	CHECKED
JAG	RMP
DATE	1.25.2013
COM. NO.	5812

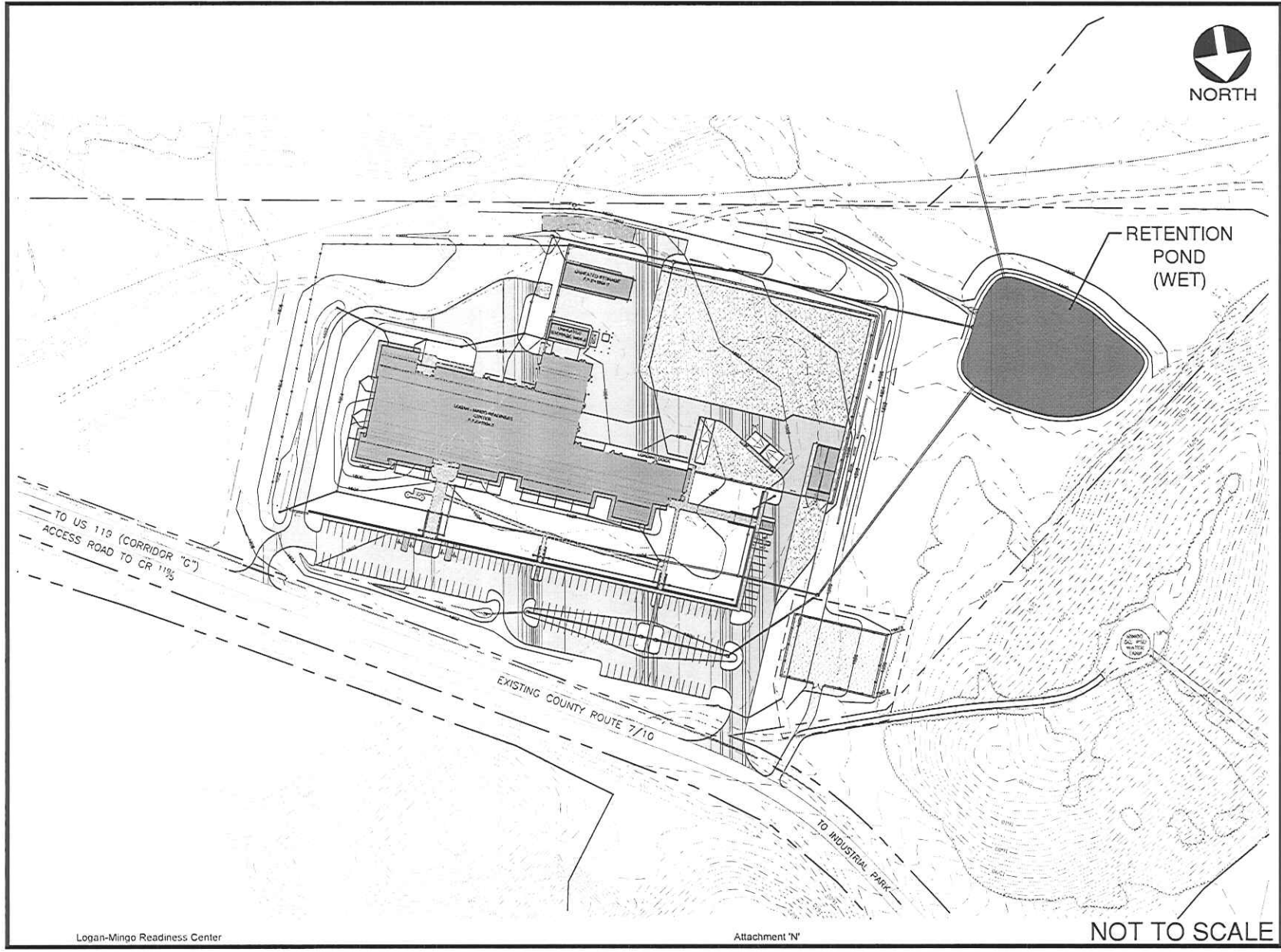
C1-5

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Section 2

Tab F

Stormwater Management Facilities



CEI

Capitol Engineering, Inc.
1206 Kanawha Blvd E, Suite 201
Charleston, WV 25301

LOGAN / MINGO RC STORMWATER MANAGEMENT FACILITIES

D3

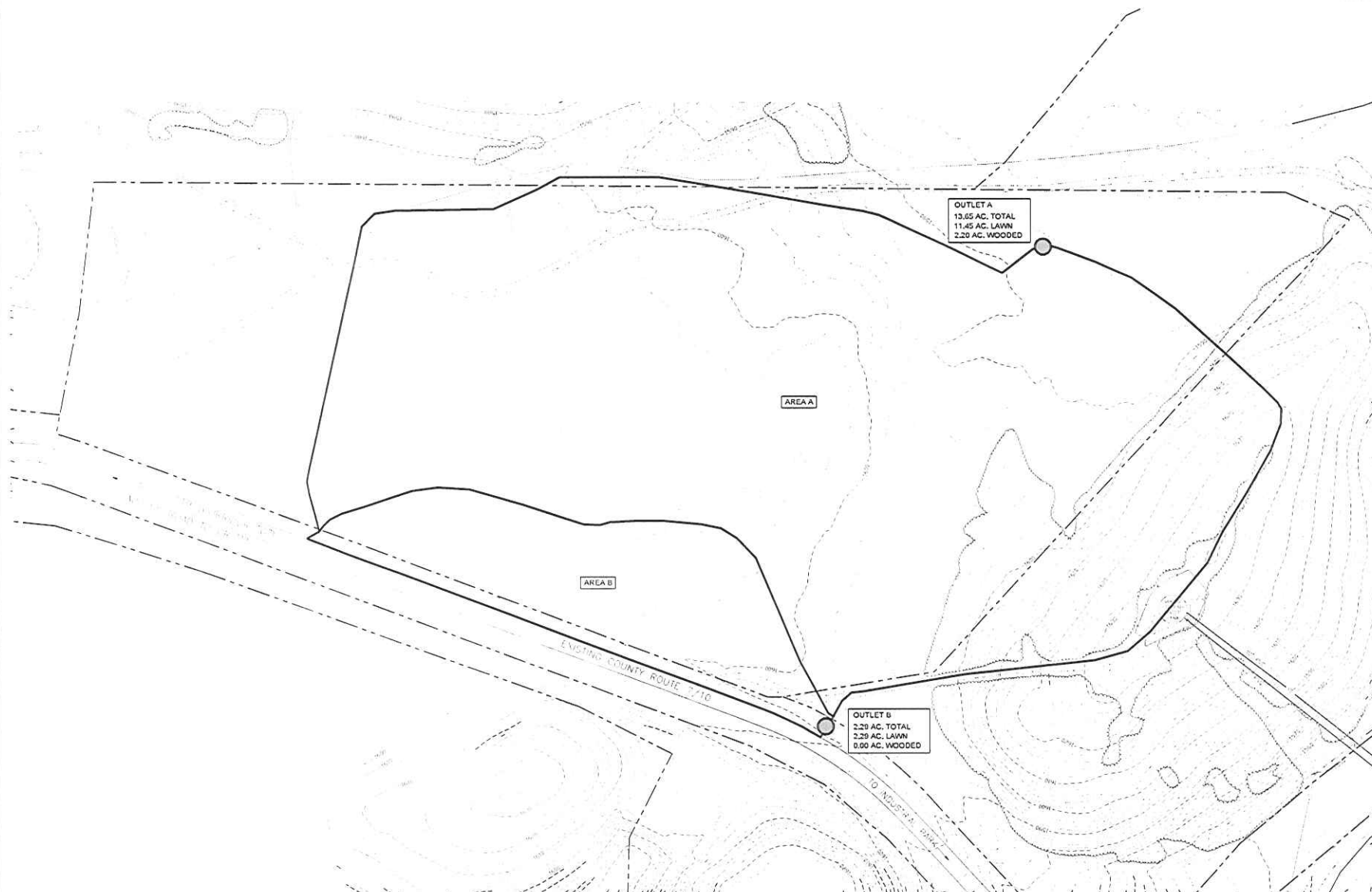
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NOT TO SCALE

Section 2

Tab G

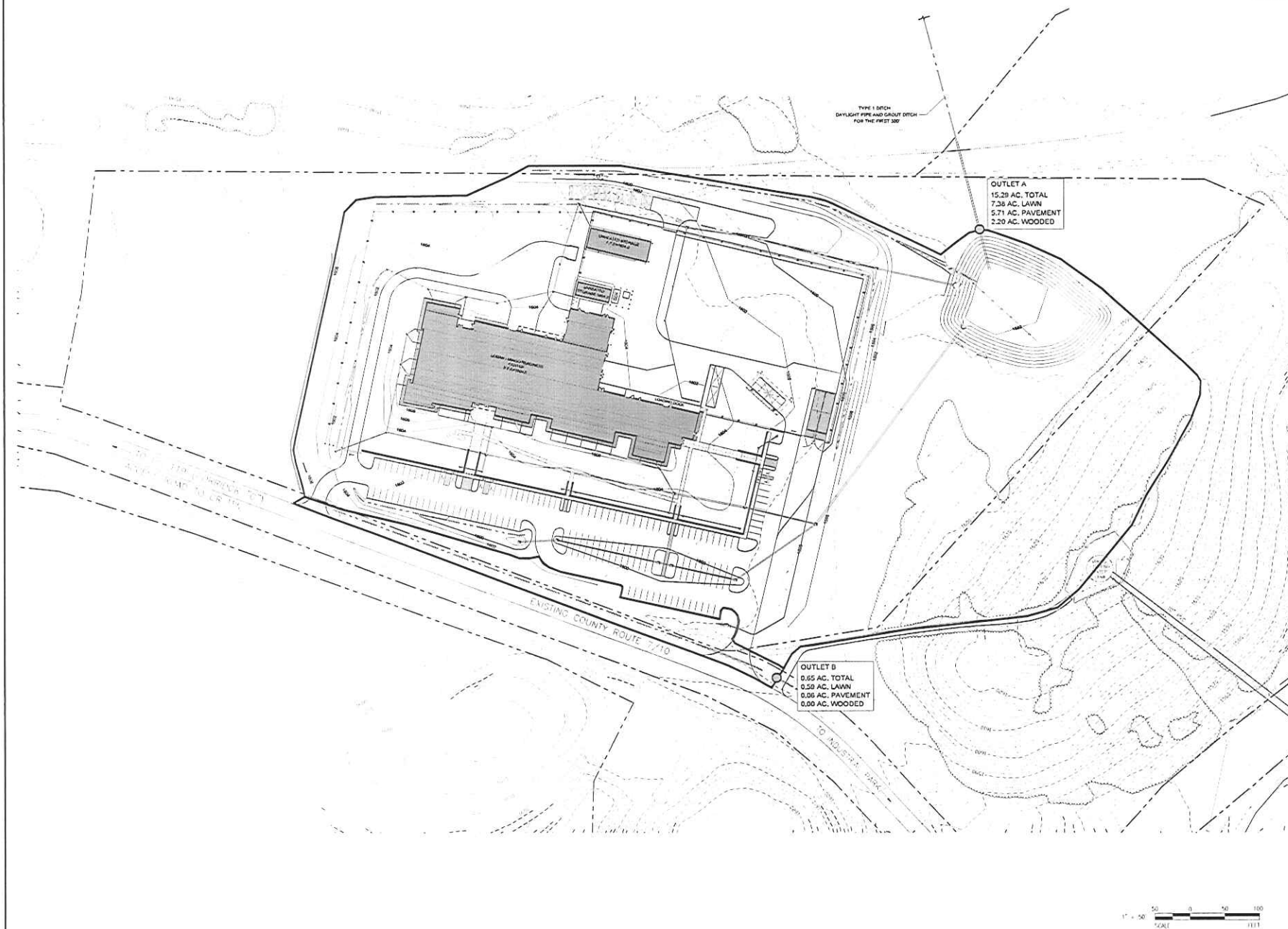
Pre- and Post-Development Drainage Maps



LOGAN - MINGO RC
EXISTING DRAINAGE CONDITIONS

D1

000180

LOGAN - MINGO RC
PROPOSED DRAINAGE CONDITIONS

D2

2003

Section 2

Tab H

Calculations

Section 2

Tab H

Pre- and Post-Development Drainage Calculations

Logan-Mingo Readiness Center

Pre and Post Development Flow Summary

1 YR 24 HR STORM

Outlet	Existing		Post Dev. (No pond)		Post Development (With Retention Pond)
	Flow(cfs)	Area (acres)	Flow(cfs)	Area (acres)	Flow(cfs)
A	3.05	13.65	17.17	15.29	0.80
B	0.69	2.29	0.56	0.65	0.56
Totals	3.74	15.94	17.73	15.94	1.36
Change from Existing Condition			374.1%		-63.6%

Project Description

File Name Logan Pre 1yr Flows.SPF

Project Options

Flow Units CFS
 Elevation Type Elevation
 Hydrology Method SCS TR-20
 Time of Concentration (TOC) Method SCS TR-55
 Link Routing Method Hydrodynamic
 Enable Overflow Ponding at Nodes YES
 Skip Steady State Analysis Time Periods .. NO

Analysis Options

Start Analysis On Dec 17, 2012 00:00:00
 End Analysis On Dec 18, 2012 00:00:00
 Start Reporting On Dec 17, 2012 00:00:00
 Antecedent Dry Days 0 days
 Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
 Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
 Reporting Time Step 0 00:05:00 days hh:mm:ss
 Routing Time Step 30 seconds

Number of Elements

Qty
 Rain Gages 1
 Subbasins 2
 Nodes 2
 Junctions 0
 Outfalls 2
 Flow Diversions 0
 Inlets 0
 Storage Nodes 0
 Links 0
 Channels 0
 Pipes 0
 Pumps 0
 Orifices 0
 Weirs 0
 Outlets 0
 Pollutants 0
 Land Uses 0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1		Time Series	TS-01	Intensity	inches	West Virginia	Logan	1	2.40	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Sub-A	13.65	74.00	2.40	0.55	7.55	3.05	0 01:10:31
2	Sub-B	2.29	74.00	2.40	0.55	1.27	0.69	0 00:46:54

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft ²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-01	Outfall	0.00					0.00	0.00					
2	Out-03	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Sub-A

Input Data

Area (ac) 13.65
 Weighted Curve Number 74.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	13.65	C	74.00
Composite Area & Weighted CN	13.65		74.00

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$$T_c = (0.007 * ((n * L_f)^{0.8})) / ((P^{0.5}) * (S_f^{0.4}))$$

Where :

T_c = Time of Concentration (hr)
 n = Manning's roughness
 L_f = Flow Length (ft)
 P = 2 yr, 24 hr Rainfall (inches)
 S_f = Slope (ft/ft)

Shallow Concentrated Flow Equation :

$V = 16.1345 * (S_f^{0.5})$ (unpaved surface)
 $V = 20.3282 * (S_f^{0.5})$ (paved surface)
 $V = 15.0 * (S_f^{0.5})$ (grassed waterway surface)
 $V = 10.0 * (S_f^{0.5})$ (nearly bare & untilled surface)
 $V = 9.0 * (S_f^{0.5})$ (cultivated straight rows surface)
 $V = 7.0 * (S_f^{0.5})$ (short grass pasture surface)
 $V = 5.0 * (S_f^{0.5})$ (woodland surface)
 $V = 2.5 * (S_f^{0.5})$ (forest w/heavy litter surface)
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where:

T_c = Time of Concentration (hr)
 L_f = Flow Length (ft)
 V = Velocity (ft/sec)
 S_f = Slope (ft/ft)

Channel Flow Equation :

$V = (1.49 * (R^{2/3}) * (S_f^{0.5})) / n$
 $R = A_q / W_p$
 $T_c = (L_f / V) / (3600 \text{ sec/hr})$

Where :

T_c = Time of Concentration (hr)
 L_f = Flow Length (ft)
 R = Hydraulic Radius (ft)
 A_q = Flow Area (ft²)
 W_p = Wetted Perimeter (ft)
 V = Velocity (ft/sec)
 S_f = Slope (ft/ft)
 n = Manning's roughness

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	.30	0.00	0.00
Flow Length (ft) :	300	0.00	0.00
Slope (%) :	1.2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	2.74	0.00	0.00
Velocity (ft/sec) :	0.09	0.00	0.00
Computed Flow Time (min) :	54.46	0.00	0.00

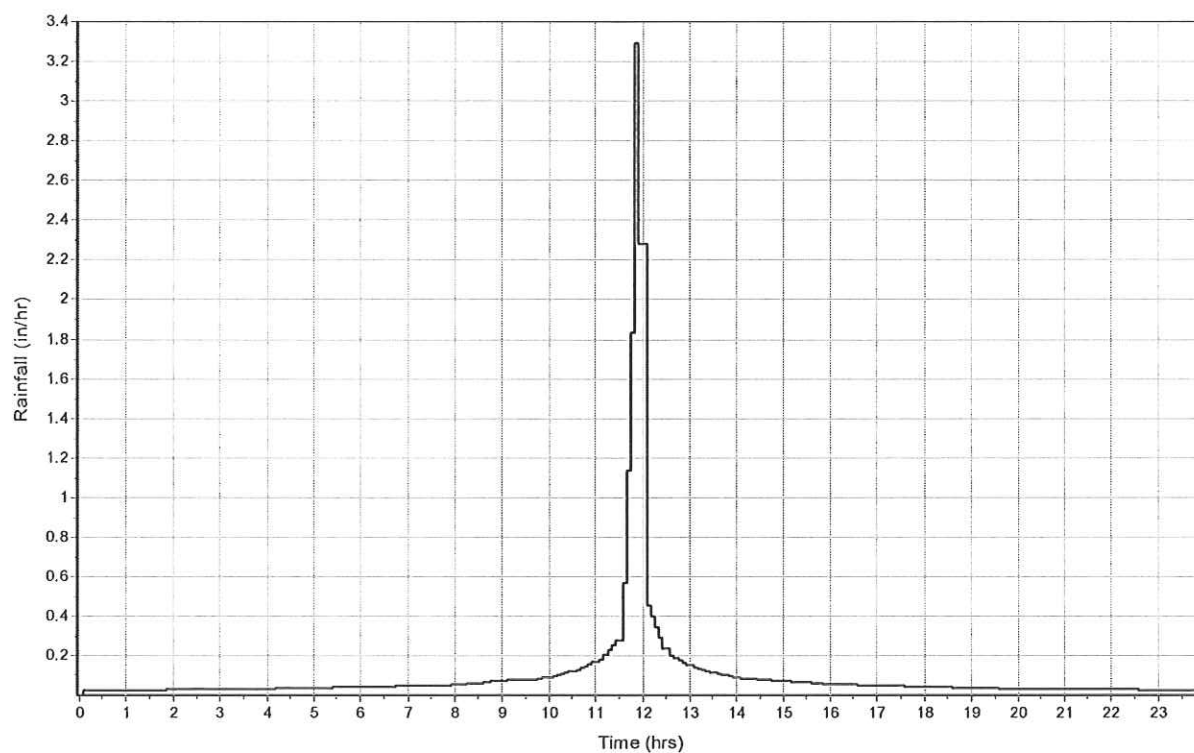
Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	800	0.00	0.00
Slope (%) :	1.4	0.00	0.00
Surface Type :	Grass pasture	Unpaved	Unpaved
Velocity (ft/sec) :	0.83	0.00	0.00
Computed Flow Time (min) :	16.06	0.00	0.00
Total TOC (min)	70.53		

Subbasin Runoff Results

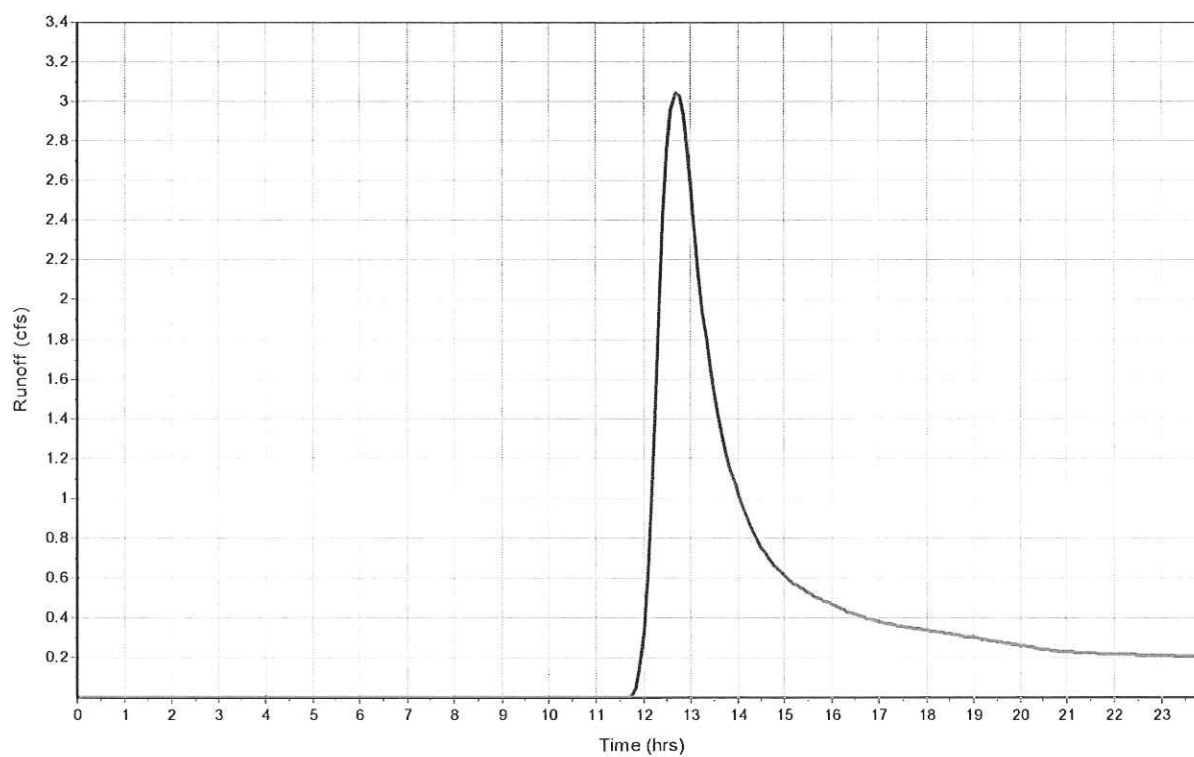
Total Rainfall (in)	2.40
Total Runoff (in)	0.55
Peak Runoff (cfs)	3.05
Weighted Curve Number	74.00
Time of Concentration (days hh:mm:ss)	0 01:10:32

Subbasin : Sub-A

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-B

Input Data

Area (ac) 2.29
 Weighted Curve Number 74.00
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	2.29	C	74.00
Composite Area & Weighted CN	2.29		74.00

Time of Concentration

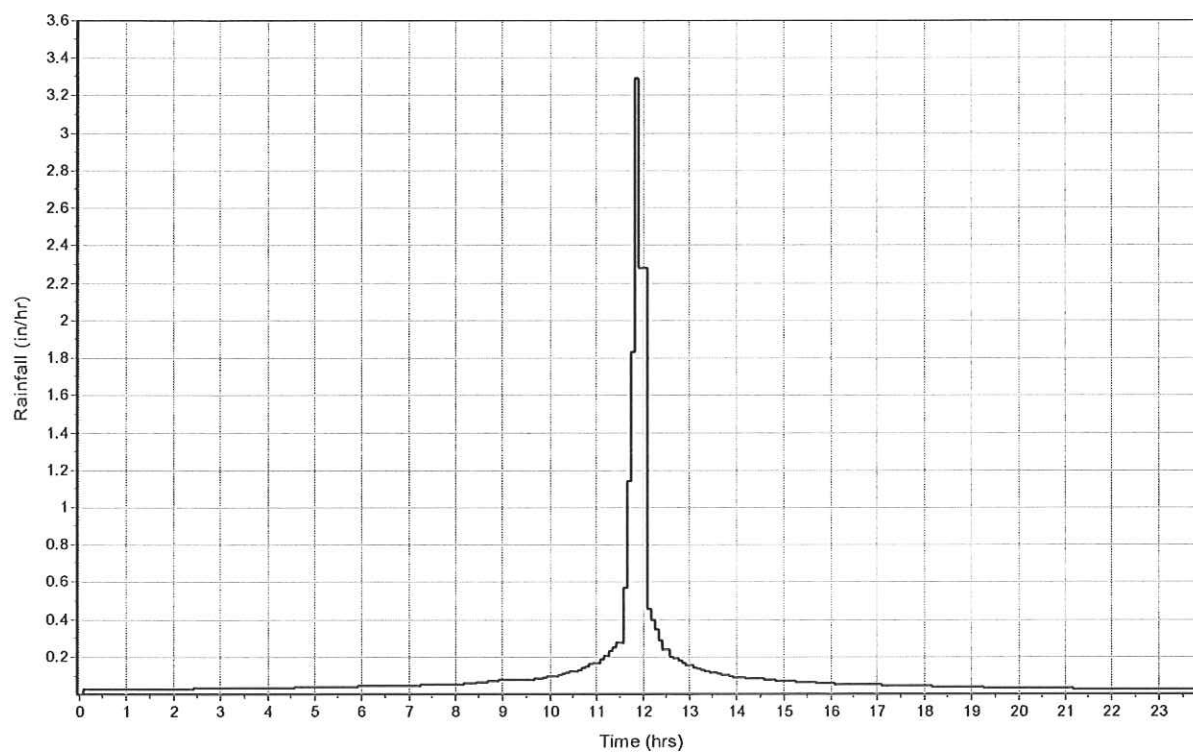
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	150	0.00	0.00
Slope (%) :	1	0.00	0.00
2 yr, 24 hr Rainfall (in) :	2.74	0.00	0.00
Velocity (ft/sec) :	0.06	0.00	0.00
Computed Flow Time (min) :	42.35	0.00	0.00
Shallow Concentrated Flow Computations			
Flow Length (ft) :	439	0.00	0.00
Slope (%) :	1.0	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	1.61	0.00	0.00
Computed Flow Time (min) :	4.54	0.00	0.00
Total TOC (min)	46.90		

Subbasin Runoff Results

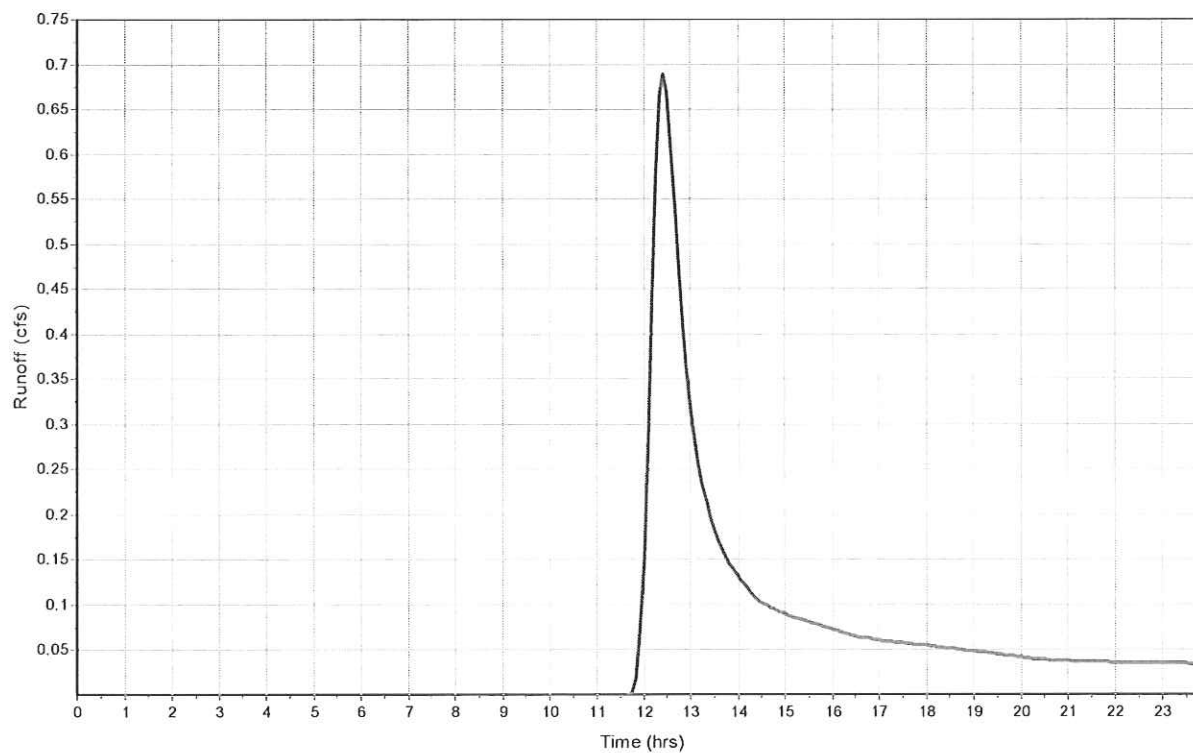
Total Rainfall (in) 2.40
 Total Runoff (in) 0.55
 Peak Runoff (cfs) 0.69
 Weighted Curve Number 74.00
 Time of Concentration (days hh:mm:ss) 0 00:46:54

Subbasin : Sub-B

Rainfall Intensity Graph



Runoff Hydrograph



Project Description

File Name Logan Post 1yr Flows.SPF

Project Options

Flow Units CFS
 Elevation Type Elevation
 Hydrology Method SCS TR-55
 Time of Concentration (TOC) Method SCS TR-55
 Link Routing Method Hydrodynamic
 Enable Overflow Ponding at Nodes YES
 Skip Steady State Analysis Time Periods NO

Analysis Options

Start Analysis On Jan 17, 2013 00:00:00
 End Analysis On Jan 18, 2013 00:00:00
 Start Reporting On Jan 17, 2013 00:00:00
 Antecedent Dry Days 0 days
 Runoff (Dry Weather) Time Step 0 01:00:00 days hh:mm:ss
 Runoff (Wet Weather) Time Step 0 00:05:00 days hh:mm:ss
 Reporting Time Step 0 00:05:00 days hh:mm:ss
 Routing Time Step 30 seconds

Number of Elements

	Qty
Rain Gages	1
Subbasins.....	2
Nodes.....	2
Junctions	0
Outfalls	2
Flow Diversions	0
Inlets	0
Storage Nodes	0
Links.....	0
Channels	0
Pipes	0
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

SN	Rain Gage ID	Data Source	Data Source ID	Rainfall Type	Rain Units	State	County	Return Period (years)	Rainfall Depth (inches)	Rainfall Distribution
1	Rain Gage-01	Time Series	TS-01	Intensity	inches	West Virginia	Logan	1	2.40	SCS Type II 24-hr

Subbasin Summary

SN	Subbasin ID	Area	Weighted Curve Number	Total Rainfall	Total Runoff	Total Runoff Volume	Peak Runoff	Time of Concentration
		(ac)		(in)	(in)	(ac-in)	(cfs)	(days hh:mm:ss)
1	Sub-01	0.65	75.66	2.40	0.62	0.40	0.56	0 00:06:58
2	Sub-02	15.29	81.01	2.40	0.87	13.33	17.17	0 00:12:45

000195

Node Summary

SN	Element ID	Element Type	Invert Elevation	Ground/Rim (Max) Elevation	Initial Water Elevation	Surcharge Elevation	Ponded Area	Peak Inflow	Max HGL Elevation Attained	Max Surcharge Depth Attained	Min Freeboard Attained	Time of Peak Flooding Occurrence	Total Flooded Volume	Total Time Flooded
			(ft)	(ft)	(ft)	(ft)	(ft ²)	(cfs)	(ft)	(ft)	(ft)	(days hh:mm)	(ac-in)	(min)
1	Out-01	Outfall	0.00					0.00	0.00					
2	Out-02	Outfall	0.00					0.00	0.00					

Subbasin Hydrology

Subbasin : Sub-01

Input Data

Area (ac) 0.65
 Weighted Curve Number 75.66
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	0.59	C	74.00
Paved roads with open ditches, 50% imp	0.06	C	92.00
Composite Area & Weighted CN	0.65		75.66

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

$$T_c = (0.007 * ((n * L_f)^{0.8}) / ((P^{0.5}) * (S_f^{0.4})))$$

Where :

T_c = Time of Concentration (hr)
 n = Manning's roughness
 L_f = Flow Length (ft)
 P = 2 yr, 24 hr Rainfall (inches)
 S_f = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (S_f^{0.5}) (unpaved surface)
 V = 20.3282 * (S_f^{0.5}) (paved surface)
 V = 15.0 * (S_f^{0.5}) (grassed waterway surface)
 V = 10.0 * (S_f^{0.5}) (nearly bare & untilled surface)
 V = 9.0 * (S_f^{0.5}) (cultivated straight rows surface)
 V = 7.0 * (S_f^{0.5}) (short grass pasture surface)
 V = 5.0 * (S_f^{0.5}) (woodland surface)
 V = 2.5 * (S_f^{0.5}) (forest w/heavy litter surface)
 T_c = (L_f / V) / (3600 sec/hr)

Where:

T_c = Time of Concentration (hr)
 L_f = Flow Length (ft)
 V = Velocity (ft/sec)
 S_f = Slope (ft/ft)

Channel Flow Equation :

$$V = (1.49 * (R^{2/3}) * (S_f^{0.5})) / n$$

$$R = A_q / W_p$$

$$T_c = (L_f / V) / (3600 \text{ sec/hr})$$

Where :

T_c = Time of Concentration (hr)
 L_f = Flow Length (ft)
 R = Hydraulic Radius (ft)
 A_q = Flow Area (ft²)
 W_p = Wetted Perimeter (ft)
 V = Velocity (ft/sec)
 S_f = Slope (ft/ft)
 n = Manning's roughness

	Subarea	Subarea	Subarea
	A	B	C
Sheet Flow Computations			
Manning's Roughness :	.3	0.00	0.00
Flow Length (ft) :	25	0.00	0.00
Slope (%) :	2	0.00	0.00
2 yr, 24 hr Rainfall (in) :	2.74	0.00	0.00
Velocity (ft/sec) :	0.07	0.00	0.00
Computed Flow Time (min) :	6.08	0.00	0.00

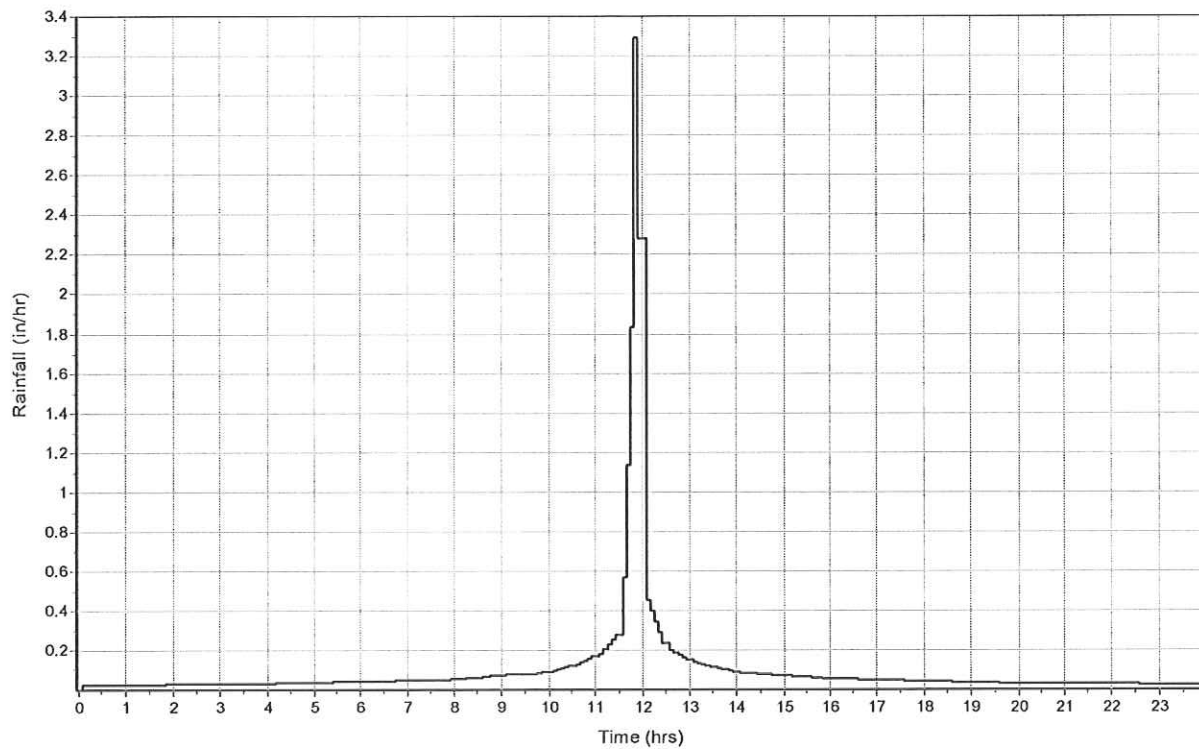
	Subarea	Subarea	Subarea
	A	B	C
Channel Flow Computations			
Manning's Roughness :	.03	0.00	0.00
Flow Length (ft) :	250	0.00	0.00
Channel Slope (%) :	1.2	0.00	0.00
Cross Section Area (ft ²) :	4	0.00	0.00
Wetted Perimeter (ft) :	5	0.00	0.00
Velocity (ft/sec) :	4.69	0.00	0.00
Computed Flow Time (min) :	0.89	0.00	0.00
Total TOC (min)	6.97		

Subbasin Runoff Results

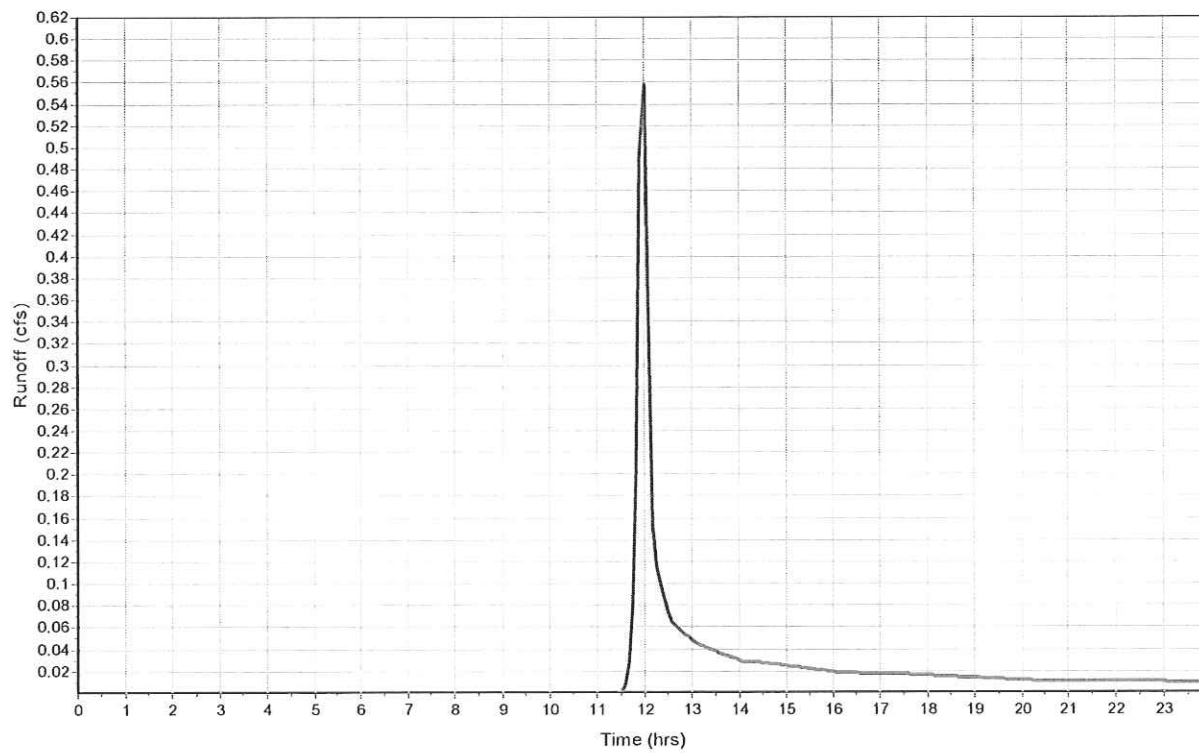
Total Rainfall (in)	2.40
Total Runoff (in)	0.62
Peak Runoff (cfs)	0.56
Weighted Curve Number	75.66
Time of Concentration (days hh:mm:ss)	0 00:06:58

Subbasin : Sub-01

Rainfall Intensity Graph



Runoff Hydrograph



Subbasin : Sub-02

Input Data

Area (ac) 15.29
 Weighted Curve Number 81.01
 Rain Gage ID Rain Gage-01

Composite Curve Number

Soil/Surface Description	Area (acres)	Soil Group	Curve Number
> 75% grass cover, Good	7.38	C	74.00
Paved roads with open ditches, 50% imp	5.71	C	92.00
Woods & grass combination, Fair	2.20	C	76.00
Composite Area & Weighted CN	15.29		81.01

Time of Concentration

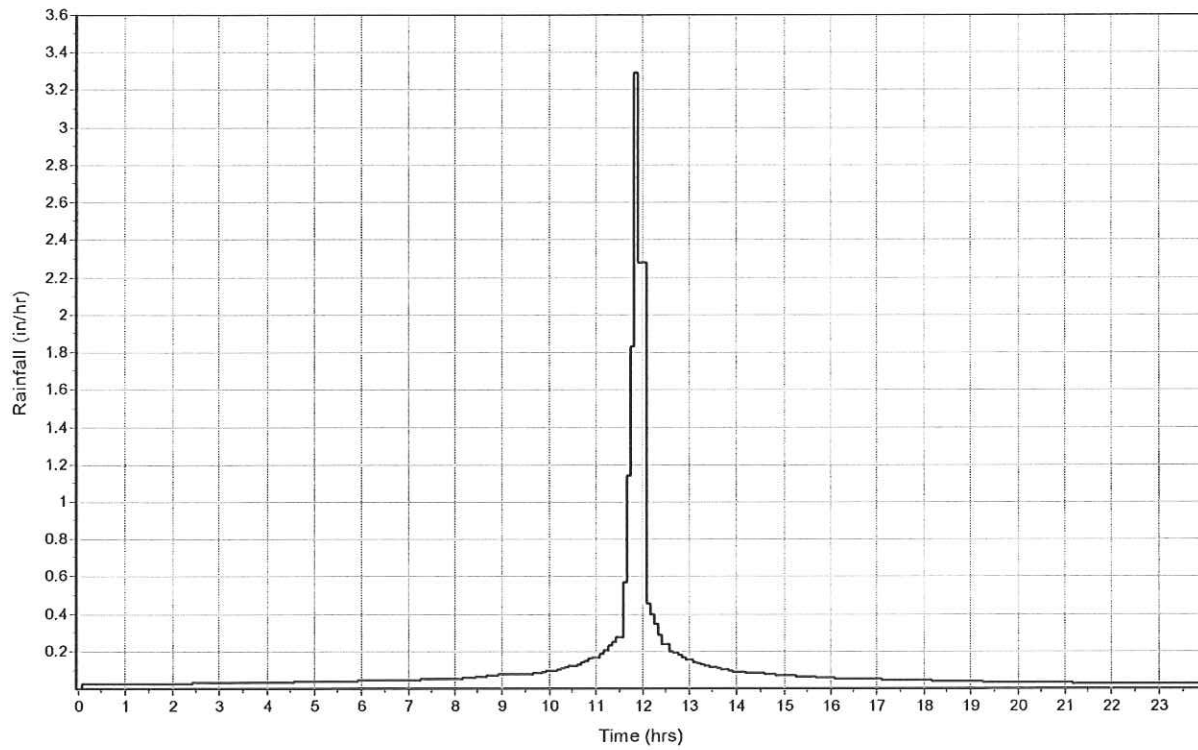
	Subarea A	Subarea B	Subarea C
Sheet Flow Computations			
Manning's Roughness :	.4	0.00	0.00
Flow Length (ft) :	150	0.00	0.00
Slope (%) :	25	0.00	0.00
2 yr, 24 hr Rainfall (in) :	2.74	0.00	0.00
Velocity (ft/sec) :	0.21	0.00	0.00
Computed Flow Time (min) :	11.69	0.00	0.00
Shallow Concentrated Flow Computations			
Flow Length (ft) :	200	0.00	0.00
Slope (%) :	10	0.00	0.00
Surface Type :	Unpaved	Unpaved	Unpaved
Velocity (ft/sec) :	5.10	0.00	0.00
Computed Flow Time (min) :	0.65	0.00	0.00
Channel Flow Computations			
Manning's Roughness :	.03	0.00	0.00
Flow Length (ft) :	150	0.00	0.00
Channel Slope (%) :	1.9	0.00	0.00
Cross Section Area (ft ²) :	4	0.00	0.00
Wetted Perimeter (ft) :	5	0.00	0.00
Velocity (ft/sec) :	5.90	0.00	0.00
Computed Flow Time (min) :	0.42	0.00	0.00
Total TOC (min)	12.76		

Subbasin Runoff Results

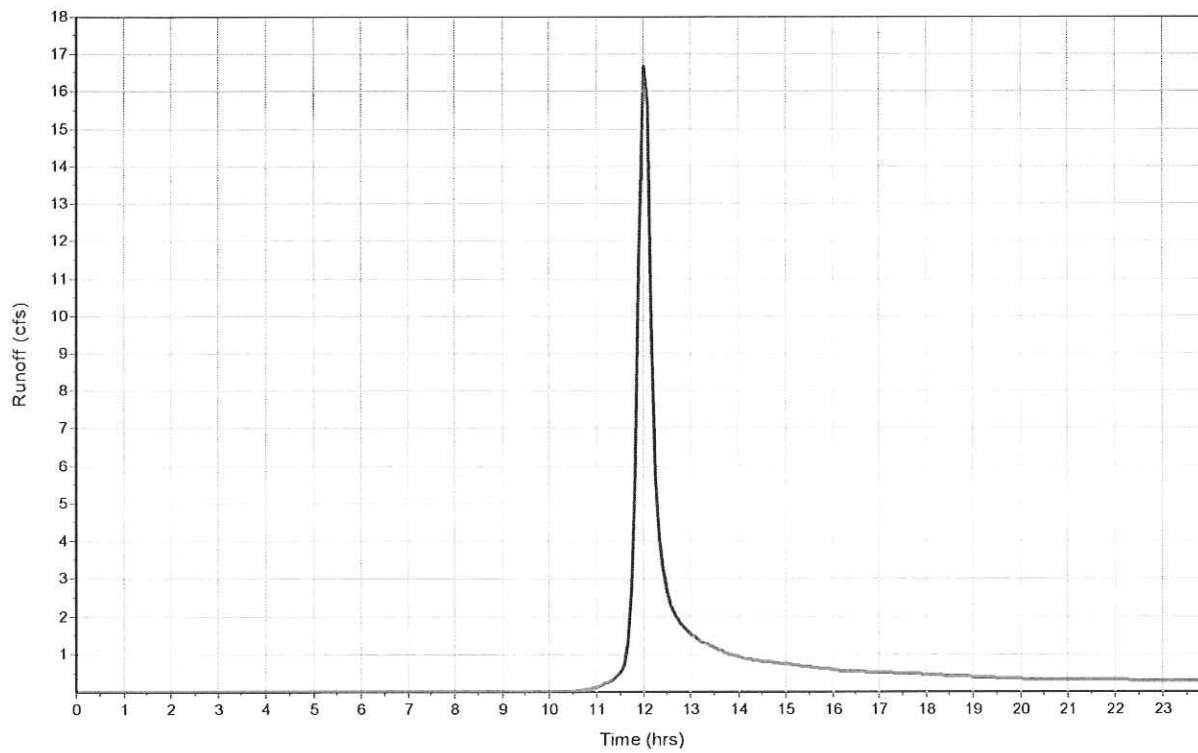
Total Rainfall (in) 2.40
 Total Runoff (in) 0.87
 Peak Runoff (cfs) 17.17
 Weighted Curve Number 81.01
 Time of Concentration (days hh:mm:ss) 0 00:12:46

Subbasin : Sub-02

Rainfall Intensity Graph



Runoff Hydrograph



Section 2

Tab H

Sediment Basin Sizing and Dewatering Calculations

LOGAN-MINGO READINESS CENTER

Temporary Sediment Basin

Sizing Calculations

Drainage Area 13.65 acres

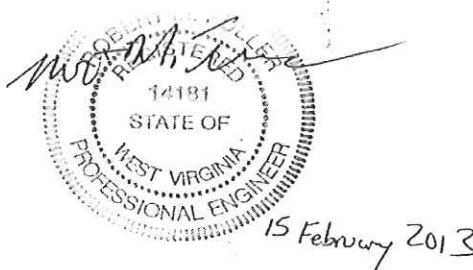
Disturbed Area 13 acres

Total Storage Required 49140

Wet Storage Required 24570

Elevation	Area (sq. ft)	Volume (cf)	Total Volume (cf)
1580	0	0	0
1581	4199	2100	2100
1582	8397	8398	10497
1583	15010	15902	26399 (Cleanout Elevation 1583.0')
1584	17453	23737	50136 (Wet Storage Elevation 1584.0')
1585	20062	10031	60167
1586	22876	28891	89058
1587	25862	32993	122051
1588	29062	37407	159458 (1588.2' = 25yr/24hr Storm Elevation)
1589	32462	42093	201551
1590	36062	47093	248644

Total storage volume at 1588' 159,458



LOGAN-MINGO READINESS CENTER POND DEWATERING CHART

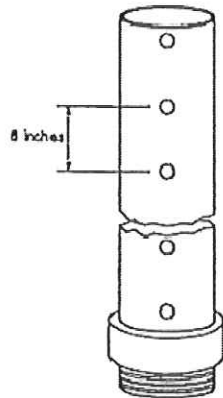


Figure 1. Schematic of a perforated riser principal spillway.

1/2 inch

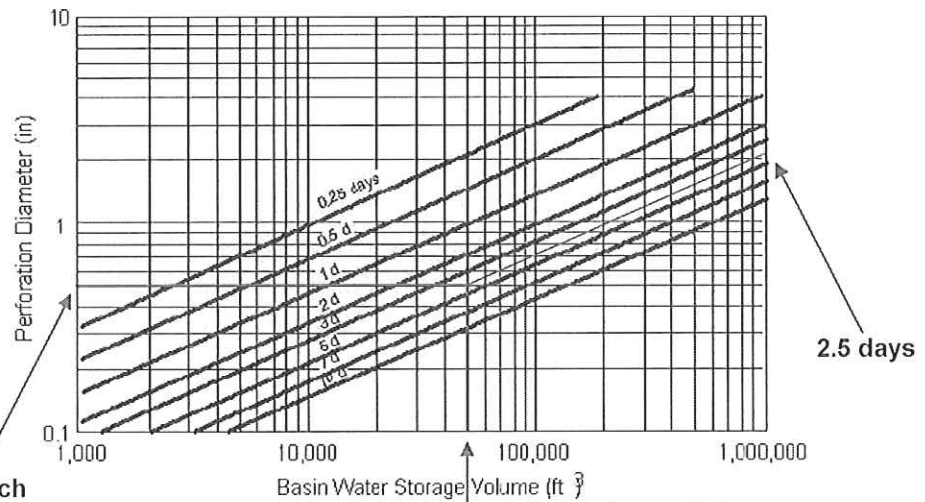


Figure 2. Design chart for a perforated riser with four columns of holes.

50,000

Section 3

Narrative of Final Stormwater Management

NARRATIVE DESCRIPTION OF THE FINAL STORMWATER MANAGEMENT AND POLLUTION PREVENTION

Water quantity will be kept below pre-development levels by the construction of a wet detention pond.

Water quality will be maintained through extended detention and filtering practices. Vegetated swales will be used whenever possible to filter surface water from paved areas. The majority of stormwater from the site will pass through a wet extended detention pond for pollutant removal.

Section 4

Public Notice Sign

For Info on NPDES Stormwater Permit

To comment on Sediment Control Plan:

Call: 800-654-5227

or

WVDEP.Plan@wv.gov

WVDEP, 601 57th Street SE, Charleston WV 25304

Application Date: 02/22/2013

Logan-Mingo Readiness Center
Army National Guard, Logan, WV

Construction of a new 47,000 SF Readiness Center.
Sitework and landscaping improvements to compliment the
new construction.

304-561-6331

Section 5

Groundwater Protection Plan

GENERIC GROUNDWATER PROTECTION PLAN FOR CONSTRUCTION SITES

To be considered a Groundwater Protection Plan (GPP) which can be implemented, this document must be completed in full. If a portion of this plan does not apply to your facility it should be marked "Not Applicable" or "NA". If more space is needed for any section, attach additional sheets to this document. Number any additions with the appropriate section number (For example: 47 CSR 58.4.11.1).

This GPP must be available on site for review at all times. The Director may require modification of a GPP to assure adequate protection of ground water.

If a facility does not have adequate ground water protection practices in place they may submit a compliance schedule for implementation of the necessary practices. This compliance schedule would allow them time (no longer than thirty days) to implement the necessary practices.

FACILITY/SITE INFORMATION	
Facility Name: Logan-Mingo Readiness Center	
Facility location: Logan	County: Logan and Mingo
Latitude: • 39° • 04' • 20"	Longitude: • 78° • 55' • 58"
Contact Person: TBD	Telephone: TBD
Company Name: TBD	
Mailing Address: TBD	
City, State, Zip TBD	
Date Construction to begin: 15 July 2013	
Date Construction to end: 30 June 2015	

I certify that I have personally examined and approved this Groundwater Protection Plan (GPP). This GPP will be implemented and adhered to during the period construction is in progress at this site.

Designated Representative: LTC David Shafer

Title: Construction & Facilities Management Officer

Signature:

Date:

INVENTORY WORK SHEET FOR POTENTIAL CONTAMINANTS (47 CSR 58.4.11.1)

Complete the following table providing the storage location, quantity and potential to contaminate soil or ground water. If the potential contaminate listed is not kept on site, then enter "NA" in all three columns. If this site maintains additional items with the potential to contaminate ground water list the additional items in the spaces provided at the end of this list. The storage location should be indicated on a site map.

Potential Contaminant	Storage Locations	Quantity in Gallons	Potential to Contaminate Soil or Ground Water
Fertilizers/including ammonium nitrate	N/A	N/A	N/A
Batteries/ Battery Acid	N/A	N/A	N/A
Fuels (tanks)	Staging Area	500	Low-tanks will be diked or have secondary containment.
Lubricants (Oil/Grease) (tanks and drums)	N/A	N/A	N/A
Parts Cleaners	N/A	N/A	N/A

PROCEDURES DESIGNED TO PROTECT GROUND WATER AT CONSTRUCTION SITES (47 CSR 58.4.11.2)

Complete the following table providing the practices and procedures, which will be in place at the construction site to prevent contamination of ground water by the potential, contaminates. Equipment cleaning, maintenance activities, pipelines, and sumps and tanks, which contain potential contaminants, must be addressed. Examples of Groundwater Protection Practices can be found in 47 CSR 58.4. et seq.

Potential Contaminant	Procedures to Prevent Contamination of Ground Water
-----------------------	---

Fertilizers including ammonium nitrate	
Batteries/ Battery Acid	
Fuels (Tanks)	Secondary Contaminant
Lubricants (Oil/Grease) (tanks and drums)	
Parts Cleaners	
Storage area for raw materials, product, or wastes	

47 CSR 58.4.11.4.

A summary of all activities carried out under other regulatory programs that have relevance to ground water protection. Indicate below all permits, required plans and regulatory agencies that have any control over the facility and how the facility could impact ground water. Examples WV/National Pollutant Discharge Elimination System, WV/DEP/OWM Solid Waste Facility Permit, WV/DEP/OWM Hazardous Waste Facility Permit, WV/DEP/OWM Underground Storage Tank Program, Resource Conservation Recovery Act (RCRA), Comprehensive Environmental Response, Compensation & Liability Act (CERCLA), Toxic Substances Control Act, Underground Injection Control Permit, and WV Department of Health (septic tanks and sewage systems)

PERMIT NUMBER	PERMIT
	WV / National Pollutant Discharge Elimination System

47 CSR 58.4.11.5.

A discussion of all available information reasonably available to the facility/activity regarding existing ground water quality at, or which may be affected by the site. Complete the following table as much as possible and attach a brief description of readily available information such as soil type, type of underlying geologic formations, the results of any percolation tests conducted by the county health department for septic tanks, and the results of any sampling activity at the facility from monitoring wells, drinking water wells, springs, or seeps. The location of the sampling points should be identified on the site sketch. Monitoring wells and sampling are not requirements of a GPP. However, if the information is available it should be included. Prior spills, remediation efforts, and known contamination, both on site and at adjacent or nearby sites, should be included.

Closest surface water body:	Unnamed Tributary of Fort Run
Distance to closest surface water body:	300'
Depth to ground water (if known):	Unknown
Known ground water monitoring wells within 2000 feet:	N/A
Known public or private drinking water wells within 2000 feet:	N/A
Closest Well Head Protection Area:	N/A
Closest Source Water Protection Area:	N/A

47 CSR 58.4.11.6.

No wastes will be used for deicing, ice control, structural fills, road base or other uses unless provided for in existing regulations.

47 CSR 58.4.11.7.

All employees will be trained on their responsibility to ensure groundwater protection. Current job procedures provide direction on how to prevent ground water contamination through proper work practices.

47 CSR 58.4.11.8.

Every three months during the life of the construction activity the site will be inspected to ensure that all elements and equipment of the sites ground water protection program are in place, properly functioning, and appropriately managed.

NPDES Water Pollution Control

**Permit ID No.
WVR106517**

From: DEP NPDESEP [<mailto:DEP.NPDESEP@wv.gov>]
Sent: Tuesday, April 16, 2013 9:36 AM
To: DEP NPDESEP; david.p.shafer.mil@mail.com
Cc: rfuller@capitolengineering.com; Collier, Matthew B; Musser, Cynthia J
Subject: Approval for WVR106517, Logan-Mingo Readiness Center, Mingo Co., 20 Acres

LTC David Shafer
WV Army National Guard
1707 Coonskin Dr.
Charleston, WV 25311
304-561-6539

Physical Site Location: Co. Rt. 7/10, Delbarton

Please be advised that this e-mail constitutes approval for your construction activity and your registration no. is **WVR106517**. You are now authorized to operate under WV/NPDES General Water Pollution Control Permit No. WV0115924, issued on on December 5, 2012, copy attached.

You should carefully read the contents of this General Permit and become familiar with all requirements needed to remain in compliance with your permit. We've also attached a "Notice of Termination" form to be completed and submitted when all disturbed areas are stabilized. You can also find the permit and Notice of Termination form via the Internet by visiting Permitting, Division of Water and Waste Management at www.dep.wv.gov. Your annual permit fee has been assessed as \$500.00. You will be invoiced by this agency upon the anniversary date of this approval date. Failure to submit the annual fee within ninety (90) days of the due date will render your permit void upon the date you are mailed a certified written notice to that effect. Please be advised that a pro-rated annual permit fee may be assessed upon the completion date and proper stabilization.

If you have any questions relative to this approval, please do not hesitate to contact **Natalie H. Hardman** at (304) 926-0499 Ext. 3139 or by email at Natalie.h.hardman@wv.gov.

Scott G. Mandirola, Director
WV DEP-Division of Water & Waste Mgt.
601 57th St. SE
Charleston, WV 25304-2345
Phone: (304) 926-0495
Fax: (304) 926-0496



STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER AND WASTE MANAGEMENT
601 57th STREET SE
CHARLESTON, WV 25304-2345
GENERAL

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
WATER POLLUTION CONTROL PERMIT

Permit No. WV0115924

Issue Date: December 5, 2012

Effective Date: January 4, 2013

Expiration Date: January 3, 2018

Subject: Stormwater Associated
With Construction Activities

To Whom It May Concern:

This is to certify that any establishment with discharges composed entirely of stormwater associated with construction activities disturbing one acre or greater of land area (construction activities are land disturbing operations such as clearing, grubbing, grading, filling and excavation operations during site development for residential, commercial or industrial purposes) and agreeing to be regulated under the terms of this General Permit, except for;

1. Operations that result in the disturbance of less than one acre of total land area, which are not part of a larger common plan of development or sale.
2. Stormwater discharges associated with land disturbing activities that may reasonably be expected to be causing or contributing to a violation of a water quality standard as determined by the Director.
3. Land disturbing activities already governed by other Department of Environmental Protection NPDES permits. This includes Division of Mining and Reclamation permits for coal mining and non-metallic quarries.
4. Landfills, except in the preparation of a new landfill and/or clay borrow areas.
5. Other activities exempt from NPDES permitting requirements as set forth in 40CFR 122.3(e) and 47CSR 10-3.2.b.4 (NPDES Program).
6. Land disturbing activities related to oil and gas activities as required by the Energy Policy Act of 2005. These activities include but are not limited to

construction of drilling sites, waste management pits, and access roads, as well as construction of the transportation and treatment infrastructure such as pipelines, natural gas treatment plants, natural gas pipeline compressor stations, and crude oil pumping stations. Construction activities that result in a discharge of a reportable quantity release or that contribute pollutants (other than non-contaminated sediments) to a violation of a water quality standard are still subject to permit coverage.

is hereby granted coverage under this General WV/NPDES Water Pollution Control Permit to allow stormwater discharges into the surface waters of the State. This General Permit is subject to the following terms and conditions:

The information submitted on and with the site registration application form will hereby be made terms and conditions of the General Permit with like effect as if all such information were set forth herein, and other pertinent conditions set forth in Sections A, B, C, D, E, F, G, H, I and J.

Construction of single family residences by the homeowner or homeowner's contractor requiring land disturbances less than three acres in size are provided coverage under the General WV/NPDES Water Pollution Control Permit and do not require application for registration. This includes offsite borrow and waste sites. However, all other terms and conditions of the General WV/NPDES Water Pollution Control Permit still apply except for the Notice of Termination requirement. The WVDEP's Individual House Sample Sediment and Erosion Control must be used during the construction of the single family home.

Sites approved from January 1, 2011, thru November 5, 2012, are hereby granted coverage under General WV/NPDES Water Pollution Control Permit WV0115924. Sites approved prior to January 1, 2011, shall have until June 30, 2013, to have final stabilization completed. Final stabilization means disturbed areas shall be covered by the appropriate permanent protection. Final stabilization includes; pavement, buildings, stable waterways (riprap, concrete, grass or pipe), a healthy, vigorous stand of grass or native vegetation that uniformly covers at least 70 percent of the ground, stable outlet channels with velocity dissipation which directs site runoff to a natural watercourse, and any other approved structure or material. Sites that are not stabilized by June 30, 2013, an application to receive permit coverage must be submitted to the Division of Water and Waste Management on or before, July 1, 2013.

Continuation of this general permit

If this general permit is not reissued or replaced prior to the expiration date, it will be administratively continued in accordance with 47 CSR 10 and remain in force and effect. If you were authorized to discharge under this general permit prior to the expiration date, any discharges authorized under this permit will automatically remain covered by this general permit until the earliest of:

- Your authorization for coverage under a reissued general permit or a replacement of this general permit following your timely and appropriate submittal of a complete application requesting authorization to discharge

under the new general permit and compliance with the requirements of the new permit; or

- Your submittal of notification of termination that the facility has ceased operations; or
- Issuance or denial of an individual permit for the facility's discharge; or
- A formal permit decision by DWWM not to reissue this general permit, at which time DWWM will identify a reasonable time period of covered dischargers to seek coverage under an alternative general permit or individual permit. Coverage under this permit will cease at the end of this time period.

SECTION A. TERMS OF PERMIT

Discharges from sites covered under this General Permit shall not cause or contribute to a violation of 47CSR2 (Requirements Governing Water Quality Standards) and 46CSR12, (Requirements Governing Groundwater Standards) of the West Virginia Legislative Rules pursuant to Chapter 22, Article 11 and Article 12. Discharges that are not in compliance with these standards are not authorized.

SECTION B. SCHEDULE OF COMPLIANCE

Compliance with this General Permit, the Stormwater Pollution Prevention Plan and the Groundwater Protection Plan is required upon the beginning of the construction project.

SECTION C. MANAGEMENT CONDITIONS

C.1. Duty to Comply

C.1.a. The permittee must comply with all conditions of this permit. Permit noncompliance constitutes a violation of the federal Clean Water Act (CWA) and State Act (Chapter 22, Article 11 or Article 12) and is grounds for enforcement action; for permit modification, revocation and reissuance, suspension or revocation; or denial of a permit renewal application.

C.1.b. The permittee shall comply with all effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

C.2. Duty to Reapply

If the permittee seeks to continue an activity regulated by this permit after the expiration date of this permit, the permittee must apply for a new permit or General Permit registration as detailed in permit reissuance.

C.3. Duty to Mitigate

The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit, which has a reasonable likelihood of adversely affecting human health or the environment.

C.4. Permit Actions

This permit may be modified, revoked and reissued, suspended, or revoked for cause. The filing of a request by the permittee for permit modification, revocation and reissuance, or revocation, or a notification of a planned change or anticipated noncompliance, does not stay any permit condition.

C.5. Property Rights

This permit does not convey any property rights of any sort, or any exclusive privilege.

C.6. Signatory Requirements

All applications, reports, or information submitted to the Director shall be signed and certified as required in 47CSR10-4.6. (NPDES Program). If an authorization becomes inaccurate because a different individual or position has responsibility for the overall operation of the project, a new authorization must be submitted to the Director prior to, or together with any reports, information, or applications to be signed by an authorized representative.

C.7. Transferability

This permit is not transferable to any person, except after notice to the Director. The Director may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.

C.8. Duty to Provide Information

The permittee shall furnish to the Director, within a reasonable specified time, any information which the Director may request to determine whether cause exists for modifying, revoking and reissuing, suspending, or revoking this permit, or to determine compliance with this permit. This information may include water quality

information as specified by the Director. The permittee shall also furnish to the Director, upon request, copies of records required to be kept by this permit.

C.9. Other Information

Where the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Director, it shall immediately submit such facts or information.

C.10. Inspections and Entry

The permittee shall allow the Director or an authorized representative upon the presentation of credentials and such other documents as may be required by law

- C.10.a. To enter upon the permittee's premises at all reasonable times in which an effluent source or activity is located, or where records must be kept under the conditions of this permit;
- C.10.b. To have access to and copy at reasonable times any records that must be kept under the conditions of this permit;
- C.10.c. To inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit;
- C.10.d. To sample or monitor at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the State Act, any substances or parameters at any location.

C.11. Permit Modification

This permit may be modified, suspended, or revoked in whole or in part during its term in accordance with the provisions of Chapter 22, Article 11 of the Code of West Virginia. Any permittee wishing to modify his coverage under this permit shall submit such request at least 45 days prior to the commencement of the proposed action for modification if no public notice period is required. A modification that requires a public notice period must be submitted at least 90 days prior to construction to allow for the public notice procedure.

C.12. Water Quality

Subject to 47 WV CSR 10.3.4.a, the effluent or effluents covered by this permit are to be of such quality so as not to cause a violation of applicable water quality standards.

C.13. Oil and Hazardous Substance Liability

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties to which the permittee is or may be subject under Section 311 of the CWA.

C.14. Liabilities

C.14.a. Civil

Any person who violates a permit condition implementing Sections 301, 302, 306, 307, 308, 318 or 405 of the CWA is subject to a civil penalty not to exceed \$37,500 per day of such violation (40 CFR Part 19).

C.14.b. Criminal

Any person who negligently violates, among other sections, Section 301, 302, 306, 307, or 308 of the CWA, or any permit condition or limitation implementing any of such section in a permit is subject to a fine of not less than \$2,500 nor more than \$25,000 per day of violation, or by imprisonment for not more than one year, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment shall be a fine of not more than \$50,000 per day, or by imprisonment of not more than 2 years, or both.

Any person who knowingly violates, among other section, Section 301, 302, 306, 307, or 308 of the CWA, or any permit condition or limitation implementing any such sections in a permit, is subject to a fine of not less than \$5,000 nor more than \$50,000 per day of violation, or by imprisonment of not more than 3 years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment shall be a fine of not more than \$100,000, or by imprisonment for not more than 6 years, or both.

C.14.c. Nothing in C.14.a. and C.14.b. shall be construed to limit or prohibit any other authority the Director may have under the State Water Pollution Control Act, Chapter 22, Article 11 and State Groundwater Protection Act, Chapter 22, Article 12.

C.15 Outlet Markers

An outlet marker shall be posted during the term of General Permit coverage in accordance with Title 47, Series 11, Section 9 (Special Rules) of the West Virginia Legislative Rules.

SECTION D. OPERATION AND MAINTENANCE

D.1. Proper Operation and Maintenance

The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of the permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures.

D.2. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

D.3. Bypass

D.3.a. Definitions

D.3.a.1. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility; and

D.3.a.2. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

D.3.b. Bypass not exceeding limitations. The permittee may allow any bypass to occur which does not cause effluent limitations to be exceeded, but only if it also is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions of D.3.c. and D.3.d. of this permit.

D.3.c. Notification of bypass

D.3.c.1. If the permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass.

D.3.c.2. If the permittee does not know in advance of the need for bypass, notice shall be submitted as requires in F.2.a. of this permit.

D.3.d. Prohibition of bypass

D.3.d.1. Bypass is permitted only under the following conditions, and the Director may take enforcement action against a permittee for bypass, unless;

D.3.d.1.A. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage;

D.3.d.1.B. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance. This condition is not satisfied if the sediment and erosion control structures were not installed in the proper sequence; and

D.3.d.1.C. The permittee submitted notices as required under D.3.c. of this permit.

D.3.d.2. The Director may approve an anticipated bypass, after considering its adverse effects, if the Director determines that it will meet the three conditions listed in D.3.d.1. of this permit.

D.4. Upset

D.4.a. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with the technology based permit effluent limits because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

D.4.b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based effluent limitation if the requirements of D.4.c. are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

D.4.c. Conditions necessary for a demonstration of upset. A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:

D.4.c.1. An upset occurred and that the permittee can identify the cause(s) of the upset.

D.4.c.2. The permitted project was at the time being properly operated.

D.4.c.3. The permittee submitted notice of the upset as required in F.2.a. of this permit; and

D.4.c.4. The permittee complied with any remedial measures required under C.3. of this permit.

D.4.d. Burden of proof. In any enforcement proceedings the permittee seeking to establish the occurrence of an upset has the burden of proof.

D.5. Removed Substances

Where removed substances are not otherwise covered by the terms and conditions of this permit or other existing permits by the Director, any solids, sludge, filter backwash or other pollutants (removed in the course of treatment or control of wastewater) and which are intended for disposal within the State, shall be disposed of only in a manner and at a site subject to the approval by the Director. If such substances are intended for disposal outside the State or for reuse, i.e., as a material used for making another product, which in turn has another use, the permittee shall notify the Director in writing of the proposed disposal or use of such substances, the identity of the prospective disposer or users, and the intended place of disposal or use, as appropriate.

SECTION E. MONITORING AND REPORTING AND DEFINITIONS

Monitoring of discharges is not required for construction activities unless directed by the Director.

E.1. Definitions

"Best management practices" (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, other management practices and various structural practices such as but not limited to silt fence, sediment traps, seeding and mulching, and rip-rap used to prevent or reduce erosion and sediment runoff and the pollution of surface waters of the State. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Clearing" means the stage of development in which vegetation is cleared from land. Clearing does not include cutting and removing vegetation with chain saws, brush axes, brush hogs and other mechanical means where there is less than one acre or no soil disturbance.

"Clean Water Act" (CWA) (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 97-117 and Public Law 95-576; 33 U.S.C. 1251 et seq.

"Common plan of development" is a contiguous construction project where multiple separate and distinct construction activities may be taking place at different times on different schedules but under one plan. The "plan" is broadly defined as any announcement or piece of documentation or physical demarcation indicating construction activities may occur on a specific plot; included in this definition are most subdivisions.

"Control" is a best management practice such as erosion control or sediment control that will reduce sedimentation on a construction project.

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"Construction Activity" means land disturbance operations such as clearing, grubbing, grading, filling, and excavating during site development for residential, commercial or industrial purposes. This includes, but is not limited to, access roads, borrow and spoil areas.

"Director" means the Director of the Division of Water and Waste Management, Department of Environmental Protection, or her designated representative.

"Disturbed area" is the total area of land disturbing activity that will take place during all phases of a construction project, including, but not limited to, all waste and borrow sites, utility installation, road building, mass grading, and site development.

"Diversion" means a berm or excavated channel or combination berm and channel constructed across sloping land on a predetermined grade. This includes but is not limited to protecting work areas from upslope runoff and reducing the size of the drainage going to sediment trapping structures (clean water diversion), transporting runoff across a project to minimize erosion and diverting sediment-laden water to an appropriate sediment-trapping structure.

"Erosion" means the displacement of solids (soil, mud, rock, and other particles) by the agents of wind, water, and ice in response to gravity.

"Establishment" means an industrial establishment, mill, factory, tannery, paper and pulp mill, mine, colliery, breaker or mineral processing operation, quarry, refinery, well and each and every industry or plant or works in the operation or process of which industrial wastes, sewage or other wastes are produced.

"Estimate" means to be based on a technical evaluation of the sources contributing to the discharge.

"Excavating" means to engage in digging, hollowing out, or removing, accomplished usually with heavy machinery.

"Final stabilization" means disturbed areas shall be covered by permanent protection. Final stabilization includes pavement, buildings, stable waterways (riprap, concrete, grass or pipe), a healthy, vigorous stand of grass or natural vegetation that uniformly covers at least 70 percent of the ground, stable outlet channels with velocity dissipation that directs site runoff to a natural watercourse, and any other approved structure or material.

"Grading" means changing surface contours by removing soil and stone from one place and building it up in another.

"Groundwater" means the water occurring in the zone of saturation beneath the seasonal high water table or any perched water zones.

"Groundwater Protection Plan" (GPP) means groundwater protection practices developed and implemented in accordance with WV Legislative Rules, 47CSR58 (Groundwater Protection Rule).

“Grubbing” means physically removing vegetative stumps and roots from the ground and disturbing the earth, usually by heavy machinery.

“Linear Project” – includes the construction of roads, bridges, conduits, substructures, pipelines, sewer lines, towers, poles, cables, wires, connectors, switching, regulating and transforming equipment and associated ancillary facilities in a long, narrow area.

“Minor construction activity” means an activity which disturbs one acre or more, but less than three acres.

“National Pollutant Discharge Elimination System” (NPDES) means the national program for issuing, denying, modifying, revoking and reissuing, suspending, revoking, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements under Section 307, 318, 402, and 405 of CWA, including any approved state program.

“Natural vegetative buffer” is an area of undisturbed vegetation that occurs spontaneously without regular maintenance or management and is adjacent to or surrounds streams or other waters.

“Notice of Intent” (NOI) is the form to be submitted by the applicant to register a small construction project (one that disturbs one to less than three acres) under the Construction Stormwater General Permit. A project that disturbs one to less than three acres but will have construction activities one year or longer must file a Site Registration Application Form.

“Notice of Termination” (NOT) is the form to be submitted by the permittee to terminate coverage under the Construction General Stormwater Permit, after final stabilization has been completed. See Final Stabilization.

“Point source” is any discernible, confined and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, and container from which pollutants are or may be discharged to surface waters of the state.

“Pollutant” means industrial waste, sewage or other wastes.

“Post-development” means the anticipated final conditions of the project, including rooftops, parking lots, streets, drainage systems, vegetation, and any other structure planned. For subdivisions and speculative developments, it will be assumed that all lots are developed.

“Pre-development” means the condition of the land, the amount and health of the ground cover and vegetation prior to development.

“Secretary” means the Secretary of the Department of Environmental Protection, or his/her designated representative.

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Permit No. WV0115924

“Sediment” means any particulate matter that can be transported by fluid flow and which eventually is deposited as a layer of solid particles on the bed or bottom of a body of water or other liquid.

“Sedimentation” means the deposition by settling of a suspended material.

“Sediment trap” means a temporary ponding area formed by constructing an embankment or excavation and embankment that will trap the flow of sediment-laden runoff. Sediment traps have a properly stabilized outlet/weir or riser and pipe to detain sediment-laden runoff from disturbed areas of five acres or less. Outlets must be designed to extend the detention time and allow the majority of the sediment to settle out.

“Sediment basin” means a temporary structure consisting of an earthen embankment, or embankment and excavated area, located in a suitable area to capture sediment-laden runoff from a construction site. A sediment basin reduces the energy of the water through extended detention (48 to 72 hours) to settle out the majority of the suspended solids and sediment and prevent sedimentation in waterways, culverts, streams and rivers. Sediment basins have both wet and dry storage space to enhance the trapping efficiency and are appropriate in drainage areas of five acres and greater.

“Sinkhole” means a depression in the land surface formed by solution or collapse that directs surface runoff into subsurface or to an underground drainage flow.

“Site Registration Application forms” means the forms designed by the Director for the purpose of registering for coverage under a General Permit. Under the General Permit there will be two separate forms, one for one to less than three acres (Notice of Intent) and the Site Registration Application form for projects that disturb three acres and greater. A project that disturbs one to less than three acres but will have construction activities one year or longer must file a Site Registration Application form.

“Stormwater” means stormwater runoff, snowmelt runoff, and surface runoff and drainage.

“Stormwater Pollution Prevention Plan” (SWPPP) means the erosion and sediment control plan and the post development plan submitted as part of the Site Registration Application form.

“Tier 3 Waters” means waters as otherwise identified in 47CSR2-4.1.c. (Requirements Governing Water Quality Standards).

“Trout Streams” means any waters which meet the definition of 47CSR2-2.19. (Requirements Governing Water Quality Standards).

“1-year, 24-hour precipitation event” means the maximum 24-hour precipitation event with a probable recurrence interval of once in one year.

“25-year, 24-hour precipitation” means the maximum 24-hour precipitation event with a probable recurrence interval of once in 25 years.

SECTION F. OTHER REPORTING

F.1. Reporting Spill and Accidental Discharges

Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to 47CSR11-2. (Special Rules) of the West Virginia Legislative Rules promulgated pursuant to Chapter 22, Article 11.

F.2. Immediate Reporting

- F.2.a. The permittee shall report any noncompliance which may endanger health or the environment immediately after becoming aware of the circumstances by using the Department's designated spill alert telephone number ((800) 642-3074). A written submission shall be provided within five days of the time the permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and time, and if, the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

SECTION G. EFFLUENT LIMITATIONS AND OTHER REQUIREMENTS

G.1. Requiring an Individual Permit or an Alternative General Permit.

- G.1.a. The Director may require any person authorized by this permit to apply for and obtain either an individual NPDES permit or an alternative NPDES General Permit. Any interested person may petition the Director to take action under this paragraph. The Director may require any owner or operator authorized by this permit to apply for an individual NPDES permit only if the owner or operator has been notified in writing that such a permit application is required.

G.2. Prohibition of Non-Stormwater Discharges

All discharges authorized by this permit shall be composed entirely of stormwater. Discharges of material other than stormwater are not authorized by this permit except as follows.

The following non-stormwater discharges are authorized by this permit: discharges from emergency firefighting activities, fire hydrant flushing; waters used to wash vehicles, provided there is no discharge of soaps, solvents, or detergents used for that purpose; waters used to control dust; potable water sources, including

uncontaminated waterline flushing; landscape irrigation; lawn watering; routine external building washdown which does not use detergents; pavement washwater provided spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents are not used. You are prohibited from directing pavement wash waters directly into any surface water, storm drain inlet, or stormwater conveyance, unless the conveyance is connected to a sediment basin, sediment trap, or similarly effective control: uncontaminated air conditioning condensate; uncontaminated, non-turbid discharges of groundwater or springs; foundation or footing drains where flows are not contaminated with process materials such as solvents that are combined with stormwater discharges associated with industrial activity; other construction dewatering activities that are treated by an appropriate control.

This permit does not authorize the conveyance, diversion, channeling, directing or otherwise allowing the discharge of stormwater into a sinkhole without an Underground Injection Control Permit.

G.3. Releases in Excess of Reportable Quantities

This permit does not relieve the permittee of the reporting requirements of 40CFR117 and 40CFR302. The discharge of hazardous substances in the stormwater discharge(s) from a project is not authorized by this General Permit, and in no case shall the discharge(s) contain a hazardous substance.

G.4. Stormwater Pollution Prevention Plans and Groundwater Protection Plans (SWPPP/GPP)

A Stormwater Pollution Plan and a Groundwater Protection Plan shall be developed for each project covered by this permit. These two plans may be combined into one plan if all of the requirements for both plans are met. Alternatively, they may be developed and maintained as separate stand-alone documents.

Stormwater Pollution Prevention Plans shall be prepared in accordance with good engineering practices. The plan shall identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges associated with construction activity. In addition, the plan shall describe and ensure the implementation of practices that are to be used to reduce the pollutants in stormwater discharges associated with construction activity and to assure compliance with the terms and conditions of this permit.

Groundwater Protection Plans (GPP) shall be prepared in accordance with the requirements of 47CSR58-4.11. et seq (Groundwater Protection Regulations). The GPP shall identify all operations that may reasonably be expected to contaminate the groundwater resources with an indication of the potential for soil and groundwater contamination from those operations. In addition the GPP shall provide a thorough and detailed description of procedures designed to protect groundwater from the identified

potential contamination sources. The GPP is not required to be submitted to the Division of Water and Waste Management for review. Guidance in the completion of a GPP is available from the Division of Water and Waste Management.

- G.4.a. The SWPPP and the GPP shall be signed in accordance with Section C.6. and retained onsite.
- G.4.b. The application and SWPPP shall be submitted to the Division of Water and Waste Management at least 60 days before construction is to begin, except as noted in G.4.b.3. and G.4.b.4. Prospective permittees should submit applications for review prior to accepting construction bids on the project. As the plans are evaluated by the Director or authorized representative, the Director or authorized representative may notify the permittee during the 60 day review period that the plan does not meet one or more of the minimum requirements of this section. After such notification from the Director or authorized representative, the permittee shall make changes to the plan in accordance with the time frames established below, and shall submit to the Director a written certification that the requested changes have been made.
- G.4.b.1. Except as provided in G.4.b.2., the permittee shall have 30 days after such notification to make the changes necessary.
- G.4.b.2. The permittee shall have 24 hours after such notification to make changes relating to sediment and erosion controls to prevent loss of sediment from an active construction site, unless additional time is provided by the Director or an authorized representative.
- G.4.b.3. Projects disturbing less than three acres and that do not discharge to or upstream of Tier 3 waters shall submit only the Notice of Intent Form (NOI) 15 days prior to initiating construction. A project that disturbs one to less than three acres but will have construction activities one year or longer must file a Site Registration Application form.
- G.4.b.4 Projects disturbing less than three acres that will discharge upstream of Tier 3 waters shall submit the NOI and the SWPPP for review 60 days prior to initiating construction.
- G.4.b.5. Projects that are expected to discharge to Tier 3 waters or that are expected to disturb 100 or more acres, or that the grading phase(s) of construction will last for a total of more than one cumulative year, shall submit the application and SWPPP at least 100 days prior to construction to allow for the public notice procedure.
- G.4.b.6. Projects discharging to waters with approved total maximum daily loads (TMDL) that have acreage limits for Stormwater Construction General Permit Registrations will have registrations issued for one (1) year. If TMDL acreage limits for the receiving water have been met at the time of application, effluent limits shall be set and discharge monitoring required. Registration issuance will not be limited to one (1) year when discharge monitoring is required. Projects with registrations issued for one year that are

not completed at the time of registration expiration and do not meet stabilization requirements in Section J, shall reapply for General Permit coverage.

G.4.b.7. If you are conducting earth-disturbing activities in response to a public emergency *e.g., natural disaster, widespread disruption in essential public services*), and the related work requires immediate authorization to avoid imminent endangerment to human health, public safety, or the environment, or to reestablish essential public services, you are authorized to discharge on the condition that a complete and accurate NOI or application and SWPPP is submitted within 30 calendar days after commencing earth-disturbing activities establishing that you are eligible under this permit. You are also required to provide documentation in your SWPPP to substantiate the occurrence of the public emergency.

G.4.b.8. Within 24 hours of filing an NOI (one to less than three acres) or a Site Registration Application (three acres or more) with DWWM, all projects shall display a sign for the duration of the construction project near the entrance of the project or, for linear projects, at a location near an active part of the project that is accessible by the public, which contains the following information using the template found in the instructions: 1) the registrant's name or the name of a contact person along with a telephone number; 2) A brief description of the project; 3) a statement indicating that the NOI or SWPPP, as applicable, has been filed with the DWWM; 4) the address and telephone number of the agency where the NOI or SWPPP is maintained; and 5) That any person may obtain a copy of the NOI or SWPPP by contacting the DWWM at (800) 654-5227. The sign shall be a minimum of two feet by two feet and at least three feet above ground level, clearly visible and legible from a public roadway or right-of-way. If it is not feasible to display a sign at or near the project, the registrant, with prior approval from the DWWM, may post a notice containing the foregoing information at a local public building, including, but not limited to, a town hall or public library.

G.4.c. The permittee shall modify, using forms provided by DWWM, the SWPPP whenever there is a change in design, construction, scope of operation, or maintenance, which has the potential to adversely impact the surface waters of the State, or if the SWPPP proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activities. Should conditions warrant, the Director, or the Director's representative, may request changes to the SWPPP during a field inspection. The Director may review changes or modifications to the SWPPP in the same manner as above.

The permittee shall amend the GPP whenever there is a change in design, construction, operation, or maintenance which could reasonably be expected to have an impact on the potential contamination of groundwater.

G.4.d. In addition to the requirements of G.4.e, the SWPPP shall also include, at a minimum, the following items:

G.4.d.1. General management controls

G.4.d.1.A. Preventive maintenance – A preventive maintenance program shall involve inspection and maintenance of sediment and erosion control best management practices to identify and address conditions that could cause breakdowns or failures resulting in discharges of pollutants to surface waters.

G.4.d.1.B. Good housekeeping – Good housekeeping requires the maintenance of a clean and orderly project. This includes minimizing the exposure of building materials, building products, construction wastes, trash, landscape materials, fertilizers, pesticides, herbicides, detergents, sanitary waste and other materials present on the site to precipitation and to stormwater.

G.4.d.1.C. Spill prevention and response procedures – Areas where potential spills may occur, and their accompanying drainage points, shall be identified clearly in the SWPPP/GPP. Where appropriate, specify material handling procedures and storage requirements in the SWPPP/GPP. Procedures for cleaning up spills shall be identified in the plan and made available to the appropriate personnel. The necessary equipment to implement a cleanup shall be available to personnel, including spill kits.

G.4.d.2. Consistency with other plans

Stormwater Pollution Prevention Plans may reflect requirements for Spill Prevention Control and Countermeasure (SPCC) plans under section 311 of the CWA or any Best Management Practices (BMP) and Groundwater Protection Plans (GPP) pursuant to 47CSR58 (Groundwater Protection Rule) or otherwise required by an NPDES permit and may incorporate any part of such plans into the Stormwater Pollution Prevention Plan by reference.

G.4.e. Requirements for construction activities – Operations that discharge stormwater associated with construction activity disturbing one or more acres are not only subject to the requirements of Section G.4.d. of this permit, but are also subject to the following requirements. The SWPPP shall include, as a minimum, the following items.

G.4.e.1. Site description – Each plan shall, at a minimum, provide a description of the following:

G.4.e.1.A. A description of the nature of the construction activity, including a proposed timetable for major activities;

G.4.e.1.B. Estimates of the following: total area of the site, the part of the site that is expected to undergo excavation or grading, and the total amount of excavation by cut and fill;

G.4.e.1.C. For each discharge design point, the pre-construction peak discharge from a one year, 24-hour storm in cubic feet per second and an the post-development peak discharge from a one year, 24-hour storm in cubic feet per second shall be calculated. The design procedures shall follow professionally accepted engineering and hydrologic

methodologies. This requirement may be waived by the WVDEP for projects that are expected to have no increase in peak discharges.

G.4.e.1.D. Site maps indicating, with a minimum of five-foot contours, drainage patterns and slopes prior to construction and anticipated conditions after grading activities, topsoil stockpiles, waste areas, borrow sites, locations of sediment control structures identified in the narrative, the location of impervious areas after construction is complete, final stormwater conveyance including all ditches and pipe systems, property boundaries and easements, nearest receiving stream, springs, surface water, access roads, a legend and any other information necessary to describe the project in detail.

G.4.e.1.E. A description and detail of the proposed construction entrance(s). Each site shall have stone access entrance and exit drives and parking areas to reduce the tracking of sediment onto public or private roads. Except for haul roads, all unpaved roads on the site carrying more than 25 vehicles per day shall be graveled.

G.4.e.2. Controls – Each construction operation covered by this permit shall develop a description of controls appropriate for the project and implement such controls. The description of these controls shall address the following minimum components, including a schedule for implementing such controls.

G.4.e.2.A. Erosion and sediment controls

G.4.e.2.A.i. Vegetative practices – A description of interim and permanent stabilization practices, including site specific implementation schedules of the practices shall be provided. Site plans should ensure that existing vegetation is preserved where attainable and that disturbed portions of the site are stabilized as rapidly as possible. Efforts should also be made to limit disturbance on steep slopes, minimize soil compaction, and preserve topsoil where feasible. Stabilization practices may include: temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, preservation of mature vegetation, and other appropriate measures. Also include in the plan seedbed preparation requirements and the type and amount of soil amendments necessary to establish a healthy stand of vegetation. A record of the dates when major grading activities will occur, and when construction activities temporarily or permanently cease on a portion of the site, and when stabilization measures will be initiated shall be included in the plan. Except as noted below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than seven days after the construction activity in that portion of the site has permanently ceased.

G.4.e.2.A.i.a. Where the initiation of stabilization measures by the seventh day after construction activity temporarily or permanently ceases is precluded by natural causes, stabilization measures shall be initiated as soon as conditions allow.

G.4.e.2.A.i.b. Where construction activity will resume on a portion of the site within 14 days from when activities ceased, (e.g., the total time period that construction activity is temporarily halted is less than 14 days) then stabilization measures do not have to be initiated on that portion of the site by the seventh day after construction activities have temporarily ceased.

G.4.e.2.A.i.c. Areas where the seed has failed to germinate adequately (uniform perennial vegetative cover with a density of 70%) within 30 days after seeding and mulching must be reseeded immediately, or as soon as weather conditions allow.

G.4.e.2.A.i.d. Clean water diversions must be stabilized prior to becoming functional.

G.4.e.2.A.i.e. A natural vegetative buffer shall be provided adjacent to receiving streams or other waters on or the project site. Vegetative buffers should be a minimum of 50 feet, however, a minimum of 100 feet is required if intended as a stand-alone erosion and sediment control practice. Vegetative buffers strips are not required if:

A natural vegetative buffer does not exist in pre-construction conditions, such as when the buffer has already been removed by existing development or agricultural activities; or

The receiving water is a man-made stormwater conveyance or storage structure, such as a ditch or storm water pond; or

In project locations where activities within waters have been approved under a CWA Section 404 permit and Section 401 water quality certification; or

In project locations where the vegetative buffer must be encroached to construct necessary infrastructure, such as a utility line or an access road. Justification for any encroachment must be provided by the applicant; or

Linear projects where right-of-way acquisition or area is limited.

G.4.e.2.A.ii. Structural practices – A description of the structural practices to be used to divert flows around exposed soils, storm flows or otherwise limit runoff from exposed areas and eliminate sediment-laden runoff from the site. Such practices may include but are not limited to silt fences, earth dikes and berms, land grading, diversions, drainage swales, check dams subsurface drains, pipe slope drains, storm drain inlet protection, rock outlet protection, reinforced soil retention systems and geotextiles, gabions and riprap, and permanent and temporary sediment traps/basins.

G.4.e.2.A.ii.a. For locations on a site that have a drainage area of five acres or less, a sediment trap which provides a storage volume equal to 3,600 cubic feet per acre of drainage

area shall be installed. Half of the volume of the trap shall be in a permanent pool and half will be dry storage.

G.4.e.2.A.ii.b. For drainage areas of greater than five acres, a sediment basin providing 3,600 cubic feet per drainage acre shall be installed. Half of the volume of the basin shall be in a permanent pool and half shall be dry storage. Sediment basins must be able to dewater the dry storage volume in 48 to 72 hours, however this requirement may be waived at the discretion of the WVDEP when skimmer devices are used. Dewatering structures must withdraw from the surface, unless infeasible. A sediment basin must be able to pass through the spillway(s) a 25-year, 24-hour storm event, and still maintain at least one foot of freeboard.

G.4.e.2.A.ii.c. The inlet(s) and outlet(s) for a sediment trapping structure must be protected against erosion by appropriate material such as riprap or other similar media.

G.4.e.2.A.ii.d. If necessary, diversions will be used to direct runoff to the trapping structure. Diversions to trapping structures may need to be stabilized prior to becoming functional.

G.4.e.2.A.ii.e. For locations served by a common drainage where a sediment basin providing 3,600 cubic feet of storage is not attainable or dewatering structures that withdraw from the surface are not feasible, additional sediment and erosion controls within the project area are required in lieu of the required sized sediment basin. Justification and a narrative description of the additional measures proposed must be provided for use of any practice(s) other than sediment basins or traps.

G.4.e.2.A.ii.f. Fill slopes must be protected by measures used to divert runoff away from fill slopes to conveyance measures such as pipe slope drains or stable channels.

G.4.e.2.A.ii.g. Sediment trapping structures shall be eliminated and the area properly reclaimed and stabilized when the contributing drainage area is stabilized and the structures are no longer needed, unless the structure is converted into a permanent stormwater control structure. This must be accomplished before the Notice of Termination is submitted.

G.4.e.2.A.ii.h. All trapped sediments shall be disposed on an upland area where there is no chance of entering nearby streams.

G.4.e.2.A.ii.i. Breaching the embankment to dewater the structure is not permitted. Dewatering and structure removal shall not cause a violation of water quality standards. Provide a description of the procedures that shall be used in removing these structures and the time frame.

G.4.e.2.A.ii.j. No sediment-laden water shall be allowed to leave the site without going through an appropriate best management practice.

G.4.e.2.A.ii.k. Hay or straw bales are not acceptable BMPs.

G.4.e.2.A.ii.l. Use of Treatment Chemicals - Polymers, flocculants, or other treatment chemicals may be used only in accordance with good engineering practices and specifications for use by the chemical provider/supplier. Documentation of proposed practices and specifications for the use of treatment chemicals shall be provided in the SWPPP. The use of cationic treatment chemicals is prohibited.

G.4.e.2.A.iii. Presumptive conditions for discharges to Tier 3 waters

Construction activities discharging to Tier 3 waters shall go through the Tier 3.0 antidegradation review process.

G.4.e.2.B. Stormwater control plan

A description of measures that shall be installed during construction to control pollutants in stormwater discharges when the project is completed shall be included in the SWPPP. The completed project shall convey stormwater runoff in a manner that shall protect both the site and the receiving stream from post-construction erosion. All surface waters and other runoff conveyance structures shall be permanently stabilized as appropriate for expected flows. In developing structural practices for stormwater control, the permittee shall consider the use of, but not limited to: infiltration of runoff onsite; flow attenuation by use of open vegetated swales and natural depressions; stormwater retention structures and stormwater detention structures. A combination of practices may be utilized. The permittee should consider low impact development (LID) in the design of the site and the best management practices. This will allow the site to retain its natural hydrology and infiltrate stormwater within the boundary of the site. The use of impervious surfaces for stabilization should be avoided. Velocity dissipation devices shall be placed at the outlet of all detention or retention structures and along the length of any outlet channel as necessary to provide a non-erosive velocity flow from the structure to a water course.

Projects located in areas that have local government requirements and/or criteria for post development stormwater management are subject to meeting those requirements and/or criteria. Compliance with this General Permit does not assure compliance with local codes regulations, or ordinances.

The permittee shall submit all calculations, watershed mapping, design drawings, and any other information necessary to explain the technical basis for the stormwater management plan. Design procedures shall follow professionally accepted engineering and hydrologic methodologies. Permanent stormwater control structures that will impound water (detention/retention basins or similar structures) shall be designed and certified by a registered professional engineer.

G.4.e.2.C Other controls

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G.4.e.2.C.i. Waste disposal – All solid waste and construction/demolition material must be disposed of in accordance with the Code of West Virginia and Legislative Rule Title 33 Series 1, (Solid Waste Management Rule).

G.4.e.2.C.ii. Provisions must be made to control fugitive dust.

G.4.e.2.C.iii. Groundwater Protection Plan (GPP) – The applicant shall prepare a GPP that shall satisfy the 47CSR58-4.11, et seq. Groundwater must be protected in accordance with the Code of West Virginia and Legislative Rule Title 47 Series 58 (Groundwater Protection Rule).

G.4.e.2.C.iv. Employee training — Employee training programs shall inform all on-site personnel who directly involved with construction activities at all levels of responsibility of the components and goal of the SWPPP. Training should address topics such as spill response, good housekeeping and routine inspection. Training shall be on a quarterly basis while construction activities subject to this General Permit are occurring and records of the training shall be maintained on site for review by the Director or the Director's representative.

G.4.e.2.C.v. Visual inspection – Company personnel shall be identified to inspect as set forth under G.4.e.2.D. A tracking procedure shall be used to ensure that adequate corrective actions have been taken in response to deficiencies identified during an inspection. Records of inspections shall be maintained onsite for review by the Director or the Director's representative. Once a definable area has been finally stabilized, no further inspection requirements apply to that portion of the site. Inspections are not required to be conducted if that area is unsafe at the time of inspection.

G.4.e.2.C.vi. Recordkeeping and internal reporting procedures – Incidents such as spills, leaks and improper dumping, along with other information describing the quality and quantity of stormwater discharges should be included in the records. Inspection and maintenance records must be kept onsite for review by the Director or the Director's representative.

G.4.e.2.D Maintenance

The SWPP shall include a description of procedures to maintain in good and effective condition and promptly repair or restore all grade surfaces, walls, dams and structures, vegetation, erosion and sediment control measures and other protective devices identified in the site plan. Procedures in a plan shall provide that all erosion and sediment controls on the site are inspected at least once every seven calendar days and within 24 hours after any storm event of greater than 0.5 inches of rain per 24-hour period. Inspections are not required in areas that, at the time of inspection, are considered unsafe for inspection personnel. Once a definable area has been finally stabilized, no further inspection requirements apply to that portion of the site.

Inspections are not required to be conducted if that area is unsafe at the time of inspection.

G.4.e.2.D.i. All public and private roads adjacent to a construction entrance must be inspected and cleaned of debris originating from the construction site.

G.4.f. All Stormwater Pollution Prevention Plans and Groundwater Protection Plans required under this permit are considered reports that shall be available for review to the public under Section 308(b) of the CWA. The owner or operator of a project with stormwater discharges covered by this permit shall make plans available to members of the public upon request. However, the permittee may claim any portion of a Stormwater Pollution Plan or Groundwater Protection Plan as confidential in to the extent permissible by 47 CSR10-12.7. (NPDES Program).

G.4.g. Compliance with other laws and statutes

Nothing in this General Permit shall be construed as excusing the permittee from compliance with any applicable federal, state, or local statutes, ordinances, or regulations.

G.5. Discharges to Impaired Waters

This permit does not authorize new sources or new discharges of constituents of concern to impaired waters unless consistent with the approved total maximum daily load (TMDL) and applicable state law. Impaired waters are those that do not meet applicable water quality standards and are listed on the Clean Water Act Section 303(d) list. Sites that discharge into a receiving water that has been listed on the Clean Water Act 303(d) list of impaired waters, and with discharges that contain the pollutant(s) for which the water body is impaired, must document in the SWPPP how the BMPs will control the discharge of the pollutant(s) of concern. Pollutants of concern are those constituents for which the water body is listed as impaired.

Discharges of pollutants of concern to impaired waterbodies for which there is an approved TMDL are not eligible for coverage under this permit unless they are consistent with the approved TMDL as determined by the WVDEP. TMDL's that have established acreage limits for Stormwater Construction General Permit Registrations require no special conditions provided the acreage cap has not been met for the receiving stream other than the registration only being issued for one (1) year. If the acreage cap has been reached, additional area may be permitted if effluent limitations and monitoring is required consistent with limits established by the TMDL. Within six months of a new TMDL approval, permittees must incorporate any limitations, conditions or requirements applicable to their discharges necessary for compliance with the TMDL, including any monitoring or reporting required by DWWM rules, into their SWPPP in order to be eligible for coverage under this General Permit. The Director

may elect to set effluent limitations and require discharge monitoring and public notice for any project within TMDL acreage limited areas.

G.6. Endangered and Threatened Species and State Historic Preservation Officer

If a site discharges to a stream where a federally endangered or threatened species or its habitats are present, the applicant must contact the U.S. Fish and Wildlife Service to ensure that requirements of the federal Endangered Species Act, 16 U.S.C. 1531 et. seq. are met.

For those projects that may impact historic preservation sites, the permittee shall coordinate the project with the State Historic Preservation Officer.

H. Reopener Clause

If there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge authorized by this General Permit, the owner or operator of such discharge may be required to obtain an individual permit or alternative General Permit in accordance with Section G.1. of this General Permit or the General Permit may be modified to include different limitations and/or requirements.

I. The conditions, standards, and limitations of this General Permit shall be reviewed at the time of reissuance for possible revisions that may lead to more or less stringent conditions, standards, and limitations.

J. Permit coverage for construction activities encompassed by this permit expires upon satisfactory stabilization of the site. Satisfactory stabilization means **ALL** disturbed areas shall be covered by some permanent protection. Stabilize includes pavement, buildings, waterways (riprap, concrete, grass, or pipe), a healthy, vigorous stand of grass or native vegetation that uniformly covers more than 70 percent of the ground, stable outlet channels with velocity dissipation which directs site runoff to a natural watercourse, and any other approved structure or material. The permittee shall request a final inspection by sending in the Notice of Termination. Sites not stabilized shall continue to have coverage under this permit and shall be assessed an annual permit fee as promulgated by the West Virginia Legislature. Sites shall be assessed a prorated annual fee based upon the completion date and proper stabilization. The Notice of Termination must be submitted within 30 days after final stabilization is achieved.

The herein-described activity is to be constructed or installed and operated, used and maintained strictly in accordance with the terms and conditions of this General Permit with any plans, specifications, and information submitted with the individual site registration application form, with any plan of maintenance and method of operation thereof submitted and with any


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applicable rules and regulations promulgated by the Environmental Quality Board and the Secretary of the Department of Environmental Protection.

Failure to comply with the terms and conditions of this General Permit, with any plans, specifications and information submitted, and with any plan of maintenance and method of operation thereof submitted shall constitute grounds for the revocation or suspension of this permit to any individual establishment or other person and for the invocation of all the enforcement procedures set forth in Chapter 22, Articles 11 and 12 of the Code of West Virginia.

This permit is issued in accordance with the provisions of Chapter 22, Article 11 of the Code of West Virginia.

BY: 
Director

Please See Instructions Before Completing This Form		
NPDES FORM		Notice of Termination (NOT) of Coverage Under the NPDES General Permit for Stormwater Discharges Associated with Construction Activity
Submission of this Notice of Termination constitutes notice that the party identified in Section II of this form is no longer authorized to discharge stormwater associated with construction activity under the NPDES program. ALL NECESSARY INFORMATION MUST BE PROVIDED ON THIS FORM.		
I. Permit Information NPDES Storm Water General Permit Registration Number: WVR _____ Date Storm Water Discharge Terminated: _____		
II. Facility Operator Information Name: _____ Phone: _____ Address: _____ City: _____ State: _____ ZIP Code: _____		
III. Facility/Site Location Information Name: _____ Address: _____ City: _____ ZIP Code: _____ County: _____ Latitude: _____ Longitude: _____		
IV. Certification: I certify under penalty of law that all stormwater discharges associated with construction activity from the identified facility that are authorized by a NPDES General Permit have been eliminated and request final inspection by the WV DEP; or that I am no longer the operator of the facility or construction site. I understand that by submitting this Notice of Termination, I am no longer authorized to discharge stormwater associated with construction activity under this General Permit, and that discharging pollutants in stormwater associated with construction activity to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that the submittal of this Notice of Termination does not release an operator from liability for any violations of this permit or the Clean Water Act. Print Name: _____ Date: _____ Signature: _____		
Instructions for Completing Notice Of Termination (NOT) Form		
Who May File a Notice of Termination (NOT) Form Permittees who are presently covered under a National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Construction Activity may submit a Notice of Termination (NOT) form when their facilities no longer have any stormwater discharges associated with construction activity. For construction activities, elimination of all stormwater discharges associated with construction activity occurs when disturbed soils at the construction site have been finally stabilized and temporary erosion and sediment control measures have been removed or will be removed at an appropriate time, or that all stormwater discharges associated with construction activity from the construction site that are authorized by a NPDES general permit have otherwise been eliminated. Final stabilization means that all soil-disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of 70% of the cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed. Send this form to the Charleston address below: <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> WV DEP - DWWM Permitting and Engineering Branch 601 57th Street SE Charleston, WV 25304 -2345 </div> <div style="width: 50%; font-style: italic;"> We will process your personal information (email address, mailing address and/or telephone number) in accordance with the State of West Virginia's Privacy Policy for appropriate and customary business purposes. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. The Division of Water and Waste Management will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact the DEP's Chief Privacy officer at depprivacyofficer@wv.gov. </div> </div>		

Form Revised January 11, 2013

Instructions

Notice of Termination (NOT) of Coverage Under The NPDES General Permit for Stormwater Discharges Associated With Construction Activity

Section I Permit Information

Enter the existing NPDES Construction Stormwater General Permit registration number assigned to the facility or site identified in Section III.

Enter the date that the construction project was terminated and all disturbed areas were stabilized as required by the General Permit. A final inspection to determine the adequacy of the stabilization will be conducted by this agency.

Section II Facility Operator Information

Give the legal name of the person, firm, public organization, or any other entity that operates the facility or site described in this application. The name of the operator may or may not be the same name as the facility. The operator of the facility is the legal entity that controls the facility's operation, rather than the plant or site manager. Do not use a colloquial name. Enter the complete address and telephone number of the operator.

Section III Facility/Site Location Information

Enter the facility's or site's official or legal name and complete address, including city, county and ZIP code.

Section IV Certification

State statutes provide for severe penalties for submitting false information on this application form. Federal regulations require this application to be signed as follows:

For a corporation: by a responsible corporate officer, which means: (i) president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

For a partnership or sole proprietorship: by a general partner or the proprietor; or

For a municipality, State, Federal, or other public facility: by either a principal executive officer or ranking elected official.

The completed form is to be submitted to the Charleston address for all projects.