

MODULE 14

Module 14: Streams/Wetlands [Chapter 105/§77.504/§77.523]

Note: The United States Army Corp of Engineers (Corps) authorizes a Pennsylvania State Programmatic General Permit – 4 (PASPGP-4) when there will be a discharge of dredged or fill materials, or the placement of both temporary and/or permanent structures, which individually or cumulatively result in impacts to 1.0 acre or less of waters including wetlands. Projects will be sent to the Corps as a Category III activity for review. The Commonwealth has issued 401 Water Quality Certification for projects eligible under PASPGP-4.

If there will be a discharge of dredged or fill materials, or the placement of both temporary and/or permanent structures, which individually or cumulatively result in impacts to more than 1.0 acre of waters including wetlands, or such activities are otherwise ineligible for a PASPGP-4, the Corps may require an individual permit in accordance with Section 404 of the Clean Water Act and separate 401 Water Quality Certification.

Stream/Wetland encroachments may also require authorization from the US Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act. If this project requires a federal permit, you may be eligible for either PASPGP-4 authorization or you must file a separate application with the Corps. If you require a permit and are not eligible under the PASPGP-4 you must request a Section 401 Water Quality Certification from the Department using module 14A “Request for Federal Clean Water Act (CWA) Section 401 Certification for Mining Activities.”.

Does this project require a permit from the Corps? Yes No

If no, explain why not. **No discharge of dredged or fill materials, or the placement of temporary or permanent structures into Waters of the United States, including wetlands, is being proposed by the mining plan.**

14.1 Mining Activities Within 100 Feet of a Stream/Stream Relocation/Channel Change

If the mining activities are proposed within 100 feet of an intermittent or perennial stream, including haul road crossings, or the relocation or channel change of an intermittent or perennial stream provide the following information: (**Note:** Variance request for these and the expansion of pits must be included in the proof of publication. A separate Module 14.1 should generally be completed for each proposed encroachment.)

Not Applicable (N/A) - The proposed mining and support activities will avoid direct and indirect impacts to streams. All mineral extraction activities are planned to occur a minimum distance of approximately 300 feet from the nearest stream. Additionally, the planned drainage control features at the site are designed such that no discharges to Toms Creek and its adjacent tributaries will occur except for storms of greater magnitude or intensity than the 100-year storm. Additional detail regarding the drainage features is provided in Modules 12 and 13. Furthermore, the quarry development of the Northern Tract Quarry is not anticipated to affect the groundwater related base flow in Toms Creek or its adjacent tributaries, as discussed in Module 8.

- a) Name and location of the stream; and location, length, and acreage disturbed by the proposed activities (Identify the location of the proposed activities on Exhibits 9 and 18);

- b) A narrative giving a description and the purpose and justification of the proposed activities;

- c) A description of the character of the stream bed and banks, and a profile of the stream for a reasonable distance above and below the proposed site showing bed slopes, normal and flood water surfaces and a description of the riparian vegetation including a characterization of the resident aquatic community, a description of the riparian vegetation and an assessment of the probable hydrologic consequences of the proposed activities on the water quality and quantity and the resident aquatic community. Provide the name(s), address(es) and telephone number(s) of the individual(s) responsible for the collection and analysis of this data and provide a description of the methodologies used to collect and analyze the data;

- d) A stream profile for the existing and proposed channel for a reasonable distance upstream, downstream and within the proposed change, showing bed slopes, pool-riffle ratios, normal and flood water surfaces, and existing obstructions;

- e) A hydrologic and hydraulic analysis which shall include:

1. data on size, shape and characteristics of the watershed;
2. the size and frequency of the design storm;
3. the hydraulic capacity of any structures or replacement channel;
4. the hydraulic capacity of the channel upstream and downstream of the structure or the relocation/channel change;

- f) Where a bridge, culvert or other water obstruction is proposed, provide the following information:
(Note: General Permit (BMR-GP-102) is available for construction of access roads.)
- 1) Plans and details showing the location, type, size, and height of the structure;

 - 2) A narrative description of the construction methods and sequence including water handling during construction, and erosion and sedimentation controls;

 - 3) Indicate if the structure will be temporary or permanent (include plans for removal of temporary structures).
- g) For a Channel Change or Stream Relocation: **N/A**
- A detailed plan and cross-sections of the existing and proposed channel upstream, downstream and within the proposed channel change showing the limits and configuration of the proposed activities, dimensions, channel linings, and normal and flood water surfaces;
- A description of the construction methods and sequence including: water handling during construction, erosion and sedimentation controls, and measures to be taken to prevent adverse impacts to water quality and quantity, water users and the aquatic communities.
- h) A characterization of the existing water quality and quantity of the stream including downstream water uses, and 25 Pa Code Chapter 93 Protected Water Use Classification.

14.2 Wetland Related Information

- a) Provide the name(s), address(es), telephone number(s) and qualifications of the person(s) who made the determination if wetlands exist within the proposed permit area.
- Andrew Brookens
Skelly and Loy, Inc.
449 Eisenhower Blvd., Suite 300
Harrisburg, PA 17111
717-232-0593
B.S., Biology, 1993, Shippensburg University of Pennsylvania
USACE Baltimore District, Certified Wetland Delineator; USFWS Recognized Qualified Bog Turtle Surveyor**
- b) Show the location of wetlands on Exhibits 6.2, 9 and 18. **Wetlands within the proposed permit area are shown on Exhibits 6.2, 9, and 18. All of these wetlands are located outside of the limit of disturbance (for both mining and support activities). No direct impacts to wetlands will occur.**
- c) What is the total wetland acreage (which will be affected) for the proposed permit area?
- 0** _____ acres.
- d) Provide responses to the following for each wetland which will be affected by the proposed mining activities: **None of the wetlands will be directly affected by the proposed mining activities. Indirect impacts to Wetland D may occur as a result of the proposed project, as described in 14.3 below. An additional narrative regarding possible indirect wetland impacts is provided as Attachment No. 1 to the SEJ.**

Exceptional Value Wetland Characteristics

- 1) Does the wetland serve as habitat for flora and fauna listed as

“threatened” or “endangered” under the Endangered Species Act of 1973, Wild Resource Conservation Act, Fish and Boat Code, or Game and Wildlife Code? yes no

2) Is the wetland hydrologically connected to or located within 1/2 mile of the wetlands identified in d)1) and does it maintain the habitat of the “threatened” or “endangered” species within the wetlands identified in d)1) above)? yes no

NOTE: If this wetland is located more than 1000 feet from the permit area, show its location (and the location of the wetland that is hydrologically connected to or located within ½ mile of) on the Exhibit 6.1 Map.

3) Is the wetland located in or along the floodplain of a wild trout stream (as designated by the Pennsylvania Fish and Boat Commission), or the floodplain of a tributary to a wild trout stream? yes no

4) Is the wetland located in or along the floodplain of a stream listed as exceptional value (under 25 Pa Code Chapter 93) or the floodplain of a tributary to an exceptional value stream? yes no

5) Is the wetland within the corridor of a waterway which has been designated as a wild or scenic river in accordance with the Wild and Scenic Rivers Act of 1968 or the PA Scenic Rivers Act? yes no

6) Is the wetland part of, or located along, an existing public or private drinking water supply and does it maintain the quality or quantity of the drinking water supply? yes no

7) Is the wetland located in areas designated by the Department as “natural” or “wild” areas within state forest or park lands? yes no

8) Is the wetland located in areas designated as Federal wilderness areas under the Wilderness Act or the Federal Eastern Wilderness Act of 1975? yes no

9) Is the wetland located in areas designated as National natural landmarks by the Secretary of the Interior under the Historic Sites Act of 1935? yes no

NOTE: If a “yes” response is indicated for any question in d)1) through d)9), the wetlands would be “exceptional value” (as defined in 25 Pa Code Section 105.17) and a demonstration must be made that the requirements of subsection (a) of 25 Pa Code Section 105.18(a) have been met.

Wetland Functions

10) Does the wetland serve natural biological functions, including food chain production; general habitat; and nesting, spawning, or resting sites for aquatic or land species? yes no

11) Does the wetland provide areas for study of the environment, or as sanctuaries or refuges? yes no

12) Does the wetland aid in, or maintain natural drainage characteristics, natural water filtration processes, current (flow) patterns or other environmental characteristics? yes no

13) Does the wetland serve as storage areas for flood and storm waters, or does it shield other areas from erosion or storm damage? yes no

14) Does the wetland provide a groundwater recharge area that maintains minimum baseflows? yes no

15) Does the wetland serve as a prime natural recharge area where surface water and groundwater are directly connected? yes no

16) Does the wetland aid in the prevention of pollution? yes no

17) Is the wetland used for, or does it provide the opportunity to be

used for recreation?

 yes no

- e) If a "yes" response is indicated for the question in d)1) or d)2), identify how the determination was made and indicate any contacts with state or federal agency personnel.

14.3 Wetland Impact Analysis/Assessment

- a) Describe the alternatives to the proposed mining activities that have been considered to avoid or minimize impacts on wetlands. An alternative analysis should include alternatives to the proposed mining activities, including alternative locations, routings or designs to avoid adverse impacts on the wetlands (e.g. relocating spoil/topsoil storage areas, rerouting haul roads).

The proposed mining and support activities will avoid direct impacts to wetlands, as all mineral extraction is planned to occur a minimum distance of 200 feet from the wetlands. All support activities (erosion and sediment control structures, access roads, stockpiles, etc.) will be located within the Operational Buffer which is located a minimum of 42 feet away from the nearest wetland (Wetland D). As discussed in detail in the SEJ that was submitted in support of this application, many alternatives were examined related to siting of the proposed mining operations. Siting of the Northern Tract Quarry permit area is constrained primarily by the location of the geologic formation planned for mineral extraction. The primary constraint is the presence of metabasalt rock which defines the location of the quarry operation. In turn, secondary constraints govern the location of some of the components of stormwater management features associated with those operations. Such secondary physical constraints include: property boundaries, required regulatory setbacks, utilities and infrastructure, and the conservation buffers mandated under the Conditional Use permit issued by Hamiltonban Township. The maximum operationally possible buffers/setbacks have been proposed and will be maintained separating wetland areas from mining and support activities.

Adequate erosion and sediment controls will be in-place and functional prior to earth disturbance activities in contributory areas, and no water will be discharged to the wetland areas. The only potential indirect impact to Wetland D would be related to the potential for water loss as a result of both the reduction in the run-off area (watershed) and the predicted decrease in elevation of the water table (especially in the western edge of Wetland D) adjacent Wetland D caused by the dewatering of the proposed quarry.

- b) Discuss whether any of the alternatives are practical to achieve the basic purposes of the project taking into account availability, cost, technology and logistics of the other possible project sites which would not affect the wetlands.

N/A

- c) For any wetlands within the proposed permit area, provide the following:

- 1) Identify and delineate the wetland and the areal extent of the impact (wetlands must be identified and delineated in accordance with 25 Pa Code Section 105.451 Identification and delineation of wetlands – statement of policy).

Potential jurisdictional wetlands and watercourses were identified and delineated in the field by Skelly and Loy on December 16, 2015. The field investigation identified five potentially jurisdictional wetland habitats (Wetlands A through E, shown on the permit exhibits) within the Northern Tract Quarry; however, as stated previously, these wetlands are located outside of the proposed mining and support areas and no direct impacts are anticipated. A copy of the Jurisdictional Wetland-Watercourse Identification/Delineation And Phase I Bog Turtle Habitat Assessment Report is attached to this permit application with the PNDI correspondence located behind Module 1.

- 2) Submit a cross-sectional view showing the wetland and the proposed mining area.

See attached Exhibit 14.3 sheets.

- 3) Explain how the proposed mining activities will directly affect the wetlands.

N/A. Proposed mining activities will not directly affect the wetlands. Best Engineering/Management Practices will be employed for stormwater runoff control design and installation.

- aa) If the proposed mining activities will affect less than 1.0 acre of wetland and the wetland is not an exceptional value wetland (in accordance with 25 Pa Code Section 105.17), provide a description of the wetland functions which will be impacted by the proposed mining activities. **Note:** If a "yes" response is indicated for any question in Module 14.2 d)1) through d)9), the wetlands would be exceptional value (as defined in Section 105.17).

N/A.

- bb) If the proposed mining activities will affect 1.0 or more acres of wetlands or may affect an exceptional value wetland, provide a detailed assessment of the wetland functions identified in Module 14.2 d)10) through d)17).

N/A

- d) If any wetlands within the proposed permit or adjacent area will be indirectly affected (e.g. altering the wetland hydrology), provide the following:

- 1) Identify and delineate the wetland and provide an estimate of the total wetland acreage affected (wetlands must be identified and delineated in accordance with 25 Pa Code Section 105.451 Identification and Delineation of Wetlands – statement of policy).

Wetland D has been identified and delineated and is depicted on the permit mapping. The acreage of Wetland D within the permit boundary is 1.2 acres, which is generally the portion delineated by Skelly and Loy; however the total acreage of Wetland D is approximately 4.1 acres, as some of it extends beyond the permit boundary and was delineated previously by others.

- 2) A description of how the proposed mining activities will indirectly affect the wetlands.

There is a potential for water loss as a result of both the reduction in the run-off area (watershed) and the predicted decrease in elevation of the water table (especially in the western edge of Wetland D) adjacent Wetland D caused by the dewatering of the proposed quarry. No indirect effects to Wetlands A, B, C, and E due to hydrologic alteration are anticipated from the development of the proposed Northern Tract Quarry. The hydrologic sources to these wetlands are primarily associated with the surface water and seasonal groundwater interflow contributed from the Unnamed Tributary to Toms Creek. Portions of Wetland C are associated with seepage along the lower hillside slope adjacent the floodplain of the Unnamed Tributary (UNT) to Toms Creek. In contrast to Wetland D, indirect impacts to the hillside groundwater seepage hydrology attributed to Wetland C are not anticipated due to the distance of the seepage at Wetland C from the proposed quarry pit, as well as the location of the Wetland C seepage at the toe of hillside slope rather than on the hillside like Wetland D. Also, the source of hydrology to Wetland C is primarily from the unnamed tributary to Toms Creek, while the seepage is believed to be a limited

component.

The groundwater model simulations suggest that impacts related to diminished baseflow (bedrock groundwater recharge) to existing wetlands and the UNT corridor as a result of lowering the regional potentiometric surface will be negligible during development of the Northern Tract Quarry. This conclusion is supported by the model simulation of the proposed ultimate pit floor elevation where the reduction in baseflow contribution (loss) to these resources compared to the total flow (runoff and baseflow) was calculated to be on the order of only 0.2% to 1.2%. The underlying metabasalt and metarhyolite geology within the area has a very low permeability and severely limits the movement of groundwater moving through these formations.

However, this analysis also suggests that these bedrock conditions most likely facilitate the movement of water over the ground surface. Thus, any appreciable loss of runoff area (watershed) and contributory overland flow could result in indirect hydrologic effects to receiving downslope aquatic resources. Approximately 65% of the existing contributory drainage area to two hillside-associated wetland habitats within the Northern Tract Quarry mine permit boundary, Wetland C and Wetland D, may be removed as a result of the ultimate quarry development.

Wetland D is an expansive habitat extending well beyond the proposed Northern Tract Quarry mine permit boundary. The sustenance of other sources of runoff area outside of the Northern Tract Quarry mine permit boundary are anticipated to ameliorate much of the effects of contributory drainage area loss within the Northern Tract. However, some amount of indirect effects due to the loss of contributory drainage area may occur to Wetland D.

Wetland C is substantially smaller in size, and is predominantly situated within the floodplain of the UNT to Toms Creek. The western extent of Wetland C is situated at an elevation approximately 55' lower and roughly 200' closer to the UNT to Toms Creek than the western extent of Wetland D. Due to a very limited amount of this habitat being situated on the hillside slope, the remaining upslope runoff area following development of the Northern Tract Quarry may continue providing sufficient hydrology to sustain this portion of the wetland. Given Wetland C's proximity to the UNT to Toms Creek, and the fact that the UNT to Toms Creek itself acts as a barrier to any indirect dewatering effects from proposed quarry development, the UNT to Toms Creek will continue to provide a sustaining source of flow/hydrology to this component of Wetland C. As supported by the groundwater modeling results, the hydrology associated with the UNT to Tom's Creek is not expected to be diminished by dewatering of the proposed Northern Tract Quarry or loss of contributory drainage area.

Although the existing Pitts Quarry is located further from Wetlands C and D than the proposed Northern Tract Quarry, it is important to note that there have been no reported impacts to the hydrology of Wetlands C and D related to the operation of the Pitts Quarry. Therefore, the effects of the proposed Northern Tract Quarry development on the wetlands and UNT corridor will likely be limited to the extent that surface runoff and shallow groundwater interflow in the upper soil horizons will be reduced to Wetland D by removing a portion of the wetland's natural upslope drainage area. The sustenance of other sources of runoff area to Wetland D outside of the Northern Tract Quarry mine permit boundary are anticipated to ameliorate much of these effects.

- e) Will the cumulative impact of the proposed and anticipated mining activities result in a major impairment of the wetland resource in the general area?

yes

no

Provide an explanation of the determination and identify any contacts with state or federal agencies involved in making the determination.

The proposed mining and support activities will avoid direct impacts to wetlands, as all mineral extraction is planned to occur a minimum distance of 200 feet from the wetlands. Due to Wetland D's limited hydrologic contribution to the Toms Creek drainage basin, any resulting impact to Wetland D from indirect hydrologic effects is expected to result in insignificant effects to the functions, values, and quality of the Toms Creek drainage basin.

14.4 Wetland Mitigation/Replacement

Note: If a total of one-half (.5) acres or less of wetlands will be affected, participation in Pennsylvania's Wetlands Replacement Project may be authorized by the Department in lieu of onsite replacement of the wetlands. **N/A**

a) If wetland mitigation measures or wetland replacement are proposed, address the following:

1) Identify the wetlands where mitigation measures will be employed.

A botanist will conduct a comprehensive vegetation survey of Wetland D to document current baseline conditions, including a Prevalence Index and FAC Neutral Test score. These indices help characterize the vegetative condition of the wetland community with respect to the hydrophytic indicator status ranks for the existing vegetation. The prevalence index is a weighted-average of the wetland indicator status of all plant species in the wetland. The FAC-Neutral test is a summation of the number of dominant plants with a "Wet" indicator status versus those with a "Non-wet" indicator status. By establishing a baseline condition, future monitoring could provide a comparison to determine if a change in the wetland vegetative community has occurred. If there would be a change in the hydrologic condition to the subject wetland due to the proposed quarry project, it would be expected to be evinced in a change in the vegetative community (i.e. if drier hydrologic conditions develop, then drier uplands plants inhabit the area). A mitigation strategy will be developed in coordination with the Department should impacts be realized.

2) Identify the wetlands that will be replaced and the location of the replacement wetland site. Provide the number of acres for each wetland to be replaced and the acreage of the replacement wetland.

As discussed in 14.4 a 1) above, a monitoring program is proposed. Should the results of this independent study reveal impacts to Wetland D, the applicant will compensate in coordination with the Department at a 1:1 ratio

3) Provide a plan for mitigation/replacement following the guidelines in the Department's technical guidance titled "Design Criteria - Wetlands Replacement Monitoring" document 363-0300-001. This guidance is available from the Division of Waterways, Wetlands and Erosion Control, Post Office Box 8854, Harrisburg, Pennsylvania 17105-8554 or through the Department's website.

If determined to be warranted, an appropriate compensatory wetland mitigation plan including the location of proposed compensatory activities will be coordinated with the Department. The compensatory wetland mitigation plan would be consistent with the Department's design criteria technical guidance.

Show the location of replacement wetland sites on the Operations Map (Exhibit 9) and the Land Use and Reclamation Map (Exhibit 18).

Note: At a minimum, wetland replacement must be at a 1:1 ratio (replacement acres: affected acres). The Department may require the ratio to exceed 1:1 based on the functions and values of the wetlands to be affected. Wetland replacement sites will generally not be approved unless the site is located within the same general area as the existing wetland to be replaced.

14.5 United States Army Corp of Engineers Permits

a) If the United States Army Corp of Engineers (Corps) requires a Pennsylvania State Programmatic General Permit – 4 (PASPGP-4) for your proposed activity: **N/A**
Completed and attach the "PASPGP-4 Cumulative Impacts Project Screening Form (3150-PM-BWEW0050)" and supporting documents listed below.

1) the PASPGP-4 Cumulative Impact Project Screening Form (3150-PM-BWEW0050);

2) Exhibits (pdf format):

- a) U.S.G.S. Map 6.1 (site location map),
- b) Environmental Resources Map 6.2,
- c) Operations Map 9,
- d) Land Use and Reclamation Map 18, and
- e) a CD or DVD with any plans that are larger than 8 ½ by 11 inches.

3) Module 1: Large Noncoal (Industrial Minerals) Mine Permit Application

- 4) Module 14 and any detail drawings for stream / wetland encroachment activities (including Form 14A, Request for Federal Clean Water Act (CWA) Section 401 Certification For Mining / Coal Refuse Disposal Activities).
- 5) the Endangered Species Act /Pennsylvania Natural Diversity Inventory receipt,
- 6) the Pennsylvania Historical and Museum Commission correspondence (Section 106 coordination)

FORM 14A - Request for Federal Clean Water Act (CWA) Section 401 Certification For Mining / Coal Refuse Disposal Activities

General requirements: A mining or coal refuse disposal activity that involves encroachment into a stream or wetland requires a DEP mining activity permit and a US Army Corps of Engineers (Corps) permit issued pursuant Section 404 of the Federal Clean Water Act (FWPCA). An applicant proposing this type of activity must file a state mining activity permit application with the DEP district mining office and a separate federal permit application with the Corps district office.

Need for a Section 401 certification: As a matter of coordination, the Corps district office will not issue the federal Section 404 permit until DEP issues an Individual Water Quality Certification pursuant to Section 401 of the FWPCA, certifying that the activity will comply with the provisions of sections 301-303, 306 and 307 of the FWPCA and will not violate applicable federal and state water quality standards. The DEP district mining office issues this certification based on the information presented in the state permit application, public comments received with respect to the state permit application, and consultation with the Corps district office in regard to the federal permit application.

To ensure timely processing of both state and federal permit applications, the applicant is encouraged to:

- Contact the Corps district office to determine if a Section 404 permit is required for the proposed activity, and what type of permit is needed (an individual permit or nationwide permit).
- Complete and submit this form with the state mining activity permit application to the DEP district mining office.

Applicant _____	Application No. _____
Address _____	Operation Name _____
_____	Municipality _____
Telephone _____	County _____

Section 1: Corps Determination:

This project requires 401 certification for:

- An individual 404 permit
- Modification to an existing 404 permit
- Authorization to operate under Nationwide Permit No. _____

Section 2: Activity Description:

Please describe the activities that are the subject of this request:

If the scope of activities (including any mitigation to be performed as compensation for the unavoidable impacts of fill placement) proposed under the federal permit application is the same as the scope of activities proposed under the state permit application, check here and provide the application number assigned by the Corps _____ and the date on which the application was filed _____.

If the scope of activities described under the federal permit application differs from the scope of activities described under the state permit application, attach a copy of the federal permit application.

Note that any substantial revisions required as part of the federal application review process must be provided to the DEP district mining office.

Section 3: Signature(s)

I (am the applicant) (am an officer of the applicant) (have the authority to file a Section 404 application for this project) and certify that the plans, reports and documents submitted as part of the application are true and correct to the best of my knowledge and belief, I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. **(Note: Cross out inapplicable portions in parenthesis).**

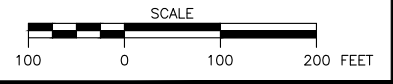
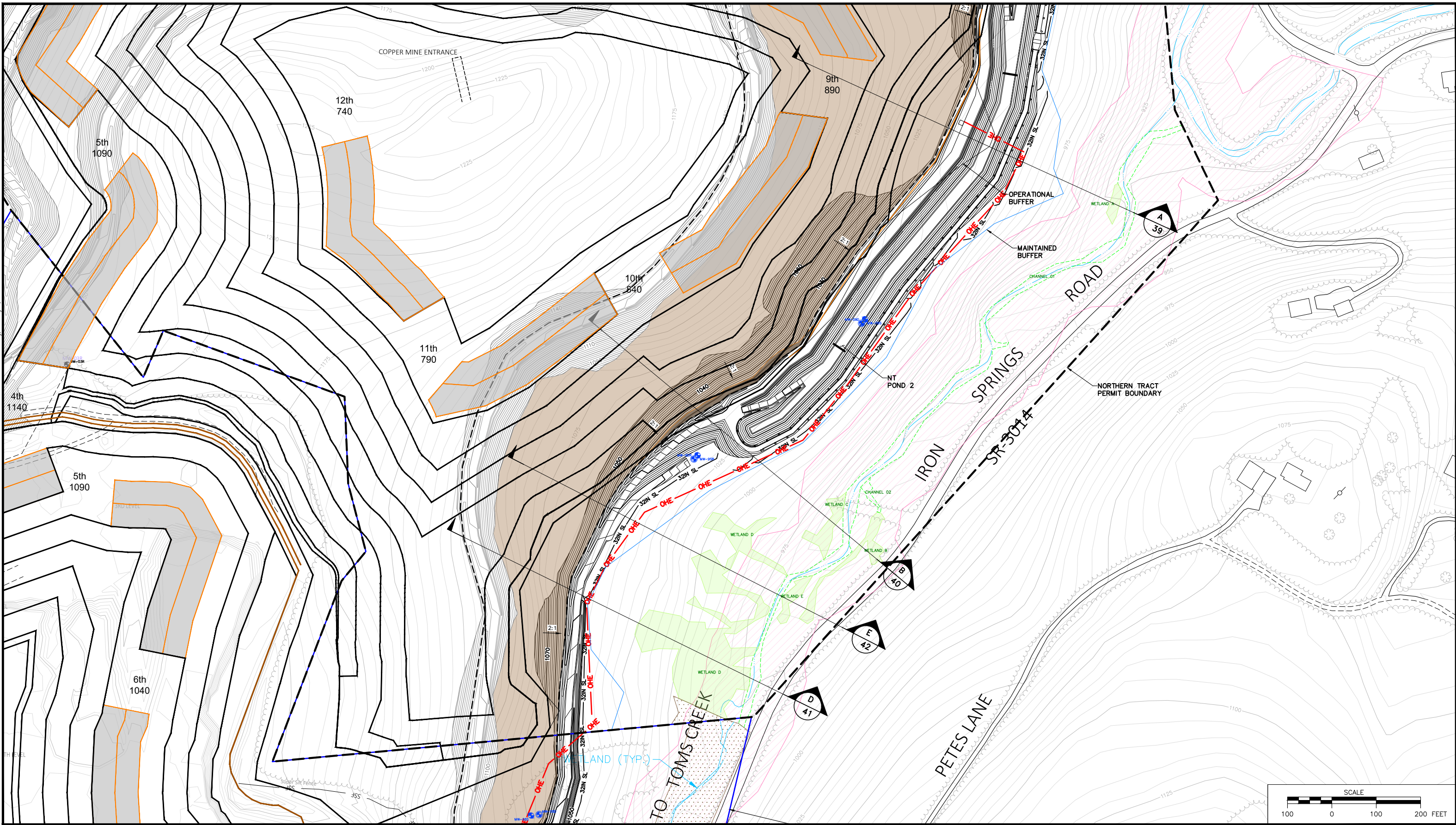
Signature of Applicant or Responsible Official

Name (typed)

Title

EXHIBIT 14.3

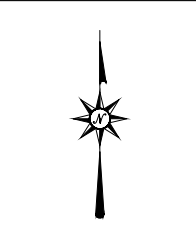
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NOTES / REVISIONS						
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		3				
		2				
		1				

SEAL:

12-22-17



DAPPOLONIA
701 RODI ROAD, FLOOR 2
PITTSBURGH, PENNSYLVANIA 15235-4559
(412) 856-9440 FAX (412) 856-9535

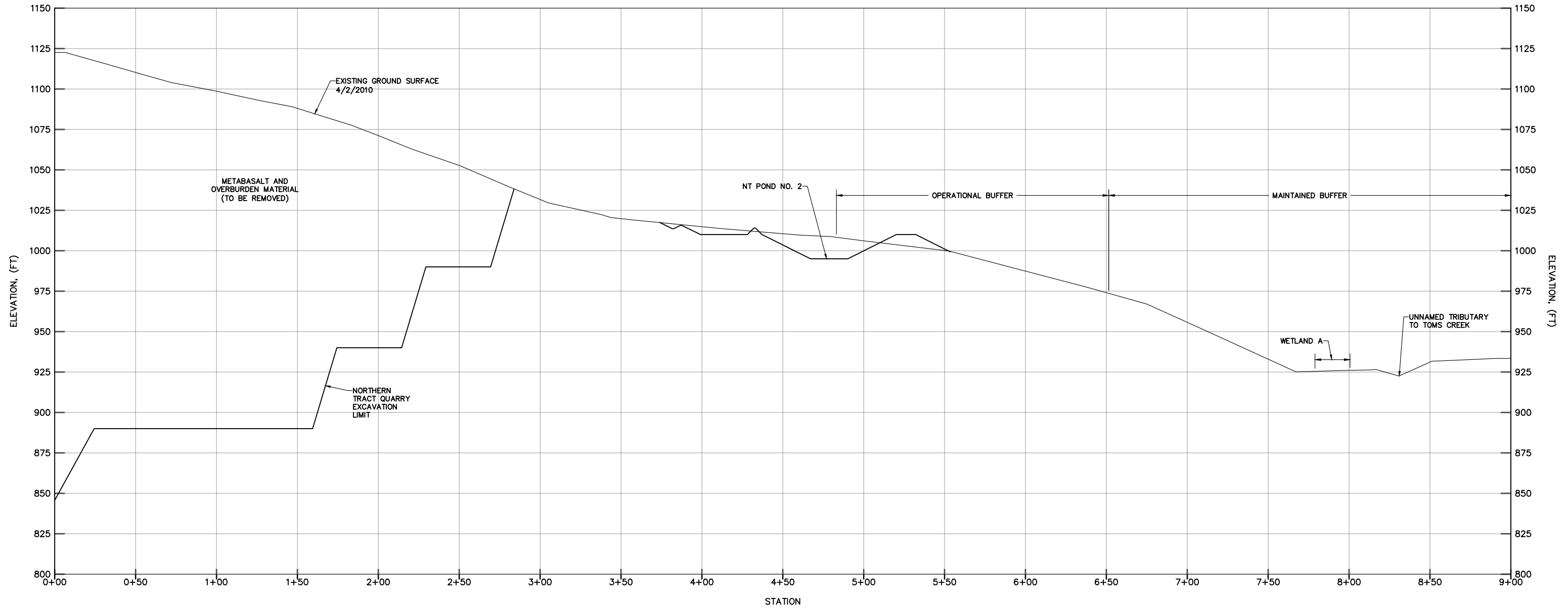
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DATE: 9/16/2016
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DATE: DATE

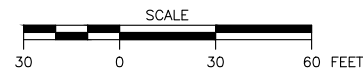
SPECIALTY GRANULES LLC
CHARMIAN - NORTHERN TRACT QUARRY

EXHIBIT 14.3
WETLAND LOCATION PLAN

SCALE: AS SHOWN
DRAWING NO. 38
REV 0



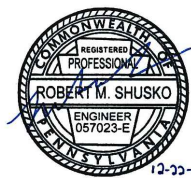
WETLAND A - CROSS-SECTION



NOTES / REVISIONS

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SEAL:



DAPPOLONIA

701 RODI ROAD, FLOOR 2
PITTSBURGH, PENNSYLVANIA 15235-4559
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PROJECT NUMBER: 152596A

FILE NAME: Exhibit 14.3-Wetland A-R0.dwg

DRAWN BY: AJM

CHECKED BY: CHKD BY

DATE: 9/15/2016

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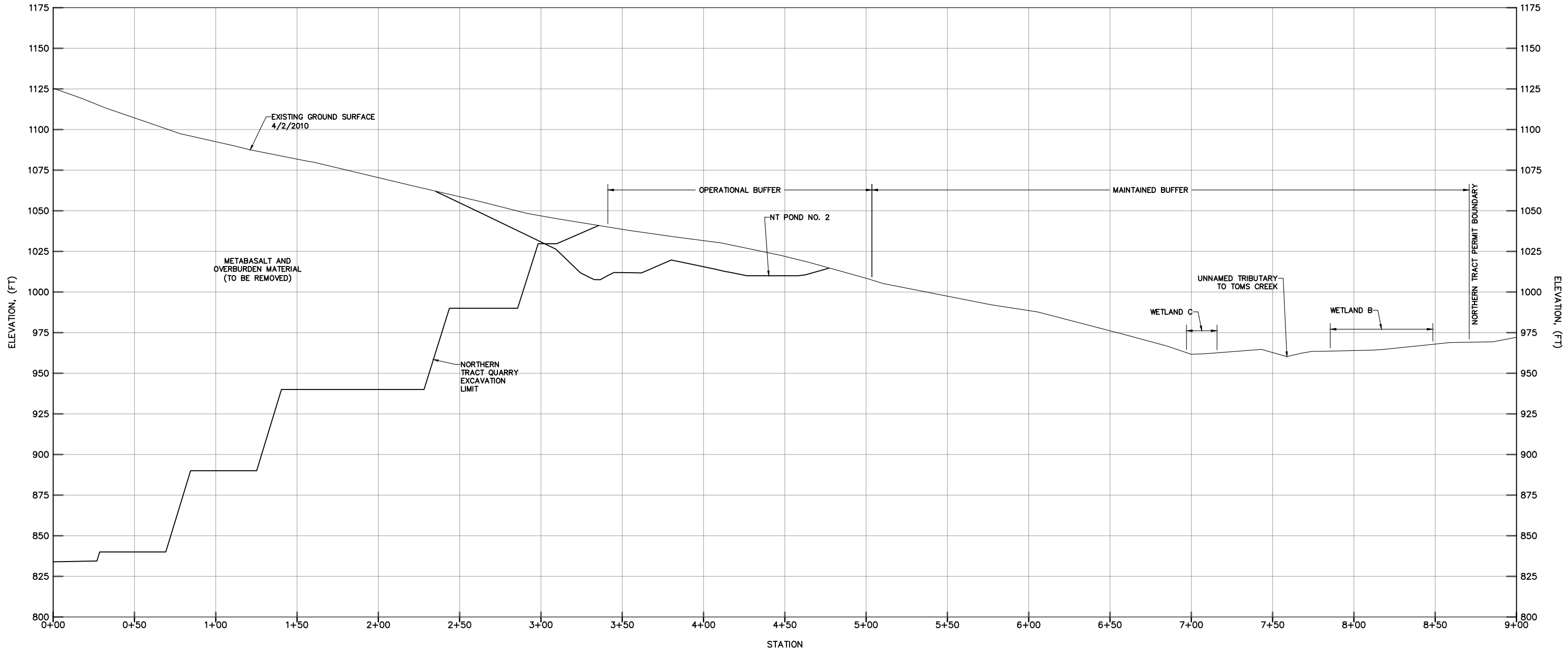
SPECIALTY GRANULES LLC
CHARMIAN - NORTHERN TRACT QUARRY

EXHIBIT 14.3
WETLAND A CROSS-SECTION

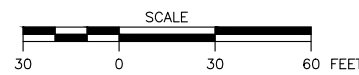
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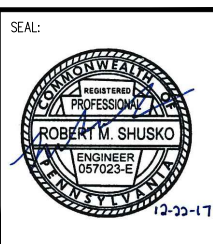
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WETLAND B & C - CROSS-SECTION



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701 RODI ROAD, FLOOR 2
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SKELLY AND LOY
ENGINEERING - ENVIRONMENTAL
CONSULTANTS

PROJECT NUMBER: 152596A
FILE NAME: Exhibit 14.3-Wetland B-R0.dwg

SGI

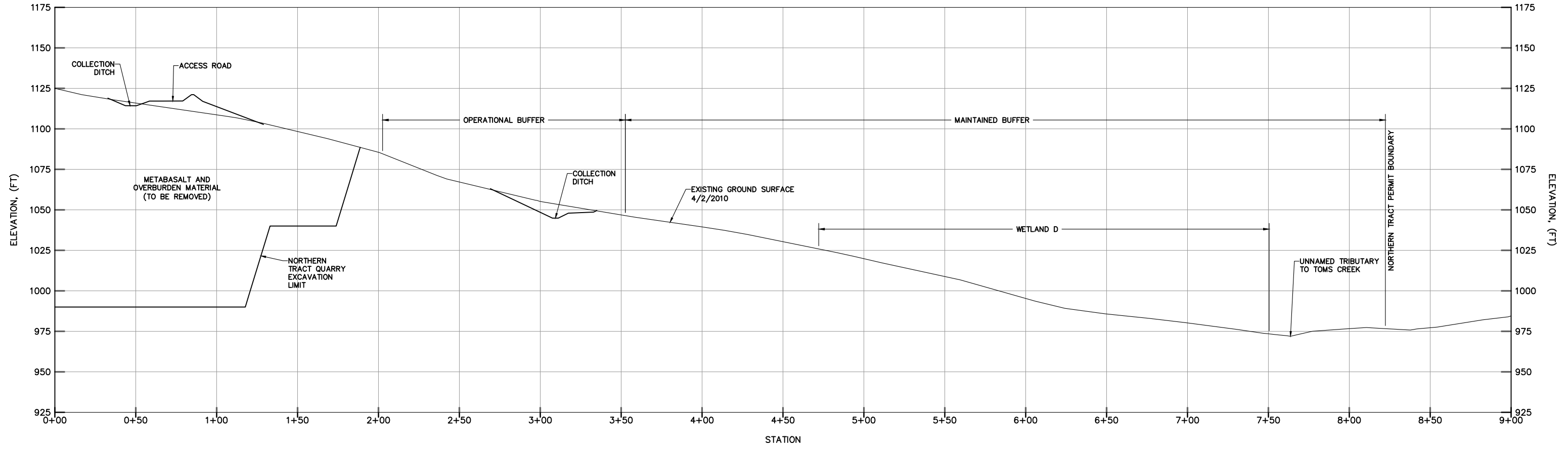
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DATE: 12/22/2017

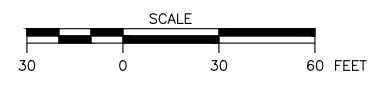
SPECIALTY GRANULES LLC
CHARMIAN - NORTHERN TRACT QUARRY

EXHIBIT 14.3
WETLAND B & C CROSS-SECTION

SCALE: AS SHOWN
DRAWING NO. 40
REV 0



WETLAND D - CROSS-SECTION



NOTES / REVISIONS					
REV.	DATE	ISSUED FOR	REVISION DESCRIPTION	MADE BY	CHKD BY
4					
3					
2					
1					

SEAL:

ROBERT M. SHUSKO
ENGINEER
057023-E
12-22-17



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ENGINEERING - ENVIRONMENTAL
CONSULTANTS

PROJECT NUMBER: 152596A
FILE NAME: Exhibit 14.3-Wetland D-R0.dwg

SGI

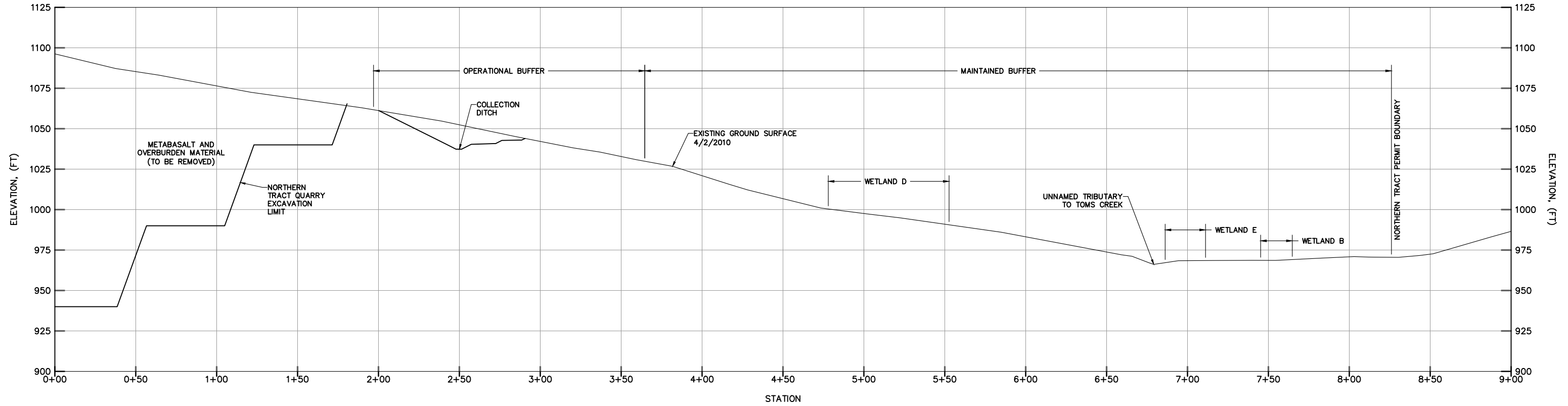
DRAWN BY: AJM
DATE: 9/16/2016

CHECKED BY: CHKD BY
DATE: DATE

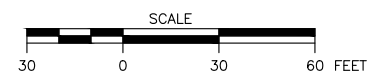
SPECIALTY GRANULES LLC
CHARMIAN - NORTHERN TRACT QUARRY

EXHIBIT 14.3
WETLAND D CROSS-SECTION

SCALE: AS SHOWN
DRAWING NO. 41
REV 0



WETLAND E - CROSS-SECTION



NOTES / REVISIONS					
REV.	DATE	ISSUED FOR	REVISION DESCRIPTION	MADE BY	CHKD BY
4					
3					
2					
1					

SEAL:

12-22-17

PROJECT NUMBER: 152596A
 FILE NAME: Exhibit 14.3-Wetland E-R0.dwg

DRAWN BY: AJM
 CHECKED BY: RMS/MDW
 DATE: 9/16/2016
 DATE: 12/22/2017

SPECIALTY GRANULES LLC
CHARMIAN - NORTHERN TRACT QUARRY

EXHIBIT 14.3
 WETLAND E CROSS-SECTION

SCALE: AS SHOWN
 DRAWING NO. 42
 REV 0