



**Transcontinental Gas Pipe Line Company, LLC**

**Section 1-7 Riparian Buffer Waiver Request**

**Regional Energy Access Expansion Project**

**April 2021**  
*(Revised July 2022)*

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## **1.0 Introduction**

The Pennsylvania Department of Environmental Protection (PADEP) defines a riparian buffer as an area of permanent vegetation located along a stream or waterbody. Buffers can be comprised solely of grasses and forbs or a mix of trees, shrubs and grasses. Under Chapter 102.14 of the PA Code, those conducting earth disturbance activities must protect riparian buffers, convert existing herbaceous buffers to forested buffers, or establish new riparian forest buffers [§102.14(a)(2)]. The riparian buffer requirements apply to earth disturbance activities within 150 feet of a perennial or intermittent river, streams or creeks when the disturbance is located within special protection waters and within 100 feet of a perennial or intermittent river, streams or creeks when the disturbance is located outside of special protection waters [§102.14 (b)(2)].

Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. conducted a delineation of water resources associated with the Regional Energy Access Expansion Project (Project). Stream delineation results were utilized to determine the riparian buffer zones. Streams delineated for the Project are outlined in Attachment A – Wetland and Watercourse Delineation Report. In total, sixty-nine perennial and intermittent waterways with impacts to riparian buffers were identified for the Regional Energy Lateral, one for the Compressor Station 515 Laydown Yard, twelve for the Effort Loop, and two for Main Line A Regulator. Most of the waterways identified have been previously impacted during installation and maintenance of the existing utilities within the existing ROW. Riparian buffers are shown on the Erosion and Sedimentation and Site Restoration Plan (E&SC/SR) Drawings.

## **2.0 Impacts to Riparian Buffers**

Due to the linear nature of the pipeline components and the pre-existing locations of facilities, impacts associated with riparian buffers are considered unavoidable on the Project. Transco has sited the Project to avoid and minimize effects to watercourses, floodways and riparian buffers to the greatest extent practicable while maintaining constructability and safety.

Construction of the pipeline facilities will require the acquisition of temporary construction ROWs, additional temporary workspace (ATWS), and permanent (operational) easements along the entire length of each pipeline route. Transco proposes to utilize the following nominal ROWs during construction of the pipeline facilities:

- A 90-foot-wide construction ROW for installation of the 30-inch-diameter Regional Energy Lateral

- A 100-foot-wide construction ROW for installation of the 42-inch-diameter Effort Loop.

The Regional Energy Lateral and Effort Loop were sited to be co-located with the existing Transco Leidy Line System or other utilities, where feasible. Transco proposes the construction workspace to provide for safe and efficient construction of large diameter pipeline facilities in accordance with OSHA regulations (29 CFR 1926.650-1926.652, Subpart P) and Interstate Natural Gas Association of America's (INGAA's) workspace guidelines (INGAA 1999). Reductions or "neck-downs" of the construction ROW at resource crossings were employed to avoid and minimize resource impacts.

Neck-downs within the riparian buffer include a nominal 75-foot-wide construction ROW through floodways, except in specific areas where Transco has provided site-specific justification. Additionally, Transco designed the workspace to minimize additional temporary workspace within forested riparian zones, to the extent possible. Additional temporary workspace (ATWS) is sometimes required within the riparian zone of streams to facilitate the workspace neck-down within the stream channel, floodway, and any associated wetlands. In instances where ATWS was required, Transco prioritized use of herbaceous vegetated areas over forested areas. The floodway workspace neck-downs and riparian buffer workspace minimizations are the most reasonable neck-downs for pipeline installation within these resources. These reductions to the workspace are considered the maximum reductions for the safe operation and passage of equipment and personnel while minimizing the length of time required to cross the features.

Operation of the pipeline will require a 10-foot-wide herbaceous corridor to be maintained over the centerline of pipe. Trees and other woody vegetation will also be allowed to reestablish naturally within the construction ROWs that were cleared for construction of the pipelines. However, trees within 15 feet of the centerline and between existing pipelines will be removed to maintain the integrity of the pipeline.

Transco has identified contractor yards and staging areas for use during construction of the Project. Transco will use these areas for equipment, pipe, and material storage, as well as temporary field offices, parking, and pipe preparation/field assembly areas. To the extent practicable, Transco has selected areas that have been previously disturbed and are located outside of riparian buffer areas. One temporary contractor yard (CS 515 Laydown Yard) associated with Compressor Station 515 is located within an existing riparian buffer area. The

contractor yard is primarily located within an existing agricultural field. No trees will be cleared within the workspace associated with the CS 515 Laydown Yard.

Temporary workspace associated with the existing Mainline “A” Regulator is located within riparian buffers. Impacts at the Mainline “A” Regulator were considered unavoidable due to the pre-existing location of the facility. All workspace proposed at the Mainline “A” Regulator is within herbaceous or graveled areas.

Workspace associated with proposed MLV505LD86 on the Effort Loop is located within the riparian buffer of Sugar Hollow Creek. Since the original submission of the permit application the existing use of Sugar Hollow Creek changed from CWF, MF to HQ-CWF, MF with the designated use remaining CWF, MF. Grading and tree clearing is proposed along Sugar Hollow Road outside of the 100’ buffer, but within the 150’ buffer on the opposite side of Sugar Hollow Road to improve the sight distance from the driveway, as a public health or safety issue, and to install the driveway and associated stormwater pipe work.

Transco will utilize existing access roads for use during construction of the Project to the extent practicable. Transco will utilize these existing access roads to minimize the need to construct new roads. The existing access roads will require normal road maintenance activities with some roads requiring temporary widening to allow construction access. In some instances, new temporary roads will be installed, however will be restored during pipeline restoration. These have been sited to minimize impacts, and generally follow forest edges, clearings, or ATV trails to minimize impacts. Access roads will be restored to the pre-existing width upon completion of construction. There are new permanent access roads associated with the project; however, these roads do not impact existing riparian buffer zones.

Riparian buffers impacts and associated waivers or exceptions are identified in Section 2.1 – 2.4 and in the Riparian Buffer Summary Tables outlined in Attachment 1.

## **2.1 Pipelines**

Given the linear nature of the pipeline component of the Project, total avoidance of these features is not feasible and therefore installation of the proposed pipelines will result in impacts to riparian buffers. Therefore, Waiver 25 PA Code §102.14(d)(2)(ii) is being sought for fifty-nine riparian buffer impacts associated with Regional Energy Lateral and nine riparian buffer impacts associated with the Effort Loop.

## **2.2 Temporary Contractor Yards and Staging Areas**

Transco has identified contractor yards and staging areas to be sited outside of riparian buffers to the extent practical. One temporary contractor yard (CS 515 Laydown Yard) associated with Compressor Station 515 is located within an existing riparian buffer area. Waiver 25 PA Code §102.14(d)(2)(iv) is being sought for this impact.

## **2.3 Above Ground Facilities**

Minor temporary workspace associated with the existing Mainline “A” Regulator is located within two riparian buffers, as the existing facility is located within the riparian buffer. Waiver 25 PA Code §102.14(d)(2)(vi) is being sought for these impacts.

The riparian buffer associated with Sugar Hollow Creek will be impacted with work associated with MLV505LD86. This riparian buffer area contains an existing state roadway (Sugar Hollow Road) in which the impacts are located on the opposite side of the roadway outside of the 100’ buffer, but within the 150’ buffer. Grading and tree clearing is proposed along Sugar Hollow Road to improve the sight distance as a public health or safety issue in accordance with 25 PA Code §102.14(d)(2)(i), and earth disturbance necessary to install the driveway and associated in accordance with 25 PA Code §102.14(f)(2)(i). Impacts to the riparian buffer at this location include 0.29 acres in which the above referenced waiver [25 PA Code §102.14(d)(2)(i)] and allowable activity, if authorized, outlined in 25 PA Code §102.14(f)(2)(i) are being sought.

## **2.4 Access Roads**

Transco will primarily use existing access roads to access the construction ROW. Only maintenance activities such as tree limb clearing, gravel placement, minor grading, and temporary widening are proposed along these roads. Exception 25 PA Code §102.14(d)(1)(v) is being sought for eighteen riparian buffers associated with the Regional Energy Lateral and two riparian buffers associated with the Effort Loop portions of the Project. Impacts to riparian buffers that are associated with these existing access roads have been minimized to the greatest extent practicable while maintaining constructability and safety.

## **3.0 Riparian Buffer Restoration**

Upon completion of construction, Transco will stabilize and restore the limits of disturbance and associated riparian buffer areas in accordance with the Erosion and Sediment

Control Plan and Post Construction Stormwater Management Plans. Vegetated riparian areas will be revegetated with the Ernst Riparian Buffer Mix (ERNMX-178), or an alternative riparian seed mix that contains similar species. This seed mix will be used to revegetate riparian areas where slopes are less than 10%. For slopes greater than 10%, a standard upland ROW seed mix will be used. Erosion control blanket or hydraulically applied blankets will be placed on restored stream banks at the ordinary water line and should extend 100 feet beyond the top of bank unless wetlands are encountered.

Transco will replant native tree and shrubs within the impacted forested riparian buffers, as outlined in Attachment 2 - Onsite Wetland and Riparian Reforestation Plan. As noted in section 2.0, a 10-foot-wide herbaceous corridor will be maintained over the center of the pipeline within the riparian buffer area. Trees and other woody vegetation will also be allowed to reestablish naturally within the construction ROWs that were cleared for construction of the pipeline. However, trees within 15 feet of the centerline and between existing pipelines will be removed to maintain the integrity of the pipeline. The use of erosion control BMP's will avoid and/or minimize erosion and runoff that could potentially affect surface water quality. Replanting will not take place with forested riparian buffer impacts associated with MLV505LD86 due to the safety issues associated with the sight distance at the state roadway.

#### **4.0 Project Summary**

Transco requests fifty-six riparian buffers waivers for the Regional Energy Lateral, ten for the Effort Loop (including MLV505LD86), one for the Compressor Station 515 Laydown Yard, and two for Main Line A. These waivers are being requested in accordance with 25 PA Code §102.14(d)(2)(ii) for linear project impacts, 25 PA Code §102.14(d)(2)(iv) for temporary impacts at contractor yards and staging area, 25 PA Code §102.14(d)(2)(vi) for a portion of riparian buffer impact at the existing Mainline "A" Regulator, and 25 PA Code §102.14(d)(2)(i) to abate a threat to the public health or safety associated with the sight distance at the state roadway. According to 25 PA Code §102.14(d)(1)(v) for road maintenance activities there are eighteen riparian buffer exceptions for the Regional Energy Lateral and two riparian buffer exceptions for the Effort Loop. The tables in Attachment 1 outlines the areas of riparian buffers that will be crossed or impacted by the Project and the associated exceptions or waivers that are being sought.

**ATTACHMENT 1**  
**RIPARIAN BUFFER SUMMARY TABLES**

**Table 1. Regional Energy Lateral Riparian Buffer Summary**

<b>Stream ID</b>	<b>Stream Name</b>	<b>Milepost</b>	<b>County</b>	<b>Township</b>	<b>Stream Type</b>	<b>State Water Quality Use Classification - Designated Use</b>	<b>State Water Quality Use Classification - Existing Use</b>	<b>Delineated Riparian Buffer Acreage within LOD (acres)</b>	<b>25 PA Code Waiver/ Exception</b>
S20-T2	UNT to Shades Creek	0.5	Luzerne	Buck	Perennial	HQ-CWF, MF	--	0.70	§102.14(d)(2)(ii)
S3-T13	Shades Creek	1.0	Luzerne	Buck	Perennial	HQ-CWF, MF	--	0.92	§102.14(d)(2)(ii)
S3-T13	Shades Creek	Access Road 1.0	Luzerne	Buck	Perennial	HQ-CWF, MF	--	0.33	§102.14(d)(1)(v)
S44-T2	UNT to Shades Creek	1.2	Luzerne	Buck	Perennial	HQ-CWF, MF	--	0.98	§102.14(d)(2)(ii)
S44-T2	UNT to Shades Creek	Access Road 1.2	Luzerne	Buck	Perennial	HQ-CWF, MF	--	0.20	§102.14(d)(1)(v)
S44a-T2	UNT to Shades Creek	Access Road 1.2	Luzerne	Buck	Perennial	HQ-CWF, MF	--		§102.14(d)(1)(v)
S2-T13	UNT to Shades Creek	Access Road 1.5	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.07	§102.14(d)(1)(v)
S2-T13	UNT to Shades Creek	1.5	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	1.25	§102.14(d)(2)(ii)
S1-T13	UNT to Shades Creek	1.6	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--		§102.14(d)(2)(ii)
S1-T13	UNT to Shades Creek	Access Road 1.6	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.01	§102.14(d)(1)(v)
S43-T2	UNT to Little Shades Creek	2.3	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.86	§102.14(d)(2)(ii)
S42-T2	Little Shades Creek	2.3	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--		§102.14(d)(2)(ii)
S42-T2	Little Shades Creek	Access Road 2.3	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.16	§102.14(d)(1)(v)
S1-T4	UNT to Little Shades Creek	Access Road 2.3	Luzerne	Bear Creek	Intermittent	HQ-CWF, MF	--		§102.14(d)(1)(v)
S10-T3	UNT to Little Shades Creek	2.9	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.42	§102.14(d)(2)(ii)
S5-T11	UNT to Meadow Run	3.8	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.71	§102.14(d)(2)(ii)
S38-T2	Meadow Run	3.9	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.99	§102.14(d)(2)(ii)
S38-T2	Meadow Run	Access Road 3.9	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.21	§102.14(d)(1)(v)

**Table 1. Regional Energy Lateral Riparian Buffer Summary**

<b>Stream ID</b>	<b>Stream Name</b>	<b>Milepost</b>	<b>County</b>	<b>Township</b>	<b>Stream Type</b>	<b>State Water Quality Use Classification - Designated Use</b>	<b>State Water Quality Use Classification - Existing Use</b>	<b>Delineated Riparian Buffer Acreage within LOD (acres)</b>	<b>25 PA Code Waiver/ Exception</b>
S39-T2	UNT to Bear Creek	4.2	Luzerne	Bear Creek	Intermittent	HQ-CWF, MF	--	0.81	§102.14(d)(2)(ii)
S40-T2	UNT to Bear Creek	4.2	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--		§102.14(d)(2)(ii)
S40-T2	UNT to Bear Creek	Access Road 4.2	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.2	§102.14(d)(1)(v)
S9-T5	UNT to Bear Creek	4.4	Luzerne	Bear Creek	Intermittent	HQ-CWF, MF	--	1.24	§102.14(d)(2)(ii)
S8-T5	Bear Creek	4.5	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--		§102.14(d)(2)(ii)
S8-T5	Bear Creek	Access Road 4.5	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.23	§102.14(d)(1)(v)
S2-T12	UNT to Little Bear Creek	5.7	Luzerne	Bear Creek	Perennial	HQ-CWF, MF	--	0.73	§102.14(d)(2)(ii)
S35-T2	UNT to Little Bear Creek	5.9	Luzerne	Bear Creek	Intermittent	HQ-CWF, MF	--	1.07	§102.14(d)(2)(ii)
S36-T2	UNT to Little Bear Creek	5.9	Luzerne	Bear Creek	Intermittent	HQ-CWF, MF	--		§102.14(d)(2)(ii)
S10-T5	UNT to Mill Creek	6.5	Luzerne	Bear Creek	Intermittent	CWF, MF	HQ-CWF, MF	0.03	§102.14(d)(2)(ii)
S64-T2	UNT to Mill Creek	6.6	Luzerne	Bear Creek	Intermittent	CWF, MF	HQ-CWF, MF	0.02	§102.14(d)(2)(ii)
S61-T2	UNT to Mill Creek	6.7	Luzerne	Bear Creek	Perennial	CWF, MF	HQ-CWF, MF	1.04	§102.14(d)(2)(ii)
S62-T2	UNT to Mill Creek	6.7	Luzerne	Bear Creek	Perennial	CWF, MF	HQ-CWF, MF		§102.14(d)(2)(ii)
S63-T2	UNT to Mill Creek	6.7	Luzerne	Bear Creek	Perennial	CWF, MF	HQ-CWF, MF		§102.14(d)(2)(ii)
S8-T13	UNT to Mill Creek	7.2	Luzerne	Bear Creek	Perennial	CWF, MF	HQ-CWF, MF	1.12	§102.14(d)(2)(ii)
S68-T2	UNT to Mill Creek	7.2	Luzerne	Bear Creek	Perennial	CWF, MF	HQ-CWF, MF		§102.14(d)(2)(ii)
S75-T2	UNT to Mill Creek	7.5	Luzerne	Bear Creek	Intermittent	CWF, MF	HQ-CWF, MF	0.76	§102.14(d)(2)(ii)
S79-T2	UNT to Mill Creek	7.6/7.8	Luzerne	Bear Creek / Plains	Intermittent	CWF, MF	HQ-CWF, MF	0.69	§102.14(d)(2)(ii)
S9-T13	Mill Creek	7.9	Luzerne	Plains	Perennial	CWF, MF	HQ-CWF, MF	0.81	§102.14(d)(2)(ii)
S19a-T3	UNT to Mill Creek	8.0	Luzerne	Plains	Perennial	CWF, MF	HQ-CWF, MF	0.33	§102.14(d)(2)(ii)

**Table 1. Regional Energy Lateral Riparian Buffer Summary**

<b>Stream ID</b>	<b>Stream Name</b>	<b>Milepost</b>	<b>County</b>	<b>Township</b>	<b>Stream Type</b>	<b>State Water Quality Use Classification - Designated Use</b>	<b>State Water Quality Use Classification - Existing Use</b>	<b>Delineated Riparian Buffer Acreage within LOD (acres)</b>	<b>25 PA Code Waiver/ Exception</b>
S19-T3	UNT to Mill Creek	8.0	Luzerne	Plains	Perennial	CWF, MF	HQ-CWF, MF		§102.14(d)(2)(ii)
S15-T13	UNT to Mill Creek	8.0	Luzerne	Plains	Intermittent	CWF, MF	HQ-CWF, MF	0.51	§102.14(d)(2)(ii)
S9a-T13	Mill Creek	Access Road 8.0	Luzerne	Plains	Perennial	CWF, MF	HQ-CWF, MF	0.22	§102.14(d)(1)(v)
S30-T2	UNT to Mill Creek	9.4	Luzerne	Plains	Perennial	CWF, MF	HQ-CWF, MF	0.84	§102.14(d)(2)(ii)
S19-T1	UNT to Gardner Creek	10.4	Luzerne	Plains	Intermittent	CWF, MF	--	0.60	§102.14(d)(2)(ii)
S32-T2	UNT to Gardner Creek	10.5	Luzerne	Lafin	Intermittent	CWF, MF	--	0.58	§102.14(d)(2)(ii)
S31-T2	UNT to Gardner Creek	10.5	Luzerne	Lafin	Intermittent	CWF, MF	--		§102.14(d)(2)(ii)
S8-T3	Gardner Creek	10.7	Luzerne	Lafin	Perennial	CWF, MF	--	0.59	§102.14(d)(2)(ii)
S8a-T3	Gardner Creek	10.8-10.9	Luzerne	Lafin	Perennial	CWF, MF	--	0.82	§102.14(d)(2)(ii)
S81-T2	UNT to Gardner Creek	10.9	Luzerne	Lafin	Intermittent	CWF, MF	--	0.51	§102.14(d)(2)(ii)
S8b-T3	Gardner Creek	11.3	Luzerne	Lafin	Perennial	CWF, MF	--	0.12	§102.14(d)(2)(ii)
S6-T1	UNT to Gardner Creek	12.0	Luzerne	Jenkins	Intermittent	CWF, MF	--	0.65	§102.14(d)(2)(ii)
S9-T3	UNT to Susquehanna River	12.6	Luzerne	Jenkins	Intermittent	WWF, MF	--	0.71	§102.14(d)(2)(ii)
S1-T5	Susquehanna River	13.5 – 13.7	Luzerne	Jenkins / Wyoming	Perennial	WWF, MF	--	1.96	§102.14(d)(2)(ii)
S14-T2	Abrahams Creek	15.2	Luzerne	Wyoming	Perennial	CWF, MF	--	0.94	§102.14(d)(2)(ii)
S15-T2	UNT to Abrahams Creek	15.6 – 15.8	Luzerne	West Wyoming	Perennial	CWF, MF	--	1.33	§102.14(d)(2)(ii)
S15c-T2	UNT to Abrahams Creek	16.0	Luzerne	West Wyoming	Perennial	CWF, MF	--	0.58	§102.14(d)(2)(ii)
S15c-T2	UNT to Abrahams Creek	Access Road 16.0	Luzerne	West Wyoming	Perennial	CWF, MF	--	0.14	§102.14(d)(1)(v)

**Table 1. Regional Energy Lateral Riparian Buffer Summary**

Stream ID	Stream Name	Milepost	County	Township	Stream Type	State Water Quality Use Classification - Designated Use	State Water Quality Use Classification - Existing Use	Delineated Riparian Buffer Acreage within LOD (acres)	25 PA Code Waiver/ Exception
S15b-T2	UNT to Abrahams Creek	16.2 – 16.3	Luzerne	West Wyoming	Perennial	CWF, MF	--	0.72	§102.14(d)(2)(ii)
S29-T2	UNT to Abrahams Creek	17.0	Luzerne	West Wyoming	Intermittent	CWF, MF	--	0.55	§102.14(d)(2)(ii)
S26-T2	UNT to Abrahams Creek	17.2	Luzerne	West Wyoming	Perennial	CWF, MF	--	0.44	§102.14(d)(2)(ii)
S26-T2	UNT to Abrahams Creek	Access Road 17.2	Luzerne	West Wyoming	Perennial	CWF, MF	--	0.12	§102.14(d)(1)(v)
S51-T2	UNT to Toby Creek	18.7	Luzerne	Kingston	Intermittent	CWF, MF	--	0.63	§102.14(d)(2)(ii)
S50-T2	UNT to Toby Creek	18.7	Luzerne	Kingston	Intermittent	CWF, MF	--		§102.14(d)(2)(ii)
S47-T2	UNT to Abrahams Creek	20.5	Luzerne	Kingston	Intermittent	CWF, MF	--	0.42	§102.14(d)(2)(ii)
S4-T13	UNT to Abrahams Creek	20.5	Luzerne	Kingston	Intermittent	CWF, MF	--		§102.14(d)(2)(ii)
S49-T2	UNT to Trout Brook	21.0	Luzerne	Dallas	Perennial	CWF, MF	--	0.49	§102.14(d)(2)(ii)
S49-T2	UNT to Trout Brook	Access Road 21.0	Luzerne	Dallas	Perennial	CWF, MF	--	0.04	§102.14(d)(1)(v)
S52-T2	Trout Brook	21.8	Luzerne	Dallas	Perennial	CWF, MF	--	0.47	§102.14(d)(2)(ii)
S52-T2	Trout Brook	Access Road 21.8	Luzerne	Dallas	Perennial	CWF, MF	--	0.2	§102.14(d)(1)(v)
S2-T11	UNT to Trout Brook	Access Road 22.1	Luzerne	Dallas	Perennial	CWF, MF	--	0.30	§102.14(d)(1)(v)
S1-T11	UNT to Trout Brook	Access Road 22.1	Luzerne	Dallas	Perennial	CWF, MF	--		§102.14(d)(1)(v)
S1-T12	UNT to Toby Creek	Access Road 22.3	Luzerne	Dallas	Perennial	CWF, MF	--	0.11	§102.14(d)(1)(v)

Key

HQ: High Quality, EV: Exceptional Value, WWF: Warm Water Fishes, CWF: Cold Water Fishes, MF: Migratory Fishes

**Table 2. Compressor Station 515 (Laydown Yard) Riparian Buffer Summary**

<b>Stream ID</b>	<b>Stream Name</b>	<b>Milepost</b>	<b>County</b>	<b>Township</b>	<b>Stream Type</b>	<b>State Water Quality Use Classification - Designated Use</b>	<b>State Water Quality Use Classification - Existing Use</b>	<b>Delineated Riparian Buffer Acreage within LOD (acres)</b>	<b>25 PA Code Waiver/Exception</b>
S77-T2	UNT to Stony Run	CS 515 Laydown Yard	Luzerne	Buck	Perennial	HQ-CWF, MF	--	0.74	§102.14(d)(2)(iv)

Key

HQ: High Quality, EV: Exceptional Value, WWF: Warm Water Fishes, CWF: Cold Water Fishes, MF: Migratory Fishes

**Table 3. Effort Loop Riparian Buffer Summary**

Stream ID	Stream Name	Milepost / Site	County	Township	Stream Type	State Water Quality Use Classification - Designated Use	State Water Quality Use Classification - Existing Use	Delineated Riparian Buffer Acreage within LOD (acres)	25 PA Code Waiver/Exception
S1-T1	UNT to Pohopoco Creek	48.5	Monroe	Chestnuthill	Intermittent	CWF, MF	HQ-CWF, MF	0.81	§102.14(d)(2)(ii)
S1-T2*	Sugar Hollow Creek	MLV505LD86	Monroe	Chestnuthill	Perennial	CWF, MF	HQ-CWF, MF	0.29	§102.14(d)(2)(i) §102.14(f)(2)(i)
S1-T2	Sugar Hollow Creek	49.4	Monroe	Chestnuthill	Perennial	CWF, MF	HQ-CWF, MF	1.15	§102.14(d)(2)(ii)
S2-T2	UNT to Sugar Hollow Creek	49.4	Monroe	Chestnuthill	Perennial	CWF, MF	HQ-CWF, MF		§102.14(d)(2)(ii)
S3-T2	UNT to Sugar Hollow Creek	49.4	Monroe	Chestnuthill	Intermittent	CWF, MF	HQ-CWF, MF		§102.14(d)(2)(ii)
S2-T1	UNT to Poplar Creek	52.7	Monroe	Tunkhannock	Perennial	CWF, MF	EV, MF	0.93	§102.14(d)(2)(ii)
S5-T2	UNT to Mud Run	53.7	Monroe	Tunkhannock	Perennial	HQ-CWF, MF	--	0.67	§102.14(d)(2)(ii)
S7-T2	UNT to Tunkhannock Creek (Keiper Run)	57.0-57.1	Monroe	Tunkhannock	Intermittent	HQ-CWF, MF	--	1.74	§102.14(d)(2)(ii)
S8-T2	UNT to Tunkhannock Creek (Keiper Run)	57.0-57.1	Monroe	Tunkhannock	Perennial	HQ-CWF, MF	--		§102.14(d)(2)(ii)
S8-T2	UNT to Tunkhannock Creek (Keiper Run)	Access Road 57.1	Monroe	Tunkhannock	Perennial	HQ-CWF, MF	--	0.02	§102.14(d)(1)(v)
S4-T1**	UNT to Tunkhannock Creek (Keiper Run)	57.1 - 57.4	Monroe	Tunkhannock	Perennial	HQ-CWF, MF	--	1.57	§102.14(d)(2)(ii)
S4-T1	UNT to Tunkhannock Creek (Keiper Run)	Access Road 57.4	Monroe	Tunkhannock	Perennial	HQ-CWF, MF	--	0.06	§102.14(d)(1)(v)

Key

HQ: High Quality, EV: Exceptional Value, WWF: Warm Water Fishes, CWF: Cold Water Fishes, MF: Migratory Fishes

\*The top of bank of stream channel S1-T2 was georeferenced at this location utilizing aerial imagery due to being located outside delineation survey corridor

\*\*Additional workspace required within non-forested riparian buffer due to DCNR mitigation measures associated with topsoil segregation.

**Table 4. Mainline “A” Regulator Riparian Buffer Summary**

<b>Stream ID</b>	<b>Stream Name</b>	<b>County</b>	<b>Township</b>	<b>Stream Type</b>	<b>State Water Quality Use Classification - Designated Use</b>	<b>State Water Quality Use Classification - Existing Use</b>	<b>Delineated Riparian Buffer Acreage within LOD (acres)</b>	<b>25 PA Code Waiver/Exception</b>
S1-T10	Dyers Creek	Bucks	Makefield	Perennial	WWF, MF	-	0.018	§102.14(d)(2)(vi)
S2-T10	UNT to Dyers Creek	Bucks	Makefield	Perennial	WWF, MF	-		§102.14(d)(2)(vi)

Key

HQ: High Quality, EV: Exceptional Value, WWF: Warm Water Fishes, CWF: Cold Water Fishes, MF: Migratory Fishes

**ATTACHMENT 2**  
**WETLAND AND RIPARIAN REFORESTATION PLAN**



TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
REGIONAL ENERGY ACCESS EXPANSION PROJECT

ONSITE WETLAND AND RIPARIAN REFORESTATION PLAN

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*(REVISED JULY 2022)*

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- 5.0 Plant Density and Placement
- 6.0 Wildlife Damage Control
- 7.0 As-Built Documentation and Monitoring Plan
- 8.0 Performance Standards
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  - 9.1 Plant Survival
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- E-1 – E-11: Effort Loop – Wetland and Riparian Reforestation Plan
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- A Ernst – FACW Meadow Mix – ERNMX-122
- B Ernst – Riparian Buffer Mix – ERNMX-178
- C Onsite Wetland and Riparian Buffer Replanting Table
- D Upland Forested Replanting Areas Summary Table
- E Planting Details

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
REGIONAL ENERGY ACCESS EXPANSION PROJECT

ONSITE WETLAND AND RIPARIAN REFORESTATION PLAN  
*(REVISED JULY 2022)*

**1.0 PROJECT OVERVIEW**

On behalf of Transcontinental Gas Pipe Line Company, LLC (Transco), a subsidiary of The Williams Companies, Inc. (Williams), WHM Consulting, LLC. has prepared an onsite restoration and planting plan for the pipeline facilities associated with the Regional Energy Access Expansion Project (Project). This includes the Effort Loop located in Monroe County and the Regional Energy Lateral located in Luzerne County. This plan addresses the replanting of trees and shrubs associated with temporarily impacted forested riparian buffers and to Palustrine Forested (PFO) and Palustrine Scrub-Shrub (PSS) wetlands along the pipeline right-of-way (ROW).

**2.0 FORESTED AND SCRUB-SHRUB WETLANDS**

Restoration of temporarily impacted wetlands associated with PFO and PSS wetlands will involve onsite replanting. After the completion of construction, wetland areas within the ROW will be restored to pre-construction contours and seeded with Ernst FACW Meadow Mix (ERNMX-122), as outlined in Attachment A, or an alternative wetland seed mix that contains similar species. After seeding, impacted PSS and PFO wetlands outside the permanent maintained ROW will be replanted with native live stakes, bare root or container tree and shrub species up to 5 feet from the pipeline centerline. A ten-foot-wide herbaceous corridor will remain over the pipeline and in between existing pipelines to allow for pipeline maintenance and to maintain the integrity of the pipe. In PFO impacted wetlands, only shrub species shall be planted from 5 to 15 feet of the pipeline centerline. Outside 15 feet, both tree and shrub species may be planted. A summary table outlining proposed PFO and PSS impacted wetlands, their location, and proposed restoration is outlined in Attachment C – Onsite Wetland and Riparian Buffer Replanting Table. In addition, replanting areas for each pipeline facility are outlined on the provided figures.

The vegetative design of the PFO and PSS impacted wetlands outlines a combination of specific native tree and shrub species selected for different hydrologic regimes and different vegetative cover types throughout the Project. Trees and shrubs selected for the replanting were based on species identified during wetland delineations and area outlined in Table 2-1.

TABLE 2-1 - WETLAND REPLANTING SPECIES LIST			
Common Name	Scientific Name	Status	Stratum
Black Willow	<i>Salix nigra</i>	OBL	Tree
Silver Maple	<i>Acer saccharinum</i>	FACW	Tree
River Birch	<i>Betula nigra</i>	FACW	Tree
Yellow Birch	<i>Betula alleghaniensis</i>	FAC	Tree
Red Maple	<i>Acer rubrum</i>	FAC	Tree
Black Gum	<i>Nyssa sylvatica</i>	FAC	Tree
American sycamore	<i>Platanus occidentalis</i>	FACW	Tree
Tamarack	<i>Larix laricina</i>	FACW	Tree
Pin Oak	<i>Quercus palustris</i>	FACW	Tree
Swamp White Oak	<i>Quercus bicolor</i>	FACW	Tree
Smooth Alder	<i>Alnus serrulata</i>	OBL	Shrub
Silky Dogwood	<i>Cornus amomum</i>	FACW	Shrub
Common Ninebark	<i>Physocarpus opulifolius</i>	FACW	Shrub
Highbush Blueberry	<i>Vaccinium corymbosum</i>	FACW	Shrub
Winterberry	<i>Ilex verticillata</i>	FACW	Shrub
Red Chokeberry	<i>Aronia arbutifolia</i>	FACW	Shrub
Northern Spicebush	<i>Lindera benzoin</i>	FAC (EMP) FACW (NCNE)	Shrub
Pussy Willow	<i>Salix discolor</i>	FACW	Shrub
Button Bush	<i>Cephalanthus occidentalis</i>	OBL	Shrub
American Elderberry	<i>Sambucas canadensis</i>	FAC (EMP) FACW (NCNE)	Shrub

### 3.0 FORESTED RIPARIAN BUFFERS

Temporarily impacted forested riparian buffers (100' or 150' for special protection watersheds from each watercourse) will involve onsite replanting. After the completion of construction, riparian buffers within the ROW will be restored to pre-construction contours and revegetated with Ernst Riparian Buffer Mix (ERNMX-178), as outlined in Attachment B, or an alternative riparian seed mix that contains similar species. Forested riparian buffers were mapped using surveyed wood line data, aerial imagery, and riparian buffer polygons for the perennial and intermittent watercourses. Impacted forested riparian buffers will be replanted with native live stakes, bare root or container tree and shrub species outside the permanent maintained ROW up to 5 feet from the pipeline centerline. A ten-foot-wide herbaceous corridor will remain over the pipeline and in between existing pipelines to allow for pipeline maintenance and to maintain the integrity of the pipe. Only shrub species shall be planted from 5 to 15 feet of the pipeline centerline. Outside 15 feet, both tree and shrub species may be planted. A summary table outlining proposed forested riparian buffer impact areas, their location, and proposed restoration is outlined in Attachment C – Onsite Wetland and Riparian Buffer Replanting Table. In addition, replanting areas for each pipeline facility are outlined on the provided figures.

The vegetative design of the forested riparian buffers outlines a combination of specific native tree and shrub species selected for different hydrologic regimes and different vegetative cover types throughout the Project. Trees and shrubs selected for the project were selected based on the Department of Environmental Protection's Riparian Forest Buffer Guidance, document number 394-5600-001 and observations of woody vegetation within riparian buffers during field surveys. The trees and shrubs selected for forested riparian buffer replanting are in Table 3-1 below:

<b>TABLE 3-1 - RIPARIAN BUFFER REPLANTING SPECIES LIST</b>			
<b>Common Name</b>	<b>Scientific Name</b>	<b>Status</b>	<b>Stratum</b>
Black Willow	<i>Salix nigra</i>	OBL	Tree
Silver Maple	<i>Acer saccharinum</i>	FACW	Tree
American Sycamore	<i>Platanus occidentalis</i>	FACW	Tree
River Birch	<i>Betula nigra</i>	FACW	Tree
Yellow birch	<i>Betula alleghaniensis</i>	FAC	Tree
Red Maple	<i>Acer rubrum</i>	FAC	Tree
Black Gum	<i>Nyssa sylvatica</i>	FAC	Tree
Tulip Poplar	<i>Liriodendron tulipifera</i>	FACU	Tree
Bigtooth Aspen	<i>Populus grandidentata</i>	FACU	Tree
White Pine	<i>Pinus strobus</i>	FACU	Tree
Eastern Hemlock	<i>Tsuga canadensis</i>	FACU	Tree
Smooth Alder	<i>Alnus serrulata</i>	OBL	Shrub/Small Tree
Speckled Alder	<i>Alnus incana</i>	FACW	Shrub/Small Tree
American Hornbeam	<i>Carpinus caroliniana</i>	FAC	Shrub/Small Tree
Silky Dogwood	<i>Cornus amomum</i>	FACW	Shrub
Common Ninebark	<i>Physocarpus opulifolius</i>	FACW	Shrub
Highbush Blueberry	<i>Vaccinium corymbosum</i>	FACW	Shrub
Rosebay Rhododendron	<i>Rhododendron maximum</i>	FAC	Shrub
Arrowwood Viburnum	<i>Viburnum dentatum</i>	FAC	Shrub
Nannyberry	<i>Viburnum lentago</i>	FAC	Shrub
American Elderberry	<i>Sambucas canadensis</i>	FAC (EMP) FACW (NCNE)	Shrub
American Hazelnut	<i>Corylus americana</i>	FACU	Shrub

#### **4.0 METHOD OF PLANTING**

All plants shall be installed according to acceptable standards of the trade under the supervision of a landscape professional with suitable practical field experience in pipeline replanting projects. A qualified professional with documented experience shall oversee the replanting effort. Minor changes to the plan that will not adversely affect the overall success of

the site or changes which enhance the success of the site may be implemented during the project without consultation. Any plan deviations will be documented in the as-built reporting.

All plant materials shall be nursery grown and shall be guaranteed to be true to name and healthy upon delivery. During planting operations, the contractor shall keep the trees and shrubs out of direct sunlight and maintain moisture on the roots to ensure that the roots don't dry out prior to planting. Trees and shrubs shall be planted by digging a hole twice the size of the width of the root ball down into the substrate at the point of installation. If the plant is in a plastic container, this shall be carefully removed to keep the root ball intact. After planting, the area will be backfilled and watered. Trees may be provided with support stakes or tree or shrub shelters. Shelters will only be placed on those plants suitable for shelters. Care shall be taken when installing support stakes or tree shelters to ensure that the root ball is not disturbed when driving the support stake into the soil. Fertilizer tablets may be placed in the backfilled soil to help the growth of the planted trees and shrubs.

## **5.0 PLANT DENSITY AND PLACEMENT**

All plants will be planted in clumps of monocultures consisting of three to six plants of the species. All plants will be planted in a clumped distribution of monoculture blocks of individual species. Monocultures will be planted randomly with spacing of approximately 8.0 feet on center for shrubs and small trees species and 12.0 feet on center for tree species. Trees and shrubs will be planted at a density of 435 stems per acre. No tree plantings are to take place within 15' of the pipeline or between existing utilities. Typical planting details are included within Attachment D.

## **6.0 WILDLIFE DAMAGE CONTROL**

After planting of the site has been completed, tree and shrub shelters shall be installed for those plants suitable for shelters. If deemed necessary, other methods of wildlife damage control may include the application of rodenticide to each tree/shrub or installing bait boxes for meadow vole control.

## **7.0 AS-BUILT DOCUMENTATION AND MONITORING PLAN**

As-built documentation for the planting shall occur as the planting is completed. Thereafter, monitoring of the onsite wetland and riparian buffers replanting areas shall take place biannually for the first three years and annually for the remaining two years after planting to determine the success of the replanting areas. During the monitoring, the survival of trees and shrubs will be counted and documented. Any threats to the riparian buffers will be documented and remedial measures will be recommended. Photographs will be taken at representative crossings to document the success of the replanting areas. The as built documentation and monitoring reports will include, at a minimum, the following information:

- a) Dates of inspection and names of inspectors;
- b) Photographic Documentation;
- c) Hydrology indicators (wetlands);
- d) Vegetation data
  - a. percent coverage of native hydrophytic species (wetlands);

- b. inventory of plant species; and,
- c. stem count survival.
- e) Identification of any problems that need required remedial measures.

## **8.0 PERFORMANCE STANDARDS**

Performance standards have been established for the onsite replanting areas. These standards will be used to determine the success of the replanting effort. By monitoring the site as proposed in the monitoring plan and comparing results to the performance standards, a determination of success can be evaluated. The performance standards are as follows:

- Planted trees and shrubs shall meet 85% survival throughout the 5-year monitoring period.
- The entire wetland revegetated areas will have at least 85% cover of hydrophytic species (FAC, FACW, and/or OBL)
- Noxious weed percent aerial cover, if present, does not exceed the abundance of noxious species in the adjacent areas that were not disturbed by construction.
- The site will maintain hydrology for both wetland and water resources.

Additionally, Transco will evaluate whether the activities authorized by this permit caused any loss of hydrology and will submit an evaluation to the Department for review.

If the performance standards have not been achieved, appropriate remedial actions, as outlined in the adaptive management plan must take place to ensure the success of the site. A vegetative analysis must continue on a yearly basis until the performance standards or goals have been met. In the situations where the plantings are not successful, the monitoring report must include a discussion of remedial measures to correct the deficiencies.

## **9.0 ADAPTIVE MANAGEMENT PLAN**

A qualified professional with documented experience in tree and shrub planting will oversee the project. If plant species or spacing requirements need to be modified during the project, the consultant shall notify the district engineer of the modifications and reasons that were necessary to achieve the overall goal of the project. Minor changes to the plan that will not adversely affect the overall success of the site or enhance the success of the site may be implemented during the project.

To ensure the onsite planting proposed meets the objectives and goals outlined, measures will be implemented to identify if success is being achieved, and to modify activities during and post-construction to ensure success of the site. Adaptive management is closely related to the planting plan, monitoring/maintenance plan, and linked directly to the performance standards. Monitoring of the sites will identify the progression of the planting areas toward the performance standards set and will identify any areas not trending in the desired direction. For any areas not progressing towards the performance standards, appropriate remedial actions or measures, as outlined below will be implemented.

Although most of the onsite activities proposed are low risk in nature, several potential challenges to achieving success have been identified regarding plant survival and noxious plant species control, as outlined below.

### **9.1 PLANT SURVIVAL**

The planting plan was developed with the knowledge that trees and shrubs do not survive or do well in all locations within wetlands and riparian zone. Several potential challenges to the success of plantings have been identified. These challenges relate to competition from other vegetation, predation by deer and meadow voles, and mortality from excessively wet soils.

To prevent competition with other vegetation, EPA approved herbicide application is proposed as a remedial measure and will be applied at the base of trees and shrub shelters. Herbicide application will be performed at an interval necessary to suppress growth in these areas as the trees and shrubs become established. The installation of tree and shrub shelters will also aid in vegetation success.

Predation due to deer browse and meadow vole girdling is a noted concern for newly planted woody vegetation. Tree and shrub shelters will protect woody vegetation from browsing until a time when they've become established, or branches of trees are above browse height. Also, each planted tree/shrub will include the application and reapplications of Repellex tablets (animal repellent). In certain situations, where the meadow vole population is extensive, meadow vole bait stations including rodenticide may be utilized to control the local population.

If the survival rate is not meeting performance standards, replanting will take place. Replanting will be based upon best professional judgment when determining the conditions that may have resulted in the low survival rate. Replanting could take into account a species-specific replanting or only planting woody vegetation within certain locations within the wetland and/or riparian buffer area that are more adaptable.

### **9.2 NOXIOUS PLANT SPECIES CONTROL**

Noxious plant species will be documented during all monitoring events. As needed, EPA approved herbicides and/or hand pulling will be utilized to control the occurrence of noxious plant species to remain within the threshold of the permit standards. Noxious plant species will be controlled in order to prevent the site from becoming dominated by noxious plant species identified on the current *Pennsylvania noxious weed control list* and the *Federal noxious weed list*.

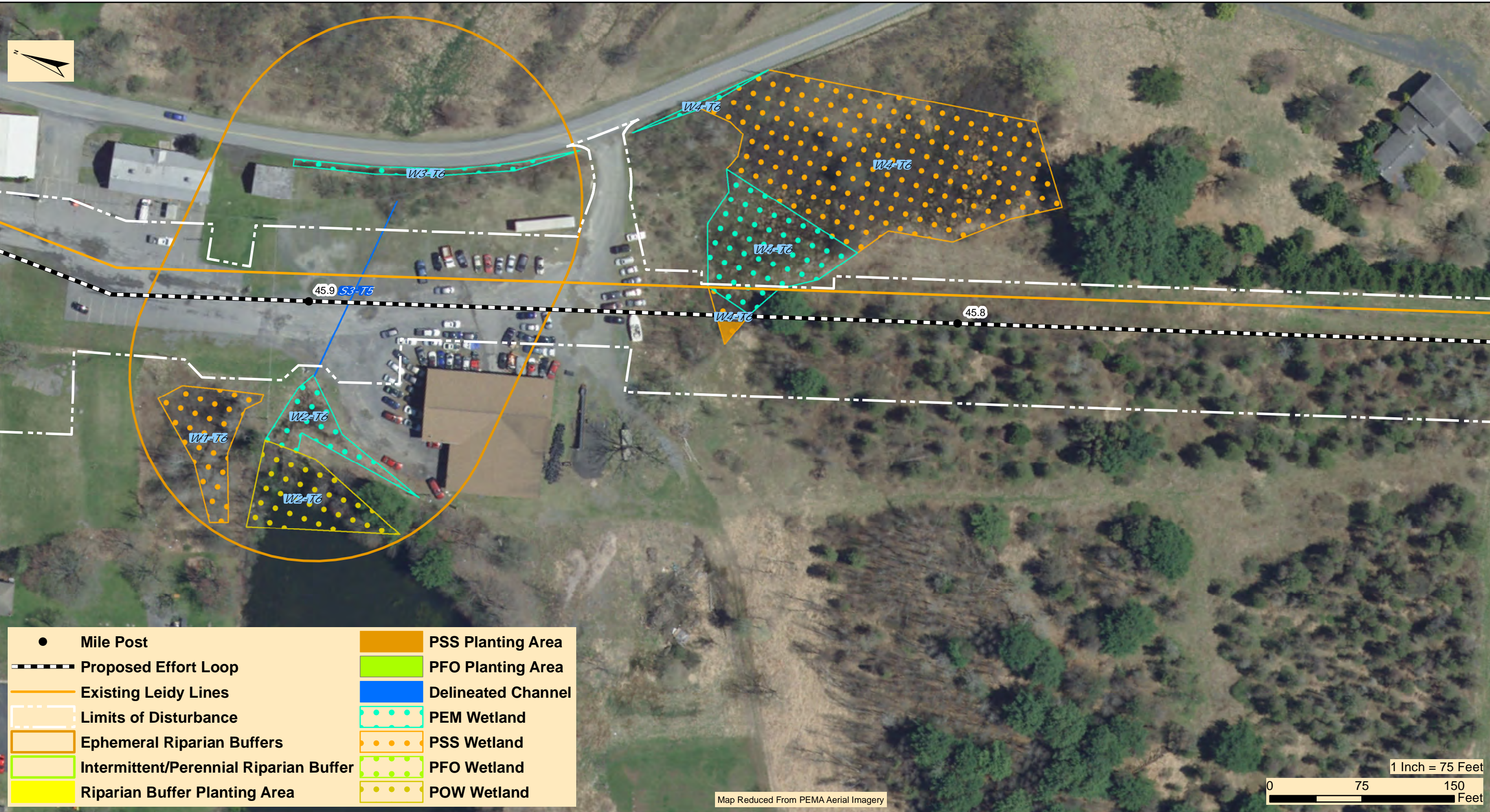
## **10.0 REFERENCES**

- Pennsylvania Department of Environmental Protection Bureau of Watershed Management. 2010. Riparian Forest Buffer Guidance. Document number 394-5600-001. Pennsylvania Department of Environmental Protection. Harrisburg, PA.
- U.S. Army Corps of Engineers. 2018. National Wetland Plant List, version 3.4. [http://wetland\\_plants.usace.army.mil/](http://wetland_plants.usace.army.mil/) US Army Corps of Engineers Engineer Research and Development Center Cold Regions Research and Engineering Laboratory, Hanover, NH.
- WHM Consulting, LLC. 2020. *Regional Energy Access Expansion Project - Wetland and Watercourse Delineation Report*. State College, PA. November, 2020.

## FIGURES

EFFORT LOOP

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366 Walker Drive, Suite 300  
 State College, PA 16801  
 Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - EL-2

CHESTNUT HILL TOWNSHIP

MONROE COUNTY

PENNSYLVANIA

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● Mile Post	■ PSS Wetland Planting Area
⚡ Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
⋯ Limits of Disturbance	■ PEM Wetland
■ Riparian Buffer Planting Area	● PSS Wetland
■ Ephemeral Riparian Buffers	● PFO Wetland
■ Intermittent/Perennial Riparian Buffer	● POW Wetland

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**WHM**  
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366 Walker Drive, Suite 300  
State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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RESOURCE CROSSING - EL-5

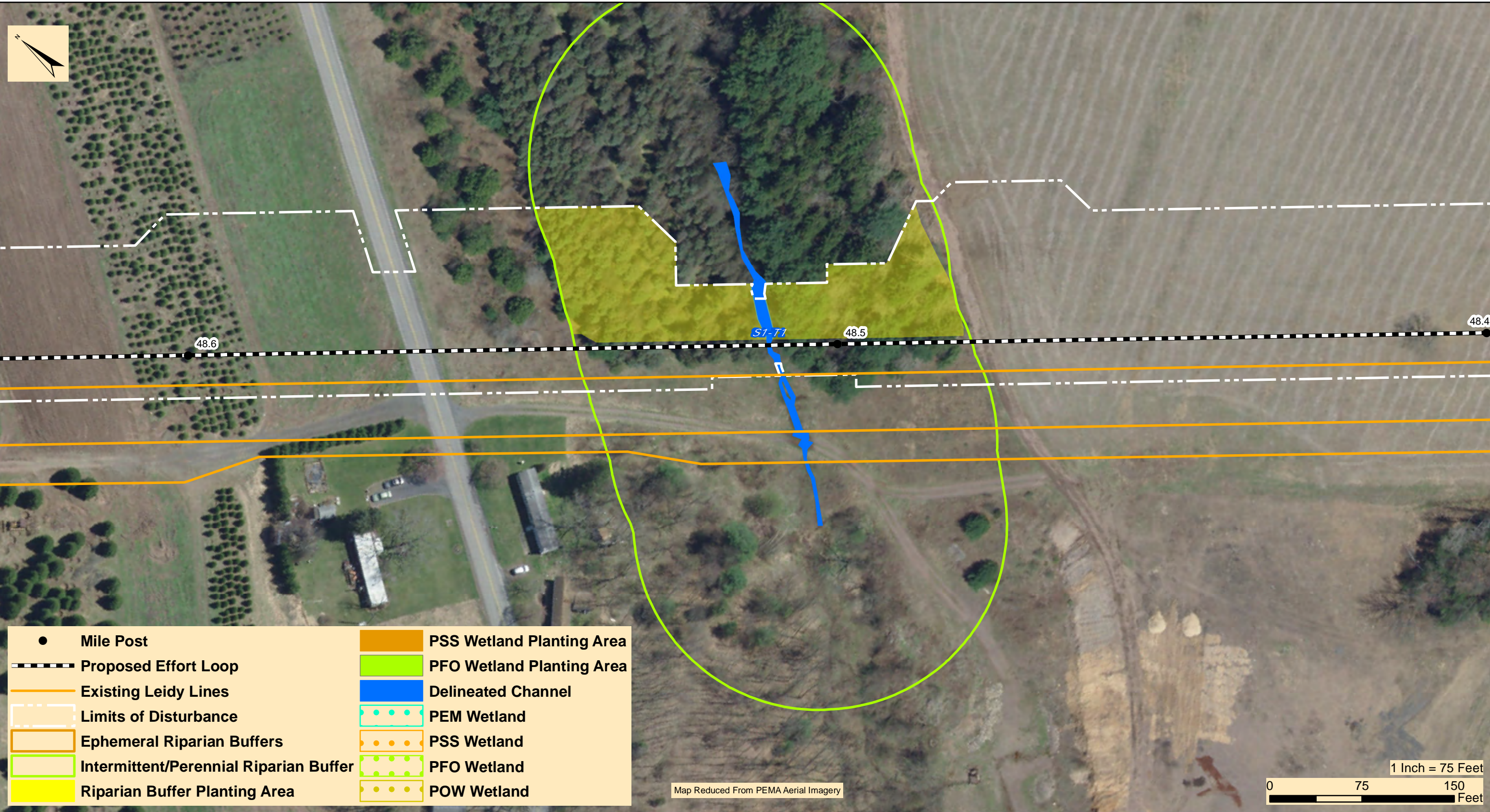
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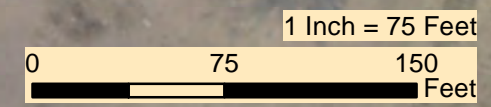
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--- Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
- - - Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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consulting, LLC

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State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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WETLAND AND RIPARIAN REFORESTATION PLAN

RESOURCE CROSSING - EL-6

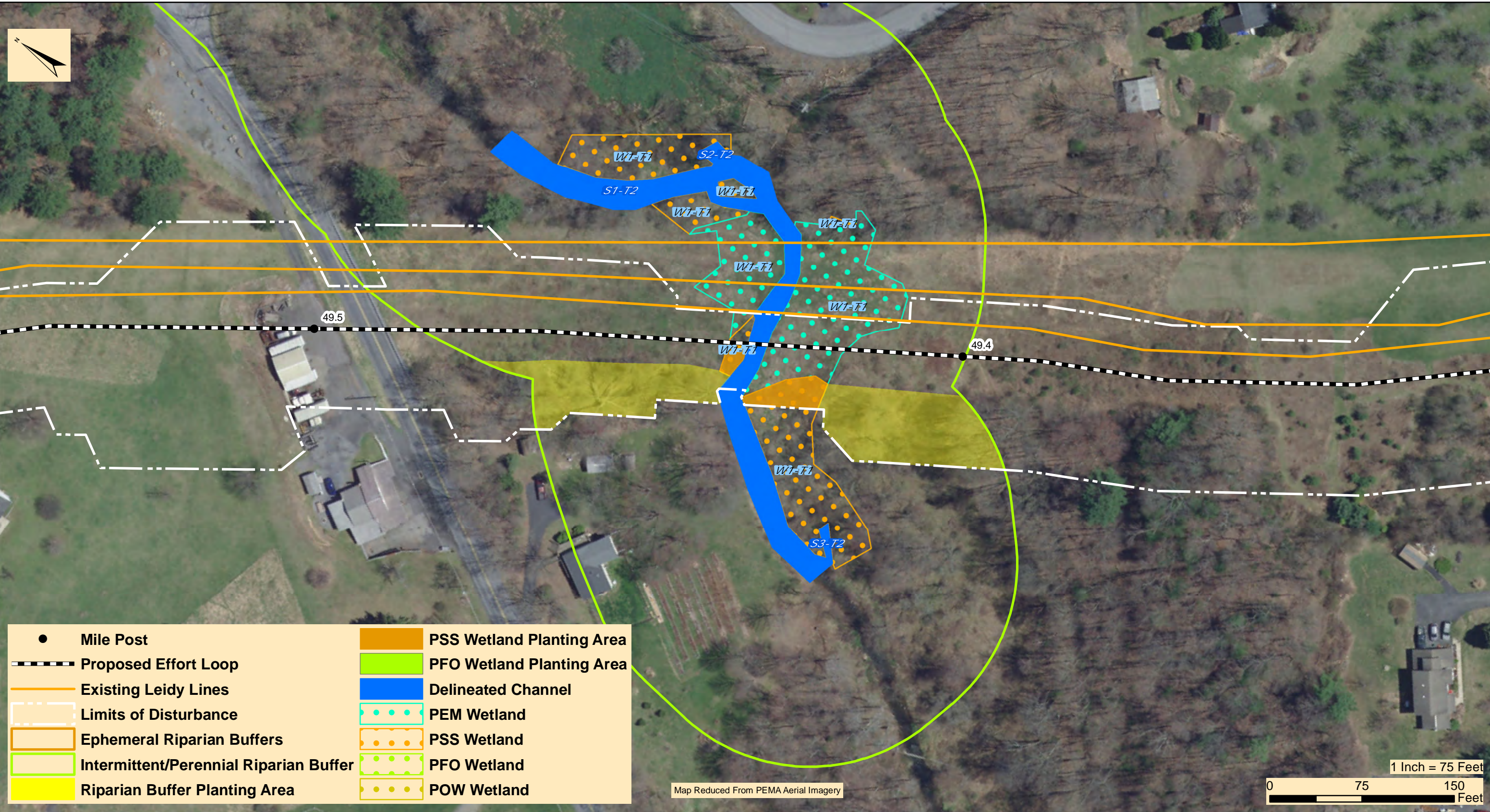
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--- Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
- - - Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

366 Walker Drive, Suite 300  
 State College, PA 16801  
 Tele: 814.689.1650 Fax: 814.689.1557

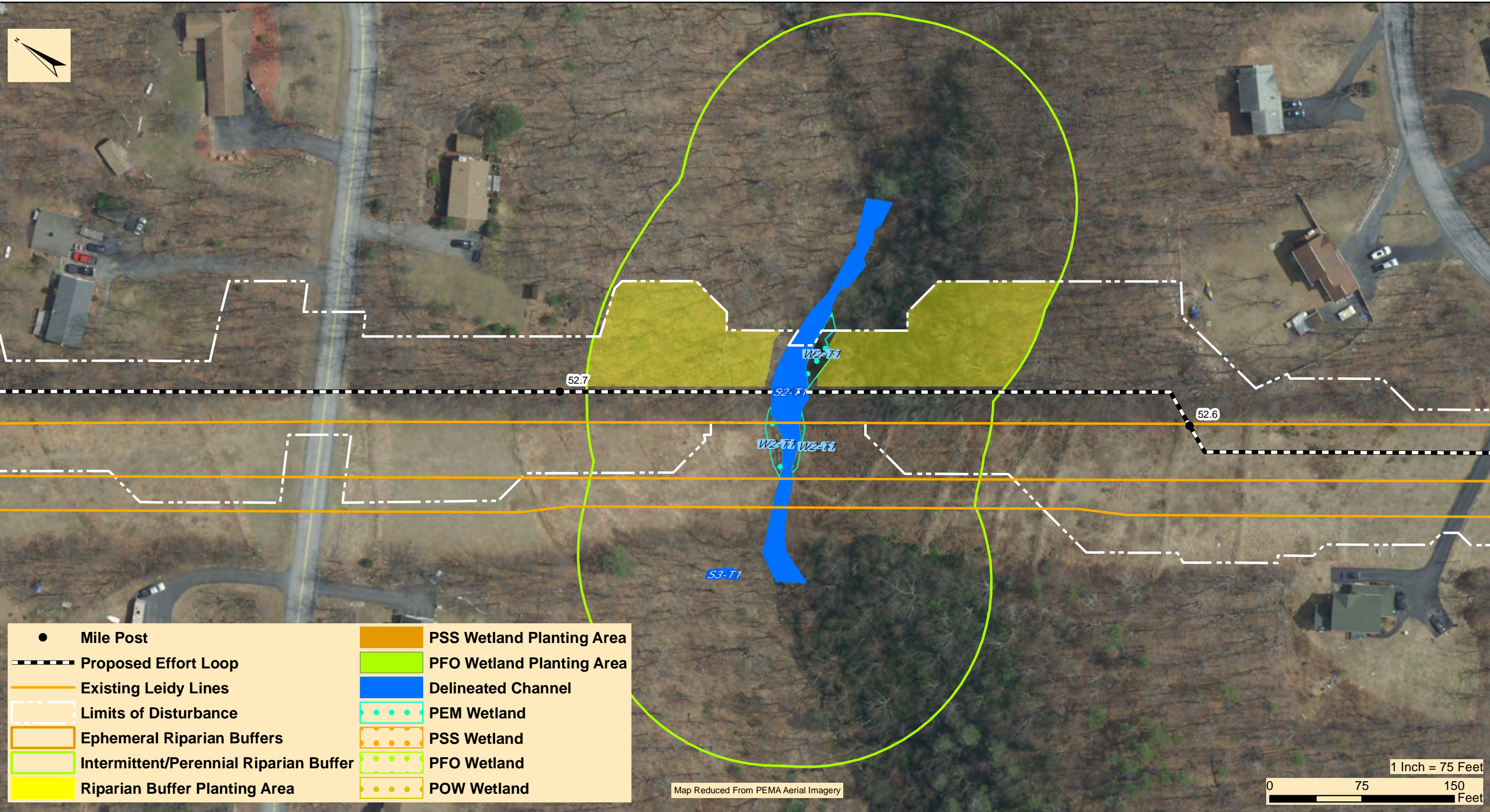
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 WETLAND AND RIPARIAN REFORESTATION PLAN

RESOURCE CROSSING - EL-7

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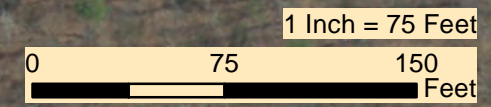
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--- Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
- - - Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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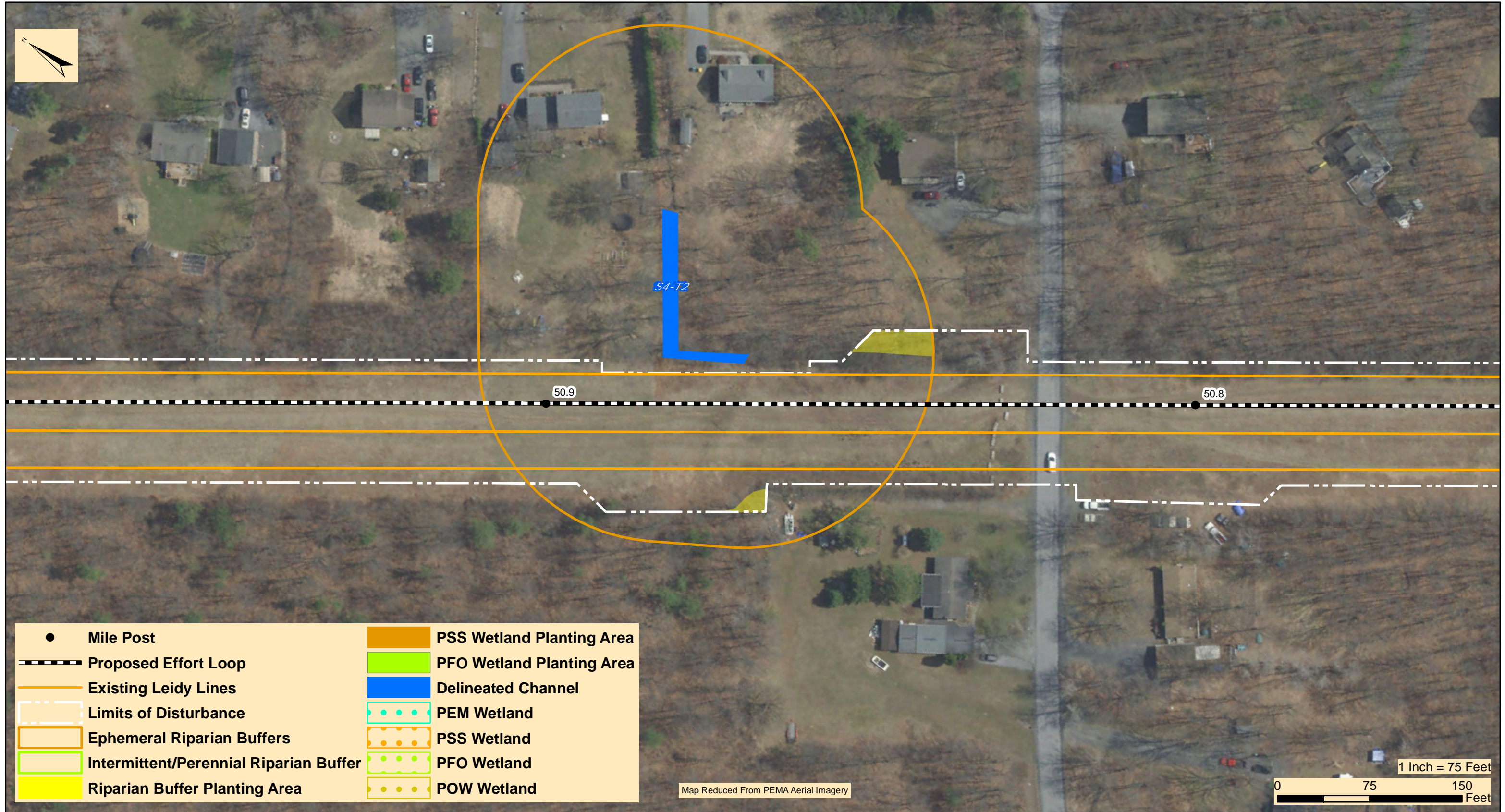
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - EL-9

CHESTNUT HILL AND TUNKHANNOCK TOWNSHIPS      MONROE COUNTY      PENNSYLVANIA

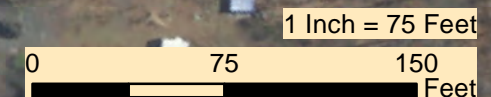
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Figure Number:	E-5

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● Mile Post	■ PSS Wetland Planting Area
--- Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
--- Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - EL-8

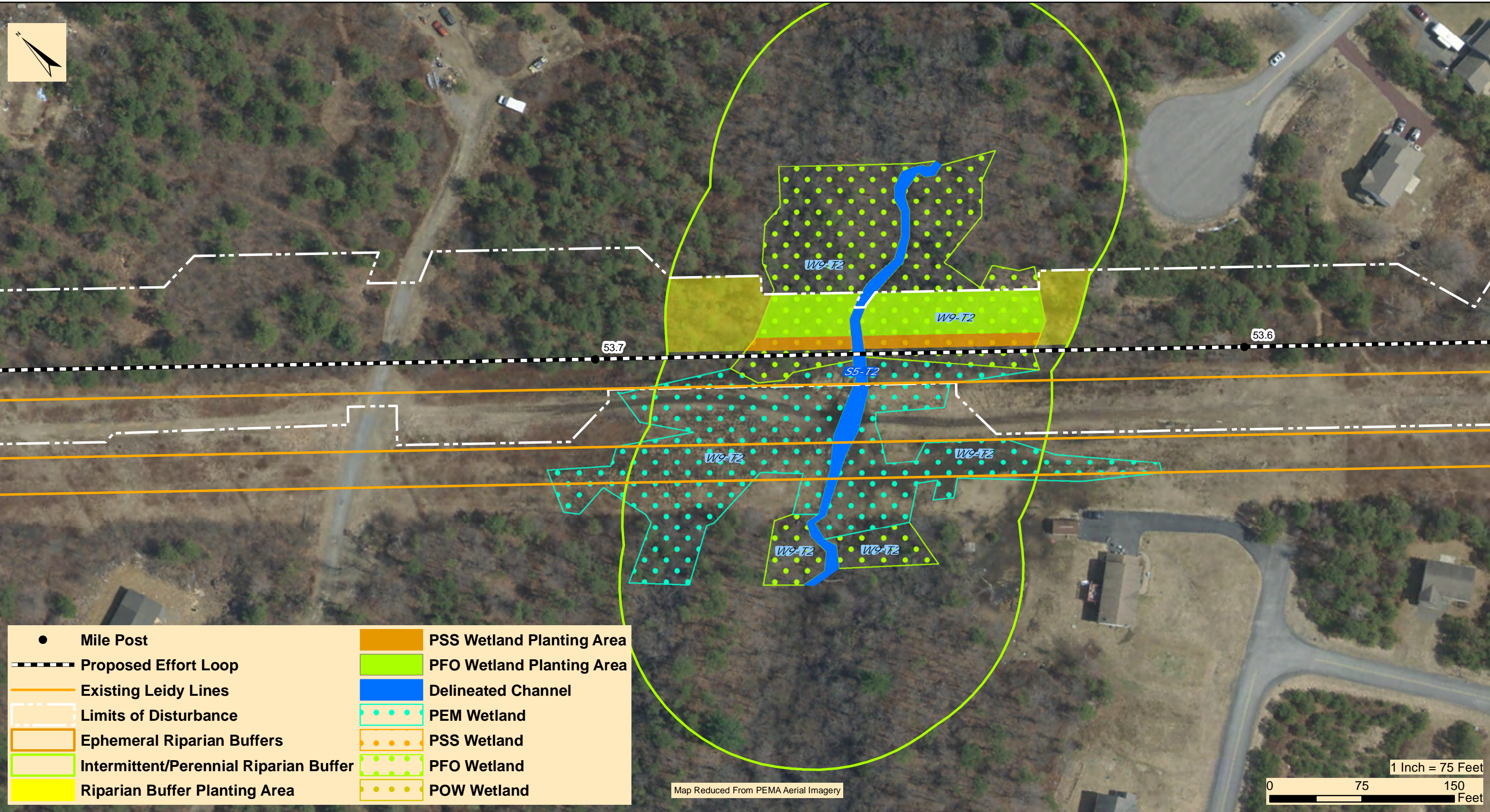
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Date:	3/1/2022
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Drawn By:	FTN
Figure Number:	E-6

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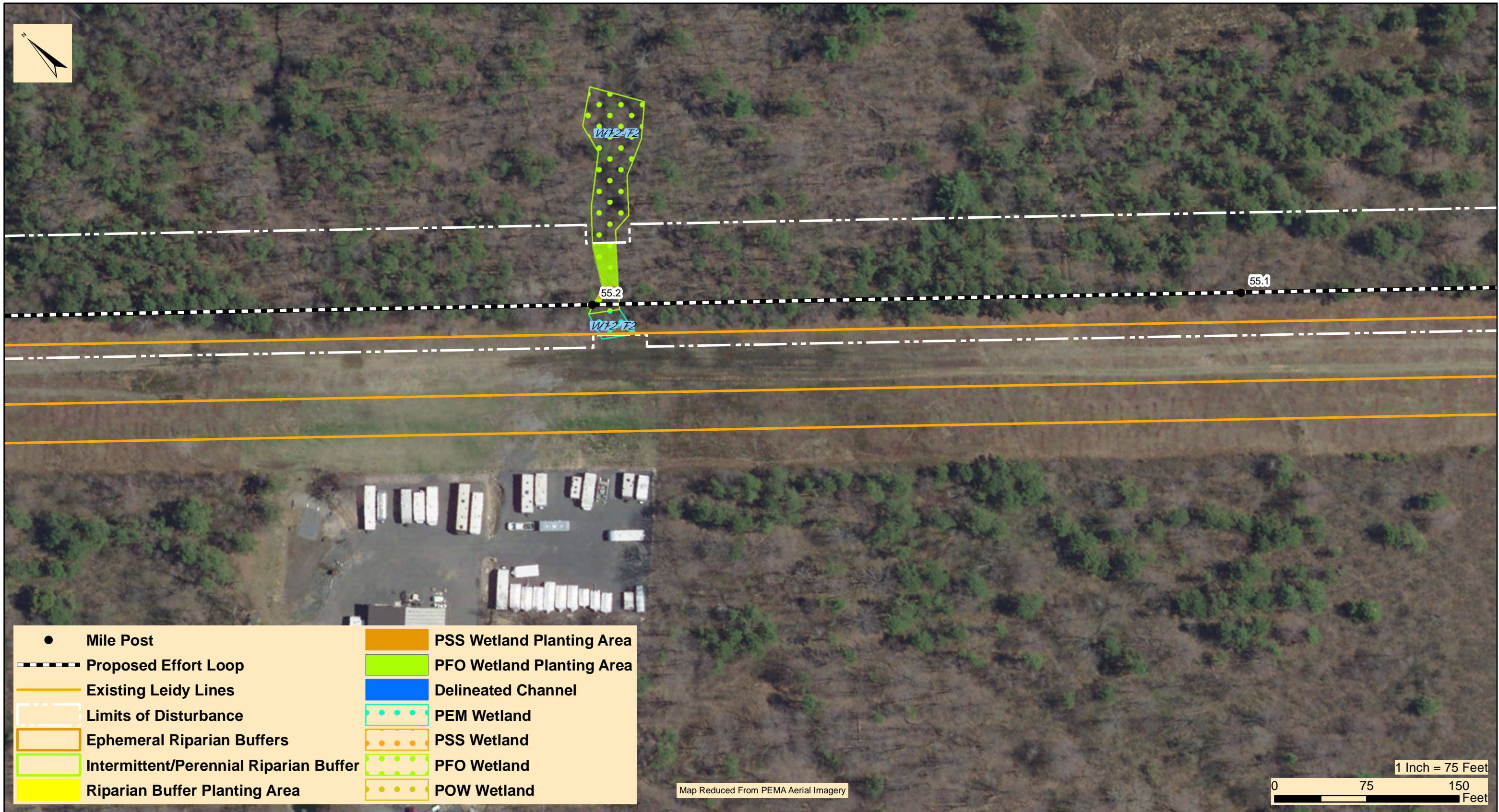
● Mile Post	■ PSS Wetland Planting Area
--- Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
--- Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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366 Walker Drive, Suite 300  
State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**  
 RESOURCE CROSSING - EL-10  
 TUNKHANNOCK TOWNSHIP      MONROE COUNTY      PENNSYLVANIA

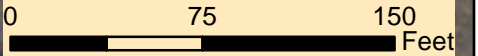
Date:	3/1/2022
WHM DRAWING NUMBER:	WILLIAMS245B006-EL
Drawn By:	FTN
Figure Number:	E-7



● Mile Post	■ PSS Wetland Planting Area
--- Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
--- Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

Map Reduced From PEMA Aerial Imagery

1 Inch = 75 Feet



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 State College, PA 16801  
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RESOURCE CROSSING - EL-11

TUNKHANNOCK TOWNSHIP

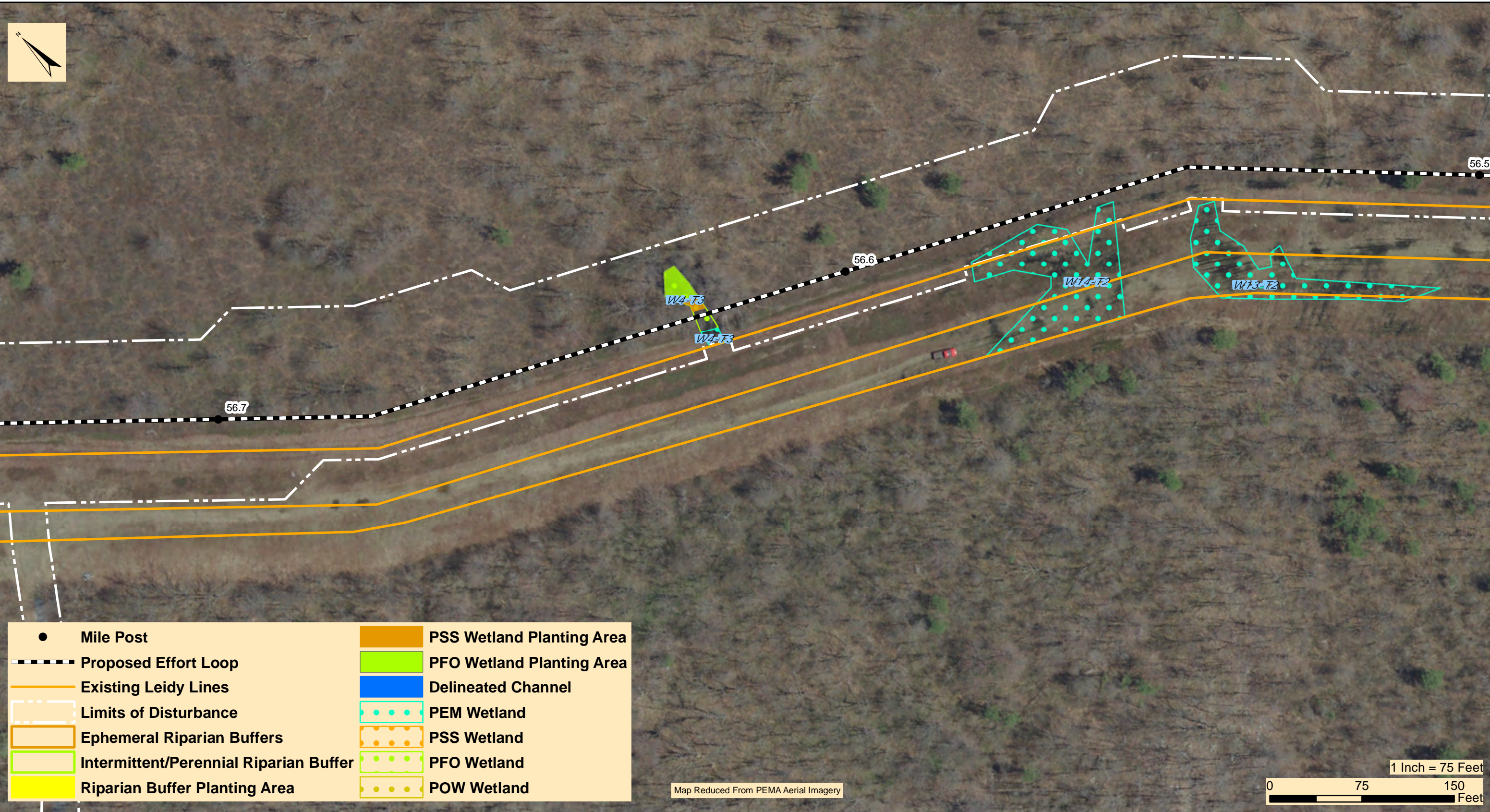
MONROE COUNTY

PENNSYLVANIA

Date:	3/1/2022
WHM DRAWING NUMBER:	WILLIAMS245B007-EL
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Figure Number:	E-8

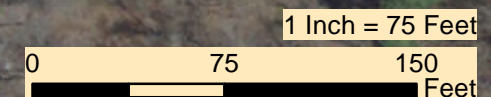
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● Mile Post	■ PSS Wetland Planting Area
— Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
— Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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State College, PA 16801  
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RESOURCE CROSSING - EL-12

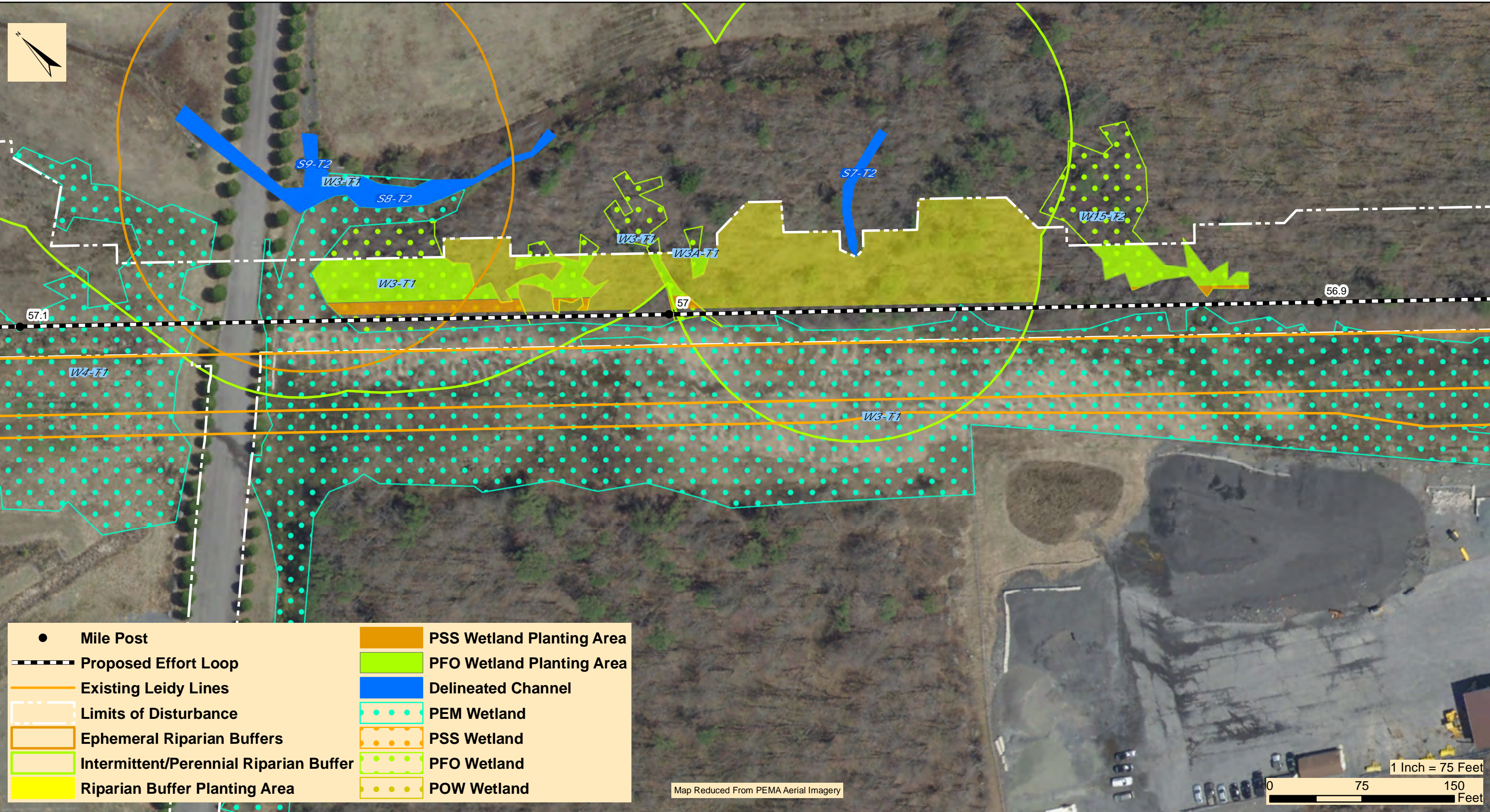
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MONROE COUNTY

PENNSYLVANIA

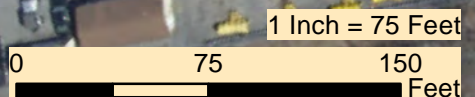
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Figure Number:	E-9

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●	Mile Post	■	PSS Wetland Planting Area
---	Proposed Effort Loop	■	PFO Wetland Planting Area
—	Existing Leidy Lines	■	Delineated Channel
---	Limits of Disturbance	■	PEM Wetland
---	Ephemeral Riparian Buffers	■	PSS Wetland
---	Intermittent/Perennial Riparian Buffer	■	PFO Wetland
---	Riparian Buffer Planting Area	■	POW Wetland

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RESOURCE CROSSING - EL-13

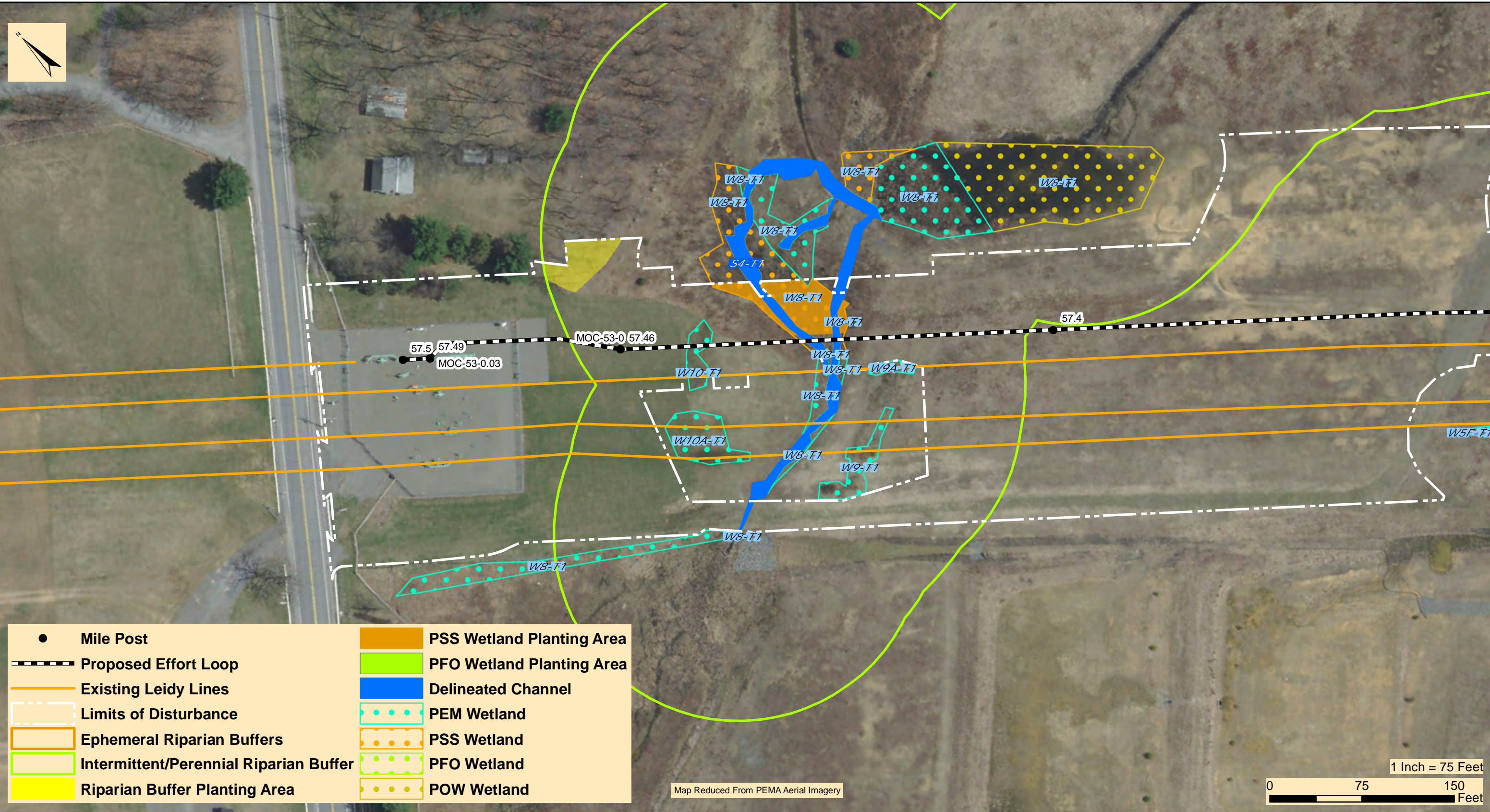
TUNKHANNOCK TOWNSHIP

MONROE COUNTY

PENNSYLVANIA

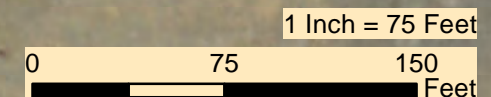
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● Mile Post	■ PSS Wetland Planting Area
--- Proposed Effort Loop	■ PFO Wetland Planting Area
— Existing Leidy Lines	■ Delineated Channel
--- Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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366 Walker Drive, Suite 300  
State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - EL-16

TUNKHANNOCK TOWNSHIP

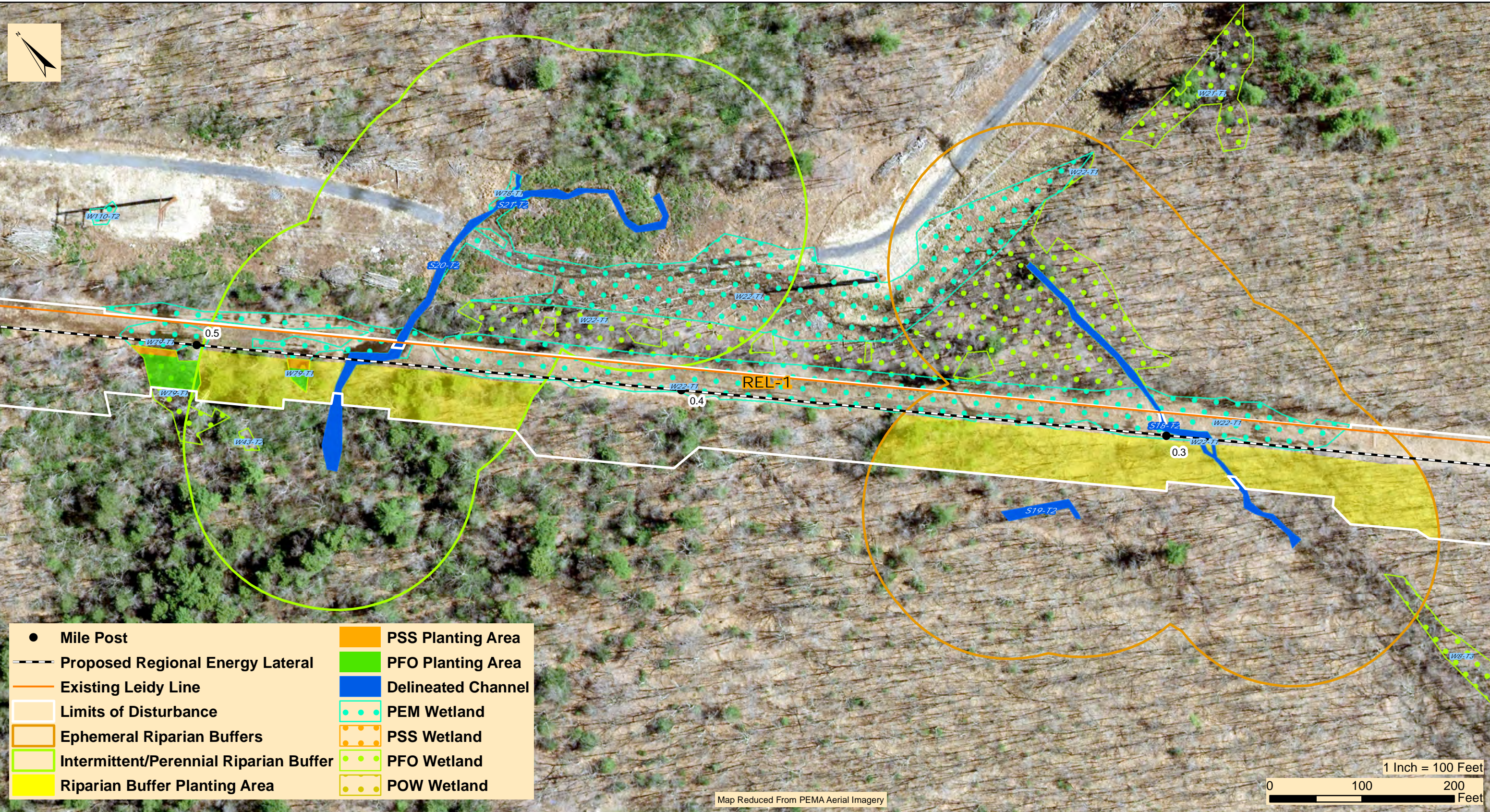
MONROE COUNTY

PENNSYLVANIA

Date:	2/17/2022
WHM DRAWING NUMBER:	WILLIAMS245B010-EL
Drawn By:	FTN
Figure Number:	E-11

REGIONAL ENERGY LATERAL

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Map Reduced From PEMA Aerial Imagery

- |  |                      |
|--|----------------------|
| ● Mile Post                              | ■ PSS Planting Area  |
| --- Proposed Regional Energy Lateral     | ■ PFO Planting Area  |
| — Existing Leidy Line                    | ■ Delineated Channel |
| □ Limits of Disturbance                  | ● PEM Wetland        |
| ■ Ephemeral Riparian Buffers             | ● PSS Wetland        |
| ■ Intermittent/Perennial Riparian Buffer | ● PFO Wetland        |
| ■ Riparian Buffer Planting Area          | ● POW Wetland        |

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consulting, LLC

366 Walker Drive, Suite 300  
State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-1**

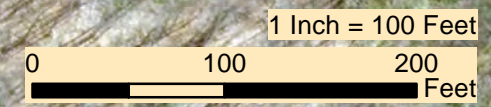
BUCK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-1

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland



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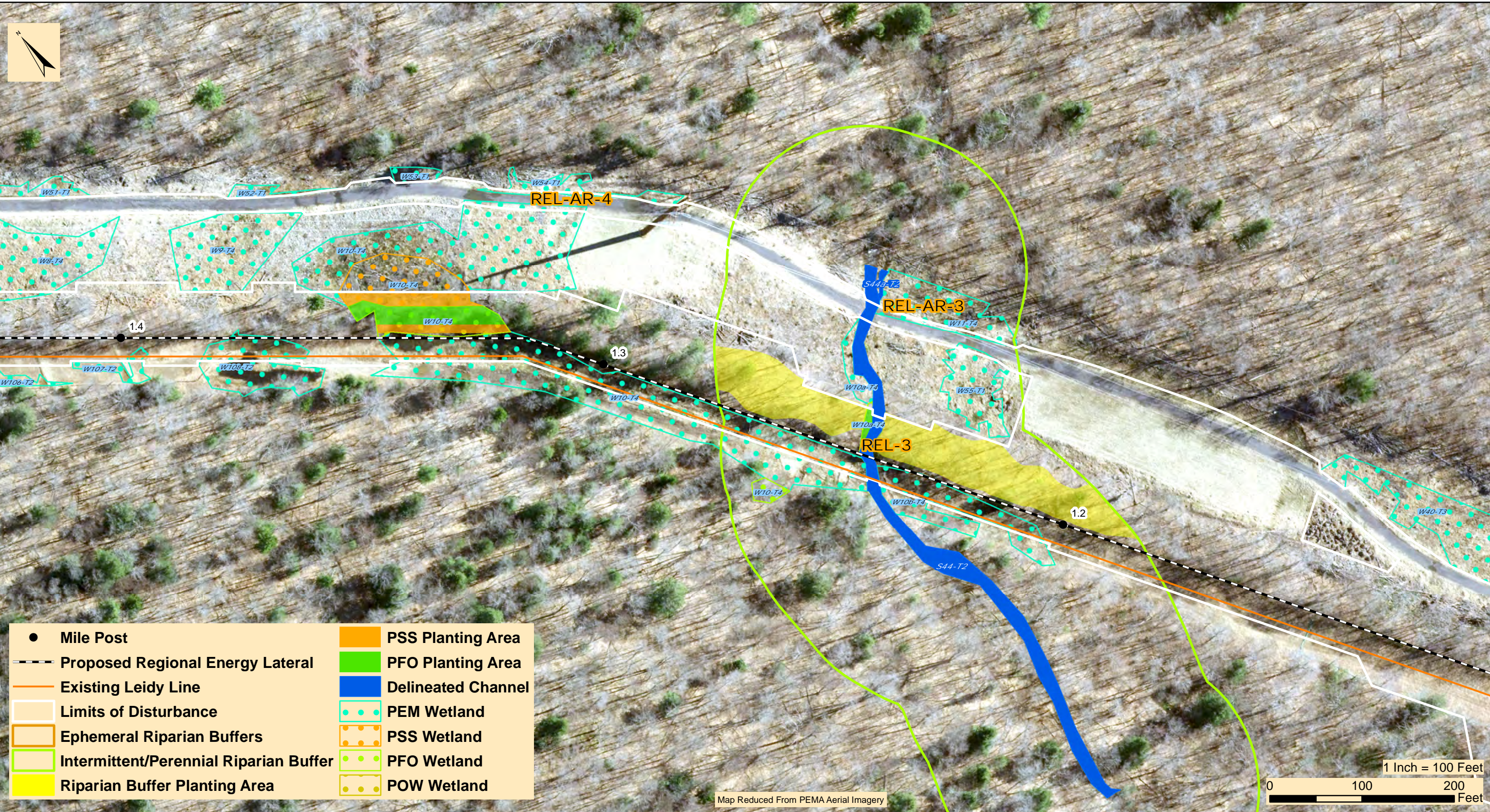
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-2**

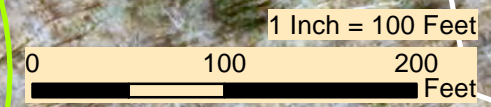
BUCK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
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Drawn By:	FTN
Figure Number:	R-2

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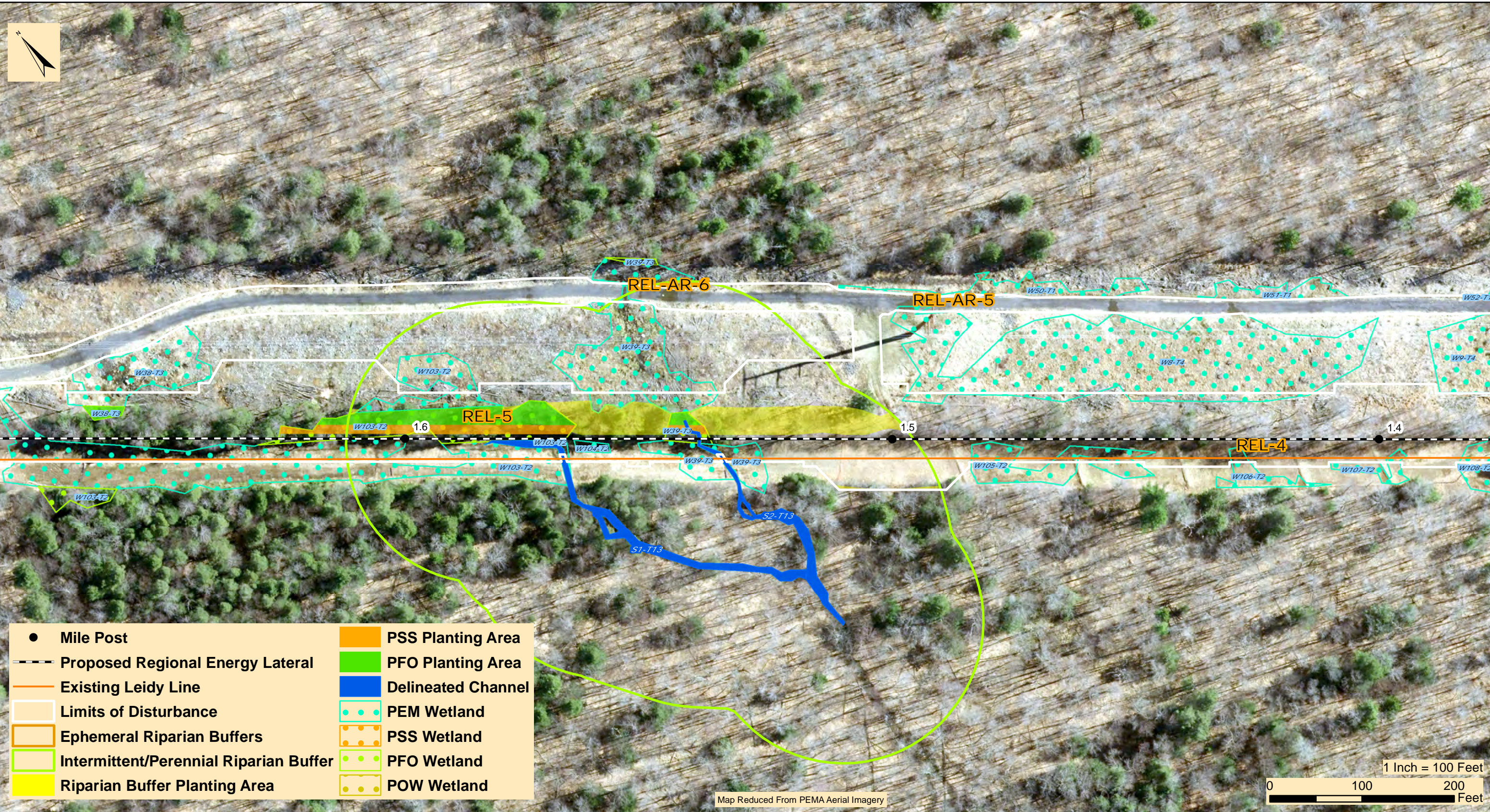
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-3**

BUCK & BEAR CREEK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

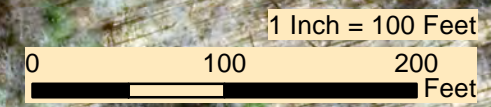
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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	● PEM Wetland
□ Ephemeral Riparian Buffers	● PSS Wetland
□ Intermittent/Perennial Riparian Buffer	● PFO Wetland
■ Riparian Buffer Planting Area	● POW Wetland

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consulting, LLC

366 Walker Drive, Suite 300  
State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-4 & REL-5**

BUCK & BEAR CREEK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

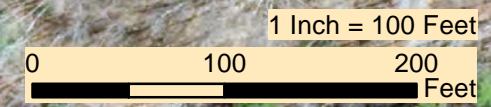
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Figure Number:	R-4

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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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WETLAND AND RIPARIAN REFORESTATION PLAN

RESOURCE CROSSING - REL-8 & REL-9

BEAR CREEK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

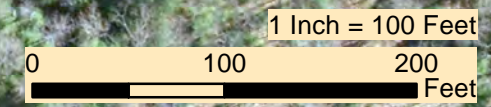
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Figure Number:	R-5

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	■ PEM Wetland
□ Ephemeral Riparian Buffers	■ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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State College, PA 16801  
Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-12 & REL-13**

BEAR CREEK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

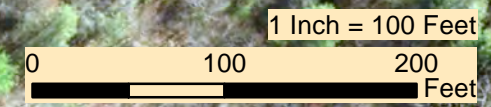
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Figure Number:	R-6

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland

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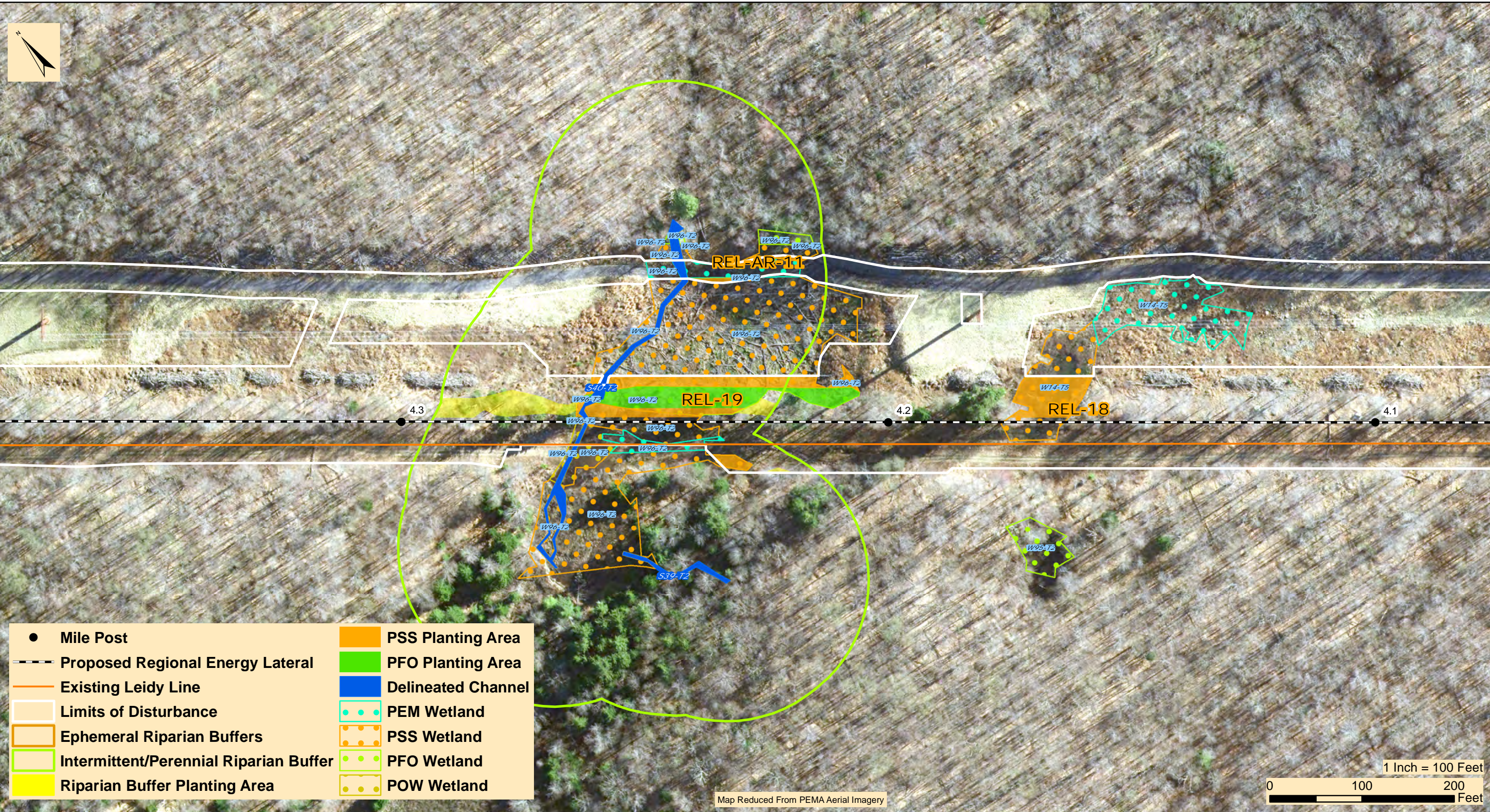
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**RESOURCE CROSSING - REL-15, REL-17, & REL-AR-9**

BEAR CREEK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

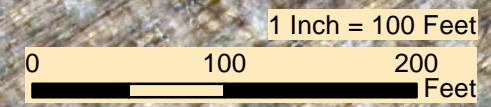
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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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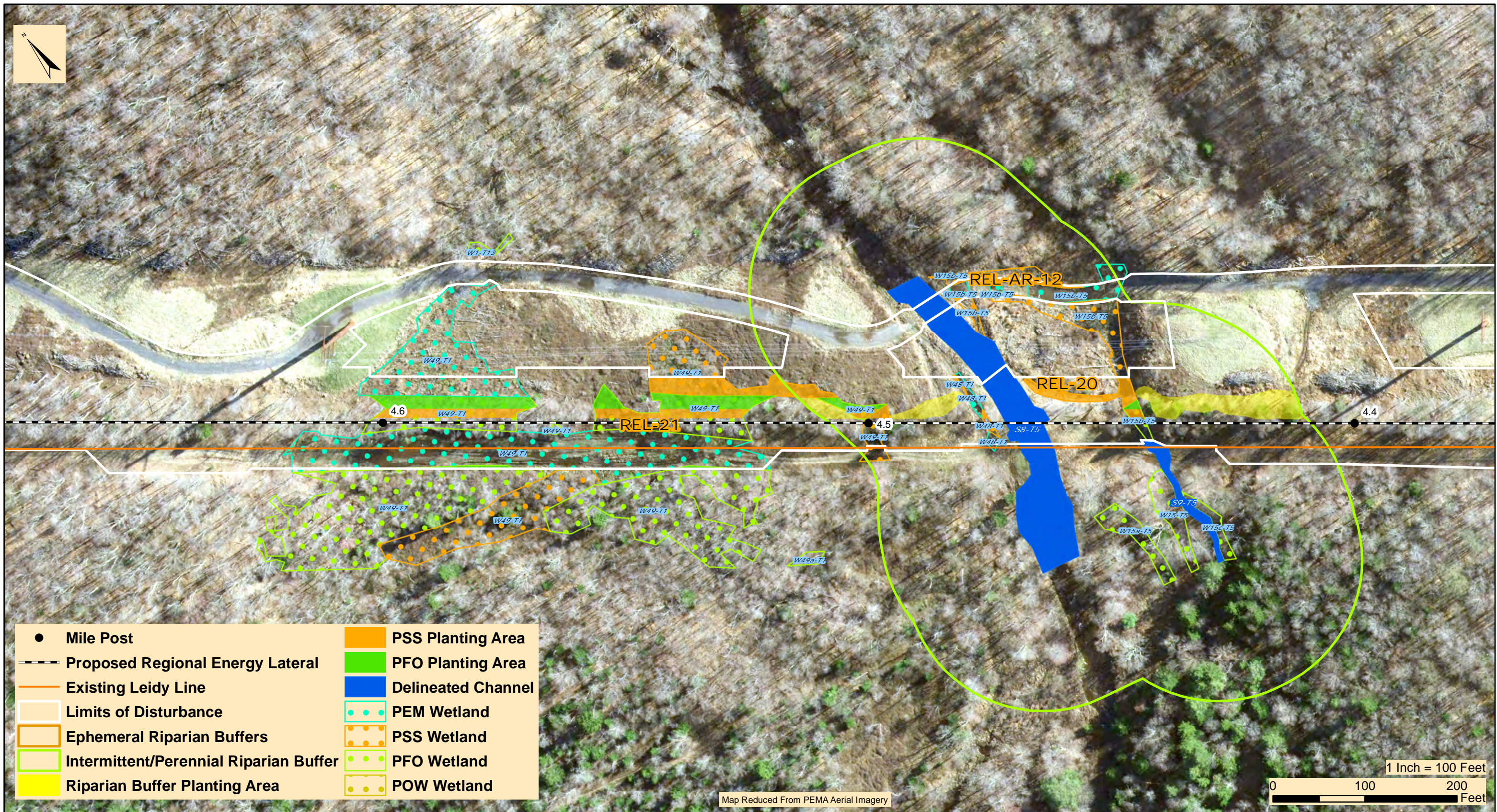
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State College, PA 16801  
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**RESOURCE CROSSING - REL-18, REL-19, & REL-AR-11**

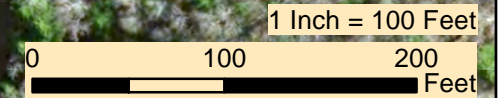
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WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-8



- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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RESOURCE CROSSING - REL-20, REL-21, & REL-AR-12

BEAR CREEK TOWNSHIP

LUZERNE COUNTY

PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-9

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	● PEM Wetland
■ Ephemeral Riparian Buffers	● PSS Wetland
■ Intermittent/Perennial Riparian Buffer	● PFO Wetland
■ Riparian Buffer Planting Area	● POW Wetland

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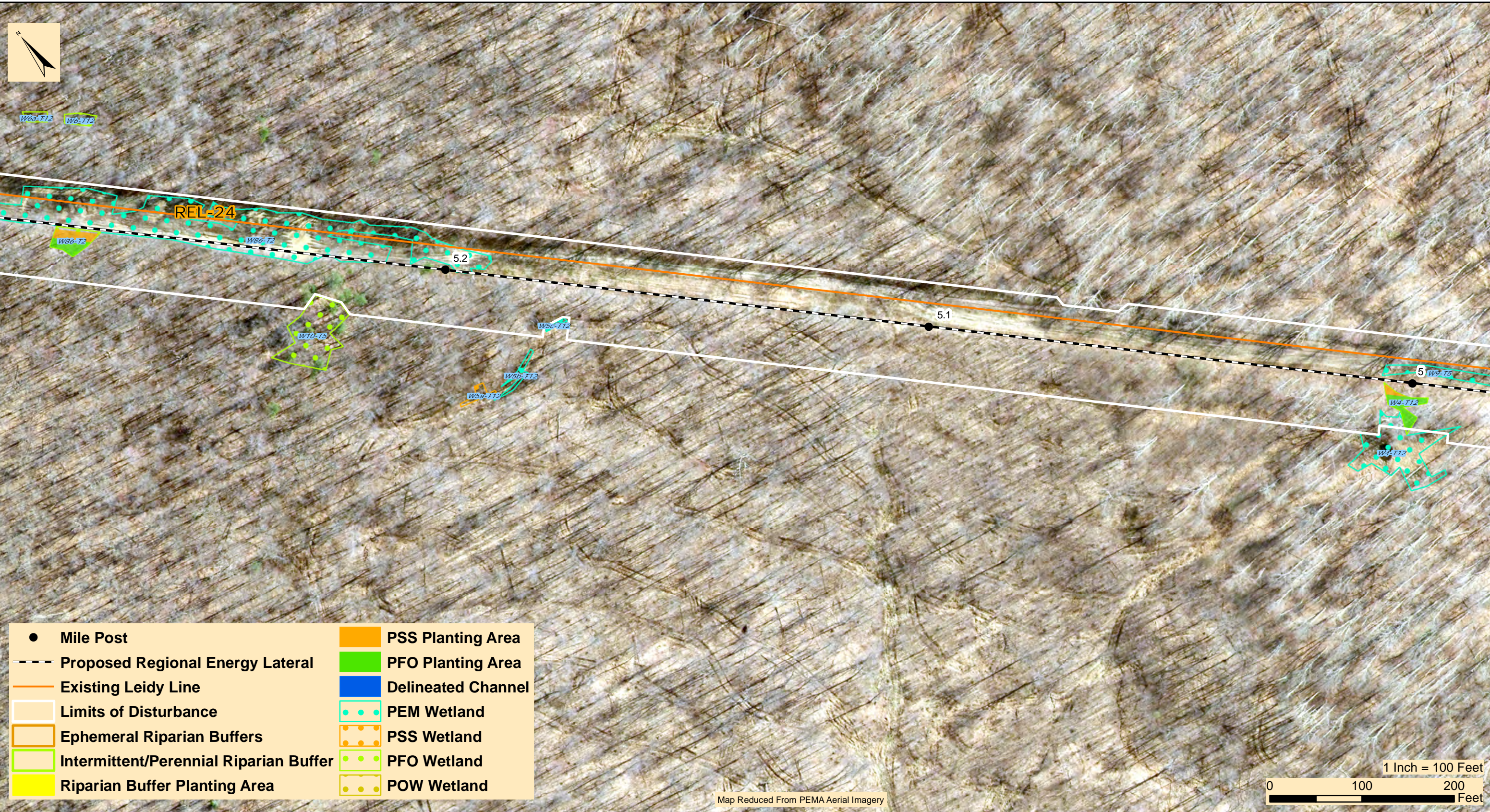
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**RESOURCE CROSSING - REL-22, REL-23, & REL-AR-13**

BEAR CREEK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

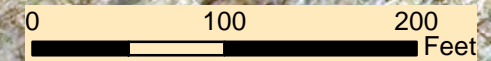
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1 Inch = 100 Feet



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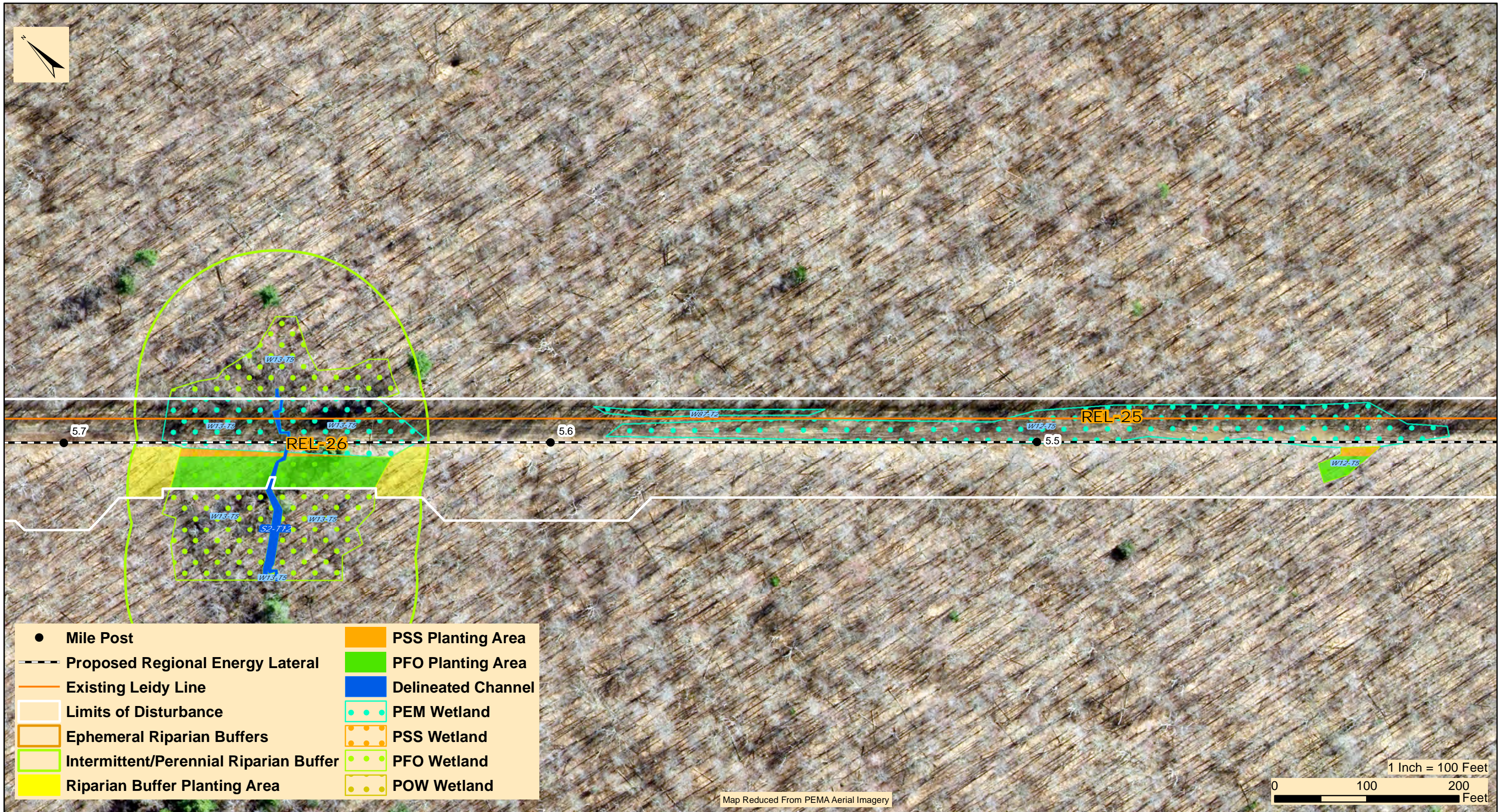
**RESOURCE CROSSING - REL-23 & REL-24**

BEAR CREEK TOWNSHIP

LUZERNE COUNTY

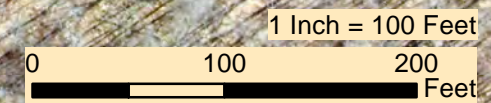
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Drawn By:	FTN
Figure Number:	R-11



- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

Map Reduced From PEMA Aerial Imagery



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 State College, PA 16801  
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-25 & REL-26**

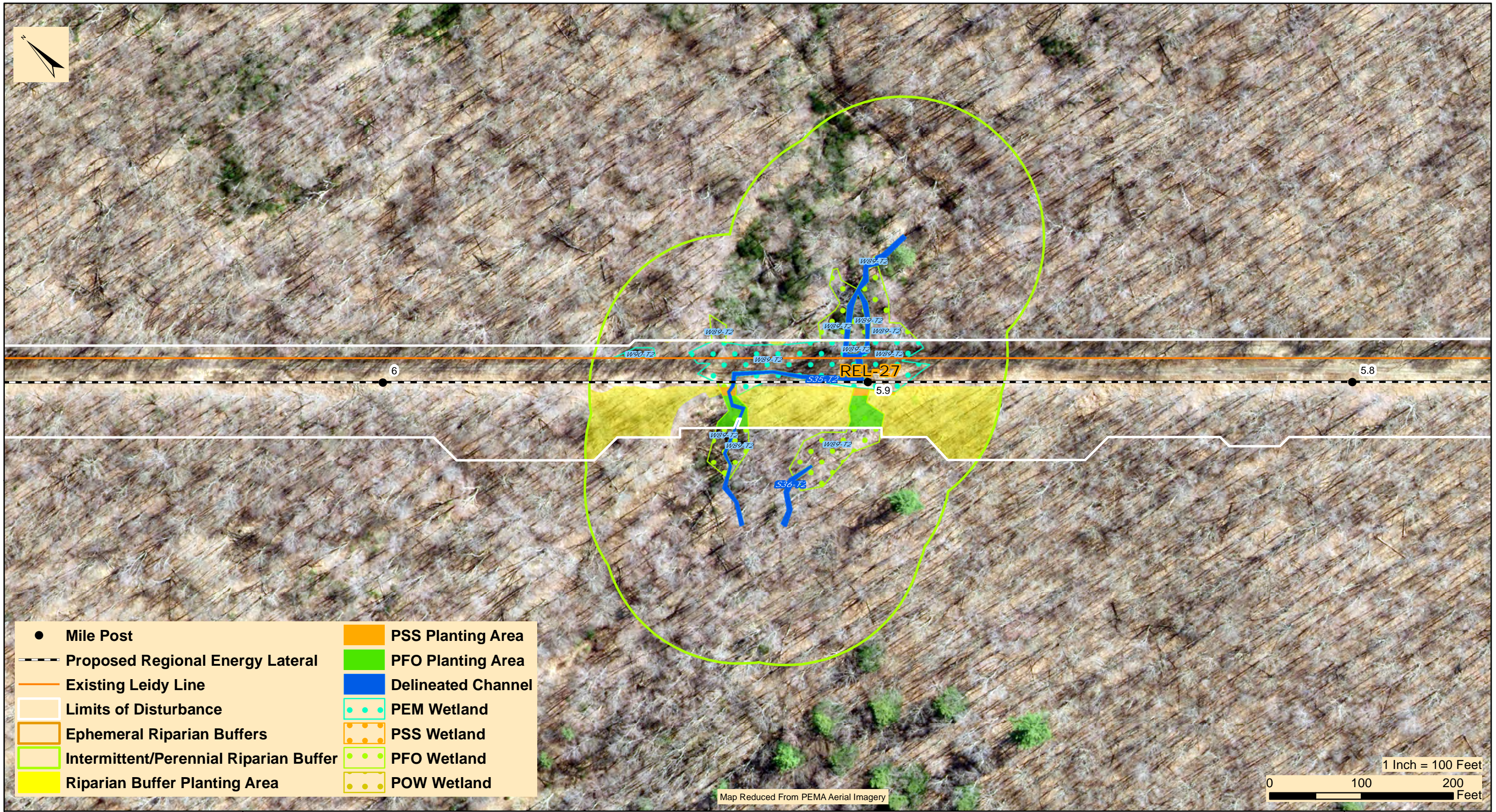
BEAR CREEK TOWNSHIP

LUZERNE COUNTY

PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
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Figure Number:	R-12

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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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RESOURCE CROSSING - REL-27

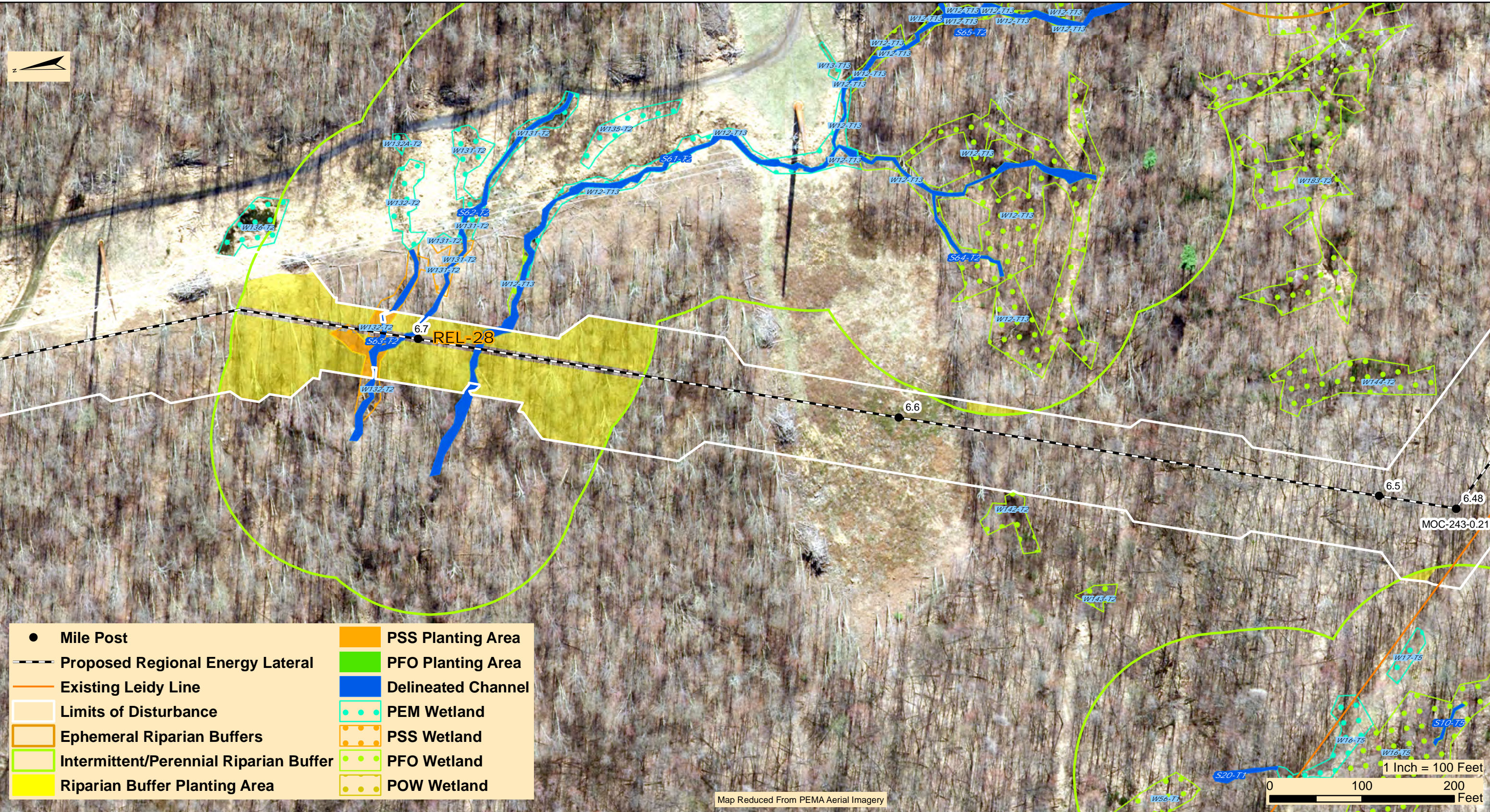
BEAR CREEK TOWNSHIP

LUZERNE COUNTY

PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-13

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland

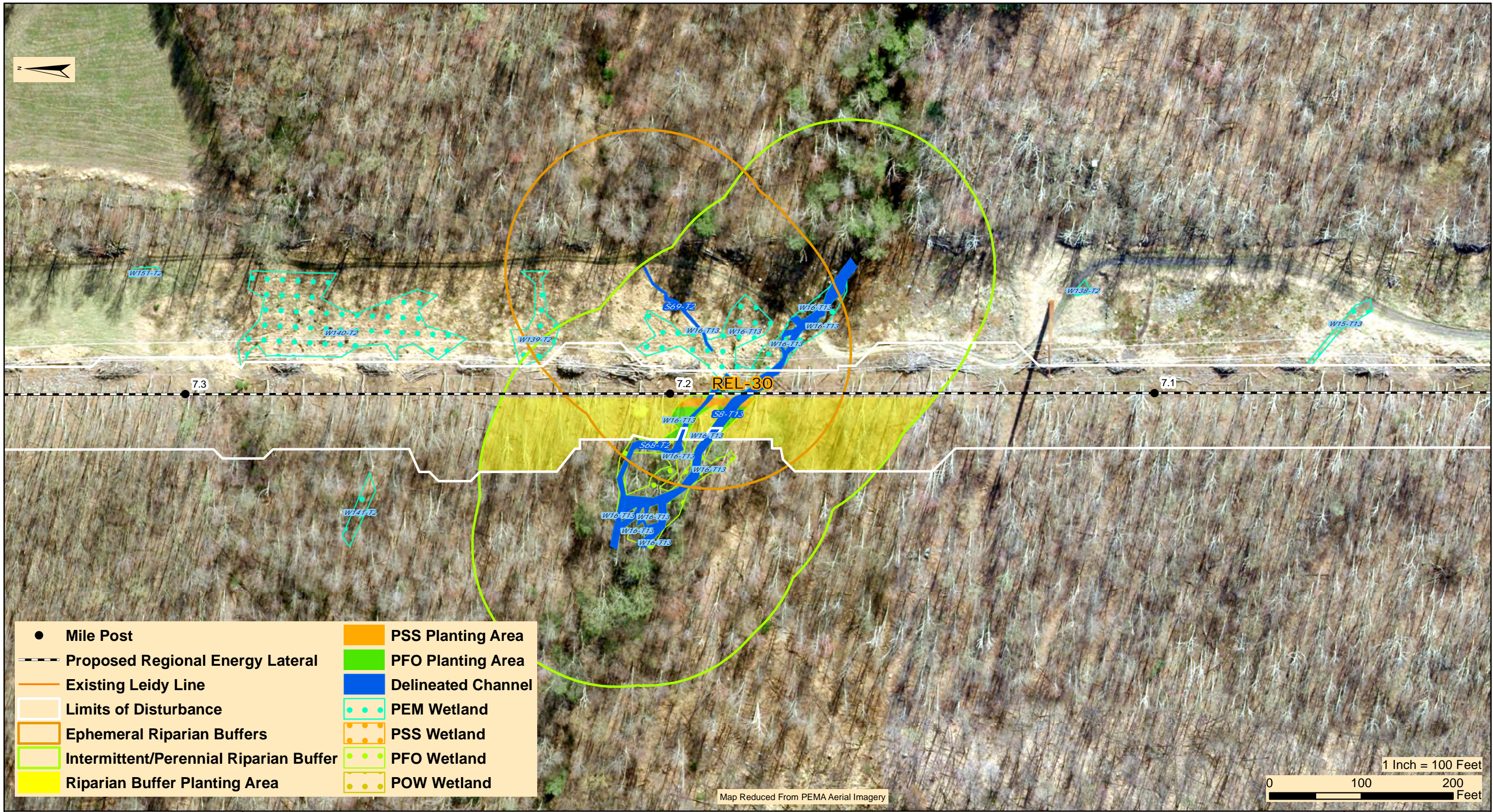
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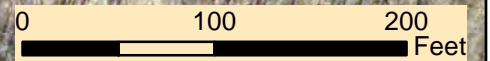
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**WETLAND AND RIPARIAN REFORESTATION PLAN**  
 RESOURCE CROSSING - REL-28  
 BEAR CREEK TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-14



Map Reduced From PEMA Aerial Imagery

1 Inch = 100 Feet



- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland



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 State College, PA 16801  
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - REL-30

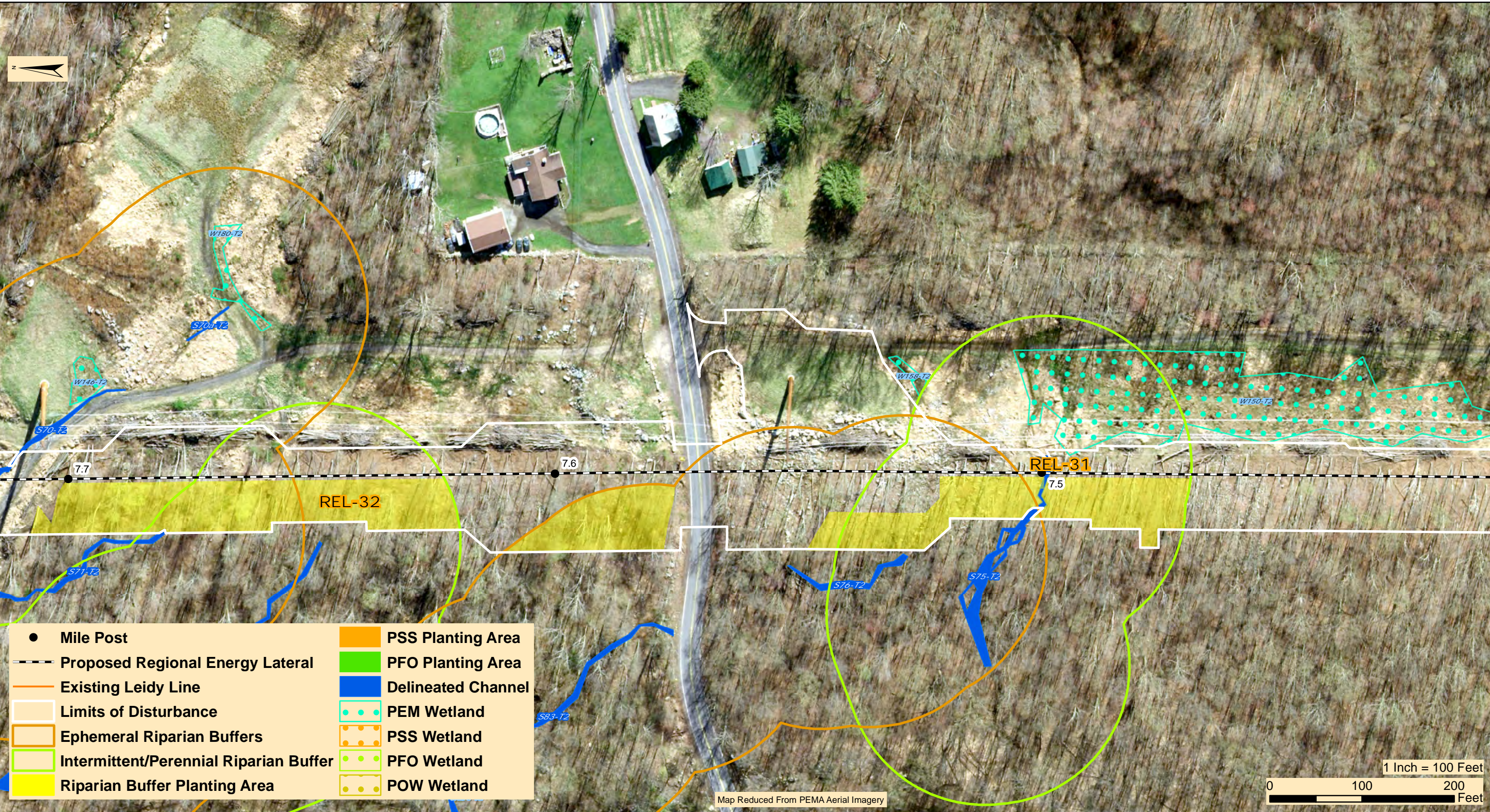
BEAR CREEK TOWNSHIP

LUZERNE COUNTY

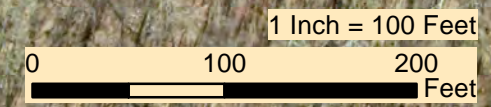
PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-15

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	■ PEM Wetland
□ Ephemeral Riparian Buffers	■ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland



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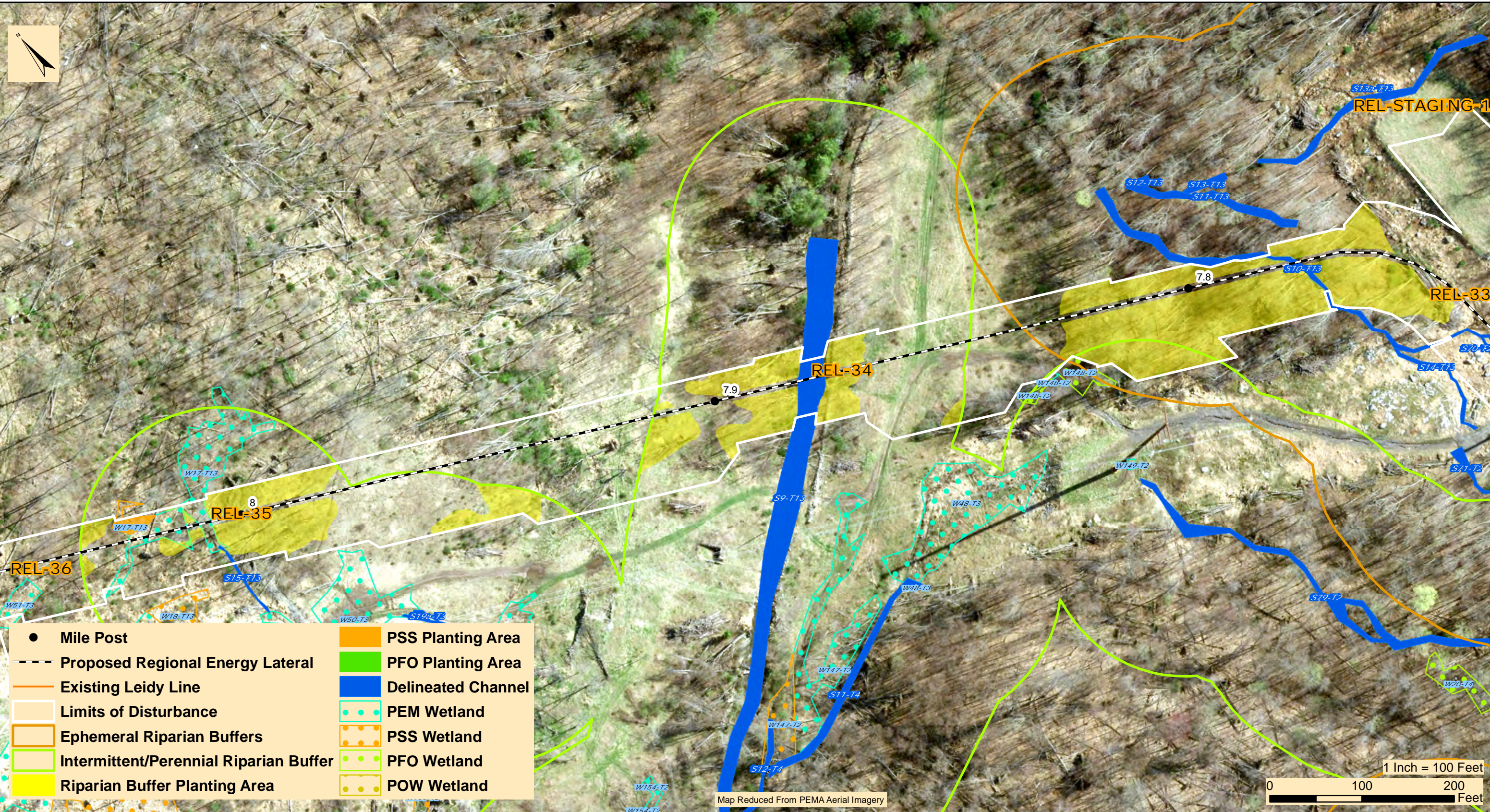
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-31, REL-32, & REL-33**

BEAR CREEK & PLAINS TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	3/1/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-16

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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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State College, PA 16801  
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WETLAND AND RIPARIAN REFORESTATION PLAN

RESOURCE CROSSING - REL-33, REL-34, & REL-35

PLAINS TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-17



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RESOURCE CROSSING - REL-42, REL-43, REL-44, & REL-45

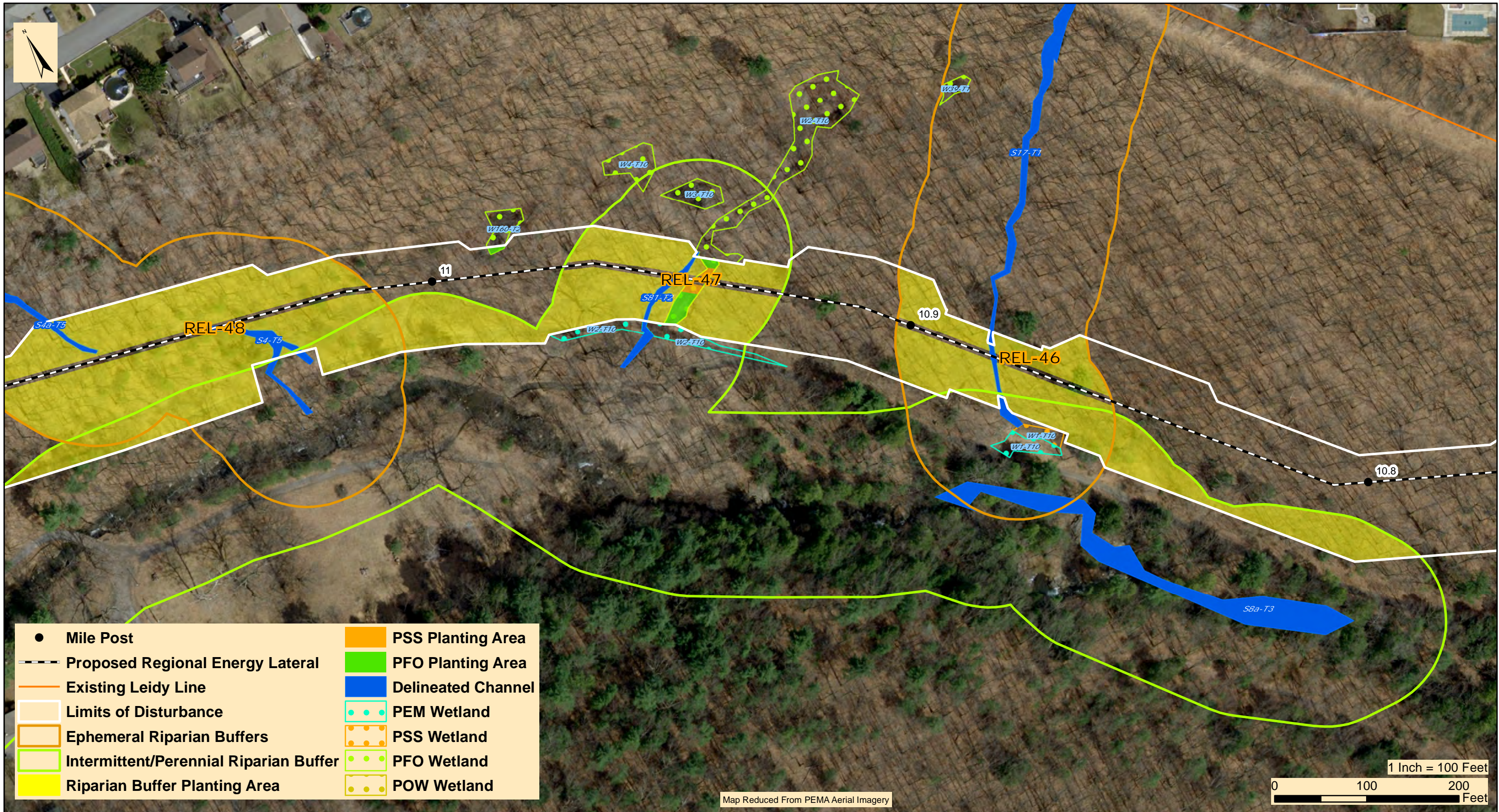
JENKINS TOWNSHIP & LAFLIN BOROUGH

LUZERNE COUNTY

PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-19

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - REL-46, REL-47, & REL-48

LAFLIN BOROUGH

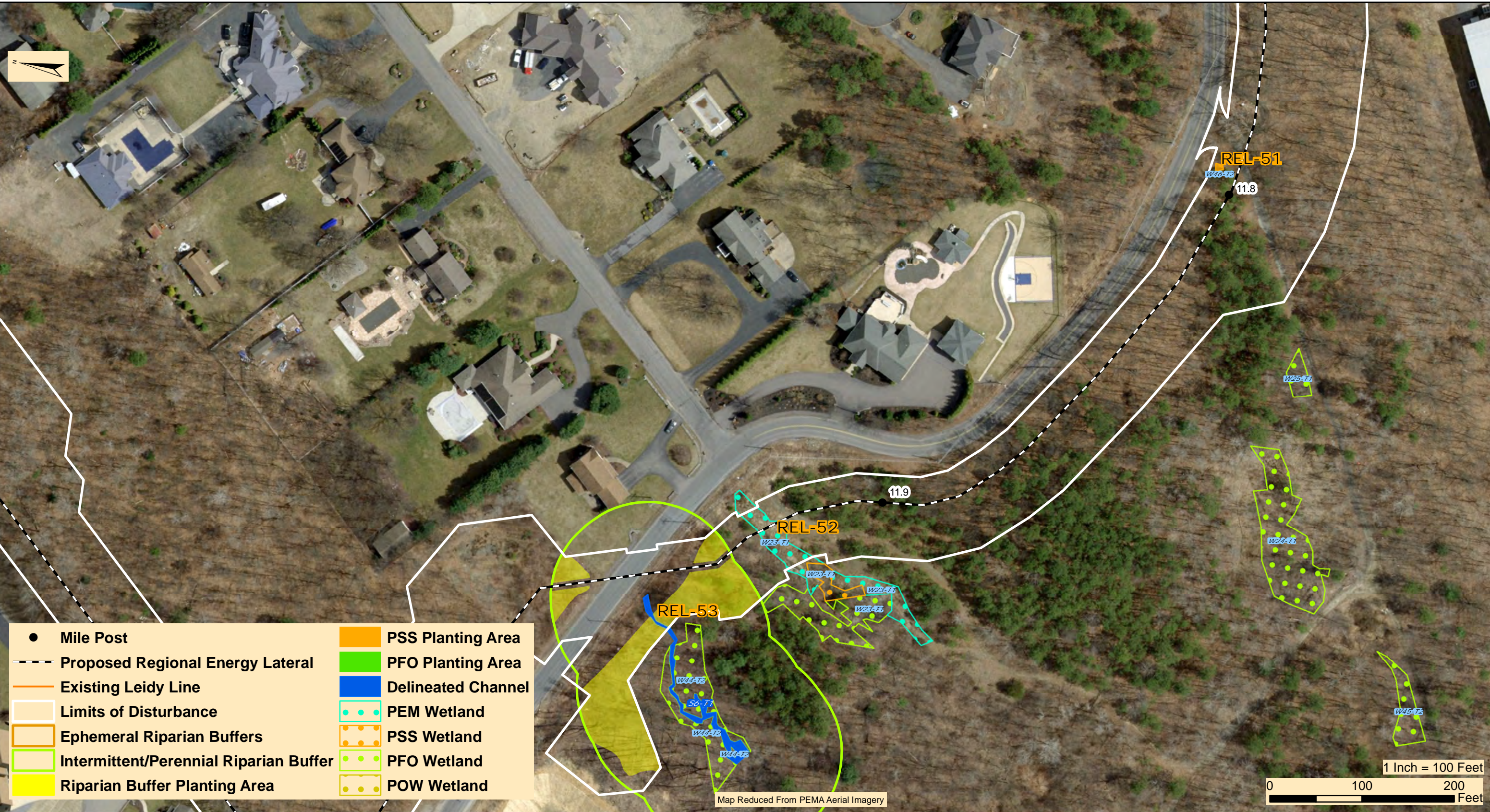
LUZERNE COUNTY

PENNSYLVANIA

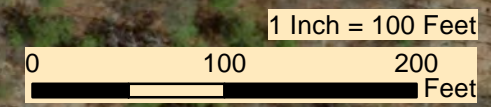
Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-20



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- |  |                      |
|--|----------------------|
| ● Mile Post                              | ■ PSS Planting Area  |
| --- Proposed Regional Energy Lateral     | ■ PFO Planting Area  |
| — Existing Leidy Line                    | ■ Delineated Channel |
| □ Limits of Disturbance                  | □ PEM Wetland        |
| □ Ephemeral Riparian Buffers             | □ PSS Wetland        |
| □ Intermittent/Perennial Riparian Buffer | □ PFO Wetland        |
| ■ Riparian Buffer Planting Area          | □ POW Wetland        |



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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-51, REL-52 & REL-53**

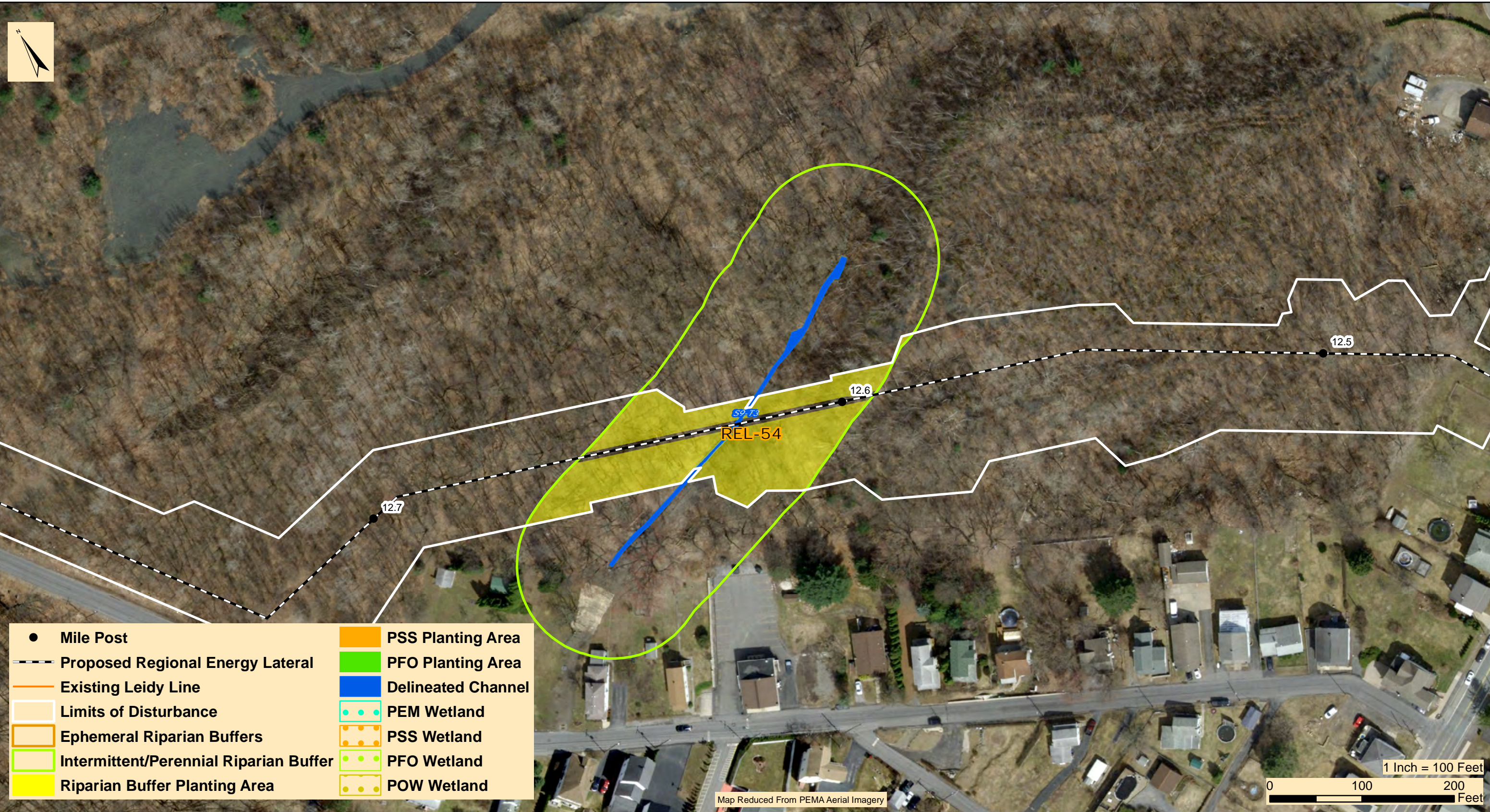
JENKINS TOWNSHIP

LUZERNE COUNTY

PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-22

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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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 State College, PA 16801  
 Tele: 814.689.1650 Fax: 814.689.1557

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

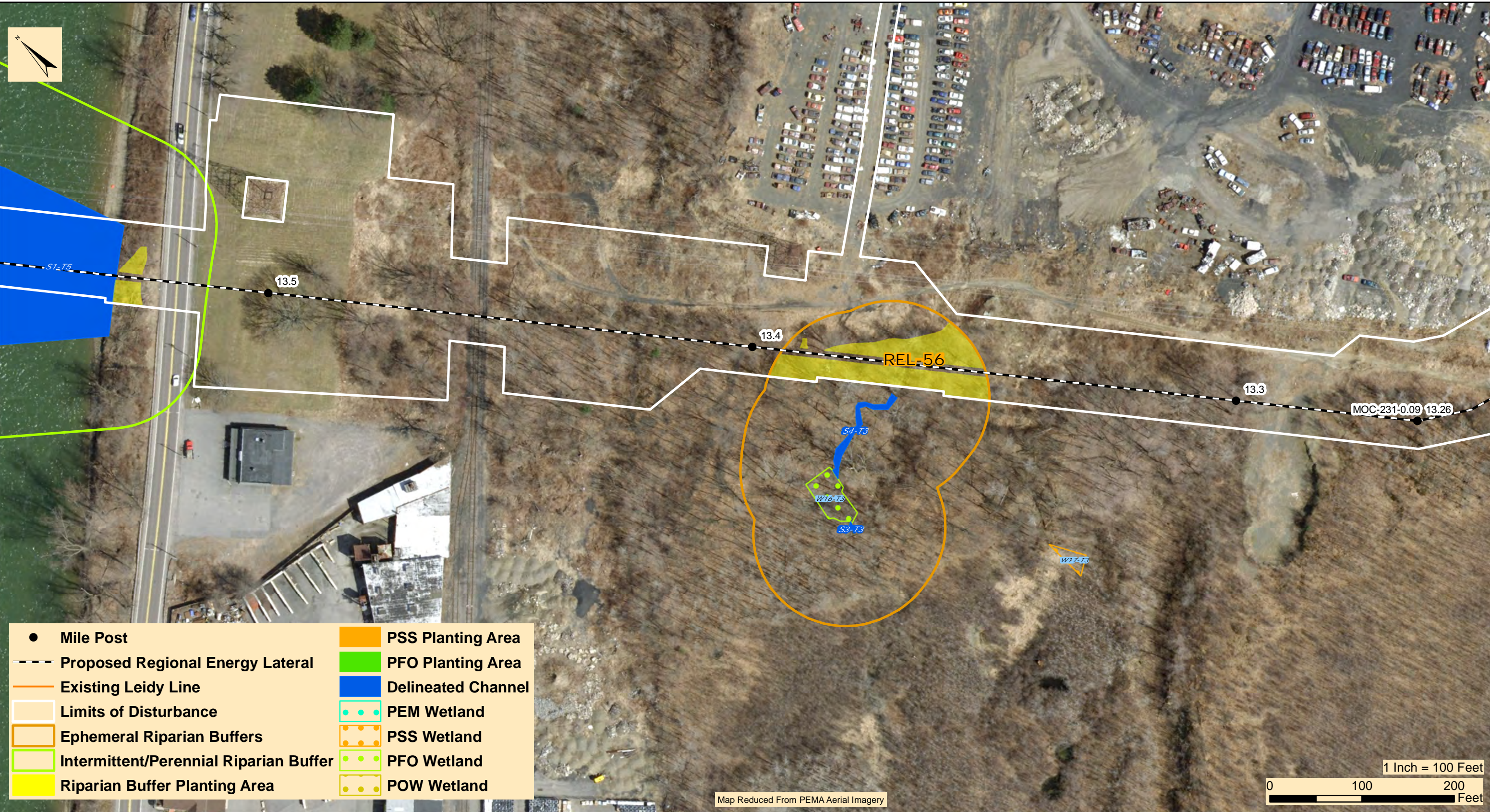
**RESOURCE CROSSING - REL-54**

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Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-23



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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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 State College, PA 16801  
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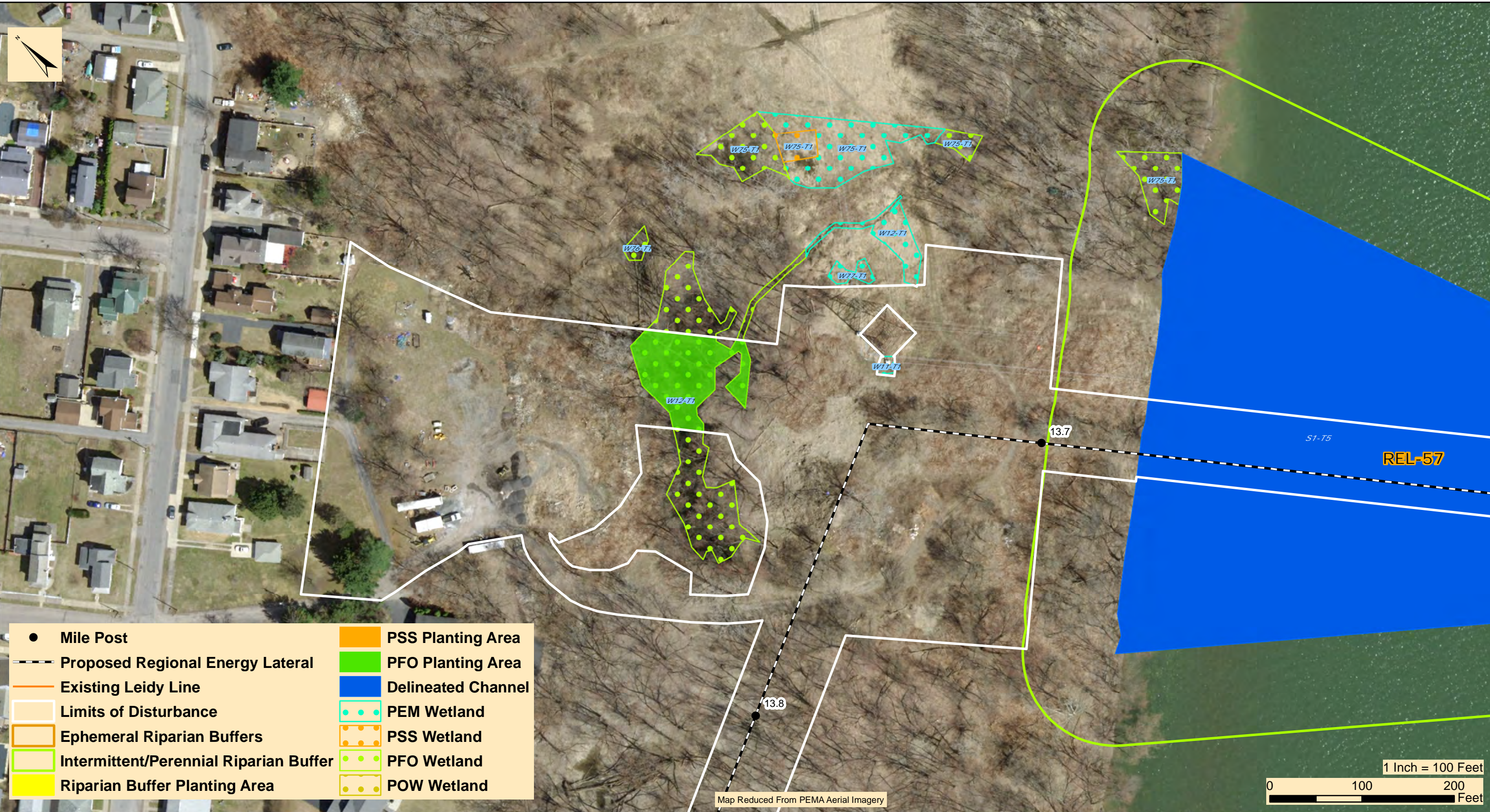
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 WETLAND AND RIPARIAN REFORESTATION PLAN

**RESOURCE CROSSING - REL-56 & REL-57**

JENKINS TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-25

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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

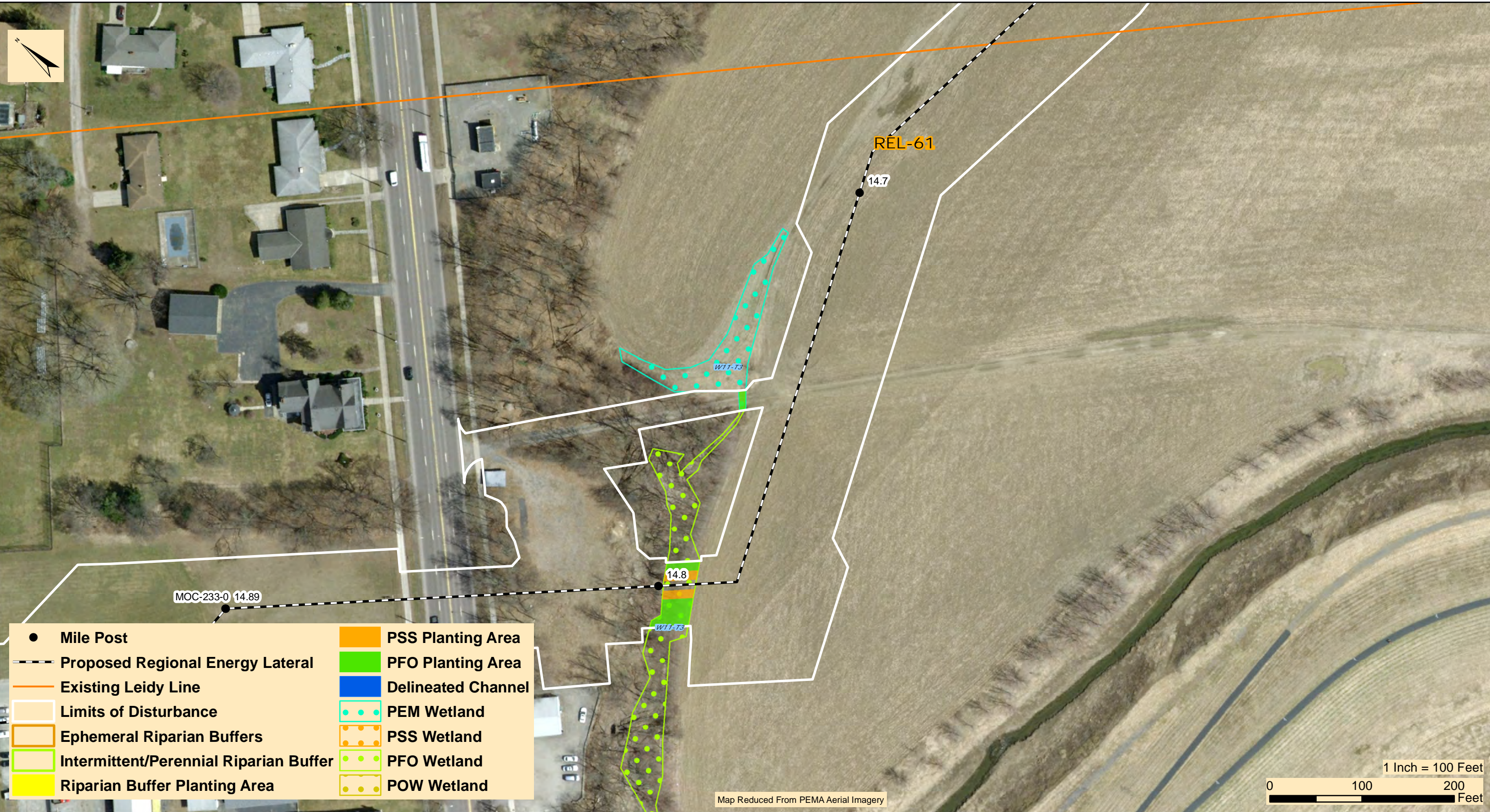
**RESOURCE CROSSING - REL-57**

WYOMING BOROUGH      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-26



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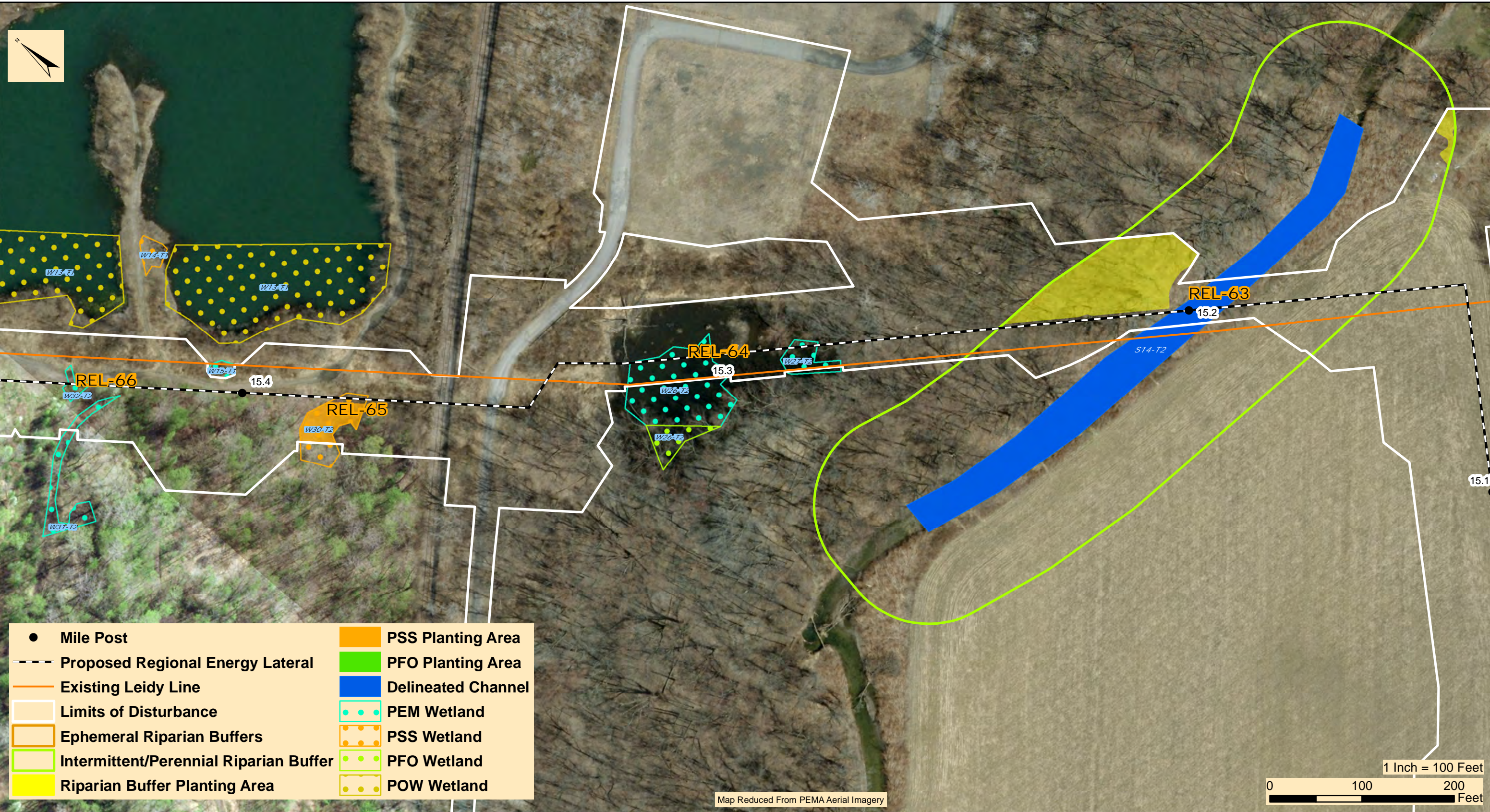
**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-61**

WYOMING BOROUGH                      LUZERNE COUNTY                      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-28

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	■ PEM Wetland
□ Ephemeral Riparian Buffers	■ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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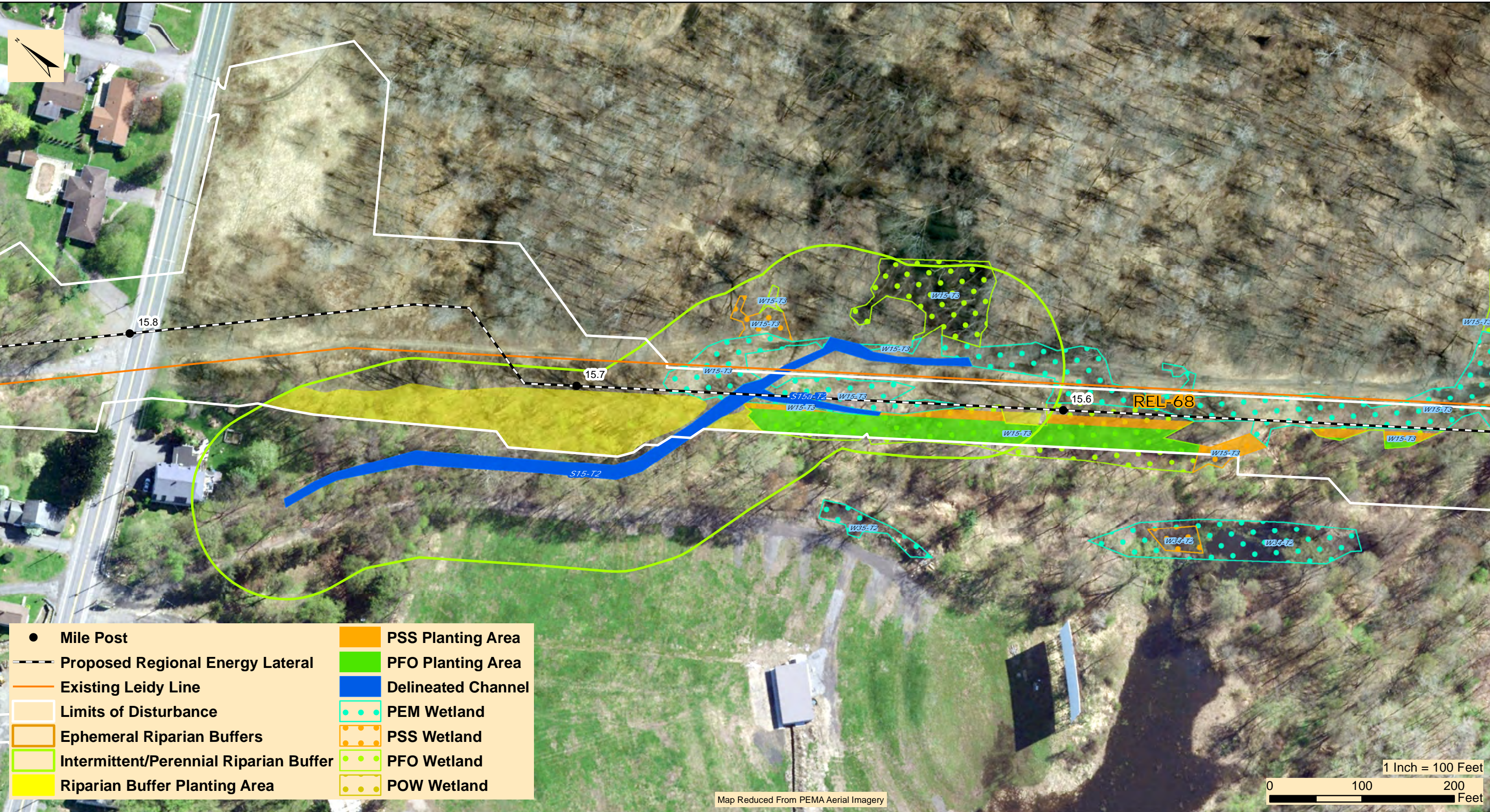
**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - REL-63 & REL-65

WYOMING & WEST WYOMING BOROUGH      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-29

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	● PEM Wetland
■ Ephemeral Riparian Buffers	● PSS Wetland
■ Intermittent/Perennial Riparian Buffer	● PFO Wetland
■ Riparian Buffer Planting Area	● POW Wetland

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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-68**

WEST WYOMING BOROUGH      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-30

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Map Reduced From PEMA Aerial Imagery

● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland

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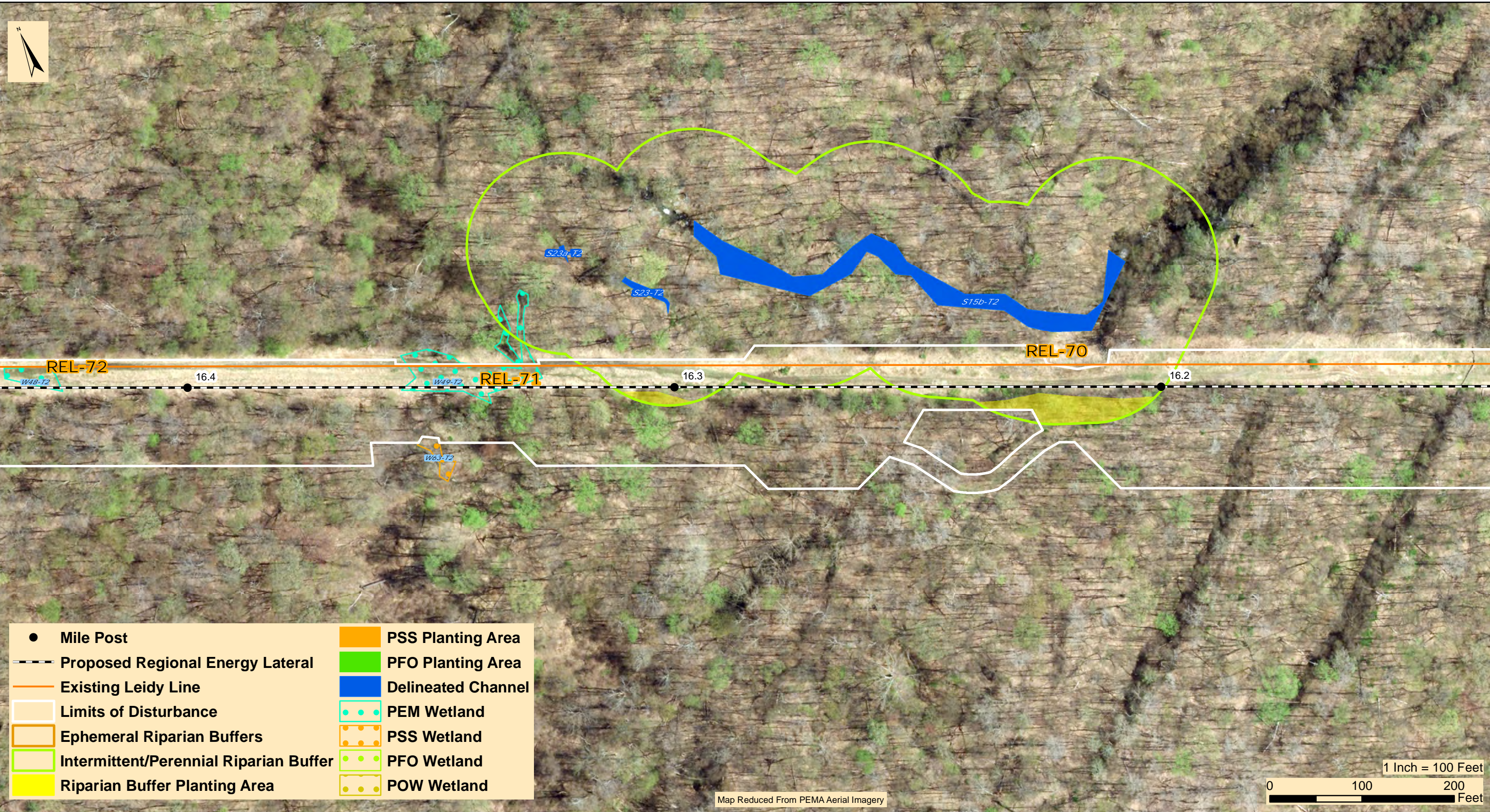
**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - REL-69

WEST WYOMING BOROUGH      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-31

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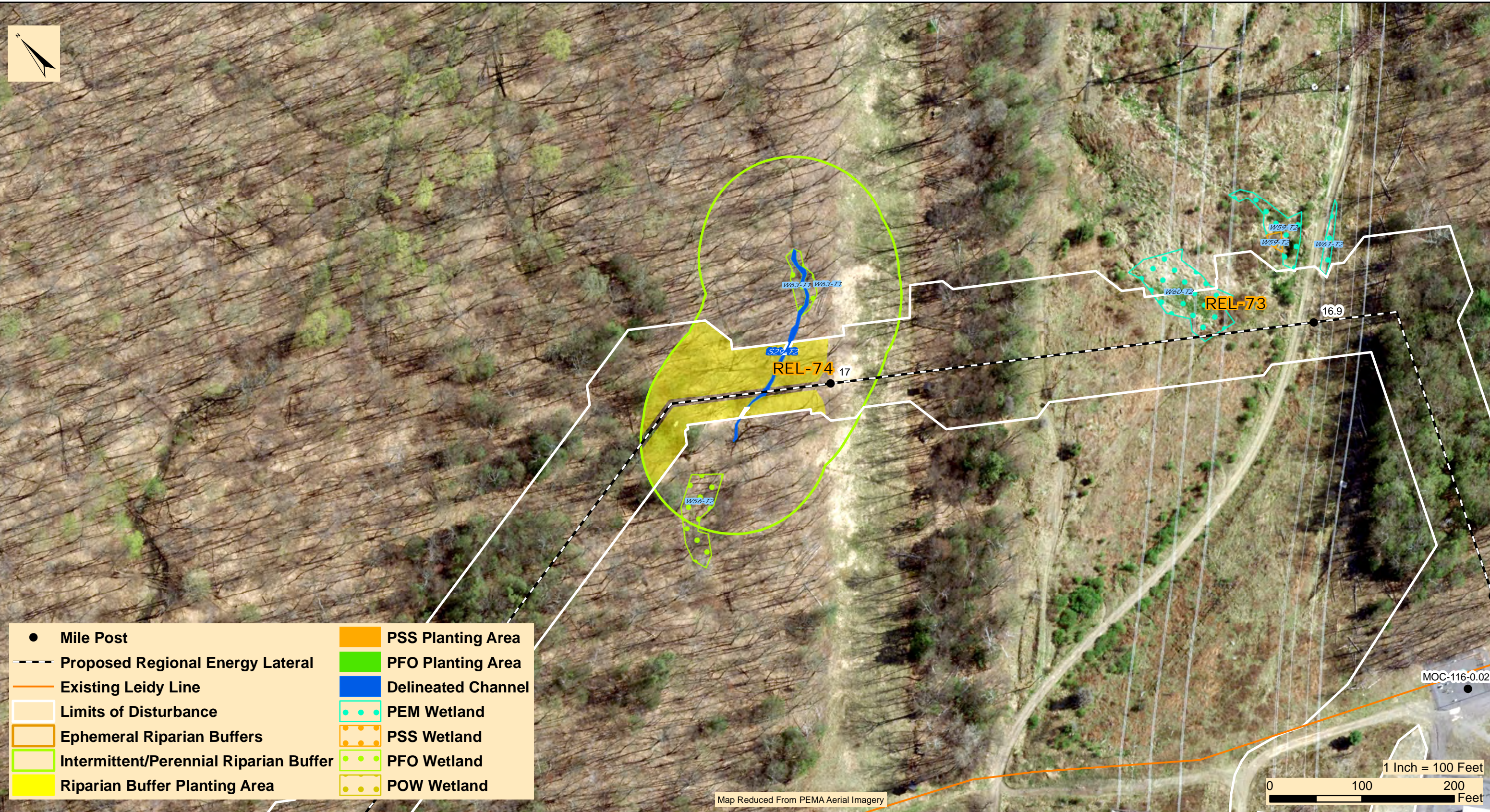
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL70 & REL-71**

WEST WYOMING BOROUGH      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-32

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

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State College, PA 16801  
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - REL-74

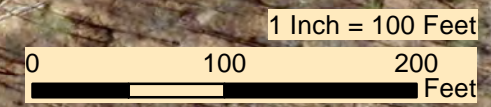
WEST WYOMING BOROUGH      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-33

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland



Map Reduced From PEMA Aerial Imagery

366 Walker Drive, Suite 300  
 State College, PA 16801  
 Tele: 814.689.1650 Fax: 814.689.1557

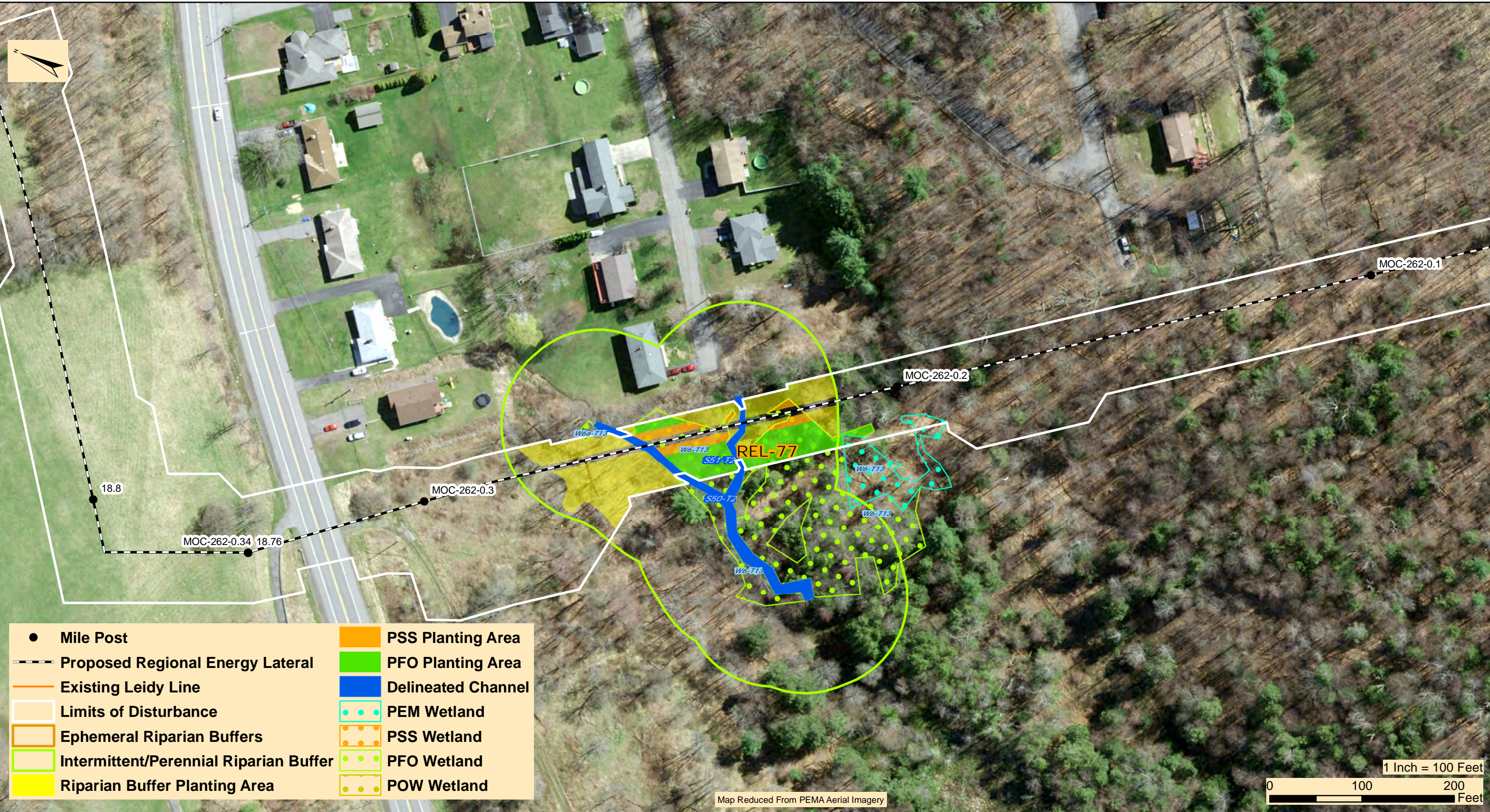
**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
**REGIONAL ENERGY ACCESS EXPANSION PROJECT - REGIONAL ENERGY LATERAL**  
**WETLAND AND RIPARIAN REFORESTATION PLAN**

RESOURCE CROSSING - REL-75, REL-76, & REL-AR-21

KINGSTON TOWNSHIP & WEST WYOMING BOROUGH      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-34

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland

Map Reduced From PEMA Aerial Imagery

**WHM**  
consulting, LLC

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Tele: 814.689.1650 Fax: 814.689.1557

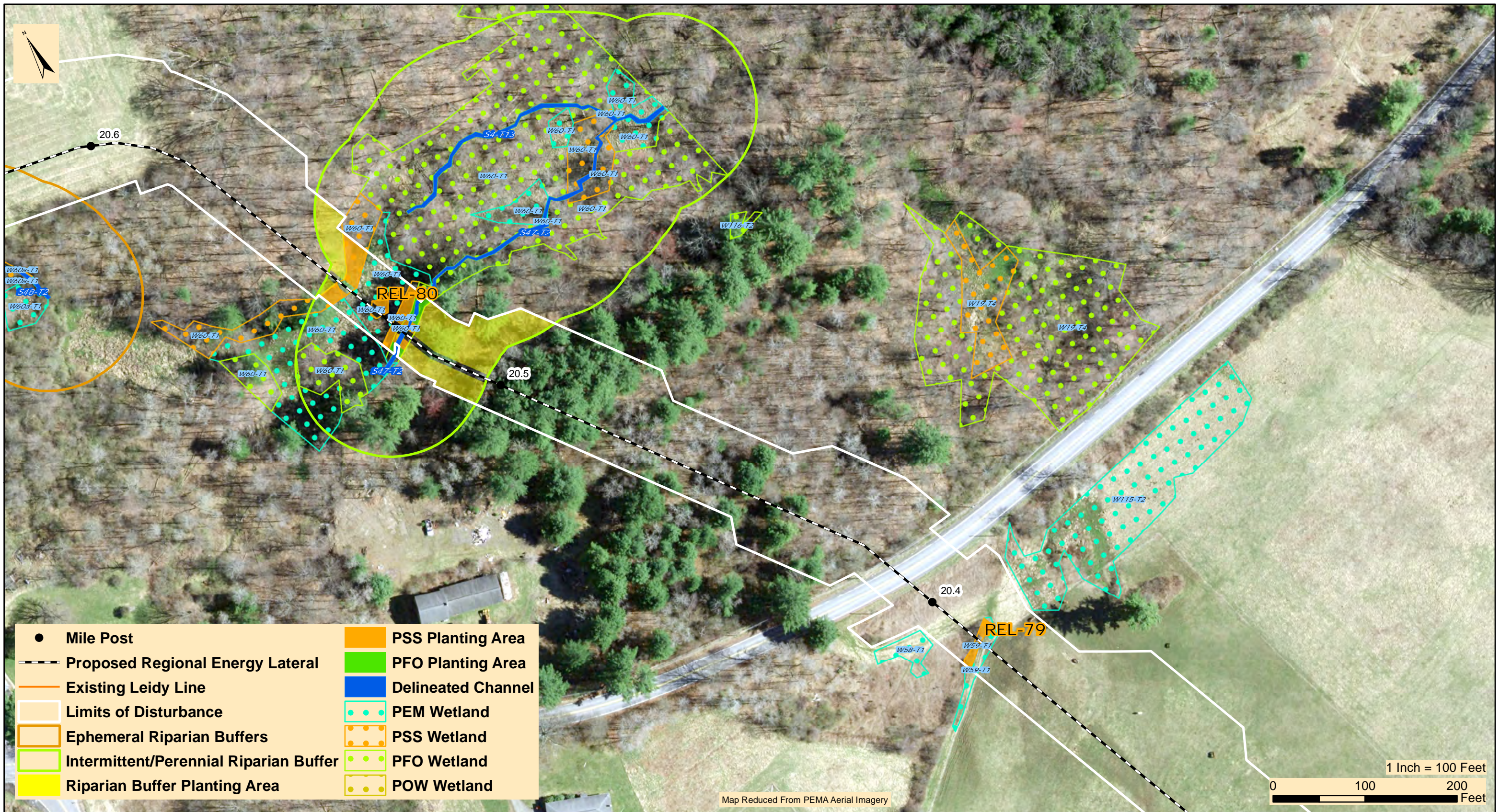
**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
**REGIONAL ENERGY ACCESS EXPANSION PROJECT - REGIONAL ENERGY LATERAL**  
**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-77**

KINGSTON TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-35

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- Mile Post
- Proposed Regional Energy Lateral
- Existing Leidy Line
- Limits of Disturbance
- Ephemeral Riparian Buffers
- Intermittent/Perennial Riparian Buffer
- Riparian Buffer Planting Area
- PSS Planting Area
- PFO Planting Area
- Delineated Channel
- PEM Wetland
- PSS Wetland
- PFO Wetland
- POW Wetland

Map Reduced From PEMA Aerial Imagery

1 Inch = 100 Feet

0 100 200 Feet



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**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
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**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-79 & REL-80**

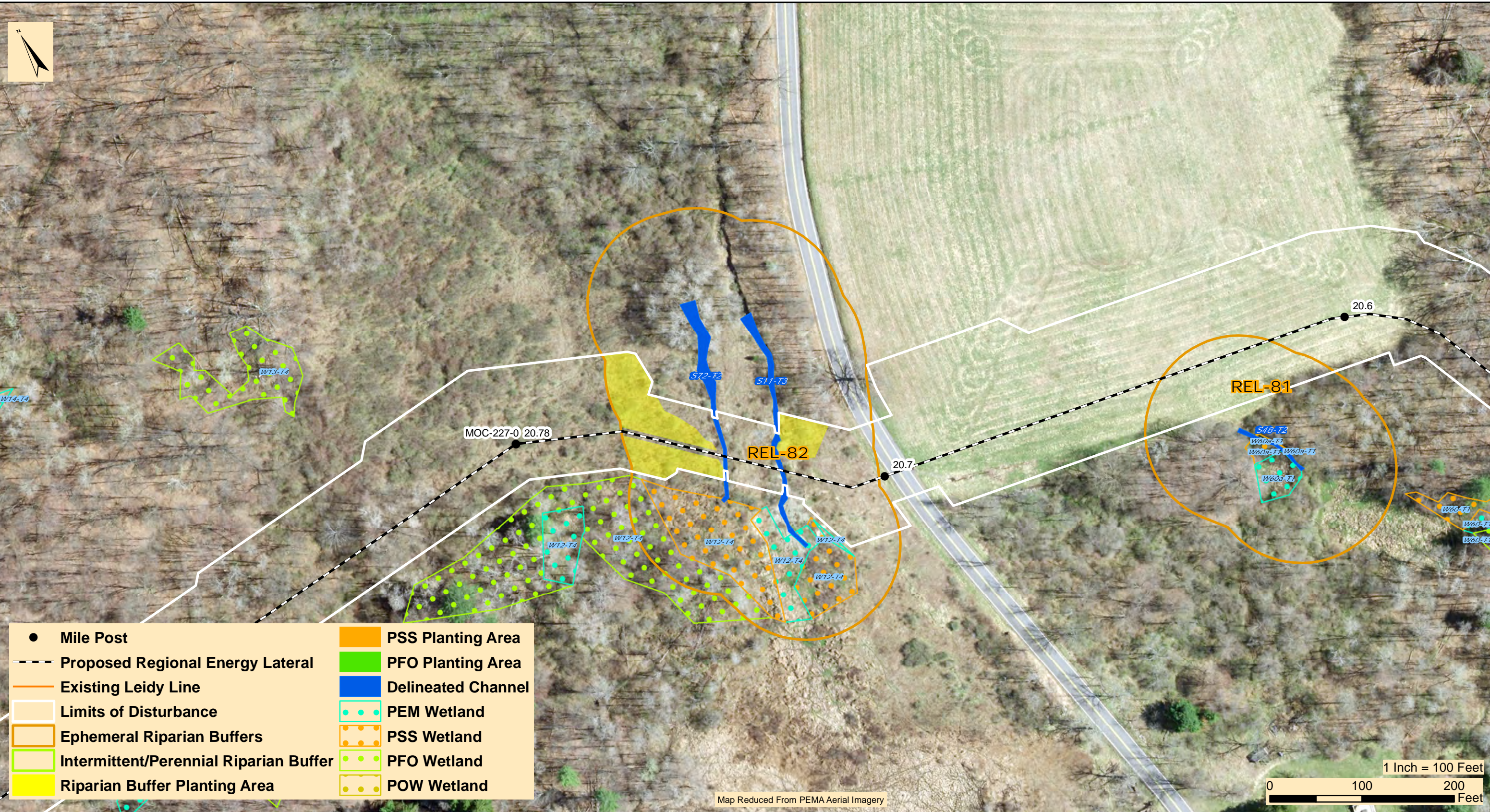
KINGSTON TOWNSHIP

LUZERNE COUNTY

PENNSYLVANIA

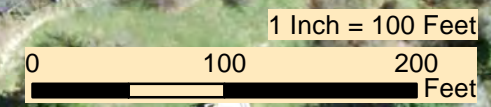
Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-36

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland

Map Reduced From PEMA Aerial Imagery



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**REGIONAL ENERGY ACCESS EXPANSION PROJECT - REGIONAL ENERGY LATERAL**  
**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-82**

KINGSTON TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	2/28/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-37

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	□ PEM Wetland
□ Ephemeral Riparian Buffers	□ PSS Wetland
□ Intermittent/Perennial Riparian Buffer	□ PFO Wetland
■ Riparian Buffer Planting Area	□ POW Wetland

Map Reduced From PEMA Aerial Imagery

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**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
**REGIONAL ENERGY ACCESS EXPANSION PROJECT - REGIONAL ENERGY LATERAL**  
**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-83**

DALLAS TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	3/1/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-38

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● Mile Post	■ PSS Planting Area
--- Proposed Regional Energy Lateral	■ PFO Planting Area
— Existing Leidy Line	■ Delineated Channel
□ Limits of Disturbance	■ PEM Wetland
■ Ephemeral Riparian Buffers	■ PSS Wetland
■ Intermittent/Perennial Riparian Buffer	■ PFO Wetland
■ Riparian Buffer Planting Area	■ POW Wetland

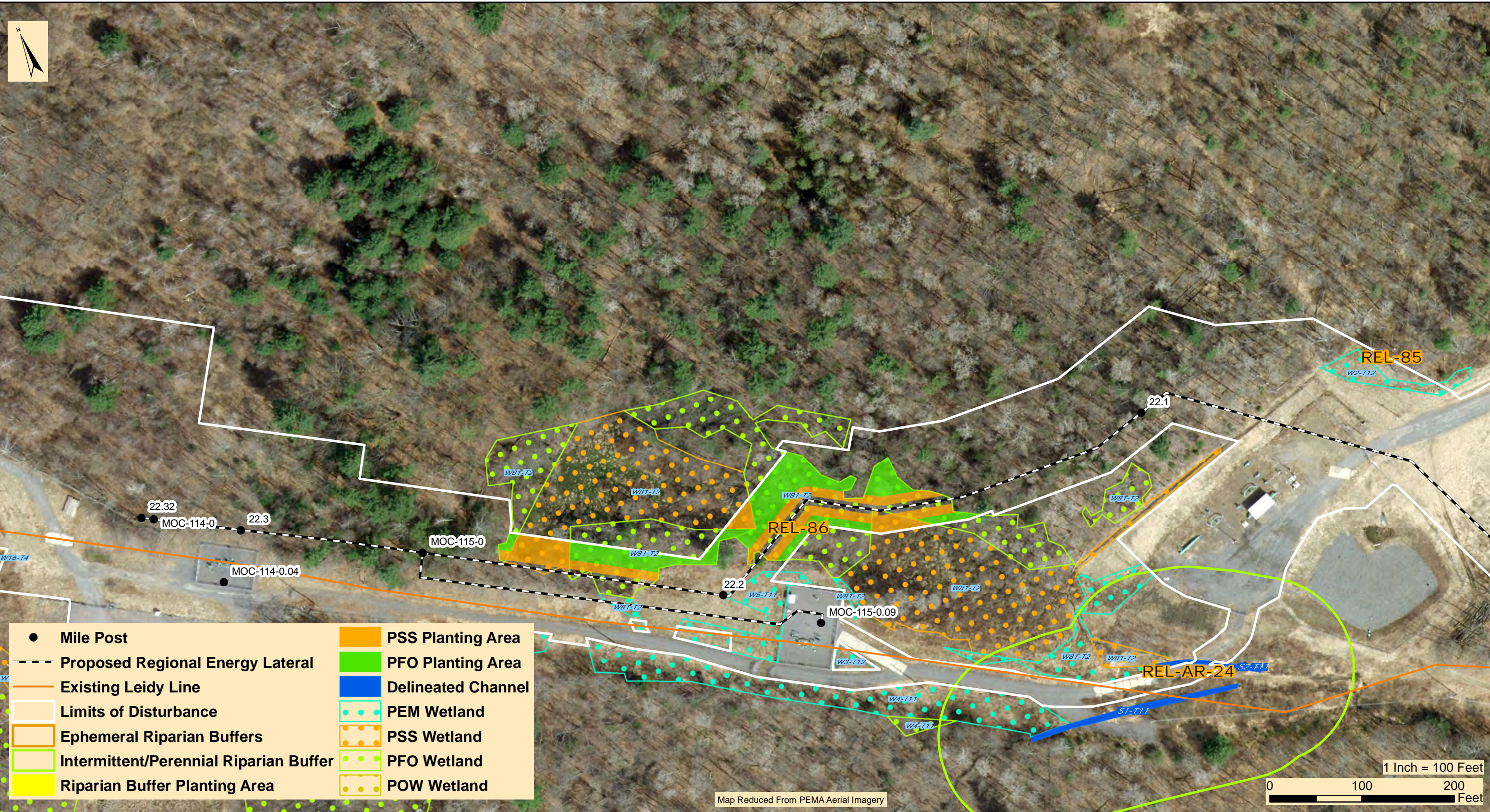
Map Reduced From PEMA Aerial Imagery

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**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
**REGIONAL ENERGY ACCESS EXPANSION PROJECT - REGIONAL ENERGY LATERAL**  
**WETLAND AND RIPARIAN REFORESTATION PLAN**  
 RESOURCE CROSSING - REL-84  
 DALLAS TOWNSHIP LUZERNE COUNTY PENNSYLVANIA

Date:	3/1/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-39

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**TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC**  
**REGIONAL ENERGY ACCESS EXPANSION PROJECT - REGIONAL ENERGY LATERAL**  
**WETLAND AND RIPARIAN REFORESTATION PLAN**

**RESOURCE CROSSING - REL-86**

DALLAS TOWNSHIP      LUZERNE COUNTY      PENNSYLVANIA

Date:	3/1/2022
WHM DRAWING NUMBER:	WILLIAMS244B001-REL
Drawn By:	FTN
Figure Number:	R-40

ATTACHMENT A  
ERNST – FACW MEADOW MIX (ERNMX-122)



## Ernst Conservation Seeds

8884 Mercer Pike  
 Meadville, PA 16335  
 (800) 873-3321 Fax (814) 336-5191  
[www.ernstseed.com](http://www.ernstseed.com)

Date: April 04, 2018

### FACW Meadow Mix - ERNMX-122

Botanical Name	Common Name	Price/lb
32.00 % <i>Carex vulpinoidea</i> , PA Ecotype	Fox Sedge, PA Ecotype	24.00
20.00 % <i>Elymus virginicus</i> , PA Ecotype	Virginia Wildrye, PA Ecotype	9.65
14.00 % <i>Carex lurida</i> , PA Ecotype	Lurid (Shallow) Sedge, PA Ecotype	64.00
10.00 % <i>Carex lupulina</i> , PA Ecotype	Hop Sedge, PA Ecotype	72.00
6.30 % <i>Carex scoparia</i> , PA Ecotype	Blunt Broom Sedge, PA Ecotype	72.00
3.00 % <i>Juncus effusus</i>	Soft Rush	40.00
2.00 % <i>Aster puniceus</i> , PA Ecotype	Purplestem Aster, PA Ecotype	320.00
2.00 % <i>Heliopsis helianthoides</i> , PA Ecotype	Oxeye Sunflower, PA Ecotype	42.00
2.00 % <i>Verbena hastata</i> , PA Ecotype	Blue Vervain, PA Ecotype	32.00
1.50 % <i>Asclepias incarnata</i> , PA Ecotype	Swamp Milkweed, PA Ecotype	240.00
1.00 % <i>Aster umbellatus</i> , PA Ecotype	Flat Topped White Aster, PA Ecotype	320.00
1.00 % <i>Eupatorium perfoliatum</i> , PA Ecotype	Boneset, PA Ecotype	300.00
1.00 % <i>Onoclea sensibilis</i>	Sensitive Fern	108.00
0.50 % <i>Alisma subcordatum</i> , PA Ecotype	Mud Plantain (Water Plantain), PA Ecotype	160.00
0.50 % <i>Carex intumescens</i> , PA Ecotype	Bladder Sedge, PA Ecotype	128.00
0.50 % <i>Cinna arundinacea</i> , PA Ecotype	Wood Reedgrass, PA Ecotype	120.00
0.50 % <i>Juncus tenuis</i> , PA Ecotype	Path Rush, PA Ecotype	66.00
0.50 % <i>Scirpus cyperinus</i> , PA Ecotype	Woolgrass, PA Ecotype	180.00
0.50 % <i>Zizia aurea</i> , PA Ecotype	Golden Alexanders, PA Ecotype	240.00
0.30 % <i>Eupatorium fistulosum</i> , PA Ecotype	Joe Pye Weed, PA Ecotype	228.00
0.30 % <i>Penthorum sedoides</i> , PA Ecotype	Ditch Stonecrop, PA Ecotype	240.00
0.20 % <i>Chelone glabra</i> , PA Ecotype	Turtlehead, PA Ecotype	600.00
0.20 % <i>Ludwigia alternifolia</i> , PA Ecotype	Seedbox, PA Ecotype	180.00
0.20 % <i>Mimulus ringens</i> , PA Ecotype	Square Stemmed Monkeyflower, PA Ecotype	260.00

**100.00 %**

**Mix Price/lb Bulk: \$58.22**

**Seeding Rate:** 20 lb per acre, or 1/2 lb per 1,000 sq ft

Wet Meadows & Wetlands

The diverse species provide pollinator habitat and erosion control in wet meadows. Excellent for facultative wetland mitigation sites. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

**Price quotes guaranteed for 30 days.**  
**All prices are FOB Meadville, PA.**  
**Please check our web site at [www.ernstseed.com](http://www.ernstseed.com)**  
**for current pricing when placing orders.**

ATTACHMENT B

ERNST – RIPARAIN BUFFER MIX (ERNMX-178)



## Ernst Conservation Seeds

8884 Mercer Pike  
 Meadville, PA 16335  
 (800) 873-3321 Fax (814) 336-5191  
[www.ernstseed.com](http://www.ernstseed.com)

Date: February 06, 2018

### Riparian Buffer Mix - ERNMX-178

Botanical Name	Common Name	Price/lb
30.00 % <i>Panicum clandestinum</i> , 'Tioga'	Deertongue, 'Tioga'	17.09
16.00 % <i>Sorghastrum nutans</i> , PA Ecotype	Indiangrass, PA Ecotype	12.62
15.00 % <i>Elymus riparius</i> , PA Ecotype	Riverbank Wildrye, PA Ecotype	7.44
10.00 % <i>Andropogon gerardii</i> , 'Niagara'	Big Bluestem, 'Niagara'	12.25
7.00 % <i>Panicum virgatum</i> , 'Carthage', NC Ecotype	Switchgrass, 'Carthage', NC Ecotype	5.17
3.00 % <i>Chamaecrista fasciculata</i> , PA Ecotype	Partridge Pea, PA Ecotype	10.00
3.00 % <i>Rudbeckia hirta</i> , Coastal Plain NC Ecotype	Blackeyed Susan, Coastal Plain NC Ecotype	20.00
3.00 % <i>Verbena hastata</i> , PA Ecotype	Blue Vervain, PA Ecotype	32.00
2.00 % <i>Asclepias incarnata</i> , PA Ecotype	Swamp Milkweed, PA Ecotype	240.00
2.00 % <i>Heliopsis helianthoides</i> , PA Ecotype	Oxeye Sunflower, PA Ecotype	42.00
2.00 % <i>Juncus effusus</i>	Soft Rush	40.00
2.00 % <i>Juncus tenuis</i> , PA Ecotype	Path Rush, PA Ecotype	66.00
1.50 % <i>Aster puniceus</i> , PA Ecotype	Purplestem Aster, PA Ecotype	320.00
1.00 % <i>Eupatorium perfoliatum</i> , PA Ecotype	Boneset, PA Ecotype	300.00
0.80 % <i>Vernonia noveboracensis</i> , PA Ecotype	New York Ironweed, PA Ecotype	220.00
0.50 % <i>Aster novae-angliae</i> , PA Ecotype	New England Aster, PA Ecotype	360.00
0.50 % <i>Eupatorium fistulosum</i> , PA Ecotype	Joe Pye Weed, PA Ecotype	228.00
0.50 % <i>Monarda fistulosa</i> , Fort Indiantown Gap-PA Ecotype	Wild Bergamot, Fort Indiantown Gap-PA Ecotype	160.00
0.20 % <i>Pycnanthemum tenuifolium</i>	Narrowleaf Mountainmint	140.00
<b>100.00 %</b>	<b>Mix Price/lb Bulk:</b>	<b>\$33.05</b>

**Seeding Rate:** 20 lb per acre with a cover crop at 30 lb per acre  
 (dry sites - grain oats, Jan 1-Aug 1; or, grain rye,  
 Aug 1-Jan 1; moist sites - grain rye year-round)

#### Riparian Sites

A diverse mix of upland and wetland grasses, forbs and shrubs with extensive wildlife and pollinator value. Provides food and cover for many of our songbirds, pheasants, deer and turkey. Mix formulations are subject to change without notice depending on the availability of existing and new products. While the formula may change, the guiding philosophy and function of the mix will not.

**Price quotes guaranteed for 30 days.**  
**All prices are FOB Meadville, PA.**  
**Please check our web site at [www.ernstseed.com](http://www.ernstseed.com)**  
**for current pricing when placing orders.**

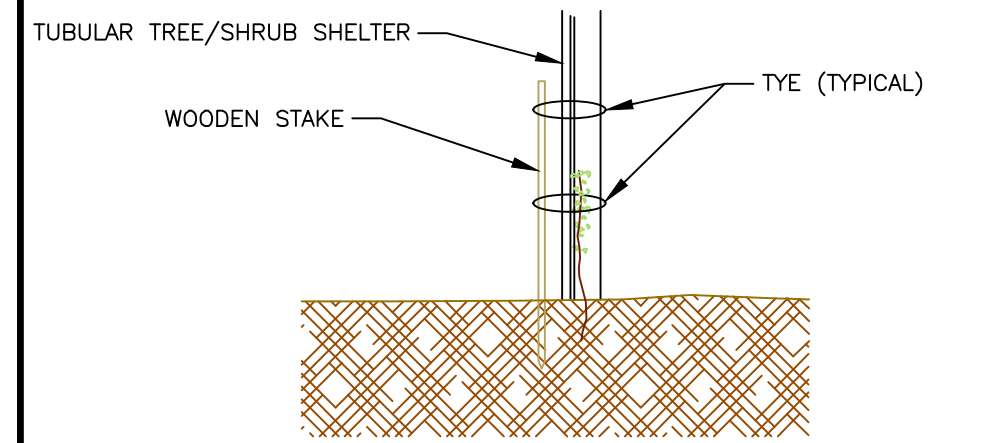
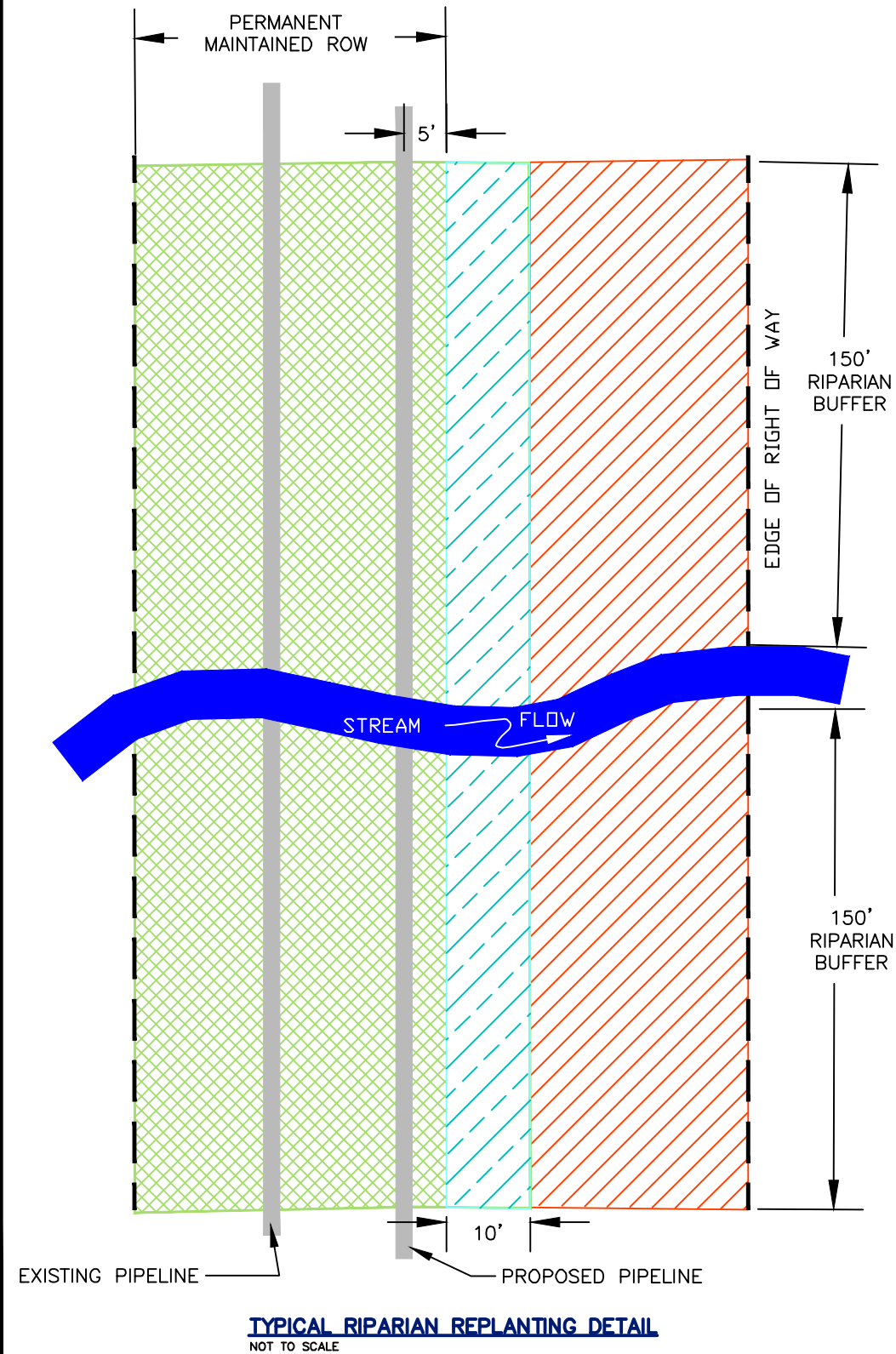
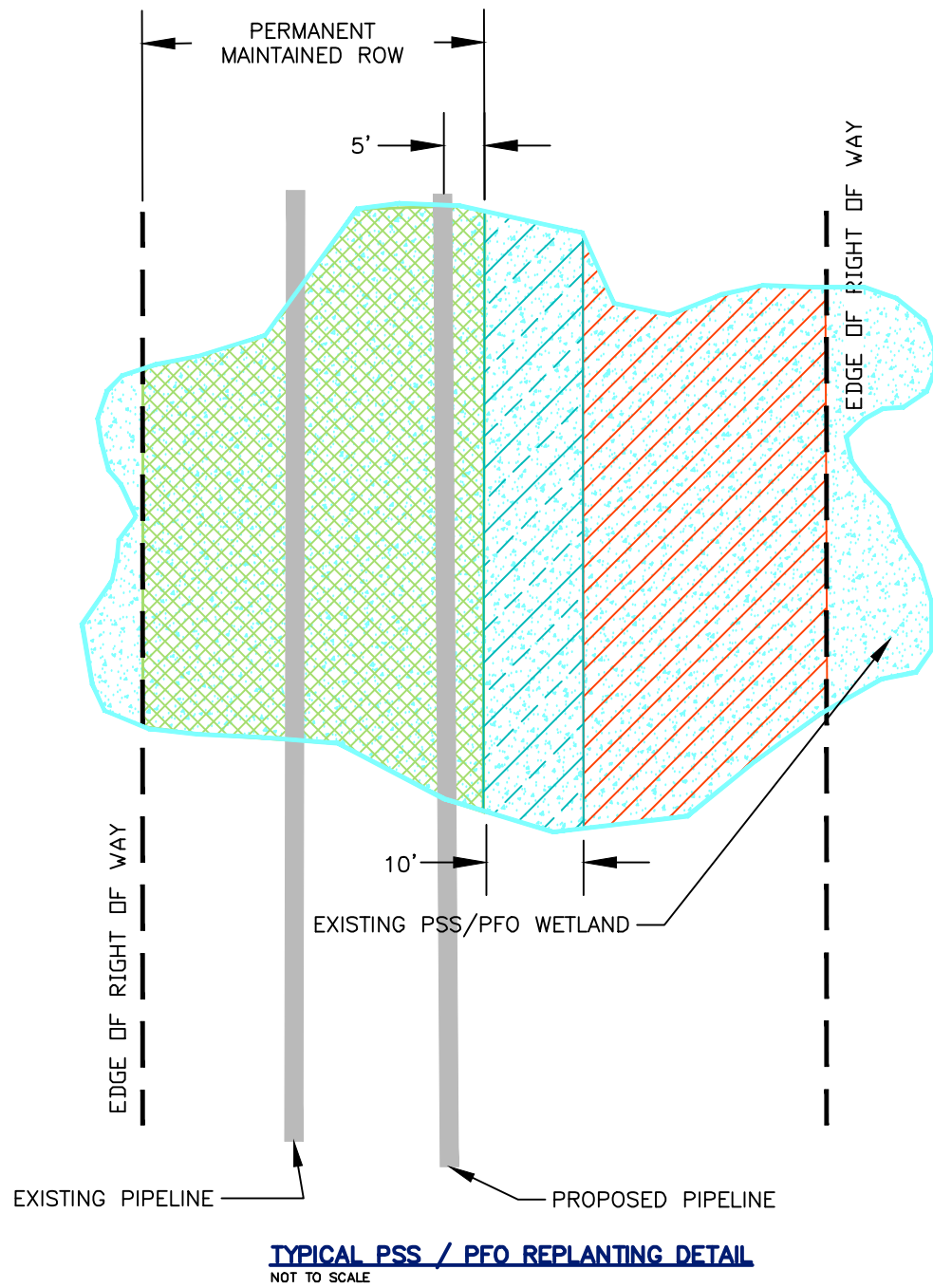
ATTACHMENT C  
TABLE 1 – ONSITE WETLAND AND  
RIPARIAN BUFFER REPLANTING TABLE

ATTACHMENT C						
Onsite Wetland and Riparian Buffer Replanting Table						
Pipeline Facility	Crossing Number	Mile Post	Feature ID	Type	Replanting Area (sq.ft.)	Replanting Area (acres)
Effort Loop	EL-2	45.8	W4-T6	PSS	187	0.00
	EL-5	46.3	W2-T2	PSS	1395	0.03
	EL-6	48.5	S1-T1	RIPARIAN	22496	0.52
	EL-7	49.4	W1-T1	PSS	1559	0.04
			S1-T2, S2-T2, S3-T2	RIPARIAN	14057	0.32
	EL-8	50.9	S4-T2	RIPARIAN	1390	0.03
	EL-9	52.7	S1-T1, S2-T1	RIPARIAN	21560	0.49
	EL-10	53.7	W9-T2	PFO to PSS	2249	0.05
				PFO	7618	0.17
			S5-T2, S5A-T2	RIPARIAN	6559	0.15
	EL-11	55.2	W12-T2	PFO to PSS	153	0.00
				PFO	585	0.01
	EL-12	56.6	W4-T3	PFO to PSS	113	0.00
				PFO	496	0.01
	EL-13	56.9	W15-T2	PFO to PSS	133	0.00
				PFO	2359	0.05
		57.0	W3A-T1	PFO	201	0.00
			W3-T1	PFO to PSS	1661	0.04
			S7-T2, S8-T2	RIPARIAN	25301	0.58
	EL-16	57.4	W8-T1	PSS	2325	0.05
			S4-T1, S5-T1	RIPARIAN	1461	0.03
<b>PSS Replanting Area</b>					<b>5,465</b>	<b>0.13</b>
<b>PFO Replanting Area</b>					<b>17,485</b>	<b>0.40</b>
<b>PFO to PSS Conversion Area</b>					<b>4,309</b>	<b>0.10</b>
<b>Forested Riparian Replanting Area</b>					<b>92,824</b>	<b>2.13</b>
REL-1	0.5	W79-T1	PFO to PSS	561	0.01	
			PFO	2281	0.05	
REL-2	1.0	S18-T2, S19-T2, S20-T2, S21-T2	RIPARIAN	48927	1.12	
			W41-T3	PSS	1	0.00
REL-3	1.2	W10A-T4	RIPARIAN	21884	0.50	
			S44-T2	RIPARIAN	19938	0.46
	1.3	W10-T4	PSS	2023	0.05	
			PFO to PSS	1389	0.03	
			PFO	2985	0.07	
REL-5	1.5	W39-T3	PFO to PSS	353	0.01	
			PFO	349	0.01	
	1.6	S1-T13, S2-T13	RIPARIAN	9732	0.22	
			PFO to PSS	2927	0.07	
REL-8	2.2	W3-T13	PFO	4413	0.10	
			PFO	470	0.01	
REL-9	2.3	S1-T4, S42-T2, S43-T2	RIPARIAN	12917	0.30	
REL-12	2.7	W1-T4	PFO to PSS	146	0.00	
			PFO	348	0.01	
REL-13, REL-AR-8	2.9	W42-T1	PFO to PSS	451	0.01	
			PFO	320	0.01	
			PSS	6411	0.15	
		PFO to PSS	3112	0.07		
REL-15, REL-AR-9	3.8	S10-T3	PFO	7752	0.18	
			RIPARIAN	704	0.02	
			PSS	2422	0.06	
REL-17	3.9	S4-T11	PFO to PSS	3395	0.08	
			PFO	9342	0.21	
REL-17	3.9	S38-T2	RIPARIAN	2201	0.05	
				RIPARIAN	5950	0.14

ATTACHMENT C							
Onsite Wetland and Riparian Buffer Replanting Table							
Pipeline Facility	Crossing Number	Mile Post	Feature ID	Type	Replanting Area (sq.ft.)	Replanting Area (acres)	
Regional Energy Lateral	REL-18	4.2	W14-T5	PSS	3074	0.07	
	REL-19, REL-AR-11	4.2	W96-T2	PSS	5299	0.12	
				PFO to PSS	671	0.02	
				PFO	5092	0.12	
				RIPARIAN	3292	0.08	
	REL-20, REL-AR-12	4.5	W15B-T5	PSS	1946	0.04	
				PFO to PSS	170	0.00	
			PFO	106	0.00		
			S8-T5, S9-T5	RIPARIAN	5635	0.13	
	REL-21	4.6	W49-T1	W48-T1	PSS	64	0.00
				PSS	3172	0.07	
				PFO to PSS	3258	0.07	
	REL-22, REL-AR-13	4.7	W97-T2	PFO	5346	0.12	
				PSS	1071	0.02	
				PFO to PSS	2103	0.05	
	REL-23	4.9	W9-T5	PFO	9592	0.22	
				PFO to PSS	113	0.00	
		5.0	W4-T12	PFO	1565	0.04	
				PFO to PSS	107	0.00	
	REL-24	5.3	W86-T2	PFO	675	0.02	
				PFO to PSS	444	0.01	
	REL-25	5.4	W12-T5	PFO	470	0.01	
				PFO to PSS	345	0.01	
	REL-26	5.7	W13-T5	PFO	888	0.02	
				PFO to PSS	963	0.02	
			S2-T12	RIPARIAN	7753	0.18	
	REL-27	5.9	W89-T2	PFO to PSS	5011	0.12	
				PFO	326	0.01	
			S35-T2, S36-T2	RIPARIAN	1836	0.04	
	REL-28	6.7	W132-T2	PFO	19695	0.45	
				PSS	1449	0.03	
			S61-T2, S62-T2, S63-T2, S64-T2, S10-T5	RIPARIAN	37921	0.87	
	REL-30	7.2	W16-T13	PFO to PSS	555	0.01	
				PFO	968	0.02	
			S8-T13, S68-T2	RIPARIAN	25797	0.59	
	REL-31	7.5	S75-T2, S76-T2, S83-T2	RIPARIAN	27810	0.64	
	REL-32	7.6	S10-T4, S79-T2	RIPARIAN	16140	0.37	
	REL-33	7.8	S10-T13, S11-T13, S12-T13, S13-T13, S14-T13, S70-T2, S71-T2, S79-T2	RIPARIAN	39242	0.90	
	REL-34	7.9	S9-T13, S11-T4, S12-T4	RIPARIAN	12017	0.28	
	REL-35	8.0	W17-T13	PSS	534	0.01	
			S15-T13, S19-T3, S19a-T3	RIPARIAN	13007	0.30	
	REL-38	9.2	S85-T2	RIPARIAN	25103	0.58	
	REL-39	9.4	W36-T1, W36B-T1	PSS	223	0.01	
				PFO to PSS	151	0.00	
				PFO	3913	0.09	
			S30-T2	RIPARIAN	15480	0.36	
REL-40	9.5	W66-T2	PFO to PSS	211	0.00		
			PFO	2667	0.06		
REL-42	10.4	S19-T1	RIPARIAN	3753	0.09		
REL-43	10.5	W71-T2	PSS	152	0.00		
		S31-T2, S32-T2	RIPARIAN	13407	0.31		
REL-44	10.5	S33-T2	RIPARIAN	7106	0.16		
REL-45	10.6	S8-T3	RIPARIAN	9465	0.22		
REL-46	10.9	W1-T10	PSS	2	0.00		
		S8-T3, S17-T11	RIPARIAN	30105	0.69		

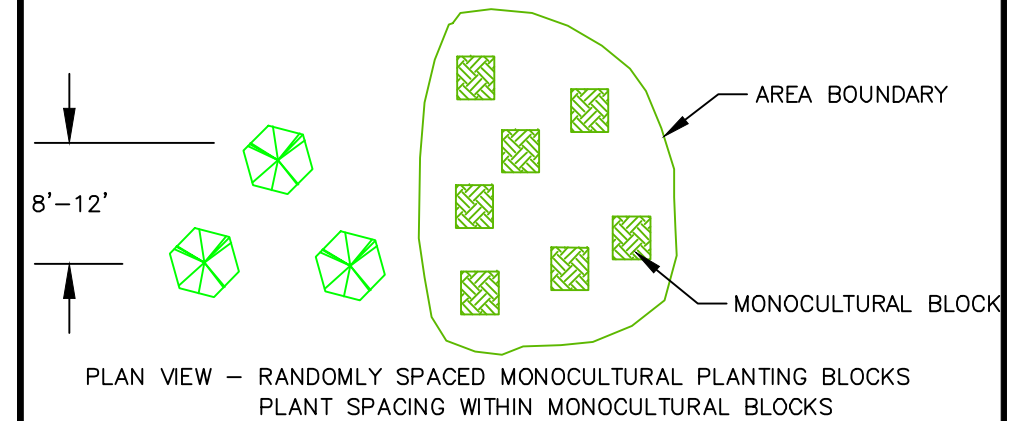
ATTACHMENT C						
Onsite Wetland and Riparian Buffer Replanting Table						
Pipeline Facility	Crossing Number	Mile Post	Feature ID	Type	Replanting Area (sq.ft.)	Replanting Area (acres)
REL-47	11.0	W2-T10	PFO to PSS	284	0.01	
			PFO	801	0.02	
			RIPARIAN	29432	0.68	
		W160-T2	PFO	94	0.00	
REL-48	11.1	S4-T5, S4A-T5, S8-T3	RIPARIAN	48051	1.10	
REL-49	11.3	S5-T5, S6-T5, S8-T3	RIPARIAN	23987	0.55	
REL-51	11.8	W46-T2	PSS	59	0.00	
REL-53	12.0	S6-T1	RIPARIAN	13971	0.32	
REL-54	12.6	S9-T3	RIPARIAN	27376	0.63	
REL-55	13.0	W20-T3	PFO	778	0.02	
REL-56	13.4	S4-T3	RIPARIAN	8822	0.20	
REL-57	13.5	S1-T5	RIPARIAN	1205	0.03	
	13.8	W12-T1	PFO	8252	0.19	
REL-58	14.0	W61-T1	PFO to PSS	68	0.00	
			PFO	59	0.00	
REL-59	14.0	W62-T1	PFO to PSS	37	0.00	
			PFO	71	0.00	
REL-61	14.8	W11-T3	PFO to PSS	696	0.02	
			PFO	1579	0.04	
REL-63	15.2	S14-T2	RIPARIAN	11432	0.26	
REL-65	15.4	W30-T2	PSS	2081	0.05	
REL-68	15.6	W15-T3	PSS	971	0.02	
			PFO to PSS	3827	0.09	
			PFO	11747	0.27	
	15.7	S15-T2	RIPARIAN	22433	0.51	
REL-69	16.0	S15C-T2	RIPARIAN	14874	0.34	
REL-70	16.3	S15B-T2	RIPARIAN	3755	0.09	
REL-71	16.3	S23-T2, S23A-T2	RIPARIAN	675	0.02	
REL-74	17.0	S29-T2	RIPARIAN	15405	0.35	
REL-75	17.3	S26-T2	RIPARIAN	7178	0.16	
REL-76	17.3	S24-T2	RIPARIAN	19798	0.45	
REL-77	18.7	W6a-T13	PFO	54	0.00	
			PFO to PSS	1993	0.05	
			PFO	6003	0.14	
		S50-T2, S51-T2	RIPARIAN	12370	0.28	
REL-79	20.4	W59-T1	PSS	359	0.01	
REL-80	20.5	W60-T1	PSS	2065	0.05	
			PFO to PSS	244	0.01	
			PFO	402	0.01	
		S4-T13, S47-T2	RIPARIAN	10133	0.23	
REL-82	20.7	S11-T3, S72-T2	RIPARIAN	9798	0.22	
REL-83	21.0	W15-T4	PSS	3301	0.08	
	21.1	W83-T2	PSS	617	0.01	
			PFO to PSS	18	0.00	
			PFO	422	0.01	
			S49-T2	RIPARIAN	9788	0.22
REL-84	21.8	W44-T3	PSS	1976	0.05	
		S52-T2, S52A-T12, S3-T11, S4-T11	RIPARIAN	25133	0.58	
REL-86	22.2	W81-T2	PSS	3429	0.08	
			PFO to PSS	5190	0.12	
			PFO	9976	0.23	
<b>PSS Replanting Area</b>					<b>42,702</b>	<b>0.98</b>
<b>PFO Replanting Area</b>					<b>109,625</b>	<b>2.52</b>
<b>PFO to PSS Conversion Area</b>					<b>34,135</b>	<b>0.78</b>
<b>Forested Riparian Replanting Area</b>					<b>747,852</b>	<b>17.17</b>

ATTACHMENT D  
PLANTING DETAILS



NOTE: TREE/SHRUB SHELTERS ARE TO BE MADE FROM BIODEGRADABLE PLASTIC TUBING. SIZE OF SHELTERS AND WOODEN STAKE TO BE DETERMINED BY PROJECT MANAGER.

**TYPICAL TREE / SHRUB SHELTER DETAIL**  
NOT TO SCALE



1. TYPICAL SPACING IS APPROXIMATE. PLANTS SHOULD BE LOCATED RANDOMLY TO AVOID THE APPEARANCE OF ORGANIZED ROWS WITHIN THE MONOCULTURAL PLANTING BLOCKS.
2. TREES AND SHRUBS ARE TO BE PLANTED IN THE PLANTING ZONES IDENTIFIED IN THE PLANTING SCHEDULE. MONOCULTURAL BLOCKS SHOULD CONTAIN 3-6 PLANTS IN SHRUB AND TREE ZONES. MONOCULTURAL BLOCKS SHOULD BE APPROXIMATELY 20' BY 20' IN SIZE, OR AS DIRECTED OR MODIFIED BY THE CONSTRUCTION MANAGER.

\* ALL PLANTINGS ARE TO BE PLANTED AND MAINTAINED IN ACCORDANCE WITH NURSERY RECOMMENDATIONS FOR THE FERTILIZER, LIME, SOIL AMENDMENTS, WATER, AND WILDLIFE PROTECTION. WEEKLY INSPECTION, WATERING AS NEEDED, AND OTHER NECESSARY CARE SHOULD BE PROVIDED DURING THE FIRST WEEKS OF THE GROWING SEASON UNTIL SUCCESSFUL TRANSPLANTATION IS EVIDENT.

**LEGEND**

	TREE / SHRUB REPLANTING AREA
	SHRUB REPLANTING AREA
	WETLAND / RIPARIAN SEED MIX ONLY

NO.	DATE	BY	REVISION DESCRIPTION	W.O. NO.	CHK.	APP.



2525 GREEN TECH DRIVE, SUITE B  
STATE COLLEGE, PA 16803

TELEPHONE: (814)-689-1650 FAX: (814)-689-1557

TRANSCONTINENTAL GAS PIPE LINE COMPANY, LLC  
**REGIONAL ENERGY ACCESS EXPANSION PROJECT  
WETLAND AND RIPARIAN REFORESTATION PLAN**

**REPLANTING DETAILS**

LUZERNE AND MONROE COUNTIES

PENNSYLVANIA

DATE:	<b>03/07/21</b>
DRAWN BY:	<b>BH</b>
CHECKED:	<b>DW</b>
DRAWING NO.	<b>WILLIAMS238B001</b>
SHEET NO.	<b>ATTACHMENT D</b>