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Pennsylvania Wetland Condition Level 2 Rapid Assessment Protocol





Bureau of Waterways Engineering and Wetlands Division of Wetlands, Encroachments and Training

DEPARTMENT OF ENVIRONMENTAL PROTECTION Bureau of Waterways Engineering and Wetlands

DOCUMENT NUMBER: 310-2137-002 TITLE: Pennsylvania Wetland Condition Level 2 Rapid Assessment **EFFECTIVE DATE:** Upon publication of notice as final in the *Pennsylvania Bulletin* **AUTHORITY:** The Dam Safety and Encroachments Act, Act of November 26, 1978, P.L. 1375, No. 325, as amended, 32 P.S. §§ 693.1 et seq. **POLICY:** This document provides guidance for assessing the condition of wetland aquatic resources for use in applicable requirements under 25 Pa. Code Chapter 105 regulations. **PURPOSE:** To provide guidelines for evaluating the condition of palustrine wetland aquatic resources for the purposes of meeting regulatory requirements contained in 25 Pa. Code Chapter 105. The guidance outlines methods to conduct assessments and establishes a scoring system based upon condition categories. **APPLICABILITY:** The guidance document applies to wetland condition assessments performed to comply with 25 Pa. Code Chapter 105 regulations. **DISCLAIMER:** The policies and procedures outlined in this guidance document are intended to supplement existing requirements. Nothing in the policies or procedures will affect regulatory requirements. The policies and procedures herein are not an adjudication or a regulation. DEP does not intend to give these rules that weight or deference. This document establishes the framework, within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant. **PAGE LENGTH:** 32 pages

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Introduction

The Dam Safety and Encroachments Act requires a person to obtain a permit from the Department of Environmental Protection (DEP or Department) to construct, operate, maintain, modify, enlarge or abandon a dam, water obstruction or encroachment. 32 P.S. § 693.6(a). Regulations related to the dam safety and waterway management permitting process have been promulgated in Chapter 105 of Title 25 of the *Pennsylvania Code*. When impacts are proposed to a resource in connection with a proposed dam, water obstruction or encroachment, an applicant is required to, among other things, submit a mitigation plan with the application for an individual permit or the registration for a general permit in accordance with the definition of mitigation in Chapter 105. 25 Pa. Code § 105.13. The Department has developed this technical guidance to provide a methodology acceptable to the Department for the assessment of existing wetland resource conditions proposed to be impacted as part of a permit application.

This assessment protocol is neither a regulation nor is intended to alter existing regulatory requirements. To the extent that restrictive language is used in this technical guidance, the restrictive language is intended to make sure that the assessment protocol is performed to assess the resources condition in a manner that the Department has determined is acceptable to attain the regulatory standard.

The Department recommends the use of this technical guidance to perform resource condition assessments. The Department may approve an alternative resource condition assessment (separate from and not contained in this technical guidance) if that methodology is determined by the Department to adequately identify and assess resource conditions for the purposes of meeting regulatory requirements under Chapter 105. Complete and legally defensible supporting documentation (justifications, calculations; etc.) must be included with the application to allow the Department to make an informed decision regarding the use of an alternative assessment protocol methodology. Additional application processing time may be necessary when using an alternative methodology because the methodology will require review and approval by the Director of the Bureau of Waterways Engineering and Wetlands prior to use in a final permit action.

The Department may require additional information necessary to adequately review a resource condition assessment or may require other information deemed necessary to review a proposed alternative resource condition assessment.

Background

This protocol is part of a comprehensive effort to ensure consistency in conducting aquatic resource condition assessments, impact assessments, and compensation determinations. It was developed to provide information regarding the condition of natural wetlands for permit impact evaluation and compensatory mitigation purposes. This methodology is not intended to be used for water quality designation purposes. While this method was developed for establishing the condition of natural wetlands, it can also be used to evaluate restored and constructed wetlands as well as proposed projects seeking to restore or create wetlands based upon those plans and existing site conditions.

This protocol was developed by adapting the approach and scoring of previously developed and tested rapid assessment protocols (Brooks, 2002, 2007-11 and 2009). Little to no equipment is needed to use this protocol and a wetlands professional generally should be able to employ the protocol in less than one day not including preparation time, to ascertain the condition of a palustrine wetland after proficiency is developed.

This rapid condition assessment through the use of condition indices considers the condition of the zone of influence; the presence of roadbeds; wetland vegetation; and presence of vegetation, hydrologic, sediment and water quality stressors. These condition indices do not consider the abundance or types of fauna present, nor do they consider the water quality of the palustrine wetland resource. Therefore, this protocol seeks to assess wetland resources through evaluating the assessment area and surrounding lands based upon the departure from "reference standard" resource conditions.

This protocol can be used to satisfy certain Chapter 105 application requirements as described in the Department's permit application and environmental assessment forms and instructions available in its Online Library found at <u>www.dep.pa.gov</u>. This qualitative rapid assessment is designed to limit subjectivity and provide a representation of the resource condition associated with an established assessment area. The resulting palustrine wetland condition index may be used by applicants seeking Chapter 105 authorizations from the Department or by the Department when evaluating proposed project impacts and determining compensatory mitigation requirements.

Assessors should follow general professional standards and collect or utilize supporting information such as photographic documentation as appropriate or reference such materials contained in the application that support observations, professional judgments or other circumstances as deemed necessary to provide an accurate and true representation of the resource conditions.

1.0 Assessment Area

Prior to conducting the wetland condition assessment, the assessment area (AA) must be established. The utilization of aerial or satellite imagery is highly recommended for establishing the AA boundaries with follow-up field verification. The imagery should substantially assist the assessor in establishing and evaluating the wetland zone of influence area as discussed in **Section 2.0.** The AA is comprised of wetland area only and adjoining uplands are not included in the AA. However, adjoining uplands may comprise all or part of the wetland zone of influence as discussed in **Section 2.0**.

1.1 Determining Impact Area

Unless performing an assessment of an entire wetland as described in the first bullet under **1.2 Establishing the AA**, the area of wetland impact(s) must be determined for each discrete wetland. Impact acreage is calculated to the nearest one-hundredth of an acre (0.00). Wetland impacts may be comprised of both temporary and permanent direct and indirect project effects. Generally, direct impacts have both acreage and functional losses in a given area, whereas indirect impacts result in a change in function without the loss of acreage in any given area.

- Direct impacts consist of filling, draining or conversion of a resource to another type such as a wetland to an open body of water. Examples include placement of fill in a wetland, placement of a box culvert in a stream, placement of fill in the floodplain, building a dam where the impoundment area will flood wetlands with a sufficient depth as to change the existing aquatic resource to another type of aquatic resource.
- Indirect impacts consist of altering the chemical, physical or biological components of an aquatic resource to the extent that changes to the functions of the resource results. However, indirect impacts do not result in a loss of resource acreage. Changes include such things as conversion of a forested wetland system to a non-forested state through chemical, mechanical or hydrologic manipulation that results in a maintained state of vegetation; altered hydrologic conditions (increases or decreases) such as stormwater discharges or water withdrawals that alter the chemical, physical or biological functions of the resource, etc.

In many instances, the project may affect more than one wetland area and AAs will need to be established for each wetland proposed to be affected. In rarer cases, a project may propose to affect a large wetland in multiple locations and depending upon case-specific circumstances establishing the AA(s) may significantly differ. In unusual circumstances, the Department should be consulted prior to performing the assessment for advice.

1.2 Establishing the AA

When establishing the AA utilizing this assessment protocol to assess the condition of an entire wetland or large contiguous wetland area that is not part of a proposal to directly and/or indirectly affect a wetland, apply the following:

• The identified (delineated or mapped) wetland boundary will comprise the AA.

When establishing the AA utilizing this assessment protocol to assess the condition of a wetland area proposed to be effected directly and/or indirectly (impact area), apply the following, as appropriate:

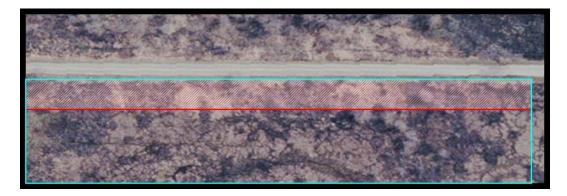
- If the entire wetland proposed to be affected is less than or equal to 1.0 acre in size, then the entire wetland will comprise the AA regardless of the proposed impact size area; or
- If the impact is less than 1.0 acre in size and the wetland is greater than 1.0 acre, the AA is established around the proposed impact area until 1.0 acre in size is reached and the area provides a representative sampling of the wetland while still fully encompassing the proposed impact area; or
- If the proposed impact area is greater than 1.0 acre in size, then the AA is comprised entirely of the proposed wetland impact area.

1.3 Project AA Examples

In the example below, the wetland boundary is colored light blue; the red shaded area represents the proposed impact area. In this example, the proposed impact area is greater than 1.0 acre in size and therefore the AA is comprised of the proposed impact area only.



In the second example below, the wetland boundary is colored light blue; the red shaded area represents the proposed impact area. In this example, the proposed impact area is greater than 1.0 acre in size and therefore the AA will be comprised of the entire proposed impact area only.



In the third example below, the light blue line is the wetland boundary, the orange shaded area is the proposed impact area and the AA is the red shaded area. The proposed impact area is smaller than 1.0 acre in size and therefore the AA was adjusted around the proposed impact area to provide an AA that is equal to or greater than 1.0 acre in size.



Linear wetland features that are common in floodplains along streams may require a reduced AA if the linear wetland feature is less than 100 feet in width. In these instances, the assessor(s) may justify a smaller AA but under no circumstances should the AA be reduced below 0.5 acres in size for linear wetland features unless the entire linear wetland is less than 0.5 acres in size, in which case the entire wetland would comprise the AA.

2.0 Wetland Zone of Influence (ZOI) Condition Index

This condition index is not intended to be a detailed vegetative cover survey, but instead, a qualitative evaluation of the land cover types that make up the wetland ZOI surrounding the AA. The Wetland ZOI is determined by evaluating the percentage of total area of the wetlands ZOI that is occupied by each condition category. The wetland ZOI area is comprised of the lands extending 300 feet from the AA perimeter. This area may be comprised of uplands, wetlands or other aquatic resources such as waterways. The evaluation and scoring of the wetland ZOI condition are based on visual observations of the area. The use of aerial photography is strongly recommended for initial condition category mapping prior to performing the assessment in the field. The initial condition category mapping combined with a visual observation of the ZOI is sufficient to provide adequate information to determine this condition index.

The optimal wetland ZOI vegetation would include land cover areas comprised of hardwood/conifer trees, wetlands, waterways and/or lacustrine resources (≥ 10 acres). All Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are categorized as optimal. It is highly likely that the ZOI area will contain land covers that meet multiple condition categories. If the land cover composite is heterogeneous (example: 33% forested, 33% cropland, and 34% pavement), each condition category present within the ZOI is scored and weighted based on the percentage of the total area it occupies within the ZOI. A percentage estimate of the total area that each cover type occupies is determined by using visual estimates of each different area to obtain its percentage of cover. The assessor will categorize and score the observed cover types accordingly, based upon the condition category descriptions. The assessor records the percentages on the form in decimal format (**0.00**).

The following equation is used for the Wetland ZOI Condition Index:

EQUATION: WZOICI =
$$\frac{\sum (\% \text{ZOIAreas} \times \text{Scores})}{20}$$

2.1 Wetland ZOI Condition Categories

The Wetland ZOI condition is assessed using the following four Condition Categories. The Wetland ZOI is the land extending 300 feet from the perimeter of the AA previously established in **Section 1.0**. The Wetland ZOI may be comprised of wetlands, uplands, waterways and/or floodplains.

1. Wetland Zon	e of Influence Cond	lition Index							
				Condition	n Category				
Wetland Zone	Opt	imal	Subo	ptimal		ginal	P	oor	
of Influence	ZOI area vegetatio	n consists of a tree	High Suboptimal:	Low Suboptimal:	High Marginal:	Low Marginal: ZOI	High Poor: ZOI	Low Poor: ZOI	
(300 foot area	stratum present (o	diameter at breast	ZOI area vegetation	ZOI area vegetation	ZOI area vegetation	area vegetation	area vegetation	area vegetation	
around AA		, ,	consists of a tree	consists of a tree	consists of non-	consists of non-	consists of lawns,	consists of	
perimeter)		ree canopy cover.	stratum (dbh > 3	stratum (dbh > 3	maintained, dense	maintained, dense	mowed, and	impervious	
			inches) present,	inches) present,	herbaceous	herbaceous	maintained areas,	surfaces; mine spoil	
			with greater than or	with greater than or	vegetation with	vegetation, riparian	nurseries; no-till	lands, denuded	
		strine resources \geq 10 red as optimal.		equal to 30% and	either a shrub layer	areas lacking shrub	cropland; actively	surfaces, row	
	acres are scor	red as optimal.	less than 60% tree canopy cover and	less than 60% tree canopy cover with a	or a tree stratum (dbh > 3 inches)	and tree stratum, areas of hay	grazed pasture, sparsely vegetated	crops, active feed lots, impervious	
			containing both	maintained	present, with less	production, and	non-maintained	trails, or other	
			herbaceous and	understory.	than 30% tree	ponds or open water	area, pervious	comparable	CI =
			shrub layers or a	di la brotor y:	canopy cover.	areas (< 10 acres).	trails, recently	conditions.	Total
			non-maintained			If trees are present,	seeded and		Score/20
			understory.			tree stratum (dbh > 3	stabilized, or other		
						inches) present, with	comparable		
						less than 30% tree	condition.		
						canopy cover with			
						maintained			
						understory.			
SCORE	20 19 1	8 17 16	15 14 1	3 12 11	10 9	8 7 6	5 4	3 2 1	
1. Identify all ap	plicable Condition Ca	ategory areas within th	ne wetland zone of inf	luence using the desc	criptors above.				
2. Estimate the	% area within each c	ondition category. Ca	alculators are provide	d for you below.		Total Sc	ore = SUM(% Areas	*Scores)	
3. Enter the % Z	OI Area in decimal fo	orm (0.00) and Score	for each category in t	he blocks below.					
	Condition Category:							Total Score:	
	% ZOI Area:								СІ
Scoring:	Score:								Ci
	Total Sub-score:								
Comments:									

Optimal 20 - 16

ZOI area vegetation consists of a tree stratum (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.

Suboptimal 15 - 11

High Suboptimal (15 - 13): ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover and containing both herbaceous and shrub layers or a non-maintained understory.

Low Suboptimal (13 - 11): ZOI area vegetation consists of a tree stratum (dbh > 3 inches) present, with greater than or equal to 30% and less than 60% tree canopy cover with a maintained understory.

Marginal 10 - 6

High Marginal (10 - 8): ZOI area vegetation consists of non-maintained, dense herbaceous vegetation with either a shrub layer or a tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover.

Low Marginal (8 - 6): ZOI area vegetation consists of non-maintained, dense herbaceous vegetation, riparian areas lacking shrub and tree stratum, areas of hay production, and ponds or open water areas (< 10 acres). If trees are present, tree stratum (dbh > 3 inches) present, with less than 30% tree canopy cover with maintained understory.

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Poor 5 - 1

High Poor (5 - 3): ZOI area vegetation consists of lawns, mowed, and maintained areas, nurseries; no-till cropland; actively grazed pasture, sparsely vegetated non-maintained area, pervious trails, recently seeded and stabilized, or other comparable condition.

Low Poor (3 - 1): ZOI area vegetation consists of impervious surfaces, mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.

3.0 Roadbed Presence Condition Index

The presence of roadbeds is assessed in the same area established for the wetland ZOI. However, roadbeds are assessed in two distinct areas within the wetland ZOI. The first area is 100 feet in width (0-100 ft.) from the AA perimeter outward and the second area extends an additional 200 feet (100-300 ft.) to the outside perimeter of the wetland ZOI. Distances are measured outward from the AA perimeter. Roadbed proximity has been shown to be highly correlated to a decrease in wetland function due to factors such as an increase in invasive species, altering surface and subsurface water flow and source of pollutants.

The data used to evaluate roadbed presence uses the Roadbed Presence Worksheet to determine the scoring for each distance category. These scores are then used to assign a condition category for each of the distance categories. The condition category scores are established for each distance category independently since the resulting scores are weighted in the index. More emphasis is placed on the potential effect that roadbeds within 0-100 feet from the AA perimeter would have on the wetland. The two distance categories are weighted to reflect this in the Roadbed Presence Condition Index.

The Roadbed Presence Worksheet includes six roadbed types and two non-road options for scoring. The roadbed types are 4-Lane Paved (or larger), 2-Lane Paved, 1-Lane Paved, Gravel Road, Dirt Road, and Railroad. A No Roadbeds and an Other Roadbeds option are also included in the worksheet. Examples of Other Roadbeds include parking lots, truck facilities, loading docks, trails, etc. The assessor(s) assigns the weighting factor for the Other Roadbeds category based upon best professional judgment (BPJ) of the effect the Other Roadbed is having on the wetland itself or the Wetland ZOI. The assessor will note why the weighting factor was selected in the comments section of the worksheet. The size of the roadbed, frequency of usage, and presence of stormwater management should all factor into assigning a weighting factor.

			oadbed W					_						
Project Name / Ide	entifier		Date	Name(s) of Evalua	tor(s)								
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:										
Roadbeds: Record the number of occurrences by roadbed type and distance category. Multiply the number of occurrences by the weighting factors for each roadbed type and distance category then sum the total score for each distance category. The total scores for each distance category are then compared to the condition category descriptions.														
Roadbed Type	Distance	Occurrences	Factor	Score	Distance	Occurrences	Factor	Scor						
>= 4 Lane Paved	0-100 ft.		4		100-300 ft.		4							
2 Lane Paved	0-100 ft.		2		100-300 ft.		2							
1 Lane Paved	0-100 ft.		1		100-300 ft.		1							
Gravel Road	0-100 ft.		1		100-300 ft.		1							
Dirt Road	0-100 ft.		1		100-300 ft.		1							
Railroad	0-100 ft.		2		100-300 ft.		2							
Railroad 0-100 ft. 2 100-300 ft. 2 Other Roadbeds 0-100 ft. 1, 2 or 4 100-300 ft. 1, 2 or 4														
Other Roadbeds														
	Total Scores: 0-100 ft. Road Comments: 100-300 ft.													

The following equation is used for the Roadbed Presence Condition Index:

EQUATION: Roadbed Presence CI = $\frac{\sum (a.category Score*0.66) + (b.category Score*0.33)}{20}$

3.1 Roadbed Presence Condition Categories

The presence and type of roadbeds occurring within wetland ZOI affect the overall performance of the Wetland ZOI. The Wetland ZOI is the land extending 300 feet from the AA perimeter (see establishing the Wetland ZOI in Section 2.0). The presence of roadbeds is measured in two different distance categories which include 0-100 feet and 100-300 feet. The distance categories are measured from the perimeter of the AA outward and the outside boundary of 300 feet coincides with the Wetland ZOI boundary.

The Roadbed Presence Worksheet as described above is used to establish the scores for each of the distance categories a) 0-100 ft. and b) 100-300 ft. The distance category score is then used to assign the condition category and the assessor then uses BPJ to select from the score from within the range for that condition category.

Z. Roadbed Pl	esence Index								
				Condition	Categories		-		
a. Roadbed	Opt	timal	Subo	optimal	Mar	ginal	Po	oor	
Presence (within 0 - 100 foot Wetland ZOI distance)	High Optimal: No roadbeds present within 100 feet of the AA boundary	Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 bu	Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is t greater than to 4 but	High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but	score within 0-100 foot distance of the AA boundary is	
			equal to or less than 4.	ess than or equal to 6.	less than or equal to 8.	less than or equal to 10.	less than or equal to 12.		
SCORE	20 19 1	18 17 16	15 14	13 12 11	10 9	8 7 6	5 4	3 2 1	
b. Roadbed	Oni	timal	Sub	Condition	Categories Mar	ginal	P	oor	ł
Presence	High Optimal: No		High Suboptimal:	Low Suboptimal:	High Marginal:	Low Marginal:	High Poor:	Low Poor:	1
(within 100 - 300 foot	roadbeds present within 100 - 300	Roadbed presence score within 100 - 300 feet of the AA			Roadbed presence score within 100 -	Roadbed presence score within 100 -	Roadbed presence score within 100 -	Roadbed presence score within 100 -	
Wetland ZOI	feet of the AA	300 leel of the AA			300 feet of the AA	300 feet of the AA	300 feet of the AA	300 feet of the AA	
Wetland ZOI distance)	feet of the AA boundary	boundary equal to or less than 2.	boundary is greater than to 2 but equal to or less than 4.	boundary is greater than to 4 but less than or equal to 6.	boundary is greater than to 6 but less than or equal to 8.	300 feet of the AA boundary is greater than to 8 but less than or equal to 10.	boundary is greater than to 10 but less than or equal to 12.	boundary is greater	CI = Total Score/20
	boundary	boundary equal to or less than 2.	boundary is greater than to 2 but equal to or less than 4.	boundary is greater than to 4 but less	boundary is greater than to 6 but less than or equal to 8.	boundary is greater than to 8 but less	boundary is greater than to 10 but less than or equal to 12.	boundary is greater	Total
distance)	boundary	boundary equal to or less than 2.	boundary is greater than to 2 but equal to or less than 4.	boundary is greater than to 4 but less than or equal to 6.	boundary is greater than to 6 but less than or equal to 8.	boundary is greater than to 8 but less than or equal to 10.	boundary is greater than to 10 but less than or equal to 12.	boundary is greater than 12.	Total
distance)	boundary	boundary equal to or less than 2.	boundary is greater than to 2 but equal to or less than 4.	boundary is greater than to 4 but less than or equal to 6. 13 12 11	boundary is greater than to 6 but less than or equal to 8. 10 9 a. Roadbed 0-100:	boundary is greater than to 8 but less than or equal to 10. 8 7 6	boundary is greater than to 10 but less than or equal to 12. 5 4 : Weighting * (0.67)	boundary is greater than 12. 3 2 1	Total
distance)	boundary	boundary equal to or less than 2.	boundary is greater than to 2 but equal to or less than 4.	boundary is greater than to 4 but less than or equal to 6. 13 12 11	boundary is greater than to 6 but less than or equal to 8. 10 9	boundary is greater than to 8 but less than or equal to 10. 8 7 6	boundary is greater than to 10 but less than or equal to 12. 5 4 Weighting	boundary is greater than 12. 3 2 1	Total

Distance Category a (0-100 ft.) or b (100-300 ft.):

Optimal 20 - 16

High Optimal (20 - 18): No roadbeds present.

Low Optimal (18 - 16): Roadbeds may be present; score is equal to or less than 2.

Suboptimal 15 - 11

High Suboptimal (15 - 13): Roadbeds may be present; score is greater than 2 but less than or equal to 4.

Low Suboptimal (13 - 11): Roadbeds may be present; the score is greater than 4 but less than or equal to 6.

Marginal 10 - 6

High Marginal (10 - 8): Roadbeds may be present the score is greater than 6 but less than or equal to 8.

Low Marginal (8 - 6): Roadbeds may be present; the score is greater than 8 but less than or equal to 10.

Poor 5 - 1

High Poor (5 - 3): Roadbeds may be present; the score is greater than 10 but less than or equal to 12.

Low Poor (3 - 1): Roadbeds may be present; the score is greater than 12.

4.0 Vegetation Condition Index

The Vegetation Condition Index is comprised of two sub-indices that represent the overall vegetation condition of the wetland assessment area. The two sub-indices are Invasive Species Presence and Vegetation Stressor Presence. The scores from these two sub-indices are combined and then divided by 40 the maximum potential score to determine the overall Vegetation Condition Index. The presence of invasive species has a great influence on the overall ecological health of a wetland and can affect biogeochemical processing and habitat functions. In many instances, the presence of vegetation stressors may provide opportunities for invasive species colonization.

The following equation is used to calculate the Vegetation Condition Index:

```
EQUATION: Vegetation CI = \frac{\sum (Invasive Species + Vegetation Stressor Presence scores)}{40}
```

Image provided for reference purposes only. Full-size copies are available in the Online Library at <u>www.dep.pa.gov</u>.

a. Invasive		On	timal				Subo	ptimal	Contaille	n Categor	,	rginal					Poor			-
Species	High O	otimal: No		ptimal: «	<5%	High Sub		-	uboptimal:	High Ma			arginal		> 50%	of the to		ontains ir	nvasive	-
Presence	invasive	s present.	of the to contain species	ns invasiv	'e	>5% but le 10% of the contains ir species.	total AA	20% of	but less than f the total AA ns invasive s.		t less than ne total AA invasive	50% of	out less the tota is invasi s.	IAA			species	i.		
SCORE	20	19	18	17	16	15 1	14 1	13	12 11	10	9	8	7	6	5	4	3	2	1	
comments:																				
Comments:					_		Cuba		Conditio	n Categor							Daar			
b. Vegetation Stressor Presence	High O vegetati stressor within th boundar	otimal: No on s present e AA	vegetat	tion stres It within th	isor ne	High Sub Two veget stressors within the <i>i</i> boundary.	optimal: ation present AA	Three v	uboptimal: vegetation ors present he AA	Four vegations within the boundary	Mar rginal: etation present AA	vegetat	larginal tion stre t within t undary.	ssors				tation stre A bound		CI = Tota Score/
b. Vegetation Stressor	vegetati stressor within th	on on s present e AA y.	Low O vegetat present AA bou	tion stres It within th	isor ne	Two veget stressors within the boundary.	optimal: tation present AA	Low Su Three v stresso within th bounda	uboptimal: vegetation ors present he AA	High Ma Four vege stressors within the	Mar rginal: etation present AA	Low M vegetat presen	tion stre t within t	ssors			ive veget			Tota

4.1 Invasive Species Presence Sub-Index

A list of the more common invasive and aggressive plants known to occur in Pennsylvania is provided in the Invasive Species Presence Worksheet. Many of these plants have wetland plant indicator statuses, but some are still undetermined. Others may list upland indicators, but they have been observed to occur in wetlands or otherwise affect wetlands. This list was derived from a variety of sources including, but not limited to, the PA Department of Conservation of Natural Resources, the U.S. National Park Service and The Alliance for the Chesapeake Bay.

This is a visual estimation of the presence of invasive species and percentage of areal coverage but is not intended to be a detailed vegetative survey. If species listed on the Invasive Species Presence Worksheet are found within the AA, the aerial coverage

percentage of each species is estimated and recorded on the worksheet under the appropriate percentage group heading. After this has been completed the percentage of relative coverage for all invasive species is estimated and entered on the row titled *Total % relative cover of all invasives, collectively on site*. The Invasive Species Presence Worksheet is shown below to depict the format in which this information is collected and organized. After these data are collected and summarized, the assessor(s) can assign the correct condition category and score for this subindex.

Image provided for reference purposes only. Full-size copies are available in the Online Library at <u>www.dep.pa.gov</u>.

Are invasive spe	cies (fror	n list) pres	ent at the si	te in any	y layer? YES	NO			
listed species	present, e	enter the p	ercent area	covera	ge for each spec	ies below	/:		
Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%	Species Code	<5%	≥ 5-20%	≥ 20 - 50%	≥ 50%
otal % relative	cover of a	all invasive	s, collective	ely on si	te: %				
Comments:				-					

Listed below are some of the more common invasive and aggressive species of concern in wetland areas. Species that are not listed below may be observed in the AA and can be recorded on the worksheet. Please provide the common and species name (if known) on the worksheet in lieu of the species code in such cases.

		Commo	n Invasi	ives/Ag	ggressives List		
Code	Common Name	Scientific	Status	Code	Common Name	Scientific	Status
aggi2	Redtop	Agrostis gigantea	FACW	luhe	Water primrose	Ludwigia hexapetala	OBLW
algl2	European Alder	Alnus glutinosa	FACW	lyvu	Garden loosestrife	Lysimachia vulgaris	OBLW
arhi3	Carpetgrass	Arthraxon hispidus	FAC-	lysa2	Purple loosestrife	Lythrum salicaria	FACW
beth	Japanese barberry	Berberis thunbergii	FACW	maqu	European waterclover	Marsilea quadrifolia	OBLW
bevu	European barberry	Berberis vulgaris	FACW	mivi	Japanese stiltgrass	Microstegium vimineum	FAC
butom	Flowering Rush	Butomus umbellatus	OBLW	nami2	Water cress	Nasturtium officinale	OBLW
calli6	Pond water-starwort	Callitriche stagnalis	OBLW	pelo	Low smartweed	Persicaria longiseta	FACW
egde	Brazilian waterweed	Egeria densa	OBLW	phar	Reed canary grass	Phalaris arundinacea	FACW
elan	Russian olive	Elaeagnus angustifolia	FACU	phau7	Common Reed	Phragmites australis	OBLW
elum	Autumn olive	Elaeagnus umbellata	FACU	potr	Rough bluegrass	Poa trivialis	FACW
ephi	Hairy willow-herb	Epilobium hirsutum	FACW	pocu6	Japanese knotweed	Polygonum (Faloia) cuspidatum	FAC-
eppa5	Willow-herb	Epilobium parviflorum	FACW	pgpf	Mile-a-minute	Polygonum perfoliatum	FAC-
fasa	Giant knotweed	Fallopia sachalinensis	OBLW	puera	Kudzu-vine	Pueraria lobata	FAC-
gldi	Mudmats	Glossostigma diandrum	OBLW	pysp1	Apple/crabapple/pear	Pyrus sp.	FAC?
hola	Velvetgrass	Holcus lanatus	FAC	rhfr	Glossy Buckthorn	Rhamnus frangula	FAC-
huja	Japanese Hops	Humulus japonicus	FACU	romu	Multiflora rose	Rosa multiflora	FACU
loja	Japanese honeysuckle	Lonicera japonica	FAC-	tyan	Cattail (hybrid)	Typha angustifolia	OBLW
lomo	Morrow's honeysuckle	Lonicera morrowii	NI	tygl	Hybrid cattail	Typha x glauca	OBLW
lota	Tartarian honeysuckle	Lonicera tatarica					

4.2 Invasive Species Presence Condition Categories

Image provided for reference purposes only. Full-size copies are available in the Online Library at <u>www.dep.pa.gov</u>.

3. Vegetation C	onditi	on Index																			
									Con	dition	Categor	У									
a. Invasive		C	ptir	nal			Subo	optim	al			Mar	ginal					Poor			
Species	High (Optimal: No	ו כ	Low Optimal:	<5%	High Suboptimal: Low Suboptimal:				mal:	High Marginal: Low Marginal:				> 50% of the total AA contains invasive				asive		
Prescence	invasiv	es present	C	of the total AA		>5% but	t less than	>10	% but less	than	>20% bu	it less than	>30%	% but less	than			species.			
			C	contains invasi	ve	10% of	the total AA	20%	% of the tot	al AA	30% of the total AA				al AA						
			5	species.		contains invasive contains invasive				ive	contains invasive contains invasive										
						species		spe	cies.		species.		spec	cies.							
SCORE	20	19	18	3 17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:																					

Optimal 20 - 16

High Optimal (20 - 18): No invasive species present within the AA perimeter. **Low Optimal (18 - 16)**: Less than or equal to 5% of the AA contains invasive species.

Suboptimal 15 - 11

High Suboptimal (15 - 13): Greater than 5% but less than or equal to 10% of the AA contains invasive species.

Low Suboptimal (13 - 11): Greater than 10% but less than or equal to 20% of the AA contains invasive species.

Marginal 10 - 6

High Marginal (10 - 8): Greater than 20% but less than or equal to 30% of the AA contains invasive species.

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Low Marginal (8 - 6): Greater than 30% but less than or equal to 50% of the AA contains invasive species.

Poor 5 - 1

Greater than 50% of the AA contains invasive species.

4.3 Vegetation Stressor Presence Sub-Index

The data used to evaluate vegetation stressor presence are obtained from the Stressor Worksheet. The eleven potential vegetation stressors related to this category include: mowing, moderate livestock grazing (within one year), selective tree harvesting/cutting (>50% removal within 5 years), right of way clearing (mechanical or chemical), clear cutting or brush cutting (mechanized removal of shrubs or trees), removal of woody debris, aquatic weed control (mechanical or chemical), excessive herbivory (wildlife related), plantations (conversion from natural tree species, including orchards) and other (provided as an option to capture any unusual stressors not provided on the worksheet). A description of the stressor identified as other must be provided on the worksheet.

When performing this assessment, the assessor(s) checks the Y box if the identified stressor is present within the AA, but if it is not present, then the N box is checked. If more than one right-of-way clearing stressor is present, then the total number of occurrences is recorded in the space provided. The number of stressor types present and the number of occurrences (when applicable) for each section is totaled and entered into the Total Number field(s) on the Stressor Worksheet. The total number of stressors present for the Vegetation section of the Stressor Worksheet is then used to assign the condition category according to the descriptions listed below.

4.4 Vegetation Stressor Condition Categories

The extent to which a stressor is affecting the wetland AA may be qualified by the individual or team conducting the assessment by adjusting the score up or down after the condition category has been determined. This qualification is based upon the assessor's BPJ and the basis documented in the comments section.

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3. Vegetation C	ondition	Index																			
									Co	onditio	n Catego	ory									
b. Vegetation		Opt	imal				Su	boptin	nal			N	largina	I				Poo	or		1
Presence	vegetatio	essors present present within the AA boundary.					boptima etation present AA 7.	Thr stre with	w Subop ee vegeta essors pre nin the AA undary.	ation esent	Four ve		vege pres						getation str e AA bound		CI = Total Score/40
SCORE	20	19 1	8	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:												i	a. Invas	ive Sub	-Score:			-	Total Scor	e:	
												b.\	/egetat	ion Sub	-Score:						

Optimal 20 - 16 High Optimal (20 - 18): No vegetation stressors present within the AA perimeter. Low Optimal (18 - 16): One vegetation stressor present within the AA perimeter.

Suboptimal 15 - 11

High Suboptimal (15 - 13): Two vegetation stressors present within the AA perimeter.

Low Suboptimal (13 - 11): Three vegetation stressors present within the AA perimeter.

Marginal 10 - 6

High Marginal (10 - 8): Four vegetation stressors present within the AA perimeter.Low Marginal (8 - 6): Five vegetation stressors present within the AA perimeter.

Poor 5 - 1

Greater than five vegetation stressors present within the AA perimeter.

5.0 Hydrologic Modification Stressor Index

The data used to evaluate the hydrologic modification stressor presence are obtained from the Stressor Worksheet. The potential stressors related to this category include: ditching, tile draining or other dewatering methods; dike, weir or dam; filling or grading; dredging or excavation; stormwater inputs, microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks), dead or dying trees (still standing); adjacent stream alteration (channelization or incision) and other (provided as an option to capture any unusual stressors not provided on the worksheet). A description of the stressor identified as other must be provided on the worksheet.

Note: Dead or dying trees attributed to beaver activity or emerald ash borer (or other identifiable insect infestation) should not be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning the presence of these conditions.

When performing this assessment, the assessor(s) checks the Y box if the identified stressor is present within the AA, but if it is not present, then the N box is checked. If a stressor related to ditching, tile draining or other dewatering methods; or stormwater inputs occurs more than once, then the total number of occurrences is recorded in the space provided. The number of stressor types present and the number of occurrences (when applicable) for each section is totaled and entered into the Total Number field(s) on the Stressor Worksheet. The total number of stressors present for the Hydrologic Modification section of the Stressor Worksheet is then used to assign the condition category according to the descriptions listed below.

The following equation is used for the Hydrologic Modification Stressor Index:

EQUATION: Hydrologic Modification $SI = \frac{Condition Category Score}{20}$

5.1 Hydrologic Modification Stressor Condition Categories

The extent to which a stressor is affecting the wetland AA may be qualified by the individual or team conducting the assessment by adjusting the score up or down once the condition category has been determined. This qualification is based upon the assessors BPJ and the basis documented in the comments section.

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4. Hydrologic N	Nodifica	tion Index																			
									Co	nditio	n Catego	ory									
		Optimal High Optimal: No II ow Optimal: Optimal					Sub	optin	nal			Ma	rginal					Poor			
Hydrologic				e High Suboptimal: Low Suboptimal:			High Marginal: Low Marginal: Five				Greater than five hydrologic stressors				CI =						
	hydrologic hydrologic stressor			Two hyc	Irologic	Thr	ee hydrolo	ogic	Four hy	drologic	hydro	ologic str	essors	pr	esent wit	thin the A	A bounda	ary.	Total		
	stressors present present within the				stressors present stressors present				stressors present present within the								Score/20				
11636166	within the AA AA boundary.								within the AA AA boundary.												
	bounda	ry.				bounda	boundary. bo				bounda	у.									
SCORE	20	19 ⁻	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:																					

Optimal 20 - 16

High Optimal (20 - 18): No hydrologic modification stressors present within the AA perimeter.

Low Optimal (18 - 16): One hydrologic modification stressor present within the AA perimeter.

Suboptimal 15 - 11

High Suboptimal (15 - 13): Two hydrologic modification stressors present within the AA perimeter.

Low Suboptimal (13 - 11): Three hydrologic modification stressors present within the AA perimeter.

Marginal 10 - 6

High Marginal (10 - 8): Four hydrologic modification stressors present within the AA perimeter.

Low Marginal (8 - 6): Five hydrologic modification stressors present within the AA perimeter.

Poor 5 - 1

Greater than five hydrologic modification stressors present within the AA perimeter.

6.0 Sediment Stressor Index

The data used to evaluate sediment stressor presence are obtained from the Stressor Worksheet. The ten identified potential stressors related to this category include: sediment deposits/plumes; eroding banks or slopes; active construction (earth disturbance for development), active plowing (plowing for crop planting in past year), intensive livestock grazing (in one year, ground is >50% bare), active selective forestry harvesting (within one year); active forest harvesting (within two years, includes roads, borrow areas, pads, etc.), turbidity (moderate concentration of suspended

solids in the water column, obvious sediment discharges) and other (provided as an option to capture any unusual stressors not provided on the worksheet). A description of the stressor identified as other must be provided on the worksheet.

When performing this assessment, the assessor(s) checks the Y box if the identified stressor is present within the AA, but if it is not present, then the N box is checked. The number of stressor types present and the number of occurrences (when applicable) for each section is totaled and entered into the Total Number field(s) on the Stressor Worksheet. The total number of stressors present for the Sediment section of the Stressor Worksheet is then used to assign the condition category according to the descriptions listed below.

The following equation is used for the Sediment Stressor Index:

EQUATION: Sediment SI = $\frac{\text{Condition Category Score}}{20}$

6.1 Sediment Stressor Condition Categories

The extent to which a stressor is affecting the wetland AA may be qualified by the individual or team conducting the assessment by adjusting the score up or down once the condition category has been determined. This qualification is based upon the assessor's BPJ and the basis documented in the comments section.

Image provided for reference purposes only. Full-size copies are available in the Online Library at <u>www.dep.pa.gov</u>.

5. Sediment St	ressor Inc	dex																			
									Co	nditior	n Catego	ory									
	Optimal						Sub	ooptin	nal			Ma	rgina	1				Poor			
Ondinant	High Op	timal: No	Lov	w Optimal:	One	High S	uboptimal	: Lo	w Subopti	imal:	High M	larginal:	Low	/ Margina	I: Five	Grea	iter than '	five sedin	ment stress	ors	CI =
Sediment Stressor	sediment	t stressors	sed						Four se	diment	sediment stressors			pre	esent wit	thin the A/	A boundary	/.	Total		
Presence	present w			sent within th	-		rs present		essors pres		stressors present			ent within							Score/20
Tresence	AA bound	dary.	AA	boundary.		within th			within the AA		within the AA		AA t	ooundary.							
						bounda	boundary.		boundary.		boundary.										
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:																					

Optimal 20 - 16

High Optimal (20 - 18): No sediment stressors present within the AA perimeter. **Low Optimal (18 - 16)**: One sediment stressor present within the AA perimeter.

Suboptimal 15 - 11

High Suboptimal (15 - 13): Two sediment stressors present within the AA perimeter.

Low Suboptimal (13 - 11): Three sediment stressors present within the AA perimeter.

Marginal 10 - 6

High Marginal (10 - 8): Four sediment stressors present within the AA perimeter.

Low Marginal (8 - 6): Five sediment stressors present within the AA perimeter.

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Poor 5 - 1

Greater than five sediment stressors present within the AA perimeter.

7.0 Water Quality Stressor Index

The Water Quality Stressor Index is comprised of two sub-indices that represent the overall water quality condition of the wetland assessment area. The two sub-indices are Eutrophication Stressor Presence and Contaminant Toxicity Stressor Presence. The scores from these two sub-indices are combined and then divided by 40 to determine the overall Water Quality Stressor Index.

The following equation is used for the Water Quality Stressor Index:

EQUATION: Water Quality SI =
$$\frac{\sum (\text{Eutrophication} + \text{Contaminant/Toxicity subscores})}{40}$$

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									Co	nditior	n Catego	ory									
a. Eutro-			Optimal				Su	boptim	al				Margina					Poor			
phication Stressor Presence	No eutrophication stressors present within the AA boundary.						utrophica within the		ssors pre undary.	sent	Two e		cation stre the AA bo		esent	Three		ication st he AA bo		oresent	
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
	-										<u> </u>										
h Contaminant		_	Ontimal	_			Su	hontim		nditior	Catego		Margina		_		_	Poor	_		
b. Contaminant / Toxicity Stressor Presence	No			ity stresso boundar			contamin			ors	Two	contami	Margina nant / toxi hin the A/	city stres				Poor ninant / to thin the A			Tota
/ Toxicity Stressor	No		ant / toxic	ity stresso		pres	contamin	ant / toxi	al citystress	ors	Two	contami	nant / toxi	city stres				ninant / to			CI = Tota Score

7.1 Eutrophication Stressor Presence Sub Index

The data used to evaluate eutrophication stressor presence are obtained from the Stressor Worksheet. The four identified potential stressors related to this category include direct discharges from agriculture feedlots, manure pits, aquaculture etc.; direct discharges from septic or sewage treatment systems; heavy or moderately heavy formation of algal mats and other (provided as an option to capture any unusual stressors not provided on the worksheet). A description of the stressor identified as other must be provided on the worksheet.

When performing this assessment, the assessor(s) checks the Y box if the identified stressor is present within the AA, but if it is not present, then the N box is checked. If a stressor related to direct discharges from agriculture feedlots, manure pits, aquaculture

etc.; or direct discharges from septic or sewage treatment systems occurs more than once, then the total number of occurrences is recorded in the space provided. The number of stressor types present and the number of occurrences (when applicable) for each section are totaled and entered into the Total Number field(s) on the Stressor Worksheet. The total number of stressors present for the Eutrophication section of the Stressor Worksheet is then used to assign the condition category according to the descriptions listed below.

7.2 Eutrophication Stressor Condition Categories

The extent to which a stressor is affecting the wetland AA may be qualified by the individual or team conducting the assessment by adjusting the score up or down after the condition category has been determined. This qualification is based upon the assessor's BPJ and the basis documented in the comments section.

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6. Water Quality	/ Stres	ssor Inde	x																	
									Co	ondition	Categ	ory								
a. Eutro-		Optimal					Suboptimal						Margina	I		Poor				
phication Stressor Prescence	Optimal No eutrophication stressors present within the AA boundary.					One		cation stro the AA bo		esent	Two		cation str the AA bo		esent	Three			tressors p oundary.	oresent
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Comments:																				

Optimal 20 - 16

No eutrophication stressors present within the AA perimeter.

Suboptimal 15 - 11

One eutrophication stressor present within the AA perimeter.

Marginal 10 - 6

Two eutrophication stressors present within the AA perimeter.

Poor 5 - 1

Three eutrophication stressors present within the AA perimeter.

7.3 Contaminant/Toxicity Stressor Presence Sub-Index

The data used to evaluate contaminant/toxicity stressor presence are obtained from the Stressor Worksheet. The seven identified potential stressors related to this category include: severe vegetation stress; obvious spills, discharges, plumes, and odors; acidic drainages (mined sites, quarries, road cuts); point source discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites; chemical defoliation (majority of herbaceous and woody plants affected (within one year), fish or wildlife kills or obvious disease or abnormalities observed; excessive garbage dumping/dumping; and other (provided as an option to capture any unusual stressors not provided on the worksheet). A description of the stressor identified as other must be provided on the worksheet.

When performing this assessment, the assessor(s) checks the Y box if the identified stressor is present within the AA, but if it is not present, then the N box is checked. If a stressor related to obvious spills, discharges, plumes, and odors; acidic drainages (mined sites, quarries, road cuts); or point source discharges from adjacent industrial facilities occurs more than once, then the total number of occurrences is recorded in the space provided. The number of stressor types present and the number of occurrences (when applicable) for each section are totaled and entered into the Total Number field(s) on the Stressor Worksheet. The total number of stressors present for the Contaminant/Toxicity section of the Stressor Worksheet is then used to assign the condition category according to the descriptions listed below.

7.4 Contaminant/Toxicity Stressor Condition Categories

The extent to which a stressor is affecting the wetland AA may be qualified by the individual or team conducting the assessment by adjusting the score up or down after the condition category has been determined. This qualification is based upon the assessor's BPJ and the basis documented in the comments section.

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Water Quality	/ Stres	sor Index	(
									Co	ndition	Catego	ry									
b. Contaminant			Optimal				S	uboptim	al			N	larginal					Poor			
/ Toxicity Stressor Prescence	No contaminant / toxicity stressors present within the AA boundary.					One contaminant / toxicitystressors present within the AA boundary.					Two contaminant / toxicity stressors present within the AA boundary.					Three contaminant / toxicity stressors present within the AA boundary.					CI = Total Score/40
SCORE	20	19	18	17	16	15	14	13	12	11	10 9 8 7 6 5 4 3 2						2	1	Ì		
Comments:													a. Eu	trophicatio	n Score			Tot	al Score:		
												b. Co	ntaminant	Score							

Optimal 20 - 16

No contaminant/toxicity stressors present within the AA perimeter.

Suboptimal 15 - 11

One contaminant/toxicity stressor present within the AA perimeter.

Marginal 10 - 6

Two contaminant/toxicity stressors present within the AA perimeter.

Poor 5 - 1

Three contaminant/toxicity stressors present within the AA perimeter.

8.0 Overall Wetland Condition Index

The overall wetland condition index score is calculated by adding all of the previously calculated condition indices and dividing by 6, the total number of condition indices. Each condition index score should result in a value from 0.05 - 1.0. The overall wetland condition score should also result in a score from 0.05 - 1.0. If values greater than 1.0 result, then it is likely that the

individual scores or the sub-indices were used and not the calculated condition indices. Space is provided on the Wetland Condition Assessment Form to perform this calculation.

The following equation is used to calculate the overall Wetland Condition Index:

EQUATION: WCI =
$$\frac{\sum (\text{condition index scores})}{6}$$

NOTE: The Department may revise the WCI scores reported as part of an application for determining applicable compensatory requirements if the assessment submitted by the applicant does not adequately represent the resource condition.

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APPENDIX A

WETLAND CONDITION LEVEL 2 RAPID ASSESSMENT WORKSHEETS AND ASSESSMENT SCORING FORM

		R	oadbed W	orksho	eet			
Project Name / Ide	entifier		Date	Name(s) of Evalua	tor(s)		
Resource Identifier	AA #	Lat (dd)	Long (dd)	Notes:				
Roadbeds: Record number of occurre he total score for compared to the c	ences by the each distar	e weighting fa nce category.	ctors for eac The total so ptions.	ch road	bed type ar	nd distance ca	tegory then are then	
Roadbed Type	Distance	Occurrences	Weighting Factor	Score	Distance	Occurrences	Weighting Factor	Score
>= 4 Lane Paved	0-100 ft.		4		100-300 ft.		4	
2 Lane Paved	0-100 ft.		2		100-300 ft.		2	
1 Lane Paved	0-100 ft.		1		100-300 ft.		1	
Gravel Road	0-100 ft.		1		100-300 ft.		1	
Dirt Road	0-100 ft.		1		100-300 ft.		1	
Railroad	0-100 ft.		2		100-300 ft.		2	
Other Roadbeds	0-100 ft.		1, 2 or 4		100-300 ft.		1, 2 or 4	
Total Scores:	0-100 ft.				100-300 ft.			
Road Comments:								

		Pennsylvani	ia Wetla	nd Con	dition I	Level 2 Rap	pid Asses	sment		
		Ir	nvasive	Species	s Prese	ence Works	sheet			
Are in	vasive species (fron	n list) present a	at the si	te in any	y layer	? YES N	NO			
lf liste	d species present, e	nter the perce	ent areal	covera	ge for	each speci	ies below			
Sneci	es Code <5%	≥ 5-20% ≥ 20	0 - 50%	≥ 50%	Sneci	es Code	<5%	≥ 5-20%	≥ 20 - 50% ≥	: 50%
			0 00 /0				4070	_ 0 _ 0 / 0		
Total	% relative cover of a	II invasives, co	ollective	ely on si	te:	%				
			<u>.</u>	n Invesi			List			
Code	Common Name	1				gressives			Scientific	Statu
Code	Common Name	Scientifi	ic	Status	Code	Common	n Name		Scientific exapetala	
aggi2	Redtop	Scientifi Agrostis gigante	i c ea	Status FACW	Code luhe	Common Water primr	n Name rose	Ludwigia h	exapetala	OBLW
aggi2 algl2	Redtop European Alder	Scientifi Agrostis gigante Alnus glutinosa	і с 2а	Status FACW FACW	Code luhe lyvu	Common Water primr Garden loos	n Name rose sestrife	Ludwigia h Lysimachia	exapetala I vulgaris	OBLW OBLW
aggi2 algl2 arhi3	Redtop European Alder Carpetgrass	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispic	i c ea dus	Status FACW	Code luhe lyvu lysa2	Common Water primr	n Name rose sestrife estrife	Ludwigia h Lysimachia Lythrum sa	exapetala I vulgaris	OBLW OBLW FACW
aggi2 algl2 arhi3 beth	Redtop European Alder	Scientifi Agrostis gigante Alnus glutinosa	i c ea dus ergii	Status FACW FACW FAC-	Code luhe lyvu lysa2	Common Water primr Garden loos Purple loose	n Name rose sestrife estrife raterclover	Ludwigia h Lysimachia Lythrum sa Marsilea q	exapetala I vulgaris	OBLW OBLW FACW
aggi2 algl2 arhi3 beth bevu	Redtop European Alder Carpetgrass Japanese barberry	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispic Berberis thunbe	i c ea dus ergii	Status FACW FACW FAC- FACW	Code luhe lyvu lysa2 maqu mivi	Common Water primr Garden loos Purple loose European wa	n Name rose sestrife estrife raterclover iltgrass	Ludwigia h Lysimachia Lythrum sa Marsilea q	exapetala i vulgaris licaria uadrifolia um vimineum	OBLW OBLW FACW OBLW FAC
aggi2 algl2 arhi3 beth bevu butom	Redtop European Alder Carpetgrass Japanese barberry European barberry	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispic Berberis thunbe Berberis vulgari	i c ea dus ergii is Ilatus	Status FACW FACW FAC- FACW FACW	Code luhe lyvu lysa2 maqu mivi	Common Water primr Garden loos Purple loose European wa Japanese sti	n Name rose sestrife aterclover illtgrass	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi	exapetala i vulgaris licaria uadrifolia um vimineum o officinale	OBLW OBLW FACW OBLW FAC OBLW
aggi2 algl2 arhi3 beth bevu butom calli6	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispio Berberis thunbe Berberis vulgari Butomus umbel	i c ea dus ergii is Ilatus	Status FACW FAC- FACW FACW OBLW OBLW	Code luhe lyvu lysa2 maqu mivi nami2	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress	n Name rose sestrife estrife raterclover iltgrass s reed	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi Nasturtium	exapetala i vulgaris licaria uadrifolia um vimineum o officinale longiseta	OBLW OBLW FACW OBLW FAC OBLW FACW
aggi2 algl2 arhi3 beth bevu butom calli6 egde	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispic Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr	i c ea dus ergii is Ilatus nalis	Status FACW FAC- FAC- FACW FACW OBLW OBLW	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw	n Name rose sestrife estrife raterclover iltgrass s veed y grass	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l	exapetala vulgaris licaria uadrifolia um vimineum officinale longiseta undinacea	OBLW OBLW FACW OBLW FAC OBLW FACW FACW
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispio Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umbe	ic ea dus ergii is Ilatus nalis ustifolia ellata	Status FACW FAC- FACW FACW OBLW OBLW OBLW FACU FACU	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary	n Name rose sestrife estrife raterclover illtgrass veed y grass eed	Ludwigia h Lysimachic Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris an Phragmites Poa triviali	exapetala i vulgaris licaria uadrifolia um vimineum officinale ongiseta undinacea s australis s	OBLW OBLW FACW OBLW FAC OBLW FACW OBLW FACW
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan elum ephi	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive Hairy willow-herb	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispic Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umb Epilobium hirsu	ic ea dus ergii is Ilatus nalis ustifolia ellata tum	Status FACW FAC- FACW FACW OBLW OBLW OBLW FACU FACU FACU	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar phau7 potr pocu6	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary Common Re Rough blueg Japanese kn	n Name rose sestrife estrife aterclover illtgrass veed y grass eed grass notweed	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris an Phragmites Poa triviali Polygonum	exapetala i vulgaris ilicaria uadrifolia um vimineum officinale ongiseta undinacea s australis s (Faloia) cuspidatu	OBLW OBLW FACW OBLW FAC OBLW FAC OBLW FAC OBLW FAC OBLW FACW OBLW FACW OBLW FACW OBLW FACW n FAC-
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan elum ephi eppa5	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive Hairy willow-herb Willow-herb	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispic Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umbe Epilobium hirsu Epilobium parvi	ic ea dus ergii is Ilatus nalis ustifolia ellata tum iflorum	Status FACW FAC- FACW FACW OBLW OBLW FACU FACU FACU FACW	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar phau7 potr pocu6 pgpf	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary Common Re Rough blueg Japanese kn Mile-a-minu	n Name rose sestrife estrife aterclover illtgrass veed y grass eed grass notweed	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris an Phragmites Poa triviali Polygonum	exapetala i vulgaris licaria uadrifolia um vimineum officinale ongiseta undinacea s australis s	OBLW OBLW FACW OBLW FAC OBLW FAC OBLW FACW FACW OBLW FACW OBLW FACW OBLW FACW FACW FAC- FAC-
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan elum ephi eppa5 fasa	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive Hairy willow-herb Willow-herb Giant knotweed	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispio Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umb Epilobium hirsu Epilobium parvi Fallopia sachali	ic ea dus ergii is Ilatus nalis ustifolia ellata etum iflorum inensis	Status FACW FAC- FACW FACW OBLW OBLW OBLW FACU FACU FACW FACW OBLW	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar phau7 potr pocu6 pgpf puera	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary Common Re Rough blueg Japanese kn Mile-a-minu Kudzu-vine	n Name rose sestrife estrife raterclover iltgrass veed y grass eed grass notweed ute	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris ar Phalaris ar Phragmites Poa triviali Polygonum Polygonum Pueraria lo	exapetala i vulgaris ilicaria uadrifolia um vimineum officinale ongiseta undinacea s australis s (Faloia) cuspidatum	OBLW OBLW FACW OBLW FAC OBLW FAC OBLW FACW OBLW FACW FACW FACW FACW FACW FACW FACW FAC- FAC- FAC- FAC- FAC-
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan elum ephi eppa5 fasa gldi	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive Hairy willow-herb Willow-herb Giant knotweed Mudmats	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispio Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umbo Epilobium hirsu Epilobium parvi Fallopia sachali Glossostigma di	ic ea dus ergii is Ilatus nalis ustifolia ellata etum iflorum inensis	Status FACW FAC- FACW FACW OBLW OBLW OBLW FACU FACU FACW OBLW OBLW OBLW	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar phau7 potr potr pocu6 pgpf puera pysp1	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary Common Re Rough blueg Japanese kn Mile-a-minu Kudzu-vine Apple/craba	n Name rose sestrife estrife raterclover iltgrass veed y grass eed grass notweed ute	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris an Phagmites Poa triviali Polygonum Polygonum Pueraria lo Pyrus sp.	exapetala vulgaris licaria uadrifolia um vimineum officinale ongiseta undinacea s australis s (Faloia) cuspidatun perfoliatum bata	OBLW OBLW OBLW FACW OBLW FAC OBLW FAC OBLW FAC OBLW FACW OBLW FACW OBLW FACW OBLW FACW OBLW FAC FAC- FAC- FAC- FAC- FAC- FAC- FAC- FAC- FAC-
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan elum ephi eppa5 fasa gldi hola	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive Hairy willow-herb Willow-herb Giant knotweed Mudmats Velvetgrass	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispid Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umbe Epilobium hirsu Epilobium parvi Fallopia sachali Glossostigma di Holcus lanatus	ic ea dus ergii is Ilatus nalis ustifolia ellata ellata itum iflorum inensis iandrum	Status FACW FAC- FACW FACW OBLW OBLW OBLW FACU FACU FACW OBLW OBLW FAC	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar phau7 potr potr potr potr potr potr potr potr	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary Common Re Rough blueg Japanese kn Mile-a-minu Kudzu-vine Apple/craba Glossy Buck	n Name rose sestrife estrife raterclover iiltgrass veed y grass eed grass notweed ute apple/pear sthorn	Ludwigia h Lysimachic Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris an Phragmites Poa triviali Polygonum Polygonum Pueraria lo Pyrus sp. Rhamnus f	exapetala vulgaris licaria uadrifolia um vimineum officinale ongiseta undinacea s australis s (Faloia) cuspidatun perfoliatum bata	OBLW OBLW OBLW FACW OBLW FAC OBLW FAC OBLW FAC OBLW FACW OBLW FACW OBLW FACW OBLW FACW OBLW FAC FAC- FAC- FAC- FAC- FAC- FAC-
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan elum ephi eppa5 fasa gldi hola huja	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive Hairy willow-herb Willow-herb Giant knotweed Mudmats Velvetgrass Japanese Hops	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispid Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umbe Epilobium hirsu Epilobium parvi Fallopia sachali Glossostigma di Holcus lanatus Humulus japoni	ic carrier car	Status FACW FAC- FACW FACW OBLW OBLW OBLW FACU FACU FACW OBLW OBLW OBLW FAC FACU	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar phau7 potr potr potr potr potr potr potr potr	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary Common Re Rough blueg Japanese kn Mile-a-minu Kudzu-vine Apple/craba Glossy Buck Multiflora ro	n Name rose sestrife estrife aterclover illtgrass veed y grass eed grass notweed ute apple/pear ethorn ose	Ludwigia h Lysimachia Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris an Phragmites Poa triviali Polygonum Pueraria lo Pyrus sp. Rhamnus f Rosa multi	exapetala vulgaris licaria uadrifolia um vimineum officinale ongiseta undinacea s australis s (Faloia) cuspidatun perfoliatum bata rangula	OBLW OBLW OBLW FACW OBLW FAC OBLW FAC OBLW FACW OBLW FACW OBLW FACW OBLW FACW FACW FAC FAC- FAC- FAC- FAC- FAC- FACU
aggi2 algl2 arhi3 beth bevu butom calli6 egde elan elum ephi eppa5 fasa gldi hola	Redtop European Alder Carpetgrass Japanese barberry European barberry Flowering Rush Pond water-starwort Brazilian waterweed Russian olive Autumn olive Hairy willow-herb Willow-herb Giant knotweed Mudmats Velvetgrass	Scientifi Agrostis gigante Alnus glutinosa Arthraxon hispic Berberis thunbe Berberis vulgari Butomus umbel Callitriche stagr Egeria densa Elaeagnus angu Elaeagnus umbe Epilobium hirsu Epilobium parvi Fallopia sachali Glossostigma di Holcus lanatus Humulus japoni Lonicera japoni	ic caller construction construc	Status FACW FAC- FACW FACW OBLW OBLW OBLW FACU FACU FACW OBLW OBLW FAC	Code luhe lyvu lysa2 maqu mivi nami2 pelo phar phau7 potr potr potr potr potr potr potr potr	Common Water primr Garden loos Purple loose European wa Japanese sti Water cress Low smartw Reed canary Common Re Rough blueg Japanese kn Mile-a-minu Kudzu-vine Apple/craba Glossy Buck	n Name rose sestrife estrife aterclover illtgrass veed grass hotweed ute apple/pear ethorn ose rid)	Ludwigia h Lysimachic Lythrum sa Marsilea q Microstegi Nasturtium Persicaria l Phalaris an Phalaris an Phagmites Poa triviali Polygonum Pueraria lo Pyrus sp. Rhamnus f	exapetala vulgaris licaria uadrifolia um vimineum officinale ongiseta undinacea s australis s (Faloia) cuspidatun perfoliatum bata rangula flora ustifolia	OBLW FACW FACW OBLW FACW FAC- FAC- FAC- FAC- FAC- FAC-

Pennsylvania Wetland Condition Level 2 Rapid Assessment		curren	ce
		in AA	
STRESSOR WORKSHEET	Y	#'s	1
Vegetation Alteration			
Mowing		_	
Moderate livestock grazing (within one year)		_	
Crops (annual row crops, within one year)			
Selective tree harvesting/cutting (>50% removal, within 5 years)			
Right-of-way clearing (mechanical or chemical)			
Clear cutting or Brush cutting (mechanized removal of shrubs and saplings)			
Removal of woody debris			
Aquatic weed control (mechanical or herbicide)			
Excessive herbivory (deer, muskrat, nutria, carp, insects, etc.)			
Plantation (conversion from typical natural tree species, including orchards)			
Other:			
Total Number	er:		
Hydrologic Modification			
Ditching, tile draining, or other dewatering methods			
Dike/weir/dam			
Filling/grading			
Dredging/excavation			
Stormwater inputs (culvert or similar concentrated urban runoff)			
Microtopographic alterations (e.g., plowing, forestry bedding, skidder/ATV tracks)			
Dead or dying trees (trunks still standing) *		-	
Stream alteration (channelization or incision)			
Other:		-	
Total Numbe	er:		
Sedimentation			
Sediment deposits/plumes			
Eroding banks/slopes		-	
Active construction (earth disturbance for development)		-	
Active plowing (plowing for crop planting in past year)			
Intensive livestock grazing (in one year, ground is >50% bare)			
Active selective forestry harvesting (within one year)			
Active selective forestly naivesting (within two years, includes roads, borrow areas, pads, etc.)			
Turbidity (moderate concentration of suspended solids in the water column, obvious sediment discharges	2)		
Other:	,,		
Total Numbe			
Eutrophication	<i>;</i> ,		
Direct discharges from agricultural feedlots, manure pits, etc.		-	
Direct discharges from septic or sewage treatment plants, fish hatcheries, etc.			
Heavy or moderately heavy formation of algal mats			
Other:			
Total Numbe	er:		
Contaminant/Toxicity			
Severe vegetation stress (source unknown or suspected)			
Obvious spills, discharges, plumes, odors, etc.			
Acidic drainages (mined sites, quarries, road cuts)			
Point discharges from adjacent industrial facilities, landfills, railroad yards, or comparable sites			
Chemical defoliation (majority of herbaceous and woody plants affected, within one year)			_
Fish or wildlife kills or obvious disease or abnormalities observed			
Excessive garbage/dumping			
Other:			

be recorded as a stressor present. The assessor is responsible for recording observations in the comment section concerning presence of these conditions.

	For	use in all wetland c	lassifications found	d within Pennsyvlan	ia except those fou	und within the banks	of a watercourse.		
Project #		Project Name		Date	Proposed Impact	Size (acres)	AA #	AA Size (acres)	
Name(s) of Eva	aluator(s)		Lat (dd)	Long (dd)	Notes:				
	aluator(s)				10103.				
. Wetland Zon	e of Influence Con	dition Index	I						
Wetland Zone		imal	Subo		n Category	rainal	Br		
of Influence	· · · · ·	on consists of a tree	High Suboptimal:	ptimal Low Suboptimal:	Marginal:	rginal Low Marginal: ZOI	High Poor: ZOI	Low Poor: ZOI	-
(300 foot area around AA perimeter)	stratum present (diameter at breast height (dbh) > 3 inches) with greater than or equal to 60% tree canopy cover. Areas comprised of stream channels, wetlands (regardless of classification or condition) and lacustrine resources ≥ 10 acres are scored as optimal.		dbh) > 3 inches) with greater than consists of a tree gual to 60% tree canopy cover. inches) present, there stratum (dbh > 3 stratum					area vegetation consists of impervious surfaces; mine spoil lands, denuded surfaces, row crops, active feed lots, impervious trails, or other comparable conditions.	CI = Tota Score
SCORE		18 17 16 ategory areas within th		3 12 11	10 9	maintained understory. 8 7 6	5 4 3	3 2 1	
2. Estimate the	% area within each o	condition category. Ca	alculators are provide	ed for you below.		Total Sc	ore = SUM(% Areas*	'Scores)	
 Enter the % 2 		orm (0.00) and Score	for each category in t	the DIOCKS DEIOW.				Total Score:	-
	Condition Category:								
	Condition Category: % ZOI Area:								CI
Scoring: Comments:								-	СІ
Comments:	% ZOI Area: Score: Total Sub-score:			Condition	Categories			-	CI
Comments: 2. Roadbed Pr	% ZOI Area: Score: Total Sub-score: esence Index	imal		ptimal	Mai	rginal		por	СІ
Scoring: Comments: 2. Roadbed Pr a. Roadbed Presence (within 0 - 100 foot Wetland ZOI distance)	% ZOI Area: Score: Total Sub-score: esence Index		High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but	timal <u>Low Suboptimal:</u> Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but	Mar High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but	Low Marginal:	High Poor: Roadbed presence score within 0-100	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	СІ
Comments: 2. Roadbed Prr 1. Roadbed Presence within 0 - 100 oot Wetland 201 distance) SCORE	% ZOI Area: Score: Total Sub-score: esence Index High Optimal: No roadbeds present within 100 feet of the AA boundary	imal Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4.	ptimal Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to	Mai High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	CI
Comments: 2. Roadbed Prr a. Roadbed Presence within 0 - 100 oot Wetland ZOI distance) SCORE Comments:	% ZOI Area: Score: Total Sub-score: esence Index High Optimal: No roadbeds present within 100 feet of the AA boundary 20 19 1	imal Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2.	High Suboptimal: Roadbed presence score within 0-100 foot distance of the A boundary is greater than to 2 but equal to or less than 4. 15 14 15 14	ptimal Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6. 3 12 11 Condition	Marginal: High Marginal: Roadbed presence score within 0-100 foot distance of the Aboundary is greater than to 6 but less than or equal to 8. 10 9 Categories	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10. 8 7 6	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12. 5 4	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12.	CI
2. Roadbed Pr a. Roadbed Pr Presence within 0 - 100 oot Wetland ZOI distance) SCORE Comments: b. Roadbed Presence	% ZOI Area: Score: Total Sub-score: esence Index High Optimal: No roadbeds present within 100 feet of the AA boundary 20 19 1	imal Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2. 18 17 16	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4. 15 14 1 15 14 1 High Suboptimal:	ptimal Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6. 3 12 11 Condition ptimal Low Suboptimal:	Mar High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8. 10 9 Categories Mar High Marginal:	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10. 8 7 6 rginal Low Marginal:	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12. 5 4 3 5 4 4 5 4 6 High Poor:	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12. 3 2 1 3 2 1	CI
2. Roadbed Prr 2. Roadbed Prr 2. Roadbed Presence within 0 - 100 oot Wetland 201 distance) SCORE Comments: 3. Roadbed Presence within 100 - 300 foot	% ZOI Area: Score: Total Sub-score: Total Sub-score: esence Index High Optimal: No roadbeds present within 100 feet of the AA boundary 20 19 1 High Optimal: No roadbeds present within 100 - 300	imal Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2. Image: Contemportal Strain Image: Contemportal Strain	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4. 15 14 1 15 14 1 High Suboptimal: Roadbed presence score within 100 -	ptimal Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6. 3 12 11 Condition ptimal Low Suboptimal: Roadbed presence score within 100 -	Mar High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8. 10 9 Categories Marginal: Roadbed presence score within 100 -	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10. 8 7 6 rginal Low Marginal: Roadbed presence score within 100 -	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12. 5 4 3 High Poor: Roadbed presence score within 100 -	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12. 3 2 1 3 2 1 Door Low Poor: Roadbed presence score within 100 -	C
2. Roadbed Pr a. Roadbed Pr Presence within 0 - 100 oot Wetland ZOI distance) SCORE Comments:	% ZOI Area: Score: Total Sub-score: Total Sub-score: esence Index High Optimal: No roadbeds present 20 19 1 High Optimal: No roadbeds present	imal Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2. 8 17 16 imal Low Optimal: Roadbed presence	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4. 15 14 1 Nather Suboptimal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal	ptimal Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6. 3 12 11 Condition ptimal Low Suboptimal: Roadbed presence score within 100- 300 feet AA boundary is greater than to 4 but less	Mar High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8. 10 9 Categories High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10. 8 7 6 rginal Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12. 5 4 5 <u>Foot</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12. 3 2 1 3 2 1 Low Poor: Roadbed presence	CI:
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2. Roadbed Pr 2. Roadbed Presence within 0 - 100 oot Wetland ZOI distance) SCORE Comments: 0. Roadbed Presence within 100 - 300 foot Wetland ZOI	% ZOI Area: Score: Total Sub-score: esence Index High Optimal: No roadbeds present within 100 feet of the AA boundary 20 19 1 High Optimal: No roadbeds present within 100 - 300 feet of the AA boundary	imal Low Optimal: Roadbed presence score within 0-100 feet of the AA boundary equal to or less than 2. 8 17 16 imal Low Optimal: Roadbed presence score within 100 -300 feet of the AA boundary equal to an end of the ad boundary equal to boundary	High Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 2 but equal to or less than 4. 15 14 1 15 14 1 15 Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 2 but equal to or less than 4.	ptimal Low Suboptimal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 4 but less than or equal to 6. 3 12 11 Condition ptimal Low Suboptimal: Roadbed presence score within 100- 300 feet AA boundary is greater than to 4 but less	Mar High Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 6 but less than or equal to 8. 10 9 Categories High Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater	Low Marginal: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than to 8 but less than or equal to 10. 8 7 6 rginal Low Marginal: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 8 but less	High Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 10 but less than or equal to 12. 5 4 5 <u>Foot</u> Roadbed presence score within 100 - 300 feet of the AA boundary is greater than to 10 but less	Low Poor: Roadbed presence score within 0-100 foot distance of the AA boundary is greater than 12. 3 2 1 3 2 1 500 Low Poor: Roadbed presence score within 100 - 300 feet of the AA boundary is greater than 12.	CI:
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						Pennsy	vlvania	Wetla	nd Cor	nditio	n Level	2 Rapid	Asse	ssment							
		Fo	or use	in all wet	and c	-	-					t those for				of a wat	tercours	se.			
. Vegetation	Conditio	on Index									<u>.</u> .										_
a. Invasive		0	ptimal				Sub	optima		nditior	Catego	-	rginal					Poor			
Species Presence		Optimal: No		v Optimal			Iboptimal		/ Subopt		High Ma			Marginal:		> 50%			ontains ir	vasive	
Presence	invasiv	es present.		ne total AA tains invas			less than he total AA		% but les: 5 of the to			t less than he total AA		but less t of the total				species			
			spe	cies.		contains species.		cont spec	ains inva: cies.	sive	contains species.	invasive	contai speci	ins invasiv es.	ve						
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
comments:																					
										nditior	Catego										
b. Vegetation Stressor	High (O Optimal: No	ptimal	v Optimal	• One	High Su	Sub boptimal	optim:	al / Subopt	imal	Marginal High Marginal: Low Marginal: Five			Poor Greater than five vegetation stressors							
Presence	vegeta	tion	vege	etation stre	essor	Two veg	etation	Thre	e vegeta	tion	Four veg	etation	n vegetation stressor								CI =
	stresso within t	ors present		sent within boundary.		stressors within the	s present		ssors pre		stressors within the	s present	present present within the			present within the AA boundary.					Tota Score
	bounda	Indary. boundary. boundary. boundary.								30016/											
SCORE Comments:	20	19	18	17	16	15	14 13 12 11 10 9 8 7 6 a. Invasive Sub-Score:						5	4	3 To	2 tal Score	1				
							b. Vegetation Sub-Score:														
4. Hydrologic	Modifica	ation Index	(Co	nditior	n Catego	rv									
			ptimal					optima	al			Ma	rginal					Poor			
Hydrologic	High C hydrolo	Dptimal: No		v Optimal rologic stre		High Su Two hydr	boptimal		v Subopt		High Ma Four hyd			Marginal: logic stres					logic stre A bounda		CI =
Modification Stressor		ors present		sent within			s present		ssors pre			s present		nt within t		pre	Sent wit	nin ule A		ary.	Tota Score
Presence	within t bounda		AA	boundary.		within the boundar			in the AA ndary.		within the boundar		AA bo	oundary.							
00005	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
SCORE Comments:	20	19	10	17	10	15	14	13	12	- 11	10	9	0	1	0	5	4	3	2	1	
5. Sediment S	tressor	Index																			
		0	ptimal				Sub	optima		nditior	Catego		rginal					Poor			_
	High C	Optimal: No		v Optimal	: One	High Su	iboptimal	-	/ Subopt	imal:	High Ma		-	Marginal:	Five	Great	ter than f		ment stre	ssors	CI =
Sediment Stressor		ent stressor t within the		iment stre		Two sed	liment s present		e sedime ssors pre		Four sec	liment s present		nent stress		pre	sent with	nin the A	A bounda	ary.	Tota Score
Presence	AA bo			sent within boundary.	une	within the	e AA	withi	in the AA	seni	within the	AA		nt within tl oundary.	ne						Score
	20	40	10	47	16	boundar			ndary.		boundar	y. 9	8	7	6	5	4	3	2		_
SCORE Comments:	20	19	18	17	10	15	14	13	12	11	10	9	0	1	0	3	4	3	2	1	
5. Water Qualit	ty Stres	sor Index							Co	nditior	Catego	ry									
a. Eutro-			ptimal					optima			_		rginal					Poor			
phication Stressor	No e	utrophication within the	on stres AA bo	ssors pres undary.	ent	One et	utrophicati within the	on stre AA bo	ssors pre undary.	esent	Two e	utrophication within the A			ent	Three			ressors p oundary.	resent	
Presence																					
SCORE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
Comments:																					
b. Contaminant	•	0	ptimal				Sub	optima		nditior	Catego	-	rginal					Poor			
/ Toxicity	No	contaminar	nt / toxic	city stresso			contamina	nt / toxi	citystress			contaminan	t / toxic					inant / to	xicity stre		
Stressor Presence	pr	esent withir	minant / toxicity stressors within the AA boundary. One contaminant / toxicity stressors present within the AA boundary.					s Two contaminant / toxicity stressors present within the AA boundary.			-	pre	esent wit	hin the A	A bounda	ary.	CI = Tota				
CODE	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	Score
SCORE Comments:	25	10			10	10	14	10	12	- 11	10			r nication S	_	v	-		z tal Score		
														minant S							
	land L	evel 2 Co	onditi	on Scor	e: S	um all s	ix of the	e Con	dition I	ndex	es and							Inde	x Score	Totals	
Overall Wet													,						- 50.0		
Overall Wet he overall (ion score	э.														0	verall C	ondition	Index:	
	conditi		э.														0	verall C	ondition	Index:	: