pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF WATER MANAGEMENT
OFFICE OF OIL AND GAS MANAGEMENT

OFFICIAL USE ONLY
ID # _____
Date Received _____

NOTICE OF INTENT (NOI) FOR COVERAGE UNDER THE EROSION AND SEDIMENT CONTROL GENERAL PERMIT (ESCGP-2) FOR EARTH DISTURBANCE ASSOCIATED WITH OIL AND GAS EXPLORATION, PRODUCTION, PROCESSING, OR TREATMENT OPERATIONS OR TRANSMISSION FACILITIES

READ THE INSTRUCTIONS PROVIDED IN THIS PERMIT APPLICATION PACKAGE BEFORE COMPLETING THIS FORM.

PLEASE PRINT OR TYPE INFORMATION IN BLACK OR BLUE INK.

SECTION A. APPLICANT INFORMATION

APPLICATION TYPE **NEW** ☒ **RENEWAL** ☐ **MAJOR MODIFICATIONS** ☐ **EXPEDITED** ☐ **PHASED** ☐

Applicant's Last Name (If applicable) Gordon	First Name Matthew	MI L	Phone FAX	(610) 216-0583 (cell)
Organization Name or Registered Fictitious Name Sunoco Pipeline, L.P.			Phone FAX	(610) 670-3284 (office)
Mailing Address 535 Fritztown Road	City Sinking Spring		State PA	ZIP + 4 19608
Email Address mlgordon@sunocologistics.com				
Co-Applicant's Last Name (If applicable)	First Name	MI	Phone FAX	
Organization Name or Registered Fictitious Name			Phone FAX	
Mailing Address	City		State	ZIP + 4
Email Address				

SECTION B. SITE INFORMATION

Site Name Pennsylvania Pipeline Project		
Site Location Washington, Allegheny, Westmoreland, Indiana, and Cambria Counties		
Site Location – City Houston, Washington, County, PA to Washington Towhship, Cambria County, PA	State PA	ZIP+4
Detailed Written Directions to Site See Directions in Attachment 1		

County	Municipality	City	Boro	Twp.

Washington, Allegheny, Westmoreland, Indiana, and Cambria Counties	See Municipalities Table in Attachement 2	☒	☒	☒

SECTION C. PROJECT INFORMATION

1. Total Project Area/Project Site (Ac):	1,132	Total Disturbed Area (Ac):	1,132

2. Project Name Pennsylvania Pipeline Project

3. Project Type (Check all that apply)

☐ Oil/Gas Well ☒ Transmission Facility ☐ Gathering Facility ☐ Processing Facility ☐ Treatment Facility
☐ Centralized Fresh Water Impoundment ☐ Centralized Wastewater Impoundment ☐ Water Pipeline
☐ Ground/Surface Water Withdrawal Site ☐ Other

If Oil/Gas well, is the well conventional or unconventional? ☐ Conventional ☐ Unconventional

Project Description

Sunoco Pipeline, L.P. (SPLP) proposes to construct and operate the Pennsylvania Pipeline Project that would expand existing pipeline systems to provide natural gas liquid (NGL) transportation of up to 350,000 barrels per day. The project involves the installation of approximately two parallel pipelines within a 306-mile, 50-foot-wide right-of-way (ROW) from Houston, Washington County, Pennsylvania (PA) to SPLP's Marcus Hook facility in Delaware County, PA with the purpose of interconnecting with existing SPLP Mariner East pipelines. A 20-inch diameter pipeline would be installed within the ROW from Houston to Marcus Hook (306 miles) and a second, 16-inch diameter pipeline, will also be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, PA to the Marcus Hook facility, paralleling the initial line for approximately 255 miles. Construction activities will involve clearing and grubbing, trenching, pipe installation, site restoration, and access road construction/improvement. Erosion and sediment controls will be in place during earth disturbance activities. Following completion of pipeline installation, the area will be returned to the general grade present prior to pipeline installation in order to maintain preconstruction elevations and drainage patterns. Disturbed areas will be seeded and mulched. Erosion and sedimentation control devices will be maintained until site work is complete and revegetation is successful.

The project will be constructed for 109 miles in the PADEP Southwest Region. The project disturbance by county is as follows:

Washington County: 189 acres, Houston Injection Station 2.70 acres (Total 192 acres)
Allegheny County: 98 acres
Westmoreland County: 378 acres, Delmont Pump Station 10.80 acres (Total 389 acres)
Indiana County: 203 acres
Cambria County: 245 acres, Ebensburg Pump Station 4.44 acres (Total 250 acres)

4. Please provide the latitude and longitude coordinates for the center of the project. The coordinates should be in degrees, minutes seconds (DD MM SS.SS) and North American Datum 1983. For linear projects provide the project's termini.

Latitude 40º degrees 15' minutes 41.62" seconds Longitude 80º degrees 16' minutes 0.91" seconds

Latitude 40º degrees 24' minutes 32.59" seconds Longitude 78º degrees 33' minutes 24.98" seconds

Horizontal Collection Method: ☐ GPS ☒ Interpolated from U.S.G.S. Topographic Map ☐ DEP's eMAP

5. U.S.G.S. 7.5 min. Quad Map Name Canonsburg, Midway, Washington East, Washington West, Hackett, Monogahela, Donora, McKeesport, Irwin, Smithton, Greensburg, Murrysville, Slickville, Saltsburg, Blairsville, Bolivar, New Florence, Vintondale, Nanty Glo, Ebensburg, Cresson, Beaverdale, and Blue Knob. (Include a copy of the project area on the 7.5 min quad map)

6. Will the project be conducted as a phased permit project? ☐ Yes ☒ No

If Yes, Include Master Site Plan Estimated Timetable for Phased Projects. ☐ Additional sheet(s) attached.

Phase No. or Name	Description	Total Area	Disturbed Area	Start Date	End Date

7. List existing and previous land use for a minimum of the previous 5 years. Forested/ agricultural/ rural residential

8. Other Pollutants: Will the stormwater discharge contain pollutional substances other than sediment? ☐ Yes ☒ No
   If yes, explain and provide any available quantitative data.

9. Will fuels, chemicals, solvents, other hazardous waste or materials be used or stored on site during earth disturbance activities?
   Yes ☒ No ☐ **(If yes, a PPC Plan must be maintained on site during earth disturbance.)**

10. Does the project have the potential to discharge to siltation-impaired waters?
    Yes ☒ No ☐ **(If yes, show how the project will not result in a net change in volume, rate or water quality. See section G below.)**

11. Has the project site been investigated to identify naturally occurring geologic formations or soil types that may cause pollution when disturbed?
    Yes ☒ No ☐
    Have naturally occurring geologic formations or soil types that may cause pollution when disturbed been identified?
    Yes ☒ No ☐ **(If yes, BMPs to avoid or minimize the potential pollution must be utilized.)**

12. Has the project site been analyzed to determine potential thermal impacts to surface waters of the Commonwealth?
    Yes ☒ No ☐
    Have potential thermal impacts to surface water of the Commonwealth from earth disturbance activity been identified?
    Yes ☒ No ☐ **(If yes, BMPs to avoid, minimize or mitigated the thermal pollution must be utilized.)**

13. Have the E&S Plan and PCSM/SR Plan been planned, designed and implemented to be consistent?
    Yes ☒ No ☐

14. Have existing and/or proposed Riparian Forest Buffers been identified?
    Yes ☒ N/A ☐ **(If not, they must be shown on the plans.)**

15. Is a riparian buffer waiver being requested?
    Yes ☒ No ☐
    If yes, the applicant requesting a waiver must submit a written request that demonstrates that reasonable alternatives will meet the requirements of 25 Pa. Code § 102.14 and to demonstrate that any existing riparian buffer will remain undisturbed to the extent practicable.

16. Have antidegradation implementation requirements for special protection waters been addressed?
    Yes ☒ No ☐ **(If no, antidegradation requirements must be included in the plan.)** N/A ☐

17. Has the seasonal high groundwater level been identified at all excavation locations for pits and impoundments other than those which will contain top-hole water, fresh water and uncontaminated drill cuttings?
    Yes ☐ No ☐ N/A ☒ **(If no, be advised that a 20-inch separation between the seasonal high groundwater and the bottom of all pits and impoundments containing pollutional substances is required.)**

18. Receiving Water/Watershed Name See Table in Attachment 3. Chapter 93, Designated Use and Existing Use Stream Classification ☒ High Quality ☐ Exceptional Value ☒ Other WWF, CWF, TSF ☒ Siltation-impaired Secondary Receiving Water	Name of Municipal or Private Separate Storm Sewer Operator See Table in Attachment 4
19. Is an Expedited Review being requested? Yes ☐ No ☒ If yes, be advised that the Expedited Review is not available for all projects. Refer to the "Expedited Review Process" Item 8, Page 17 of the ESCGP-2 Instructions to determine if your project is eligible.	

SECTION D. EROSION AND SEDIMENT CONTROL PLAN BMPS
See the attached Instructions on how to complete this section.

Erosion and Sediment Control Plan BMPs should be designed to minimize accelerated erosion and sedimentation through limiting the extent and duration of earth disturbance, protection of existing drainage and vegetation, limiting soil compaction and controlling the generation of increased runoff. The Department recommends the use of the Erosion and Sediment Control BMP Manual to achieve this goal. The E&S Plan must meet the requirements of Pa. Code § 102.4(b) and submitted with the NOI.

1. E & S Plan

The E & S Plan must satisfy at least one of subparagraph A or B below.

Provide a brief summary of proposed BMPs and their performance to manage E & S for the project. If E & S BMPs and their application do not follow the guidelines referenced in the Pa. Erosion and Sediment Pollution Control Program Manual, provide documentation to demonstrate performance equivalent to, or better than, the BMPs in the Manual.

Compost Filter Socks - This temporary sedimentation control measure consists of wood or metal posts driven through a compost filled mesh tube. Filter socks will be located as needed on side-slope and down-slope boundaries of disturbed areas. Compost filter socks will be sized using the DEP Construction Detail.

Tarpaulin Covers - Tarpaulin covers may be used, as necessary, to protect topsoil storage stockpiles from wind and precipitation erosion. Stockpile slopes will be 2:1 or less. A minimal amount of soil will be stockpiled so that the height of the stockpile is less than 35 feet.

Rock Construction Entrance – Temporary access routes will be established on and proximate to the site to facilitate construction activities. The use of access routes will help confine truck and equipment traffic to specific corridors thus minimizing land disturbance and protecting vegetation. Site traffic during wet weather will be limited. No vehicles will be permitted in streams or rivers.

Wash Racks – Wash racks will be used at rock construction entrances and will be designed to accommodate anticipated vehicular traffic. A water supply will be made available at wash racks to wash the wheels of vehicles exiting the site.

Pumped Water Filter Bag – Pumped water filter bags may be used to filter water pumped from disturbed areas prior to discharging to surface waters. Compost filter socks shall be installed within 50 feet of any receiving surface water or where grassy area is not available.

Erosion Control Blanket - A manufactured erosion control blanket shall be installed on all slopes 3:1 (H:V) or steeper and within 100 feet of stream banks, where applicable. The blanket shall be biodegradable but capable of providing protection for two growing seasons. Straw or similar fiber material shall be placed between two biodegradable nets. The top net shall be heavyweight and UV stabilized; the bottom net shall be a lightweight netting. Erosion control blankets shall be anchored and stapled in place in accordance with the manufacturer's recommendations and the detail on the construction drawings. For slopes between 3:1 and 1:1 (H:V) use erosion control blanket SC 150 as manufactured by North American Green or Owner approved equal material or equal method.

Waterbars – Waterbars shall be installed across the right-of-way on all slopes greater than 5%. Waterbars should be constructed at a slope of 2% and discharge to a well-vegetated area. Waterbars should not discharge into an open trench. Waterbars should be oriented so that the discharge does not flow back onto the right-of-way. Obstructions (e.g. compost filter socks etc.) should not be placed in any waterbars. Where needed, they should be located below the discharge end of the waterbar.

Trench Plugs - To be used to prevent piping along the pipeline.

A. ☒ E & S plan is designed using BMPs in the Pennsylvania Erosion & Sedimentation Pollution Control Manual (ESPC) (Technical Guidance #3632134-008/March 2012)

OR

B. ☐ E & S plan is designed using an alternative BMP or design standard

2. Riparian Buffer Information

A. Will you be protecting, converting or establishing a riparian buffer or a riparian forest buffer as a part of this project?

Protect ☒ Yes ☐ No Convert ☒ Yes ☐ No Establish ☐ Yes ☒ No

B. Will you be protecting, converting or establishing a voluntary riparian forest buffer as part of this project?

☐ Yes ☒ No

C. Are you proposing to conduct oil and gas activities for which site reclamation or restoration is required as part of the Chapter 78 permit authorization in a high quality or exceptional value watershed that is currently attaining its designated use and within 150 ft of a perennial or intermittent river, stream or creek or lake, pond or reservoir?

☐ Yes ☒ No If yes, provide a demonstration that any existing riparian buffer is undisturbed to the extent practicable.

D. If the regulations require a riparian buffer or riparian forest buffer and you are not providing one, list the waiver provisions in the Chapter 102 regulations, Section 102.14(d)(2)(i)-(vi), that you are requesting and provide additional documentation to demonstrate reasonable alternatives for compliance with 102.14 requirements and to demonstrate that any existing reparian buffer will remain undisturbed to the extent practicable.

This project qualifies for an exception of the riparian forest buffer requirement under Chapter 102.14(d)(1)(ix). Existing riparian forest buffers within the project area are identified on the E&S plan drawings in Attachment 2 of the E&S Plan. Existing riparian forest buffers will be protected to the extent practicable by minimizing the limit of disturbance at stream crossings. In addition to the exception, we are requesting a waiver under 102.14(d)(2)(ii) for areas within 150' of surface waters that are outside of the Chapter 105 permit area.

All disturbance activities, including those which impact riparian forest buffers, have been reduced to the extent practicable. The limit of disturbance has been reduced to 50 feet wide at all stream crossings within the riparian forest buffer area where possible. In areas where it is not practicable to reduce the LOD throughout the entire extent of the riparian forest buffer, the LOD has been reduced to 50 feet wide surrounding the stream channel. The operations within the limit of disturbance near stream crossings typically includes a topsoil stockpile, a stockpile for pipe trench excavation material, a pipe trench, a travel lane, a work area for equipment operation and pipeline welding outside the trench, and an area to install the erosion control BMPs. In addition, site conditions such as steep slopes, varying depths of topsoil, and other on-site conditions limit the amount of work area. Reducing the limit of disturbance to a greater extent could potentially result in unsafe working conditions and would hinder the ability to complete the stream crossing within the required time frame of 24 hours or less. Workspaces that provide additional space for stream crossing activities have been placed outside of riparian forest buffers where possible.

Note: If the proposed activity protects, converts or establishes a riparian or riparian forest buffer a Buffer Management Plan is required in the PCSM Plan.

3. Thermal Impacts Analysis

Please explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. The disturbed areas will be reseeded as soon as practicable following construction.

SECTION E. SITE RESTORATION (SR) PLAN BMPS

See the attached Instructions on how to complete this section.

If this section is not applicable to your project, please indicate by checking this box: N/A ☐

For earth disturbance projects involving oil and gas activities authorized by Chapter 78 (well pads) or pipelines and other similar utility infrastructure provide the information outlined below. If your project includes both oil and gas activities authorized by Chapter 78 (well pads) or pipelines and other similar utility infrastructure and other activities requiring Post Construction Stormwater Management, provide the information outlined in this Section as well as Section F.

Site Restoration BMPs should be designed to use natural measures to eliminate pollution, infiltrate runoff, not require extensive construction/maintenance activity, promote pollutant reduction, and preserve the integrity of stream channels. The Department recommends the use of PA Stormwater BMP manual to achieve this goal. The SR Plan must meet the requirements of Pa Code § 102.8(n) and be submitted with the NOI.

1. Site Restoration Plan Information – The Site Restoration Plan should be designed to maximize volume reduction technologies, eliminate (where possible) or minimize point source discharges to surface waters, preserve the integrity of stream channels, and protect the physical, biological and chemical qualities of the receiving surface water.

Design standards applied to develop the Site Restoration Plan. Check those that apply.

☒ Act 167 Plan – The attached SR Plan is consistent with an applicable approved Act 167 Plan.

Complete the following for all approved Act 167 Stormwater Management Plans. (Use additional sheets if necessary)

Act 167 Plan Name	Date Adopted	Consistency Letter Included	☐
See Table in Attachment 5		Verification Report Included	☒

***NOTE**: A consistency letter is not required if a verification report is provided. Please see NOI Instructions.* The Site Restoration Plan must satisfy either sub paragraph A, B, **or** C below. Check those that apply.

A. ☒ Act 167 Plan approvals on or after January 2005 - The attached PCSM Plan, in its entirety, is consistent with all requirements pertaining to rate, volume, and water quality from an Act 167 Stormwater Management Plan approved by DEP on or after January 2005. Letter A must be checked if a current, DEP approved Act 167 plan exists.

B. ☒ The PCSM meets the standard design criteria from the PA Stormwater BMP Manual. For projects involving oil and gas activities authorized by a permit issued under Chapter 78 (well pads) or pipelines and other similar utility infrastructure, post construction stormwater management requirements are met for all areas that are restored to preconstruction conditions or to a condition of meadow in good condition or better.

C. ☐ Alternative Design Standard – The attached PCSM Plan was developed using approaches other than 102.8(g)(2). Demonstrate/explain in the space provided below how this standard will be either more protective than what is required in 102.8(g)(2) or will maintain and protect existing water quality and existing and designated uses.

2. Riparian Buffer Information

A. Will you be protecting, converting or establishing a riparian buffer or a riparian forest buffer as part of this activity?
Protect ☒ Yes ☐ No Convert ☒ Yes ☐ No Establish ☐ Yes ☒ No

B. Will you be protecting, converting or establishing a voluntary riparian forest buffer as part of this activity?
☐ Yes ☒ No

C. Are you proposing to conduct oil and gas activities for which site reclamation or restoration is required under a permit issued under the auhtority of the 2012 Oil and Gas Act and Chapter 78 in a high quality or exceptional value watershed that is currently attaining its designated use and within 150 ft of a perennial or intermittent river, stream or creek or lake, pond or reservoir?

☐ Yes ☒ No If yes, provide a demonstration that any existing riparian buffer is undisturbed to the extent practicable.

D. If the regulations require a riparian buffer or riparian forest buffer and you are **not** providing one, list below the waiver provisions in the Chapter 102 regulations, Section 102.14(d)(i)-(vi), that you are requesting and provide additional documentation to demonstrate reasonable alternatives for compliance with 102.14 requirements and to demonstrate that any existing reparian buffer will remain undisturbed to the extent practicable.

(See Attachment 6 for Riparian Buffer Waiver Request Information)
This project qualifies for an exception of the riparian forest buffer requirement under Chapter 102.14(d)(1)(ix). Existing riparian forest buffers within the project area are identified on the E&S plan drawings in Attachment 2 of the E&S Plan. Existing riparian forest buffers will be protected to the extent practicable by minimizing the limit of disturbance at stream crossings. In addition to the exception, we are requesting a waiver under 102.14(d)(2)(ii) for areas within 150' of surface waters that are outside of the Chapter 105 permit area.

All disturbance activities, including those which impact riparian forest buffers, have been reduced to the extent practicable. The LOD has been reduced to 50 feet wide at all stream crossings within the riparian forest buffer area where possible. In areas where it is not practicable to reduce the LOD throughout the entire extent of the riparian forest buffer, the LOD has been reduced to 50 feet wide surrounding the stream channel. The operations within the LOD near stream crossings typically includes a topsoil stockpile, a stockpile for pipe trench excavation material, a pipe trench, a travel lane, a work area for equipment operation and pipeline welding outside the trench, and an area to install the erosion control BMPs. In addition, site conditions such as steep slopes, varying depths of topsoil, and other on-site conditions limit the amount of work area. Reducing the LOD to a greater extent could potentially result in unsafe working conditions and would hinder the ability to complete the stream crossing within the required time frame of 24 hours or less. Workspaces that provide additional space for stream crossing activities have been placed outside of riparian forest buffers where possible.

Note: If the proposed activity protects, converts or establishes a riparian or riparian forest buffer a Buffer Management Plan is required in the PCSM Plan.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

This section does not need to be completed for areas of projects involving oil and gas activities authorized by Chapter 78 (well pads) or pipelines and other similar utility infrastructure which will be restored to meadow in good condition or better or existing conditions.

Watershed Name: N/A - Restoring pipeline right of way to a meadow condition. See Section F for stormwater management calculations associated with the permanent access roads and block valves.			
Design storm frequency _____ Rainfall amount _____ inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)			
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs			
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs			
Stormwater discharge rate for the design frequency storm	Pre-construction	Post Construction	Net Change
1) 2-Year/24-Hour			
2) 10-Year/24-Hour			
3) 50-year/24-Hour			
4) 100-year/24-Hour			

4. SUMMARY DESCRIPTION OF SITE RESTORATION BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Site Restoration ☒ Restore Site to Meadow in Good Condition or Better, or Existing Conditions	Infiltration/Recharge Detention/WQ Treatment	_____	_____
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☒ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Detention Basins	Water Quality Treatment	_____ _____	_____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☒ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☐ _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and Site Restoration Plans that the discharge will not cause erosion, damage, or a nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential themal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

SECTION F. POST CONSTRUCTION STORMWATER MANAGEMENT (PCSM) PLAN BMPS

See the attached Instructions on how to complete this section.

If this section is not applicable to your project, please indicate by checking this box: N/A ☐

For earth disturbance projects requiring post construction stormwater management, provide the information outlined below. If your project includes both oil and gas activities authorized under a well permit issued under the 2012 Oil and Gas Act and Chapter 78 (well pads) or pipelines and other similar utility infrastructure and other activities requiring Post Construction Stormwater Management, provide the information outlined in this Section as well as Section E.

Post Construction Stormwater Management BMPs should be designed to use natural measures to eliminate pollution, infiltrate runoff, not require extensive construction/maintenance activity, promote pollutant reduction, and preserve the integrity of stream channels. The Department recommends the use of PA Stormwater BMP manual to achieve this goal. If PCSM BMPS and their application do not follow the guidelines referenced in the PA Stormwater BMP Manual, provide documentation to demonstrate performance equivalent to, or better than, the BMPs in the Manual.

1. Post Construction Stormwater Management Plan Information – The Post Construction Stormwater Management Plan must meet the requirements in 25 Pa. Code §102.8 and should be designed to maximize volume reduction technologies, eliminate (where possible) or minimize point source discharges to surface waters, preserve the integrity of stream channels, and protect the physical, biological and chemical qualities of the receiving surface water.

Design standards applied to develop the Post Construction Stormwater Management Plan. Check those that apply.

☒ Act 167 Plan – The attached PCSM Plan is consistent with an applicable approved Act 167 Plan.

Complete the following for all approved Act 167 Stormwater Management Plans. (Use additional sheets if necessary)

Act 167 Plan Name	Date Adopted		
		Consistency Letter Included	☐
See Table in Attachment 5		Verification Report Included	☒

NOTE: A consistency letter is not required if a verification report is provided. Please see NOI Instructions.

The PCSM Plan must satisfy either subparagraph A, B, **or** C below. Check those that apply. If a current, DEP approved Act 167 Plan exists, letter A must be checked.

A. ☒ Act 167 Plan approvals on or after January 2005 - The attached PCSM Plan, in its entirety, is consistent with all requirements pertaining to rate, volume, and water quality from an Act 167 Stormwater Management Plan approved by DEP on or after January 2005.

B. ☒ The PCSM meets the standard design criteria from 102.8(g)(2) and (3) the PA Stormwater BMP Manual. [Note: PCSM plans have to meet both the volume and rate requirements in the regulations, which are provided in these 2 sections].

C. ☐ Alternative Design Standard – The attached PCSM Plan was developed using alternative approaches as provided in 102.8(g)(2)(iv) and 102.(g)(3)(iii). Demonstrate/explain in the space provided below how this standard will be either more protective than what is required in 102.8(g)(2) and 102.8(g)(3) or will maintain and protect existing water quality and existing and designated uses.

2. Riparian Buffer Information

A. Will you be protecting, converting or establishing a riparian buffer or a riparian forest buffer as part of this activity?

Protect ☒ Yes ☐ No Convert ☒ Yes ☐ No Establish ☐ Yes ☒ No

B. Will you be protecting, converting or establishing a voluntary riparian forest buffer as part of this activity?

☐ Yes ☒ No

C. Are you proposing to conduct oil and gas activities for which site reclamation or restoration is is required under a well permit issued under the authority of the 2012 Oil and Gas Act and Chapter 78 and in a high quality or exceptional value watershed that is currently attaining its designated use and within 150 ft of a perennial or intermittent river, stream or creek or lake, pond or reservoir?

☐ Yes ☒ No If yes, provide a demonstration that any existing riparian buffer is undisturbed to the extent practicable.

D. If the regulations require a riparian buffer or riparian forest buffer and you are not providing one, list below the waiver provisions in the Chapter 102 regulations, Section 102.14(d)(i)-(vi), that you are requesting and provide additional documentation to demonstrate reasonable alternatives for compliance with 102.14 requirements and to demonstrate that any existing reparian buffer will remain undisturbed to the extent practicable.

(See Attachment 6 for Riparian Buffer Waiver Information)

This project qualifies for an exception of the riparian forest buffer requirement under Chapter 102.14(d)(1)(ix). Existing riparian forest buffers within the project area are identified on the E&S plan drawings in Attachment 2 of the E&S Plan. Existing riparian forest buffers will be protected to the extent practicable by minimizing the limit of disturbance at stream crossings. In addition to the exception, we are requesting a waiver under 102.14(d)(2)(ii) for areas within 150' of surface waters that are outside of the Chapter 105 permit area.

All disturbance activities, including those which impact riparian forest buffers, have been reduced to the extent practicable. The LOD has been reduced to 50 feet wide at all stream crossings within the riparian forest buffer area where possible. In areas where it is not practicable to reduce the LOD throughout the entire extent of the riparian forest buffer, the LOD has been reduced to 50 feet wide surrounding the stream channel. The operations within the LOD near stream crossings typically includes a topsoil stockpile, a stockpile for pipe trench excavation material, a pipe trench, a travel lane, a work area for equipment operation and pipeline welding outside the trench, and an area to install the erosion control BMPs. In addition, site conditions such as steep slopes, varying depths of topsoil, and other on-site conditions limit the amount of work area. Reducing the LOD to a greater extent could potentially result in unsafe working conditions and would hinder the ability to complete the stream crossing within the required time frame of 24 hours or less. Workspaces that provide additional space for stream crossing activities have been placed outside of riparian forest buffers where possible

Note: If the proposed activity protects, converts or establishes a riparian or riparian forest buffer a Buffer Management Plan is required in the PCSM Plan.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Chartiers Run

Design storm frequency 2-year Rainfall amount 2.38 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.0	1.095	+ 1.095
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.041	0.156	+ 0.115
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.039	- 0.02
Stormwater discharge rate for the design frequency storm	0.38 cfs	0.70 cfs	+ 0.32 cfs
1) 2-Year/24-Hour	-	-	-
2) 10-Year/24-Hour	1.20 cfs	1.18 cfs	- 0.02 cfs
3) 50-year/24-Hour	2.38 cfs	1.73 cfs	- 0.65 cfs
4) 100-year/24-Hour	2.99 cfs	1.99 cfs	- 1.00 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☒ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge GeoWeb Cells	____ 0.117 ac-ft ____	____ 1.095 ____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	____ ____ ____ ____	____ ____ ____ ____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	____ ____ ____	____ ____ ____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	____ ____ ____	____ ____ ____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☐ _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Clearing and grubbing will be minimized to maintain existing shade tree canopy. BMPs utilize (underground storage and infiltration to minimize radiation contact.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional engineer shall be onsite during and/or after construction of all BMPs to certify their correct installation.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Loyalhanna Lake West

Design storm frequency 2-yr Rainfall amount 2.60 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.24	0.24
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.02	0.04	0.02
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.02	0
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	4.017	3.467	0.55
2) 10-Year/24-Hour	5.776	5.217	0.559
3) 50-year/24-Hour	9.634	9.195	0.439
4) 100-year/24-Hour	11.35	10.77	0.58

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltratio Berm	Infiltration/Recharge	_____ _____ _____ 2705	_____ _____ _____ 0.78

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm and soil amendment area to verify that the berm is constructed properly and the correct soil:compost ratio is utilized.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Loyalhanna Lake East

Design storm frequency 2-yr Rainfall amount 2.60 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.19	0.19
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.03	0.04	0.01
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.03	0
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	9.311	8.865	0.446
2) 10-Year/24-Hour	13.46	12.89	0.57
3) 50-year/24-Hour	22.51	21.86	0.65
4) 100-year/24-Hour	26.52	25.87	0.65

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltration Berm	Infiltration/Recharge	_____ _____ _____ 1222	_____ _____ _____ 0.37

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm and soil amendment area to verify that the berm is constructed properly and the correct soil:compost ratio is utilized.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Conemaugh River West

Design storm frequency 2-yr Rainfall amount 2.26 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.19	0.19
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.02	0.03	0.01
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.02	0
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.841	1.589	0.252
2) 10-Year/24-Hour	4.132	3.863	0.269
3) 50-year/24-Hour	7.380	7.106	0.274
4) 100-year/24-Hour	8.888	8.563	0.325

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

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Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltration Berm	Infiltration/Recharge	_____ _____ _____ 1,303	_____ _____ _____ 0.21

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm and soil amendment area to verify that the berm is constructed properly and the correct soil:compost ratio is utilized.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Conemaugh River East

Design storm frequency 2-yr Rainfall amount 2.6 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.42	0.42
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.03	0.06	0.03
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.03	0
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	3.116	2.987	0.129
2) 10-Year/24-Hour	7.165	6.895	0.27
3) 50-year/24-Hour	12.87	12.57	0.30
4) 100-year/24-Hour	15.56	15.31	0.25

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltration Berm	Infiltration/Recharge	_____ _____ _____ 6978	_____ _____ _____ 3.35

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm and soil amendment area to verify that the berm is constructed properly and the correct soil:compost ratio is utilized.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Chestnut Ridge Road

Design storm frequency 2-yr Rainfall amount 2.50 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.29	0.29
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.012	0.035	0.023
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.011	-0.001
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.616	0.504	0.112
2) 10-Year/24-Hour	4.835	4.789	0.046
3) 50-year/24-Hour	12.85	12.87	-0.02
4) 100-year/24-Hour	16.89	16.91	-0.02

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltration Berm	Infiltration/Recharge	_____ _____ _____ 4001	_____ _____ _____ 3.91

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm and soil amendment area to verify that the berm is constructed properly and the correct soil:compost ratio is utilized.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Grange Hall Road

Design storm frequency 2-yr Rainfall amount 2.6 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.16	0.16
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.01	0.02	0.01
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.01	0
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	0.884	0.795	-0.16
2) 10-Year/24-Hour	2.064	1.935	-0.40
3) 50-year/24-Hour	3.717	3.586	-0.77
4) 100-year/24-Hour	4.503	4.430	-0.96

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltratio Berm	Infiltration/Recharge	_____ _____ _____ 909	_____ _____ _____ 0.24

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm and soil amendment area to verify that the berm is constructed properly and the correct soil:compost ratio is utilized.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Cresson RR West

Design storm frequency 2-yr Rainfall amount 2.80 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.14	0.14
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.04	0.05	0.01
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.04	0
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	1.945	1.590	0.355
2) 10-Year/24-Hour	4.127	3.597	0.53
3) 50-year/24-Hour	7.072	6.355	0.717
4) 100-year/24-Hour	8.588	7.876	0.712

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltration berm	Infiltration/Recharge	_____ _____ _____ 1482	_____ _____ _____ 0.37

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm to verify that the berm is constructed properly.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Cresson RR East

Design storm frequency 2-yr Rainfall amount 2.80 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0	0.21	0.21
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.04	0.06	0.02
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.03	-0.01
Stormwater discharge rate for the design frequency storm			
1) 2-Year/24-Hour	4.067	3.717	0.35
2) 10-Year/24-Hour	8.864	8.829	0.035
3) 50-year/24-Hour	15.37	15.37	0.0
4) 100-year/24-Hour	18.74	18.62	0.12

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☐ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge	_____ _____ _____	_____ _____ _____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	_____ _____ _____	_____ _____ _____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	_____ _____ _____	_____ _____ _____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☒ Infiltration Berm	Infiltration/Recharge	_____ _____ _____ 4782	_____ _____ _____ 1.07

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☐ Yes ☒ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Potential thermal impacts to surface waters will be minimized by minimizing clearing and retaining existing vegetation where possible. Permanent seeding will occur as soon as practicable during germinating months.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional shall be on present during construction of the infiltration berm and soil amendment area to verify that the berm is constructed properly and the correct soil:compost ratio is utilized.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Sanders Run

Design storm frequency 2-year Rainfall amount 2.8 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	3.090	4.924	+ 1.834
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	1.994	2.144	+ 0.150
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		1.954	- 0.042
Stormwater discharge rate for the design frequency storm	17.92 cfs	16.62 cfs	- 1.30 cfs
1) 2-Year/24-Hour	-	-	-
2) 10-Year/24-Hour	53.57 cfs	52.11 cfs	- 1.46 cfs
3) 50-year/24-Hour	77.46 cfs	75.51 cfs	- 1.95 cfs
4) 100-year/24-Hour	99.67 cfs	98.79 cfs	- 0.88 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☒ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge Underground Storage Pipes	____ 0.19 ac-ft ____	____ 2.15 ____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	____ ____ ____ ____	____ ____ ____ ____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☒ Retention Basin	Detention/Retention Underground Storage Pipes	____ ____ 0	____ ____ 2.15
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	____ ____ ____	____ ____ ____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☐ _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☒ Yes ☐ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

Pipe outlets are dissipated and spread out to shallow flow with riprap outlet protection.
Pipe outlets are directed to an existing ditch.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Clearing and grubbing will be minimized to maintain existing shade tree canopy. BMPs utilize underground storage and infiltration to minimize radiation contact.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional engineer shall be onsite during and/or after construction of all BMPs to certify their correct installation.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: Tributary 43017 to Beaver Run (POI-A)

Design storm frequency 2-year Rainfall amount 2.7 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	12.482	14.445	+ 1.963
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	3.326	3.466	+ 0.140
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		3.170	- 0.156
Stormwater discharge rate for the design frequency storm	37.80 cfs	35.52 cfs	- 2.28 cfs
1) 2-Year/24-Hour	-	-	-
2) 10-Year/24-Hour	72.79 cfs	68.18 cfs	- 4.61 cfs
3) 50-year/24-Hour	101.35 cfs	94.17 cfs	- 7.18 cfs
4) 100-year/24-Hour	113.00 cfs	104.75 cfs	- 8.25 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas	Infiltration/Recharge		
☐ Infiltration Trench		_____	_____
☐ Infiltration Bed		_____	_____
☒ Infiltrated Basin		0.297 ac-ft	2.575
Natural Area Conservation	Infiltration/Recharge		
☐ Streamside Buffer Zone		_____	_____
☐ Wetland Buffer Zone		_____	_____
☐ Sensitive Area Buffer Zone		_____	_____
☐ Pre-Construction Drainage Pattern Intact		_____	_____
Stormwater Retention	Detention/Retention		
☐ Constructed Wetlands		_____	_____
☐ Wet Ponds	Underground Storage Pipes	_____	_____
☒ Retention Basin		0	3.058
Sediment and Pollutant Removal	Water Quality Treatment		
☐ Vegetated Filter Strips		_____	_____
☐ Compost Filter Sock		_____	_____
☐ Detention Basins		_____	_____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☐ _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☒ Yes ☐ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

Pipe outlets are dissipated and spread out to shallow flow with riprap outlet protection.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Clearing and grubbing will be minimized to maintain existing shade tree canopy. BMPs utilize underground storage and infiltration to minimize radiation contact.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional engineer shall be onsite during and/or after construction of all BMPs to certify their correct installation.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: UNT to Turtle Creek (POI-B)

Design storm frequency 2-year Rainfall amount 2.7 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.159	0.379	+0.220
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.235	0.261	+0.026
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.189	0.046
Stormwater discharge rate for the design frequency storm	4.08 cfs	2.28 cfs	- 1.80 cfs
1) 2-Year/24-Hour	-	-	-
2) 10-Year/24-Hour	8.78 cfs	5.25 cfs	- 3.53 cfs
3) 50-year/24-Hour	12.72 cfs	8.93 cfs	- 3.79 cfs
4) 100-year/24-Hour	14.34 cfs	10.37 cfs	- 3.97 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas ☐ Infiltration Trench ☒ Infiltration Bed ☐ Infiltrated Basin	Infiltration/Recharge Underground Storage Pipes	____ 0.072 ac-ft ____	____ 1.104 ____
Natural Area Conservation ☐ Streamside Buffer Zone ☐ Wetland Buffer Zone ☐ Sensitive Area Buffer Zone ☐ Pre-Construction Drainage Pattern Intact	Infiltration/Recharge	____ ____ ____ ____	____ ____ ____ ____
Stormwater Retention ☐ Constructed Wetlands ☐ Wet Ponds ☐ Retention Basin	Detention/Retention	____ ____ ____	____ ____ ____
Sediment and Pollutant Removal ☐ Vegetated Filter Strips ☐ Compost Filter Sock ☐ Detention Basins	Water Quality Treatment	____ ____ ____	____ ____ ____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☐ _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☒ Yes ☐ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

Pipe outlets are dissipated and spread out to shallow flow with riprap outlet protection.
Pipe outlets are directed to an existing ditch.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Clearing and grubbing will be minimized to maintain existing shade tree canopy. BMPs utilize underground storage and infiltration to minimize radiation contact.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional engineer shall be onsite during and/or after construction of all BMPs to certify their correct installation.

3. SUMMARY TABLE FOR SUPPORTING CALCULATION AND MEASUREMENT DATA
See Attachment D in the Instructions on how to Complete This Section

Watershed Name: UNT to Turtle Creek (POI-C)

Design storm frequency 2-year Rainfall amount 2.7 inches	Pre-construction	Post Construction	Net Change
Impervious area (acres)	0.157	0.409	+ 0.252
Volume of stormwater runoff (acre-feet) without planned stormwater BMPs	0.107	0.150	+ 0.043
Volume of stormwater runoff (acre-feet) with planned stormwater BMPs		0.095	- 0.012
Stormwater discharge rate for the design frequency storm	1.91 cfs	1.54 cfs	- 0.37 cfs
1) 2-Year/24-Hour	-	-	-
2) 10-Year/24-Hour	3.89 cfs	2.99 cfs	- 0.90 cfs
3) 50-year/24-Hour	5.58 cfs	4.23 cfs	- 1.35 cfs
4) 100-year/24-Hour	6.28 cfs	4.80 cfs	- 1.48 cfs

4. SUMMARY DESCRIPTION OF POST CONSTRUCTION STORMWATER BMPs

In the lists below, check the BMPs identified in the Post Construction Stormwater Management Plan. The primary function(s) of the BMP listed in the functions column (infiltration/recharge; detention/retention; water quality). Additional functions may be added if applicable to that BMP. List the stormwater volume and area of runoff to be treated by each BMP type when calculations are required. If any BMP in the Site Restoration Plan is not listed below, describe it in the space provided after "Other".

BMP	Function(s)	Volume of stormwater treated	Acres treated
Bio-infiltration areas	Infiltration/Recharge		
☐ Infiltration Trench		_____	_____
☐ Infiltration Bed		_____	_____
☒ Infiltrated Basin		0.055 ac-ft	0.722
Natural Area Conservation	Infiltration/Recharge		
☐ Streamside Buffer Zone		_____	_____
☐ Wetland Buffer Zone		_____	_____
☐ Sensitive Area Buffer Zone		_____	_____
☐ Pre-Construction Drainage Pattern Intact		_____	_____
Stormwater Retention	Detention/Retention		
☐ Constructed Wetlands		_____	_____
☐ Wet Ponds		_____	_____
☐ Retention Basin		_____	_____
Sediment and Pollutant Removal	Water Quality Treatment		
☐ Vegetated Filter Strips		_____	_____
☐ Compost Filter Sock		_____	_____
☐ Detention Basins		_____	_____

Access Road Design ☐ Road Crowning ☐ Ditches ☐ Turnouts ☐ Culverts ☐ Roadside Vegetated Filter Strips	Infiltration/Recharge	_____ _____ _____ _____ _____	_____ _____ _____ _____ _____
Stormwater Energy Dissipaters ☐ Level Spreaders ☐ Riprap Aprons ☐ Upslope Diversions ☐ _____	Infiltration/Recharge	_____ _____ _____ _____	_____ _____ _____ _____

5. Off-site Discharge Analysis.

Does the activity propose any off-site discharges to areas other than surface waters? ☒ Yes ☐ No

If yes, it is the applicant's responsibility to ensure that they have legal authority for any off-site discharge.

The Applicant must provide a demonstration in both the E&S and PCSM Plans that the discharge will not cause erosion, damage, or nuisance to off-site properties.

Pipe outlets are dissipated and spread out to shallow flow with riprap outlet protection.
Pipe outlets are directed to an existing stormwater inlet.

6. Thermal Impact Analysis.

Explain how thermal impacts associated with this project were avoided, minimized, or mitigated.

Clearing and grubbing will be minimized to maintain existing shade tree canopy. BMPs utilize infiltration to minimize radiation contact.

7. Critical PCSM Plan stages.

Identify and list critical stages of implementation of the PCSM Plan for which a licensed professional or designee shall be present on site.

A licensed professional engineer shall be onsite during and/or after construction of all BMPs to certify their correct installation.

SECTION G. ANTIDEGRADATION ANALYSIS

This section must be completed where earth disturbance activities will be conducted in special protection or siltation-impaired watersheds.

Part 1 NONDISCHARGE ALTERNATIVES EVALUATION

The applicant must consider and describe any and all nondischarge alternatives for the entire project area which are environmentally sound and will**:**

- Minimize accelerated erosion and sedimentation during the earth disturbance activity
- Achieve no net change from pre-development to post-development volume, rate and concentration of pollutants in water quality

E & S Plan	*Official Use Only*	PCSM/Site Restoration Plan	*Official Use Only*
Check off the environmentally sound nondischarge Best Management Practices (BMPs) listed below to be used prior to, during, and after earth disturbance activities that have been incorporated into your E & S Plan based on your site analysis. For non-discharge BMPs not checked, provide an explanation of why they were not utilized. Also for BMPs checked, provide an explanation of why they were utilized. (Provide your analysis and attach additional sheets if necessary) The best possible pipeline route was selected based on landowner agreements, and minimization of environmental impacts, and engineering/constructibiliy factors. The project's disturbed area will be limited to the area required for construction, and the duration of construction will be minimized to the extent practicable. Riparian forest buffers will be protected to the extent practicable during construcion activities at stream crossings.		Check off the environmentally sound nondischarge Best Management Practices (BMPs) listed below to be used after construction that have been incorporated into your PCSM/SR Plan based on your site analysis. For non-discharge BMPs not checked, provide an explanation of why they were not utilized. Also for BMPs checked, provide an explanation of why they were utilized. (Provide your analysis and attach additional sheets if necessary) The best possible pipeline route was selected based on landowner agreements, and minimization of environmental impacts, and engineering/constructibility factors. The pipeline right of way will be restored to a meadow condition at original contours to maintain the pre-construction drainage patterns. Riparian forest buffers will be protected to the extent practicable.	
Nondischarge BMPs ☐ Alternative Siting ☐ Alternative location ☐ Alternative configuration ☐ Alternative location of discharge ☒ Limited Disturbed Area ☒ Limiting Extent & Duration of Disturbance (Phasing, Sequencing) ☐ Riparian Buffers (150 ft. min.) ☐ Riparian Forest Buffer (150 ft. min.) ☐ Other _____		**Nondischarge BMPs** ☐ Alternative Siting ☐ Alternative location ☐ Alternative configuration ☐ Alternative location of discharge ☐ Low Impact Development (LID / BSD) ☐ Riparian Buffers (150 ft. min.) ☐ Riparian Forest Buffer (150 ft. min.) ☒ Infiltration ☐ Water Reuse ☒ Other re-construction drainage pattern intact within the right of way	

Will the non-discharge alternative BMPs eliminate the net change in rate, volume and quality during and after construction?

☐ Yes ☒ No

If yes, antidegradation analysis is complete.
If no, proceed to Part 2.

PART 2 ANTIDEGRADATION BEST AVAILABLE COMBINATION OF TECHNOLOGIES (ABACT)			
If the net change in stormwater discharge from or after construction is not fully managed by nondischarge BMPs, the applicant must utilize ABACT BMPs to manage the difference. The Applicant must specify whether the discharge will occur during construction, post-construction or both, and identify the technologies that will be used to ensure that the discharge will be a non-degrading discharge. ABACT BMPs include but are not limited to:			
E & S Plan	***Official Use Only***	**PCSM/Site Restoration Plan**	***Official Use Only***
☒ **Treatment BMPs:** ☐ Sediment basin with skimmer ☐ Sediment basin ratio of 4:1 or greater (flow length to basin width) ☐ Sediment basin with 4-7 day detention ☐ Flocculants ☒ Compost Filter Socks ☐ Compost Filter Sock Sediment Basin ☒ RCE w/ Wash Rack ☐ **Land disposal:** ☐ Vegetated filters ☐ Riparian buffers <150ft. ☐ Riparian Forest Buffer <150ft. ☐ Immediate stabilization ☒ **Pollution prevention:** ☒ PPC Plans ☐ Street sweeping ☐ Channels, collectors and diversions lined with permanent vegetation, rock, geotextile or other non-erosive materials ☐ **Stormwater reuse technologies:** ☐ Sediment basin water for dust control ☐ Sediment basin water for irrigation ☒ **Other** Rock construction entrances with wash racks, compost filter socks, erosion control blanket placed within 100-feet of streams		☐ **Treatment BMPs:** ☒ Infiltration Practices ☐ Wet ponds ☐ Created wetland treatment systems ☐ Vegetated swales ☐ Manufactured devices ☐ Bio-retention/infiltration ☐ Green Roofs ☐ **Land disposal:** ☐ Vegetated filters ☐ Riparian Buffers <150ft. ☐ Riparian Forest Buffer <150ft. ☐ Disconnection of roof drainage ☐ Bio-retention/bio-infiltration ☒ **Pollution prevention:** ☐ Street sweeping ☐ Nutrient, pesticide, herbicide or other chemical application plan alternatives ☒ PPC Plans ☐ Non-structural Practices ☒ Restoration BMPs ☐ **Stormwater reuse technologies:** ☐ Divert rainwater into impoundment ☐ Underground storage ☐ Spray/Drip Irrigation ☐ **Other** _____	

SECTION H. COMPLIANCE REVIEW

Is the applicant in violation of any existing permit, regulation, order, or schedule of compliance issued by the Department within the last 5 years?

☒ Yes ☐ No

If yes, provide the permit number or facility name, a brief description of the violation, the compliance schedule (including dates and steps to achieve compliance) and the current compliance status. (Attach additional information on a separate sheets, when necessary)

Notices of Violations attachedin formal application

SECTION I. CERTIFICATION BY PERSON PREPARING APPLICATION

I do hereby certify to the best of my knowledge, information, and belief, that the Erosion and Sediment Control and PCSM/Site Restoration Plans are true and correct, represent actual field conditions, and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Print Name Robert F. Simcik, P.E.	Signature	Professional Seal
Company Tetra Tech		
Address 661 Andersen Drive, Foster Plaza 7, Pittsburgh, PA 15220		
Phone (412) 921-8163		
Most Recent DEP Training Attended Location Greensburg, PA Date 04/03/2014		
e-Mail Address robert.simcik@tetratech.com		

EXPEDITED REVIEW PROCESS

In addition to the certification required above applicants using the expedited permit review process must attach an E&S and PCSM/Site Restoration Plans developed and sealed by a licensed professional engineer, surveyor or professional geologist. The plans shall contain the following certification:

I do hereby certify to the best of my knowledge, information, and belief, that the E & S Control and SR/PCSM BMPs are true and correct, represent actual field conditions and are in accordance with the 25 Pa. Code Chapters 78 and 102 of the Department's rules and regulations. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

SECTION J. APPLICANT CERTIFICATION

Applicant Certification. I certify under penalty of law that this document and all attachments were prepared by me or under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. The responsible official's signature also verifies that the activity is eligible to participate in the permit, and that the applicant agrees to abide by the terms and conditions of the permit. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Matthew L. Gordon - Project Manager - Sunoco Print Name and Title of Applicant	Print Name and Title of Co-Applicant (if applicable)
Signature of Applicant	Signature of Co-Applicant
7/3/2015 Date Application Signed	Date Application Signed

Notarization

Sworn to and subscribed to before me this 8 day of July, 20 15

Notary Public

Commonwealth of Pennsylvania

County of BERKS

My Commission expires DEC. 16, 2018

AFFIX SEAL

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
CONNIE L. GOODWICK
Notary Public
READING, BERKS COUNTY
My Commission Expires Dec 16, 2018

SECTION K. CONTACT FOR ADDITIONAL INFORMATION				
Contact's Last Name	First Name	MI	Phone	(412) 921-8163
Simcik	Robert	F	FAX	
Mailing Address	City		State	ZIP + 4
661 Andersen Drive, Foster Plaza 7	Pittsburgh		PA	15220
e-Mail Address robert.simcik@tetratech.com				

ATTACHMENT 1:

Site Directions

Detailed Written Directions to the Site

Washington County

From the DEP Southwest Regional Office to Ross Road Block Valve (354 Ross Road, Eighty Four, PA 15330):

Head south on Waterfront Drive (0.2 mi). Slight right onto 30th St Bridge (476ft). Turn right onto River Ave (148 ft). Turn left onto 31st St Bridge (154 ft). Turn left onto the Pennsylvania 28 ramp (0.2mi). Merge onto PA-28 S (0.9mi). Take the Interstate 279 S/Interstate 376 W exit (0.4 mi). Merge onto I-279 S (0.9 mi). Take the exit onto I-376 W/Fort Pitt Bridge (5.7 mi). Take exit 64A to merge onto I-79 S toward Washington (13.6mi). Take exit 45 toward PA-980/Canonsburg (0.2 mi). Turn left onto McClelland Rd (1.2 mi). Turn left onto US-19 N (1.0 mi). Turn right onto Waterdam Rd (2.3 mi). Slight right onto Thomas Rd (0.5 mi). Turn right onto Ross Rd (0.8 mi). The Ross Road Block Valve will be on the left about 0.8 miles down the road.

From the Washington County Conservation District to Ross Road Block Valve (354 Ross Road, Eighty Four, PA 15330):

Head southeast on N Main St toward Country Club Rd (75 ft). Turn left onto Country Club Rd (0.9 mi). Turn left onto Pike St (0.7 mi). Turn right onto Racetrack Rd (1.5 mi). Turn left onto US-19 N (2.5 mi). Turn right onto Linden Rd (2.6 mi). Turn left onto Ross Rd. The Ross Road Block Valve site will be on the right about 1.8 miles down the road.

Allegheny County

From the DEP Southwest Regional Office to Pangburn Hollow Access Road (approximately 480 William Penn Road, Monongahela, PA 15063):

Head south on Waterfront Dr (0.2 mi). Slight right onto 30th St Bridge (476 ft). Turn right onto River Ave (148 ft). Turn left onto 31st St Bridge (154 ft). Turn left onto the Pennsylvania 28 ramp (0.2 mi). Merge onto PA-28 S (0.9 mi). Take the Interstate 579 S/Interstate 376 E exit (0.3 mi). Continue onto I-579 S (0.9 mi). Take the exit on the left toward I-579 S/Liberty Bridge (0.2 mi). Merge onto Crosstown Blvd (0.2 mi). Continue onto Liberty Bridge (0.3 mi). Continue onto Liberty Tunnel (1.2 mi). Continue onto W Liberty Ave (190 ft). Take the Pennsylvania 51 S ramp to Uniontown (0.1 mi). Merge onto Saw Mill Run Blvd (3.9 mi). Continue onto PA-51 S/Clairton Blvd (11.1 mi). Slight right onto Roberts Hollow Rd (1.6 mi). Turn right onto Wall Rd (1.1 mi). Slight right onto William Penn Rd (0.6). The Access Road will be on the right about 0.6 miles down the road.

From the Allegheny County Conservation District to Pangburn Hollow Access Road (approximately 480 William Penn Road, Monongahela, PA 15063):

Head southwest on Terminal Way toward E Carson St (381 ft). Turn right onto E Carson St (0.3 mi). Sharp left onto Arlington Ave (0.2 mi). Turn right onto P.J. McArdle Roadway (187 ft). Turn left onto Liberty

Tunnel (1.2 mi). Continue onto W Liberty Ave (190 ft). Take the Pennsylvania 51 S ramp to Uniontown (0.1 mi). Merge onto Saw Mill Run Blvd (3.9 mi). Continue onto PA-51 S/Clairton Blvd (11.1 mi). Slight right onto Roberts Hollow Rd (1.6 mi). Turn right onto Wall Rd (1.1 mi). Slight right onto William Penn Rd. The Access Road will be on the right about 0.6 miles down the road.

From the DEP Southwest Regional Office to Highway 51 Access Road (approximately 2901 Hayden Blvd, Elizabeth, PA 15037):

Head south on Waterfront Dr (0.2 mi). Slight right onto 30th St Bridge (476 ft). Turn right onto River Ave (148 ft). Turn left onto 31st St Bridge (154 ft). Turn left onto the Pennsylvania 28 ramp (0.2 mi). Merge onto PA-28 S (0.9 mi). Take the Interstate 579 S/Interstate 376 E exit (0.3 mi). Continue onto I-579 S (0.9 mi). Take the exit on the left toward I-579 S/Liberty Bridge (0.2 mi). Merge onto Crosstown Blvd (0.2 mi). Continue onto Liberty Bridge (0.3 mi). Continue onto Liberty Tunnel (1.2 mi). Continue onto W Liberty Ave (190 ft). Take the Pennsylvania 51 S ramp to Uniontown (0.1 mi). Merge onto Saw Mill Run Blvd (3.9 mi). Continue onto PA-51 S/Clairton Blvd (14.1 mi). Take the PA-136 exit (0.1 mi). Turn left onto PA-136 E (318 ft). Turn left to merge onto PA-51 N (0.2 mi). The Highway 51 Access Road will be on the right about 0.2 miles down the road.

From the Allegheny County Conservation District to Highway 51 Access Road (approximately 2901 Hayden Blvd, Elizabeth, PA 15037):

Head southwest on Terminal Way toward E Carson St (381 ft). Turn right onto E Carson St (0.3 mi). Sharp left onto Arlington Ave (0.2 mi). Turn right onto P.J. McArdle Roadway (187 ft). Turn left onto Liberty Tunnel (1.2 mi). Continue onto W Liberty Ave (190 ft). Take the Pennsylvania 51 S ramp to Uniontown (0.1 mi). Merge onto Saw Mill Run Blvd (3.9 mi). Continue onto PA-51 S/Clairton Blvd (14.1 mi). Take the PA-136 exit (0.1 mi). Turn left onto PA-136 E (318 ft). Turn left to merge onto PA-51 N. The Highway 51 Access Road will be on the right about 0.2 miles down the road.

Westmoreland County

From the DEP Southwest Regional Office to the Delmont Pump Station (1734 Old Route 66, Delmont, PA 15626):

Head south on Waterfront Dr (0.2 mi). Slight right onto 30th St Bridge (476 ft). Turn right onto River Ave (148 ft). Turn left onto 31st St Bridge (154 ft). Turn left onto the Pennsylvania 28 ramp (0.2 mi). Merge onto PA-28 S (0.9 mi). Take the Interstate 579 S/Interstate 376 E exit (0.3 mi). Continue onto I-579 S (0.9 mi). Take the exit toward I-376 E/Oakland/Monroeville (0.3 mi). Continue onto Boulevard of the Allies (1.0 mi). Merge onto I-376 E via the ramp to Monroeville (0.4 mi). Merge onto I-376 E. Keep left to continue on US-22 E (9.0 mi), follow signs for Murrysville. Turn left onto Manor Rd (1.7 mi). Turn left onto PA-66 N/Sheridan Rd. The Delmont Station will be on the right hand side about 1.4 miles down the road.

From the Westmoreland County Conservation District to the Delmont Pump Station (1734 Old Route 66, Delmont, PA 15626):

Head northeast on Twin Run Rd toward Deer Trail Rd. Turn left onto Georges Station Rd (1.6 mi). Slight right onto Bovard Luxor Rd (0.2 mi). Turn left onto State Route 1053 (1.0 mi). Turn left onto US-119 S (0.2 mi). Turn right onto Forbes Trail Rd (0.4 mi). Turn right at the 1st cross street onto Hannastown Rd (0.5 mi). Turn left onto Fire Station Rd (1.1 mi). Turn left onto Fire Station Rd/T881 (190 ft). Turn right onto Fire Station Rd (0.2 mi). Slight right onto PA-819 N. Turn left onto Beaver Run Rd/Rebecca Dr (2.1 mi). Slight left to stay on Beaver Run Rd (1.0 mi). Turn left onto Brick Hill Rd/Old Hill Rd/T627 (0.1 mi). Turn right onto the ramp to US-22 (0.4 mi). Merge onto PA-66 N (2.6 mi). The Delmont Station will be on the right hand side about 2.6 miles down the road.

Indiana County

From the DEP Southwest Regional Office to the Chestnut Ridge Road Block Valve (approximately 41 Dusty Lane, Blairsville, PA 15717):

Head south on Waterfront Dr (0.2 mi). Slight right onto 30th St Bridge (476 ft). Turn right onto River Ave (148 ft). Turn left onto 31st St Bridge (154 ft). Turn left onto the Pennsylvania 28 ramp (0.2 mi). Merge onto PA-28 S (0.9 mi). Take the Interstate 579 S/Interstate 376 E exit (0.3 mi). Continue onto I-579 S (0.9 mi). Take the exit toward I-376 E/Oakland/Monroeville (0.3 mi). Continue onto Boulevard of the Allies (1.0 mi). Merge onto I-376 E via the ramp to Monroeville (12.5 mi). Keep left to continue on US-22 E (33.1 mi), follow signs for Murrysville. Turn right onto Penn View Rd (0.3 mi). Turn left onto Chestnut Ridge Rd (0.8 mi). Turn right onto Chestnut Ridge Rd/T724 (0.2 mi). Slight left onto Dusty Ln. The Chestnut Ridge Block Valve will on the left hand side about 300 feet down the road.

From the Indiana County Conservation District to the Chestnut Ridge Road Block Valve (approximately 41 Dusty Lane, Blairsville, PA 15717):

Head south on Kolter Dr toward Rustic Lodge Rd (0.3mi). Turn left onto Rustic Lodge Rd (0.2 mi). Turn left at the 1st cross street onto US-422 BUS (0.9 mi). Turn right to stay on US-422 BUS (1.0 mi). Keep right at the fork, follow signs for US-119 S/Blairsville and merge onto US-119 S (0.6 mi). Merge onto US-119 S (9.7 mi). Keep left to continue on Buffalo-Pittsburgh Hwy/Indiana Hwy (0.3 mi). Turn left to merge onto US-22 E (3.2 mi). Turn right onto Penn View Rd (0.3 mi). Turn left onto Chestnut Ridge Rd (0.8 mi). Turn right onto Chestnut Ridge Rd/T724 (0.2 mi). Slight left onto Dusty Ln. The Chestnut Ridge Block Valve will be on the left hand side about 300 feet down the road.

Cambria County

From the DEP Southwest Regional Office to the Ebensburg Pump Station (approximately 780 Wilmore Road, Ebensburg, PA 15931):

Head south on Waterfront Dr (0.2 mi). Slight right onto 30th St Bridge (476 ft). Turn right onto River Ave (148 ft). Turn left onto 31st St Bridge (154 ft). Turn left onto the Pennsylvania 28 ramp (0.2 mi). Merge onto PA-28 S (0.9 mi). Take the Interstate 579 S/Interstate 376 E exit (0.3 mi). Continue onto I-579 S (0.9 mi). Take the exit toward I-376 E/Oakland/Monroeville (0.3 mi). Continue onto Boulevard of the Allies (1.0 mi). Merge onto I-376 E via the ramp to Monroeville (12.5 mi). Keep left to continue on US-22 E (57.7 mi), follow signs for Murrysville. Turn right onto Wilmore Rd. The Ebensburg Pump Station will be on the right hand side about 2.1 miles down the road.

From the Cambria County Conservation District to the Ebensburg Pump Station (approximately 780 Wilmore Road, Ebensburg, PA 15931):

Head southeast on Candlelight Dr toward S Center St (43 ft). Turn right onto S Center St (0.2 mi). Continue onto Wilmore Rd. The Ebensburg Pump Station will be on the right hand side about 2.1 miles down the road.

ATTACHMENT 2:

Municipalities Table

Municipalities

Pennsylvania Pipeline Project

SouthWest Region

County	Muncipality
Washington	Chartiers Township
	North Strabane Township
	Nottingham Township
	Union Township
Allegheny	Forward Township
	Elizabeth Township
Westmoreland	Rostraver Township
	South Huntingdon Township
	Sewickley Township
	Hempfield Township
	Jeannette City
	Penn Township
	Murrysville Borough
	Delmont Borough
	Salem Township
	Loyalhanna Township
	Derry Township
Indiana	Burrell Township
	West Wheatfield Township
	East Wheatfield Township
Cambria	Jackson Township
	Cambria Township
	Munster Township
	Cresson Borough
	Washington Township

ATTACHMENT 3:

Water/Watershed Table

Attachment 3

Receiving Waters Table

Pennsylvania Pipeline Project

Southwest Region

Stream Name	County	Township	Chapter 93 Designated Use (Exisiting Use, if applicable)	Chapter 93 Code	Siltation Impaired
Chartiers Run	Washington	Chartiers	WARM WATER FISHES	WWF	Yes
UNT to Chartiers Run (4)	Washington	Chartiers	WARM WATER FISHES	WWF	Yes
Westland Run	Washington	Chartiers	WARM WATER FISHES	WWF	Yes
Chartiers Creek	Washington	Chartiers	WARM WATER FISHES	WWF	Yes
UNT to Chartiers Creek	Washington	Chartiers	WARM WATER FISHES	WWF	Yes
UNT to Chartiers Creek (3)	Washington	North Strabane	WARM WATER FISHES	WWF	Yes
Little Chartiers Creek	Washington	North Strabane	HIGH QUALITY-WARM WATER FISHES	HQ	No
UNT to Little Chartiers Creek (16)	Washington	North Strabane	HIGH QUALITY-WARM WATER FISHES	HQ	No
UNT to Peters Creek (6)	Washington	Nottingham	TROUT STOCKING	TSF	No
Peters Creek	Washington	Nottingham	TROUT STOCKING	TSF	No
UNT to Mingo Creek (9)	Washington	Nottingham	HIGH QUALITY-TROUT STOCKING	HQ	No
UNT to Mingo Creek (3)	Washington	Union	HIGH QUALITY-TROUT STOCKING	HQ	No
Froman Run	Washington	Union	TROUT STOCKING	TSF	No
UNT to Froman Run (3)	Washington	Union	TROUT STOCKING	TSF	No
Mongahela River	Washington	Union	WARM WATER FISHES	WWF	No
Monongahela River	Allegheny	Forward	WARM WATER FISHES	WWF	No
UNT to Bunola Run (4)	Allegheny	Forward	WARM WATER FISHES	WWF	No
Bunola Run	Allegheny	Forward	WARM WATER FISHES	WWF	No
Kelly Run	Allegheny	Forward	WARM WATER FISHES	WWF	No
UNT to Kelly Run	Allegheny	Forward	WARM WATER FISHES	WWF	No
UNT to Perry Mill Run	Allegheny	Forward	WARM WATER FISHES	WWF	No
Perry Mill Run	Allegheny	Forward	WARM WATER FISHES	WWF	No
Sunfish Run	Allegheny	Forward	WARM WATER FISHES	WWF	No
UNT to Sunfish Run (5)	Allegheny	Forward	WARM WATER FISHES	WWF	No
UNT to Beckets Run (8)	Allegheny	Forward	WARM WATER FISHES	WWF	Yes
UNT to Gillespie Run (3)	Allegheny	Elizabeth	WARM WATER FISHES	WWF	No
Long Hollow	Allegheny	Elizabeth	WARM WATER FISHES	WWF	Yes
UNT to Pollock Run (2)	Allegheny	Elizabeth	WARM WATER FISHES	WWF	Yes
UNT to Pollock Run (2)	Westmoreland	Rostraver	WARM WATER FISHES	WWF	Yes
Pollock Run	Westmoreland	Rostraver	WARM WATER FISHES	WWF	Yes
Youghiogheny River	Westmoreland	Rostraver	WARM WATER FISHES	WWF	No
Youghiogheny River	Westmoreland	South Huntingdon	WARM WATER FISHES	WWF	No

Attachment 3

Receiving Waters Table

Pennsylvania Pipeline Project

Southwest Region

Stream Name	County	Township	Chapter 93 Designated Use (Exisiting Use, if applicable)	Chapter 93 Code	Siltation Impaired
UNT to Sewickley Creek (2)	Westmoreland	South Huntingdon	WARM WATER FISHES	WWF	No
Sewickley Creek	Westmoreland	Sewickley	WARM WATER FISHES	WWF	No
UNT to Sewickley Creek (3)	Westmoreland	Sewickley	WARM WATER FISHES	WWF	No
UNT to Kellys Run	Westmoreland	Sewickley	WARM WATER FISHES	WWF	Yes
Little Sewickley Creek	Westmoreland	Sewickley	TROUT STOCKING	TSF	Yes
UNT to Little Sewickley Creek (7)	Westmoreland	Sewickley	TROUT STOCKING	TSF	Yes
Little Sewickley Creek	Westmoreland	Hempfield	TROUT STOCKING	TSF	Yes
UNT to Little Sewickley Creek (15)	Westmoreland	Hempfield	TROUT STOCKING	TSF	Yes
UNT to Brush Creek (6)	Westmoreland	Hempfield	TROUT STOCKING	TSF	No
Brush Creek	Westmoreland	Jeannette	TROUT STOCKING	TSF	No
UNT to Brush Creek	Westmoreland	Penn	TROUT STOCKING	TSF	No
UNT to Bushy Run (12)	Westmoreland	Penn	TROUT STOCKING	TSF	Yes
Bushy Run	Westmoreland	Penn	TROUT STOCKING	TSF	Yes
UNT to Turtle Creek (2)	Westmoreland	Penn	TROUT STOCKING	TSF	Yes
UNT to Turtle Creek (3)	Westmoreland	Murrysville	TROUT STOCKING	TSF	Yes
Turtle Creek	Westmoreland	Murrysville	TROUT STOCKING	TSF	Yes
Thorn Run	Westmoreland	Salem	HIGH QUALITY-COLD WATER FISHES	HQ	Yes
UNT to Beaver Run (19)	Westmoreland	Salem	HIGH QUALITY-COLD WATER FISHES	HQ	Yes
Beaver Run	Westmoreland	Salem	HIGH QUALITY-COLD WATER FISHES	HQ	Yes
UNT to Porters Run (12)	Westmoreland	Salem	HIGH QUALITY-COLD WATER FISHES	HQ	No
Porters Run	Westmoreland	Salem	HIGH QUALITY-COLD WATER FISHES	HQ	No
UNT to Loyalhanna Creek (12)	Westmoreland	Salem	HIGH QUALITY-COLD WATER FISHES	HQ	No
UNT to Serviceberry Run (2)	Westmoreland	Salem	HIGH QUALITY-WARM WATER FISHES	HQ	No
UNT to Serviceberry Run (4)	Westmoreland	Loyalhanna	HIGH QUALITY-WARM WATER FISHES	HQ	No
Serviceberry Run	Westmoreland	Loyalhanna	HIGH QUALITY-WARM WATER FISHES	HQ	No
UNT to Loyalhanna Lake (2)	Westmoreland	Loyalhanna	HIGH QUALITY-WARM WATER FISHES	HQ	No
UNT to Loyalhanna Creek (8)	Westmoreland	Loyalhanna	WARM WATER FISHES	WWF	No
Loyalhanna Creek	Westmoreland	Loyalhanna	WARM WATER FISHES	WWF	No
UNT to Boatyard Run (8)	Westmoreland	Loyalhanna	COLD WATER FISHES	CWF	No
Boatyard Run	Westmoreland	Derry	COLD WATER FISHES	CWF	No
UNT to Boatyard Run (12)	Westmoreland	Derry	COLD WATER FISHES	CWF	No
UNT to Spruce Run (6)	Westmoreland	Derry	HIGH QUALITY-COLD WATER FISHES	HQ	Yes

Attachment 3

Receiving Waters Table

Pennsylvania Pipeline Project

Southwest Region

Stream Name	County	Township	Chapter 93 Designated Use (Exisiting Use, if applicable)	Chapter 93 Code	Siltation Impaired
Spruce Run	Westmoreland	Derry	HIGH QUALITY-COLD WATER FISHES	HQ	Yes
UNT to Conemaugh River (37)	Westmoreland	Derry	COLD WATER FISHES	CWF	Yes
Conemaugh River	Westmoreland	Derry	WARM WATER FISHES	WWF	Yes
Conemaugh River	Indiana	Burrell	WARM WATER FISHES	WWF	No
UNT to Conemaugh River (5)	Indiana	Burrell	COLD WATER FISHES	CWF	No
UNT to Blacklick Creek (21)	Indiana	Burrell	COLD WATER FISHES	CWF	Yes
UNT to Toms Run (9)	Indiana	Burrell	COLD WATER FISHES	CWF	No
Toms Run	Indiana	Burrell	COLD WATER FISHES	CWF	No
UNT to Roaring Run (6)	Indiana	West Wheatfield	COLD WATER FISHES	CWF	No
Roaring Run	Indiana	West Wheatfield	COLD WATER FISHES	CWF	No
UNT to Conemaugh River (2)	Indiana	West Wheatfield	COLD WATER FISHES	CWF	No
West Branch Richards Run	Indiana	West Wheatfield	COLD WATER FISHES	CWF	No
UNT to West Branch Richards Run (4)	Indiana	West Wheatfield	COLD WATER FISHES	CWF	No
UNT to East Branch Richards Run (7)	Indiana	West Wheatfield	COLD WATER FISHES	CWF	No
East Branch Richards Run	Indiana	West Wheatfield	COLD WATER FISHES	CWF	No
UNT to Conemaugh River (31)	Indiana	East Wheatfield	COLD WATER FISHES	CWF	No
UNT to Findley Run (15)	Indiana	East Wheatfield	HIGH QUALITY-COLD WATER FISHES	HQ	No
Findley Run	Indiana	East Wheatfield	HIGH QUALITY-COLD WATER FISHES	HQ	No
UNT to Findley Run (10)	Cambria	Jackson	HIGH QUALITY-COLD WATER FISHES	HQ	No
UNT to Laurel Run (10)	Cambria	Jackson	HIGH QUALITY-COLD WATER FISHES	HQ	No
Laurel Run	Cambria	Jackson	HIGH QUALITY-COLD WATER FISHES	HQ	No
Hinckston Run	Cambria	Jackson	COLD WATER FISHES	CWF	No
UNT to Hinckston Run (10)	Cambria	Jackson	COLD WATER FISHES	CWF	No
UNT to Saltlick Run (24)	Cambria	Jackson	HIGH QUALITY-COLD WATER FISHES	HQ	No
Saltlick Run	Cambria	Jackson	HIGH QUALITY-COLD WATER FISHES	HQ	No
Stewart Run	Cambria	Cambria	HIGH QUALITY-COLD WATER FISHES	HQ	No
UNT to Stewart Run (7)	Cambria	Cambria	HIGH QUALITY-COLD WATER FISHES	HQ	No
UNT to Roaring Run (8)	Cambria	Cambria	COLD WATER FISHES	CWF	No
Roaring Run	Cambria	Cambria	COLD WATER FISHES	CWF	No
Howells Run	Cambria	Cambria	COLD WATER FISHES	CWF	No
UNT to Howells Run (20)	Cambria	Cambria	COLD WATER FISHES	CWF	No
Sanders Run	Cambria	Cambria	COLD WATER FISHES	CWF	No

Attachment 3

Receiving Waters Table

Pennsylvania Pipeline Project

Southwest Region

Stream Name	County	Township	Chapter 93 Designated Use (Exisiting Use, if applicable)	Chapter 93 Code	Siltation Impaired
UNT to North Branch Little Conemaugh (13)	Cambria	Munster	COLD WATER FISHES	CWF	No
North Branch Little Conemaugh River	Cambria	Munster	COLD WATER FISHES	CWF	No
UNT to Noels Creek (19)	Cambria	Munster	HIGH QUALITY-COLD WATER FISHES	HQ	No
Noels Creek	Cambria	Munster	HIGH QUALITY-COLD WATER FISHES	HQ	No
UNT to Little Conemaugh River (15)	Cambria	Cresson	COLD WATER FISHES	CWF	No
Little Conemaugh River	Cambria	Cresson	COLD WATER FISHES	CWF	No
Burgoon Run	Cambria	Cresson	COLD WATER FISHES	CWF	No
UNT to Burgoon Run (5)	Cambria	Cresson	COLD WATER FISHES	CWF	No
UNT to Bear Rock Run (9)	Cambria	Cresson	COLD WATER FISHES	CWF	No
UNT to Bear Rock Run	Cambria	Washington	COLD WATER FISHES	CWF	No
UNT to Blair Run (3)	Cambria	Washington	COLD WATER FISHES	CWF	No

Recieving Wetlands Table
Pennsylvania Pipeline Project
Southwest Region

Municipality	Receiving Water	Number of Wetlands	Number of EV Wetlands (Classification)
WASHINGTON COUNTY			
Chartiers	UNT to Chartiers Run	10	0
North Strabane	UNT to Chartiers Creek	1	0
North Strabane	UNT to Little Chartiers Creek	7	0
Nottingham	UNT to Peters Creek	2	0
Nottingham	UNT to Mingo Creek	4	0
Union	UNT to Mingo Creek	1	0
ALLEGHENY COUNTY			
Forward	UNT to Monongahela River	1	1
Forward	UNT to Bunola Run	2	0
Elizabeth	UNT to Gillespie Run	1	0

Recieving Wetlands Table
Pennsylvania Pipeline Project
Southwest Region

Municipality	Receiving Water	Number of Wetlands	Number of EV Wetlands (Classification)
WESTMORELAND COUNTY			
South Huntingdon	UNT to Sewickley Creek	4	0
Sewickley	UNT to Sewickley Creek	1	1 (Wild Trout)
Sewickley	UNT to Kelly Run	1	
Sewickley	UNT to Little Sewickley Creek	1	0
Hempfield	UNT to Little Sewickley Creek	7	0
Hempfield	UNT to Brush Creek	1	0
Penn	UNT to Brush Creek	10	0
Murrysville	UNT to Turtle Creek	1	0
Salem	UNT to Thorn Run	4	0
Salem	UNT to Beaver Run	19	0
Salem	UNT to Porters Run	14	0
Salem	UNT to Loyalhanna Creek	2	0
Salem	UNT to Serviceberry Run	2	0
Loyalhanna	UNT to Serviceberry Run	8	0
Loyalhanna	UNT to Loyalhanna Creek	5	0
Loyalhanna	UNT to Boatyard Run	7	0
Derry	UNT to Boatyard Run	5	0
Derry	UNT to Spruce Run	1	0
Derry	UNT to Conemaugh River	29	0
INDIANA COUNTY			
Burrel	UNT to Conemaugh River	6	0
Burrel	UNT to Blacklick Creek	18	0
Burrel	UNT to Toms Run	2	2 (Wild Trout)
West Wheatfield	UNT to Roaring Run	2	0
West Wheatfield	UNT to Conemaugh River	3	0
West Wheatfield	UNT to West Branch Richards Run	6	0
West Wheatfield	UNT to East Branch Richards Run	13	0
East Wheatfield	UNT to East Branch Richards Run	5	0
East Wheatfield	UNT to Conemaugh River	12	8 (Wild Trout)
East Wheatfield	UNT to Findley Run	15	12 (Wild Trout)

Recieving Wetlands Table
Pennsylvania Pipeline Project
Southwest Region

Municipality	Receiving Water	Number of Wetlands	Number of EV Wetlands (Classification)
CAMBRIA COUNTY			
Jackson	UNT to Findley Run	4	3 (Wild Trout)
Jackson	UNT to Laurel Run	7	3 (Wild Trout)
Jackson	UNT to Hinckston Run	21	0
Jackson	UNT to Saltlick Run	17	11 (Wild Trout)
Cambria	UNT to Stewart Run	26	6 (Wild Trout)
Cambria	UNT to Roaring Run	4	0
Cambria	UNT to Howells Run	11	1 (EV Plant)
Munster	UNT to North Branch Conemaugh River	12	0
Munster	UNT to Noels Creek	10	0
Cresson	UNT to Little Conemaugh River	19	0
Cresson	UNT to Burgoon Run	4	0
Cresson	UNT to Bear Rock Run	7	2 (Wild Trout)
Washington	UNT to Blair Run	7	0

ATTACHMENT 4:

Storm Sewer Operator Table

Municipal Separate Storm Sewer Operators

Pennsylvania Pipeline Project

Southwest Region

MUNICIPALITY	TYPE	COUNTY	STATUS	PERMIT NUMBER	APPROVED
NOTTINGHAM	Township	Washington	Individual	PAI136122	4/2/2004
UNION	Township	Washington	Individual	PAI136131	4/2/2004
CHARTIERS	Township	Washington	General	PAG136212	1/29/2004
NORTH STRABANE	Township	Washington	Individual	PAI136129	4/2/2004
FORWARD	Township	Allegheny	General	PAG136363	12/20/2004
ELIZABETH	Township	Allegheny	General	PAG136207	9/15/2003
JEANNETTE	City	Westmoreland	General	PAG136299	1/29/2004
ROSTRAVER	Township	Westmoreland	General	PAG136252	1/29/2004
SEWICKLEY	Township	Westmoreland	Waiver		4/8/2003
HEMPFIELD	Township	Westmoreland	General	PAG136331	3/31/2004
SOUTH HUNTINGDON	Township	Westmoreland	Waiver	PAG136189	10/27/2003
MURRYSVILLE	Borough	Westmoreland	Individual	PAI136109	4/1/2004
PENN	Township	Westmoreland	General	PAG136116	1/20/2004
DERRY	Township	Westmoreland	General	PAG136330	3/31/2004
SALEM	Township	Westmoreland	Individual	PAI136123	4/2/2004
JACKSON	Township	Cambria	General	PAG136114	11/6/2003

ATTACHMENT 5:

Act 167 Tracking Table

ACT 167 PLAN TRACKING TABLE
Pennsylvania Pipeline Project
Southwest Region

County	Countywide Act 167 Plan?	Name of Adopted Plan	Date Approved	Municipalities That Have Enacted the Plan
Washington	Yes	Washington County Act 167 County-Wide Stormwater Management Plan	June 17, 2010	All- Chartiers, North Strabane, Nottingham (5/2/11), Union (5/9/11)
Allegheny	No	Monongahela River Watershed Act 167	June 15, 1994	Forward (2/28/95)
Westmoreland	In Progress	Westmoreland County Act 167 Stormwater Mangement Plan -Phase 1	June 2010	N/A
		Turtle Creek River Watershed Conservation Plan	March 23, 1992	Jeannette, Hempfield (12/12/94), Murrysville (12/30/92), Penn (8/17/92)
Indiana	In Progress	Southern Indiana County Cooperative Communities Comprehensive Plan	August 2004	Burrell (8/2004)
		Indiana County Phase 1 Act 167 Stormwater Management Plan	March 2015	N/A
Cambria	No	Little Conemaugh River Watershed Act 167 Plan	October 18, 2004	Cambria, Cresson, Jackson, Munster, Washington

ATTACHMENT 6:

RIPARIAN BUFFER WAIVER REQUEST INFORMATION

Attachment 6 - Riparian Buffer Waiver Request

Pennsylvania Pipeline Project - South West Region: Spread 1 & 2

March 2016

Prepared for:

Sunoco Logistics, L.P.
525 Fritztown Road
Sinking Spring, PA

Prepared by:

Tetra Tech, Inc.
661 Andersen Drive
Pittsburgh, PA 15220

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1 Table 2 – Riparian Buffer Waiver Information

2 Riparian Buffer Site Plans

LIST OF ACRONYMS

ACRONYM	MEANING
BMP	Best Management Practice
E&SC	Erosion and Sediment Control
EV	Exceptional Value
HQ	High Quality
LOD	Limit of Disturbance
PCSM	Post-Construction Stormwater Management
ROW	Right of way
SR	Sight Restoration

PENNSYLVANIA PIPELINE PROJECT - RIPARIAN BUFFER WAIVER REQUEST

The Pennsylvania Pipeline Project qualifies for an exception of the riparian buffer requirement under Chapter 102.14(d)(1)(ix) for areas within the Chapter 105 permit area. Site plan drawings attached with this narrative are provided to show the 150 foot riparian buffer areas along HQ/EV streams for which this waiver is being prepared. The waiver is being requested for all non-perpendicular crossings of the riparian buffers. The site plans show the location and limits of the work and earth disturbance. Table 2 is provided as a summary and indication of the locations for which the waiver is being requested. Table 2 also indicates the designated use of the receiving water, if the water is impaired and if the water has a total maximum daily load (TMDL).

In addition to the exception, we are requesting a waiver under 102.14(d)(2)(ii) for areas within 150' of surface waters that are outside of the Chapter 105 permit area.

DEMONSTRATION OF WAIVER NECESSITY

A riparian buffer waiver is necessary to complete the intended scope of the pipeline project. The project involves the installation of two parallel pipelines within a 306-mile, 50-foot-wide right-of-way (ROW) from Houston, Washington County, PA to SPLP's Marcus Hook facility in Delaware County, PA with the purpose of interconnecting with existing SPLP Mariner East pipelines. A 20-inch diameter pipeline would be installed within the ROW from Houston to Marcus Hook (306 miles) and a second, 16-inch diameter pipeline, will also be installed in the same ROW. The second line is proposed to be installed from SPLP's Delmont Station, Westmoreland County, PA to the Marcus Hook facility, paralleling the initial line for approximately 255 miles. Spreads 1 & 2 (South West Region) of this project are cross through Washington, Allegheny, Westmoreland, Indiana, and Cambria Counties, PA. Due to the linear nature of the project and the surrounding topography, riparian buffers could not be avoided altogether.

ALTERNATIVES ANALYSIS

During the development and siting of the proposed Project, SPLP considered a number of different alternatives including the No-Impact as well as alternate routes and construction design methods. While it is impractical to document all the actions taken by SPLP to avoid/minimize impacts on a project of this size, the intent of this section is to provide a summary of the major actions SPLP has taken to accomplish this goal. Impacts to environmental resources, including riparian buffers, were evaluated during the pipeline routing phase of the project. Field teams were deployed to evaluate alternate routes based on environmental and constructability constraints. The final route that was selected minimizes environmental impacts to the maximum extent practicable while still maintaining the project's overall constructability and ensuring a safe working environment while also taking landowner constraints into consideration. Additionally, several variations of horizontal direction drill profiles were evaluated to minimize pullback areas, additional workspaces, and overall disturbance within riparian buffers. Permanent features, such as access roads and block valves, were evaluated to locate the features outside of the riparian buffer, where possible.

BASELINE PROJECT ALTERNATIVE

The Baseline Project Alternative considers that the project is built based on ease of construction and not limiting impacts to resources. The project would significantly impact resources if HDD's were not performed to minimize impacts to resources and were instead open cut installations of the pipeline. Necking down of the ROW at resources and locating temporary workspaces 10 feet from resources is a significant construction constraint that is done to minimize the impacts to streams, wetlands, and riparian buffers.

NO IMPACT ALTERNATIVE

The No-Impact Alternative considers the potential benefits and adverse impacts if the Project were not constructed. If the Project were not constructed, one potential benefit would be the absence of environmental impacts associated with construction and operation of the Project; however, the local communities/markets in need of the natural gas liquids (NGLs) that would no longer be provided would be adversely impacted. Specifically, the purpose/need of the Project to transport low cost Marcellus Shale production to markets locally and domestically in the U.S. and to international markets would not be met. Consequently, the No-Action Alternative would likely require the use of other energy sources to satisfy the growing energy demand that would not be met by the Project. Accordingly, customers in those markets would have fewer available and likely more expensive options for obtaining natural gas supplies in the near future.

According to the Energy Information Administration's (EIA) Annual Energy Outlook 2015, energy consumption is projected to grow through 2040 even with increases in energy conservation and energy efficiency (EIA 2015). This is evident in the natural gas industry, where domestic consumption increased 2.8 percent from 2013 to 2014, to 73.6 billion cubic feet per day (Bcfd). Within Pennsylvania alone, natural gas consumption increased from 706.2 Bcfd in 1997 to 1,090 Bcfd in 2013, with dramatic usage coming from the electric generation sector. Due to the increasing demands for energy and abundant supply of natural gas, natural gas consumption is forecast to continue to increase, adding to the rapid growth and expansion of natural gas drilling and production currently in occurrence. Unfortunately, despite the vast increases in natural gas production, the lack of distribution infrastructure has constrained the natural gas market. These constraints have caused many portions of eastern Pennsylvania and New England to be affected by volatile natural gas prices, particularly during cold snaps in the winter heating season. The spikes in price mostly result from insufficient pipeline capacity to transport natural gas supplies to those markets where it is mostly needed. As such, the Pennsylvania Public Utilities Commission (PA PUC) has indicated that additional pipelines could help remove these constraints and stabilize regional markets, and would help move the vastly increased Marcellus Shale gas production to consumers (PA PUC 2015).

Under the No Impact Alternative, customers would be required to find alternative means to transport gas produced in the central Marcellus fairway to accessible markets. Consequently, other pipeline construction and

the associated environmental impacts would be necessary because existing infrastructure is currently not sufficient to provide firm transportation service for the large volumes required to alleviate supply shortages in eastern Pennsylvania and nearby markets in New England, as well as other areas. As such, the No-Impact Alternative would not fulfill the purpose or objectives of the Project and was not selected.

ROUTE SELECTION

SPLP has co-located the project with an existing ROW for the majority of the route. This is a major means for avoiding new impacts to sensitive resources (i.e., forested wetlands) and for minimizing environmental impacts for the entire Project. In addition to this major routing decision, SPLP has implemented a number of other route variations, both minor and major, to further reduce the environmental impacts associated with the Project. The following sections provide an overview of just a few of these variations across the different counties in the Southwest region traversed by the project.

Route Variations

SPLP evaluated numerous minor route variations along the original proposed route in response to engineering and environmental constraints identified during the initial/early planning and design process, during field surveys, and coordination regarding other issues of concern (i.e. land use impacts, permanent easement acquisitions, and overall project costs). A large number of these variations were specifically developed to reduce impacts in environmentally sensitive areas such as wetlands and streams, riparian buffers, cultural/historical significant resources, and threatened/endangered species habitats or those habitats for species of concern.

Existing publicly available data, including aerial photography, topographic maps, National Wetland Inventory ("NWI") maps, USGS quadrangle maps, and parcel maps/attributes were incorporated into a project specific geographic information system (GIS) geo-database used for initial analysis of each route variation. Where feasible, landowners were contacted to survey properties and discuss potential easements. In addition, field surveys were conducted to evaluate further routing opportunities. The intent was to identify an environmentally sound, technically feasible, and cost-effective pipeline route for the transportation of NGLs.

In order to provide a few examples of the minor route variations evaluated and incorporated into the project, one route variation for each County is described below (Table 1). Note Allegheny County did not involve any route variations. Through the incorporation of the route variations presented below, potential impacts to aquatic resources including wetlands and streams, threatened/endangered or species of concern, riparian buffers and cultural resources were reduced.

Table 1 – Route Variations Evaluated

Variation Number	County	Figure Reference	Variation Description	Status
1	Washington	Figure 1	The original proposed ROW paralleled a stream bed; this variation proposes to move the ROW outside of the stream.	Incorporated
2	Westmoreland	Figure 2	The proposed ROW was moved slightly to the south to avoid forested wetlands.	Incorporated
3	Indiana	Figure 3	This change in ROW proposes to cross existing pipelines at a 90–degree angle, south of existing previously disturbed ROW, and to move away from a cemetery.	Incorporated
4	Cambria	Figure 4	This change in ROW is proposed to move away from mining lands and operations and to reduce the chance for encroachment into TE Products lines and station.	Incorporated

Route Variation 1: Located in Washington County, this approximately 0.28-mile route variation moves the pipeline centerline in a south/southeasterly direction to avoid and minimize potential impacts to streams and wetlands before heading northeast to connect to the original proposed pipeline route.

Figure 1: Route Variation 1

Note: green = original route; orange = alternate proposed route; blue = aquatic resources (shaded blue = wetlands; blue line = streams)

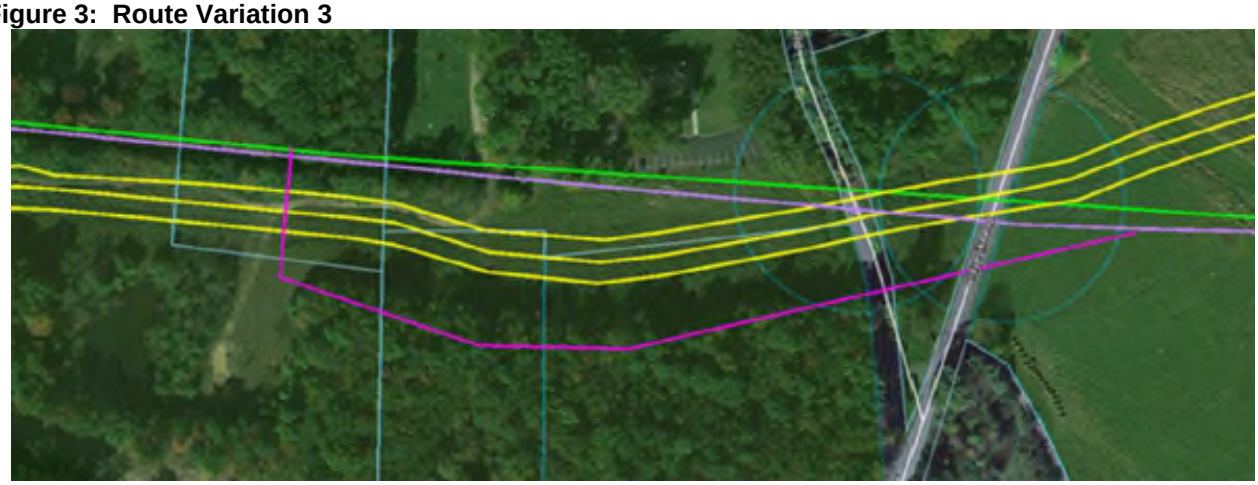
Route Variation 2: Located in Westmoreland County, this approximately 0.27-mile route variation moves the centerline of the pipeline approximately 70 feet south around the bend to avoid emergent and forested wetlands until it can connect back to the proposed route. This variation was developed specifically to avoid clearing forested wetlands.

Figure 2: Route Variation 2

Note: purple = original route; orange = proposed alternate route; blue and pink = aquatic resources (shaded blue = emergent wetlands; shaded pink = forested wetlands; blue line = streams)

Route Variation 3: Located in Indiana County, this approximately 0.24-mile route variation moves the centerline of the pipeline south approximately 150 feet from the original proposed route and away from Bethel cemetery in the north.

Figure 3: Route Variation 3



Note: green = original route; dark purple = proposed alternate route; yellow = existing pipelines

Route Variation 4: Located in Cambria County, this approximately 1.63-mile route variation moves the centerline of the pipeline from the proposed route by curving northeast to parallel the southern side of Route 22 and dipping southwest to parallel Level Road until it reconnects with the proposed route. This route variation avoids mining operations, existing pipelines/stations, and aquatic resources including wetlands and streams.

Figure 4: Route Variation 4

Note: orange = original route; dark purple = proposed alternate route.

DEMONSTRATION OF MINIMIZING IMPACTS

All disturbance activities, including those which impact riparian buffers, have been reduced to the maximum extent practicable. The limit of disturbance has been reduced to 50 feet wide at all stream crossings within the riparian buffer area where possible adjacent to the stream area required for crossing and construction. In areas where it is not practicable to reduce the LOD throughout the entire extent of the riparian buffer, the LOD has been reduced to 50 feet wide within 10 feet of the stream banks to limit the proximity of the work areas as per the stream crossing detail from the PADEP manual. The operations within the limit of disturbance near stream crossings typically includes a topsoil stockpile, a stockpile for pipe trench excavation material, a pipe trench, a travel lane, a work area for equipment operation and pipeline welding outside the trench, and an area to install the erosion control BMPs. In addition, site conditions such as steep slopes, varying depths of topsoil, and other on-site conditions limit the amount of work area. Reducing the limit of disturbance to a greater extent could potentially result in unsafe working conditions and would hinder the ability to complete the stream crossing within the required time frame of 24 hours or less. Workspaces that provide additional space for stream crossing activities have been placed outside of riparian buffers where possible. The post construction stormwater management infiltration berms and trenches are not located within riparian buffers.

MEETING REQUIREMENTS OF CHAPTER 102

All other aspects of Chapter 102 are being met. The project's E&SC Plan and Site Restoration/Post-Construction Stormwater Management Plan have been designed in accordance with Chapter 102. In accordance with Chapter 102, and E&S plan has been developed to minimize the sediment entering the buffer areas. A site restoration plan is proposed to revegetate the areas adjacent to the buffers within the right of way. The post construction stormwater management plan has been design to control runoff rate and volume which may be discharge through riparian buffer areas.

TABLE 2:
Riparian Buffer Waiver Information
South West Region

E&S SHEET NUMBER	STREAM NAME	PERPENDICULAR OR NON-PERPENDICULAR	STATIONING	DESIGNATED USE	SITE PLAN DESIGNATION (RB-)	IMPAIRMENT	TMDL (Yes/No)	LENGTH OF BUFFER (FEET)	WIDTH OF BUFFER (FEET)	AREA OF BUFFER (ACRE)	LENGTH OF TIME OF DISTURBANCE
WASHINGTON											
ES - 1.23	UNT to Little Chartiers Creek	Non	358+00 through 360+50	HQ-WWF	001	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	322.41	202.92	1.39	24 hrs
ES - 1.25	UNT to Little Chartiers Creek	Non/ Parallel	404+50 through 407+50	HQ-WWF	003	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	595.77	232.96	2.46	30 days
ES - 1.26	UNT to Little Chartiers Creek	Non	425+00	HQ-WWF	004	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	344.12	202.32	1.51	24 hrs
ES - 1.27	UNT to Little Chartiers Creek	Non	443+00	HQ-WWF	005	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	355.70	203.40	1.52	24 hrs
ES - 1.30	Little Chartiers Creek	Non, Parallel	487+00 through 497+50	HQ-CWF	006	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	1080.65	201.95	4.59	30 days
ES - 1.34	UNT to Little Chartiers Creek	Non	557+00	HQ-WWF	007	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	495.56	451.45	2.75	24 hrs
ES - 1.35	UNT to Little Chartiers Creek	Non	558+00	HQ-WWF	007	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	495.56	451.45	1.71	24 hrs
ES - 1.35	UNT to Little Chartiers Creek	Non	582+00	HQ-WWF	008	Construction - Siltation; Urban Runoff/Storm Sewers- Nutrients	Yes	408.11	222.99	5.02	24 hrs
ES - 1.41	UNT to Mingo Creek	Non	684+00	HQ-TSF	010	NA	No	366.83	240.27	1.59	24 hrs
ES - 1.41	UNT to Mingo Creek	Non	696+00	HQ-TSF	011	NA	No	578.73	215.49	2.29	24 hrs
ES - 1.44	UNT to Mingo Creek	Non	745+00 through 748+00	HQ-TSF	013	NA	No	476.53	288.25	1.80	48 hrs
ES - 1.45, 1.46	UNT to Mingo Creek	Non/ Parallel	761+50 through 767+00	HQ-TSF	014	NA	No	802.21	217.72	3.47	30 days
ES - 1.46	UNT to Mingo Creek	Non	775+50	HQ-TSF	015	NA	No	395.37	255.18	1.69	24 hrs
ES - 1.46	UNT to Mingo Creek	Non	783+00	HQ-TSF	016	NA	No	354.27	234.78	1.57	24 hrs
ES - 1.47	UNT to Mingo Creek	Non	801+00	HQ-TSF	017	NA	No	341.00	201.61	1.45	24 hrs
ES - 1.52	UNT to Mingo Creek	Non	869+50	HQ-TSF	018	NA	No	353.09	205.73	1.53	24 hrs
ES - 1.52, 1.53	UNT to Mingo Creek	Non	886+00	HQ-TSF	019	NA	No	333.17	208.57	1.45	24 hrs
ALLEGHENY											
NA											
WESTMORELAND											
ES - 1.71	Thorn Run	Non	2681+50 through 2684+00	HQ-CWF	020	Agriculture - Siltation; Grazing Related Agric- Nutrients; Grazing Related Agric- Siltation	Yes	325.80	107.01	0.48	24 hrs
ES - 1.71, 2.01	UNT to Beaver Run	Non, Parallel	2692+00 through 2703+00	HQ-CWF	021	Agriculture - Siltation; Grazing Related Agric- Nutrients; Grazing Related Agric- Siltation	Yes	1068.65	220.49	4.52	30 days
ES - 2.02	UNT to Beaver Run	Non	2716+00 through 2723+50	HQ-CWF	022	Agriculture - Siltation; Grazing Related Agric- Nutrients; Grazing Related Agric- Siltation	Yes	839.55	204.65	3.41	24 hrs
ES - 2.03	UNT to Beaver Run	Non	2731+00	HQ-CWF	023	Agriculture - Siltation; Grazing Related Agric- Nutrients; Grazing Related Agric- Siltation	Yes	306.59	262.08	1.53	24 hrs
ES - 2.03	UNT to Beaver Run	Non	2733+00 through 2738+00	HQ-CWF	024	Agriculture - Siltation; Grazing Related Agric- Nutrients; Grazing Related Agric- Siltation	Yes	568.01	214.17	2.22	24 hrs
ES - 2.04	UNT to Beaver Run	Non, Parallel	2749+00 through 2757+50	HQ-CWF	025	Agriculture - Siltation; Grazing Related Agric- Nutrients; Grazing Related Agric- Siltation	Yes	907.67	209.46	3.74	30 days

TABLE 2:

Riparian Buffer Waiver Information

South West Region

E&S SHEET NUMBER	STREAM NAME	PERPENDICULAR OR NON-PERPENDICULAR	STATIONING	DESIGNATED USE	SITE PLAN DESIGNATION (RB-)	IMPAIRMENT	TMDL (Yes/No)	LENGTH OF BUFFER (FEET)	WIDTH OF BUFFER (FEET)	AREA OF BUFFER (ACRE)	LENGTH OF TIME OF DISTURBANCE
ES - 2.04	UNT to Beaver Run	Non	2758+00 through 2769+50	HQ-CWF	026	Agriculture - Siltation; Grazing Related Agric- Nutrients; Grazing Related Agric- Siltation	Yes	1169.33	210.49	5.40	24 hrs
ES - 2.06	UNT to Beaver Run	Non	2781+50	HQ-CWF	027	NA	Yes	339.05	211.71	1.49	24 hrs
ES - 2.06	UNT to Beaver Run	Non	2798+00	HQ-CWF	028	NA	Yes	316.89	295.57	1.57	24 hrs
ES - 2.09	UNT to Porters Run	Parallel/Non	2832+50 through 2844+50	HQ-CWF	029	NA	Yes	1218.02	211.19	4.90	30 days
ES - 2.09	UNT to Porters Run	Parallel/Non	2848+00	HQ-CWF	030	NA	Yes	297.47	210.83	1.19	24 hrs
ES - 2.10	UNT to Porters Run	Non	2849+50 through 2855+00	HQ-CWF	031	NA	Yes	533.97	540.19	2.19	24 hrs
ES - 2.10	Porters Run	Non	2864+00	HQ-CWF	032	NA	Yes	405.76	216.12	1.78	48 hrs
ES - 2.11, 2.12	UNT to Porters Run	Parallel/Non	2880+00 through 2899+00	HQ-CWF	033	NA	Yes	1833.07	240.73	8.51	30 days
ES - 2.13, 2.14	UNT to Porters Run	Non	2916+00	HQ-CWF	034	NA	Yes	315.91	199.36	1.19	24 hrs
ES - 2.13, 2.14	UNT to Porters Run	Non	2918+00 through 2924+50	HQ-CWF	035	NA	Yes	684.95	217.32	2.79	24 hrs
ES - 2.15	UNT to Porters Run	Non	2941+00	HQ-CWF	036	NA	Yes	317.06	362.92	1.84	24 hrs
ES - 2.20	Serviceberry Run	Non	3025+00	HQ-WWF	037	NA	Yes	479.89	230.10	1.92	48 hrs
ES - 2.21	Serviceberry Run	Non	Access Road	HQ-CWF	038	NA	Yes	414.50	289.95	2.00	48 hrs
ES - 2.21, 2.22	Serviceberry Run/UNT to Serviceberry Run	Non/ Parallel	3048+00 through 3057+50	HQ-WWF	039	NA	Yes	1027.84	399.43	7.18	30 days
ES - 2.39	UNT to Spruce Run	Non/ Parallel	3344+00 through 3352+00	HQ-CWF	040	Bank Modifications - Siltation	Yes	818.87	209.73	3.62	30 days
ES - 2.40	Spruce Run	Non	3361+00 through 3365+50	HQ-CWF	041	Bank Modifications - Siltation	Yes	460.91	208.20	2.09	48 hrs
ES - 2.42	UNT to Spruce Run	Non	3390+00	HQ-CWF	042	Bank Modifications - Siltation	Yes	329.86	210.79	1.46	24 hrs
INDIANA											
ES - 2.54	UNT to Findley Run	Non	4379+50 through 4385+50	HQ-CWF	043	NA	Yes	582.79	212.66	2.44	24 hrs
ES - 2.54	UNT to Findley Run	Non	4287+50 through 4393+00	HQ-CWF	044	NA	Yes	480.45	218.26	2.01	24 hrs
ES - 2.54, 2.55	UNT to Findley Run	Non	4397+00 through 4401+00	HQ-CWF	045	NA	Yes	357.96	255.03	1.67	48 hrs
ES - 2.56, 2.57	UNT to Findley Run	Non/ Parallel	4432+00 through 4437+50	HQ-CWF	046	NA	Yes	560.93	214.32	2.52	30 days
ES - 2.58, 2.59	UNT to Findley Run	Non, Parallel	4454+50 through 4466+50	HQ-CWF	047	NA	Yes	1137.66	276.07	5.11	30 days
ES - 2.60	UNT to Findley Run	Non	4491+00 through 4496+50	HQ-CWF	048	NA	Yes	557.01	210.00	2.24	24 hrs
ES - 2.61, 62	Findley Run/ UNT to Findley Run	Non, Parallel	4508+50 through 4521+50	HQ-CWF	049	NA	Yes	1684.60	212.56	7.69	30 days
CAMBRIA											
ES - 2.01	UNT to Findley Run	Non, Parallel	4521+00 through 4525+50	HQ-CWF	049	NA	Yes	1684.60	212.56	7.69	30 days
ES - 2.02	UNT to Findley Run	Non	4547+50 through 4555+00	HQ-CWF	050	NA	Yes	769.87	212.14	3.51	24 hrs
ES - 2.03	UNT to Findley Run	Non	Access Road	HQ-CWF	052	NA	Yes	289.78	283.41	1.34	48 hrs
ES - 2.04	UNT to Findley Run	Non	4577+50	HQ-CWF	053	NA	Yes	327.97	196.78	1.19	24 hrs
ES - 2.05	UNT to Findley Run	Non	4590+00 through 4595+00	HQ-CWF	054	NA	Yes	473.80	208.61	2.00	24 hrs
ES - 2.05	UNT to Findley Run	Parallel	4597+00 through 4601+00	HQ-CWF	055	NA	Yes	449.59	194.56	1.49	30 days
ES - 2.06	UNT to Findley Run	Non	4604+00 through 4610+00	HQ-CWF	056	NA	Yes	572.37	209.44	2.29	24 hrs
ES - 2.09	UNT to Laurel Run	Non, Parallel	4655+50 through 4663+00	HQ-CWF	057	NA	Yes	766.57	211.42	3.42	30 days
ES - 2.10, 2.11	UNT to Laurel Run	Non, Parallel	4681+00 through 4690+50	HQ-CWF	058	NA	Yes	964.41	216.88	4.21	30 days
ES - 2.12	UNT to Laurel Run	Non	4712+00	HQ-CWF	059	NA	Yes	480.89	208.81	1.95	48 hrs
ES - 2.12, 2.13	Laurel Run/UNT to Laurel Run	Non	4717+50 through 4723+00	HQ-CWF	060	NA	Yes	535.80	212.72	2.40	48 hrs
ES - 2.20	UNT to Saltlick Run	Non, Parallel	4844+00 through 4848+50	HQ-CWF	061	NA	Yes	455.39	208.05	1.80	30 days
ES - 2.21	UNT to Saltlick Run	Non	4866+00	HQ-CWF	062	NA	Yes	337.86	230.07	1.35	24 hrs
ES - 2.23- 2.25	Saltlick Run/UNT to Saltlick Run	Non, Parallel	4891+00 through 4956+50	HQ-CWF	063	NA	Yes	3688.37	210.74	16.05	30 days
ES - 2.27	UNT to Saltlick Run	Non, Parallel	4951+50 through 4956+50	HQ-CWF	064	NA	Yes	538.95	210.13	2.12	30 days
ES - 2.29	UNT to Saltlick Run	Non	4991+00	HQ-CWF	065	NA	Yes	435.18	213.45	1.76	24 hrs
ES - 2.29	UNT to Saltlick Run	Non, Parallel	4993+00 through 4999+00	HQ-CWF	066	NA	Yes	610.39	210.51	2.31	24 hrs
ES - 2.31	Stewart Run/UNT to Stewart Run	Non, Parallel	5018+00 through 5025+00	HQ-CWF	067	NA	Yes	764.66	212.98	3.28	30 days
ES - 2.31, 2.32	UNT to Stewart Run	Parallel, Non	5030+50 through 5042+00	HQ-CWF	068	NA	Yes	1144.71	210.00	3.63	30 days
ES - 2.33	UNT to Stewart Run	Parallel	5050+50 through 5062+00	HQ-CWF	069	NA	Yes	1163.54	212.32	4.47	24 hrs
ES - 2.34	UNT to Stewart Run	Non	5066+50 through 5075+50	HQ-CWF	070	NA	Yes	933.71	210.00	3.86	24 hrs
ES - 2.51	UNT to Noels Creek	Parallel	5363+00	HQ-CWF	071	NA	Yes	347.01	130.37	0.77	30 days
ES - 2.52	UNT to Noels Creek	Non	5371+00	HQ-CWF	072	NA	Yes	404.97	213.07	1.84	24 hrs
ES - 2.52	UNT to Noels Creek	Parallel	5374+00 through 5380+00	HQ-CWF	073	NA	Yes	588.95	200.91	1.88	30 days
ES - 2.53	UNT to Noels Creek	Non	5383+50	HQ-CWF	074	NA	Yes	307.50	262.61	1.45	24 hrs
ES - 2.53	UNT to Noels Creek	Non	5398+00	HQ-CWF	075	NA	Yes	420.82	215.29	1.72	24 hrs

TABLE 2:

Riparian Buffer Waiver Information

South West Region

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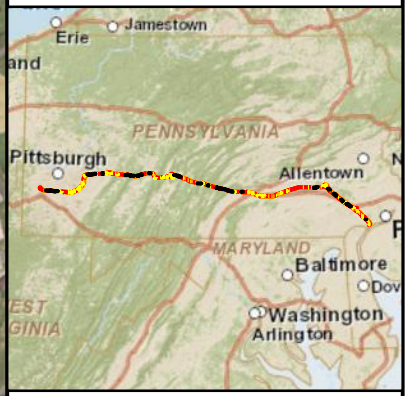
ES - 2.54	UNT to Noels Creek	Non	5403+50 through 5413+50	HQ-CWF	076	NA	Yes	1025.35	216.65	4.14	24 hrs
ES - 2.55	UNT to Noels Creek	Non	5421+00 through 5425+50	HQ-CWF	077	NA	Yes	455.28	211.87	2.06	24 hrs
ES - 2.55, 2.56	UNT to Noels Creek	Non, Parallel	5430+50 through 5444+50	HQ-CWF	078	NA	Yes	1429.22	252.91	5.85	30 days
ES - 2.56, 2.57	UNT to Noels Creek	Parallel	5449+00	HQ-CWF	079	NA	Yes	361.63	206.40	1.37	30 days
ES - 2.57	UNT to Noels Creek	Non	5459+00	HQ-CWF	080	NA	Yes	371.53	209.22	1.62	24 hrs

Note: The waiver requests are a direct result of locating the line within and adjacent to the existing right of way.

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier



N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-001
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

PGH P:\GIS\SUNOCO\MARINER EAST 2\MXD\PENN\PIPELINE_RIPARIANHABITAT_SC_SE.MXD 03/04/16 SP

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-003
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
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PGH P:\GIS\SUNOCO\MARINER EAST 2\MXD\PENNPIPELINE_RIPARIANHABITAT_SC_SE.MXD 03/04/16 SP

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-004
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

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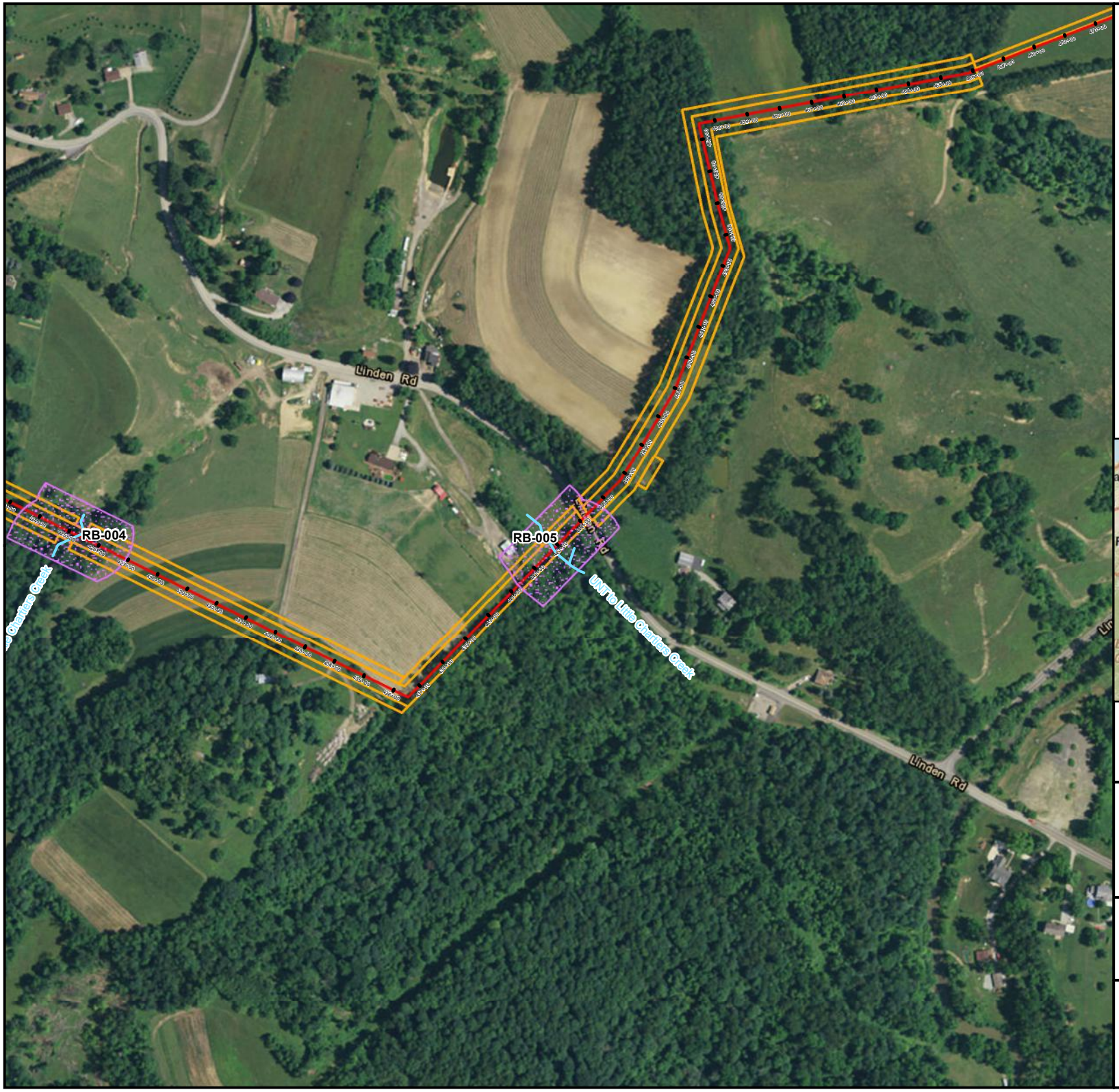

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

Feet
0 200 400
Meters
0 60.95 121.9

RB-005
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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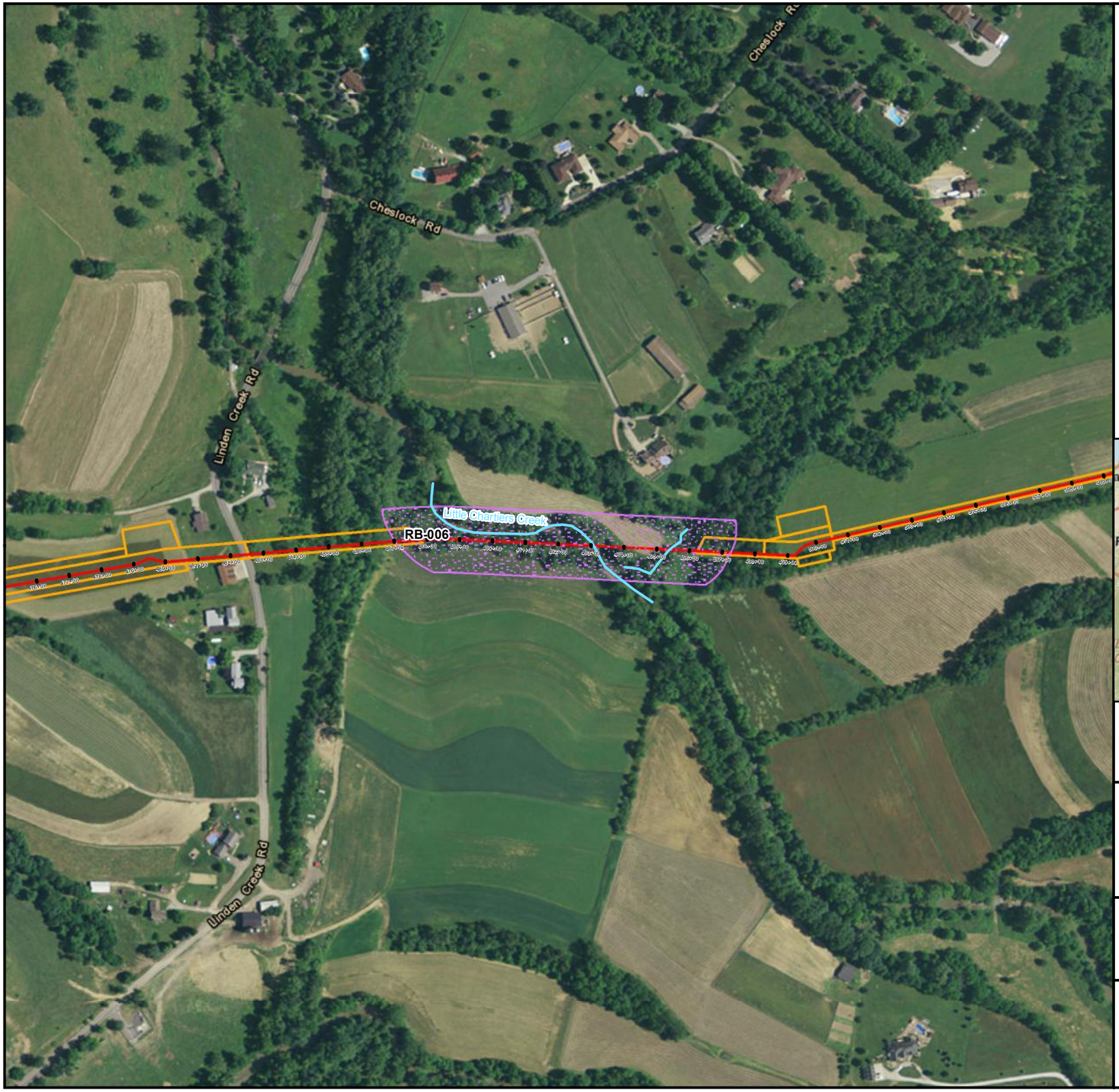

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-006
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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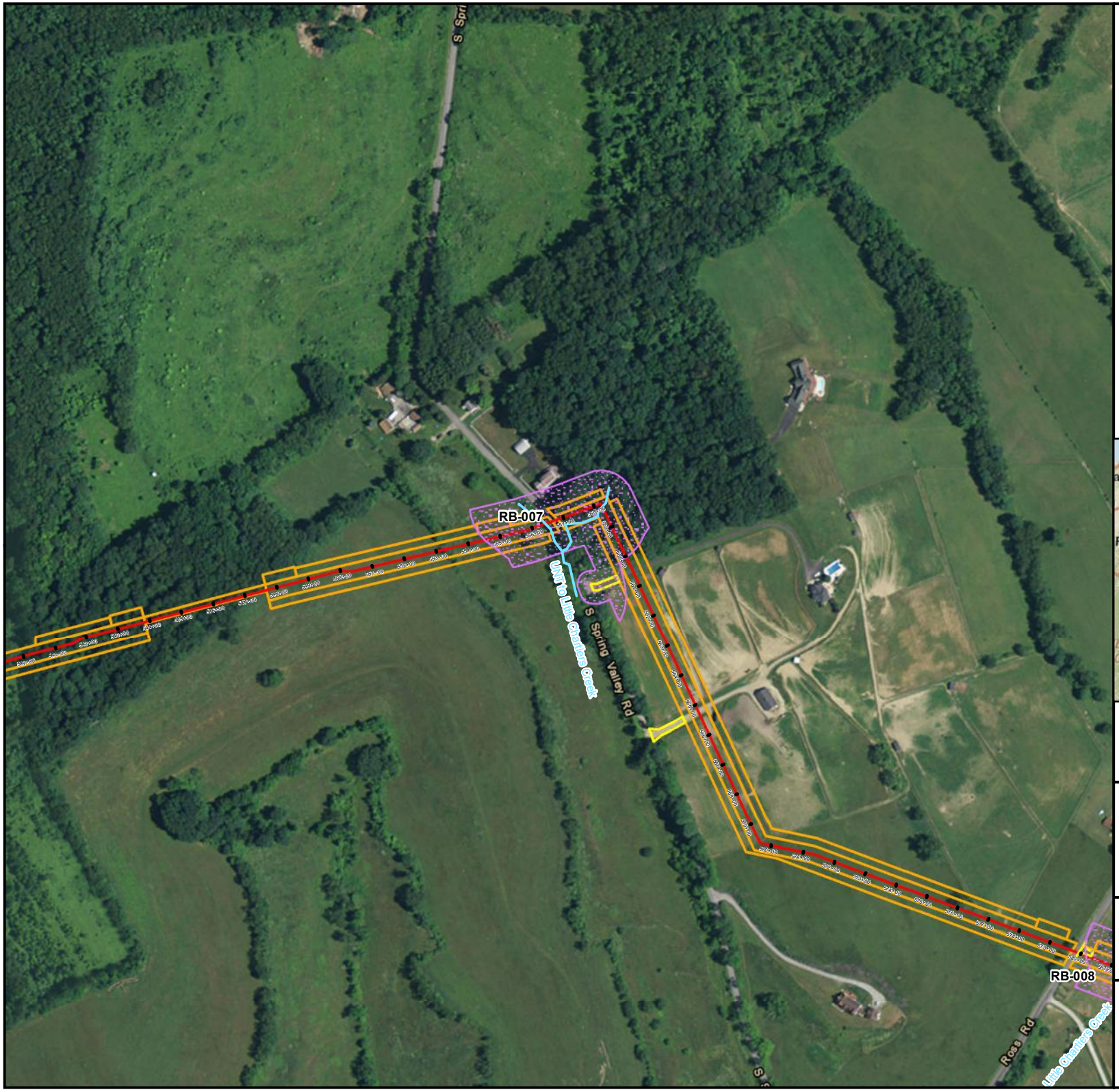

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-007
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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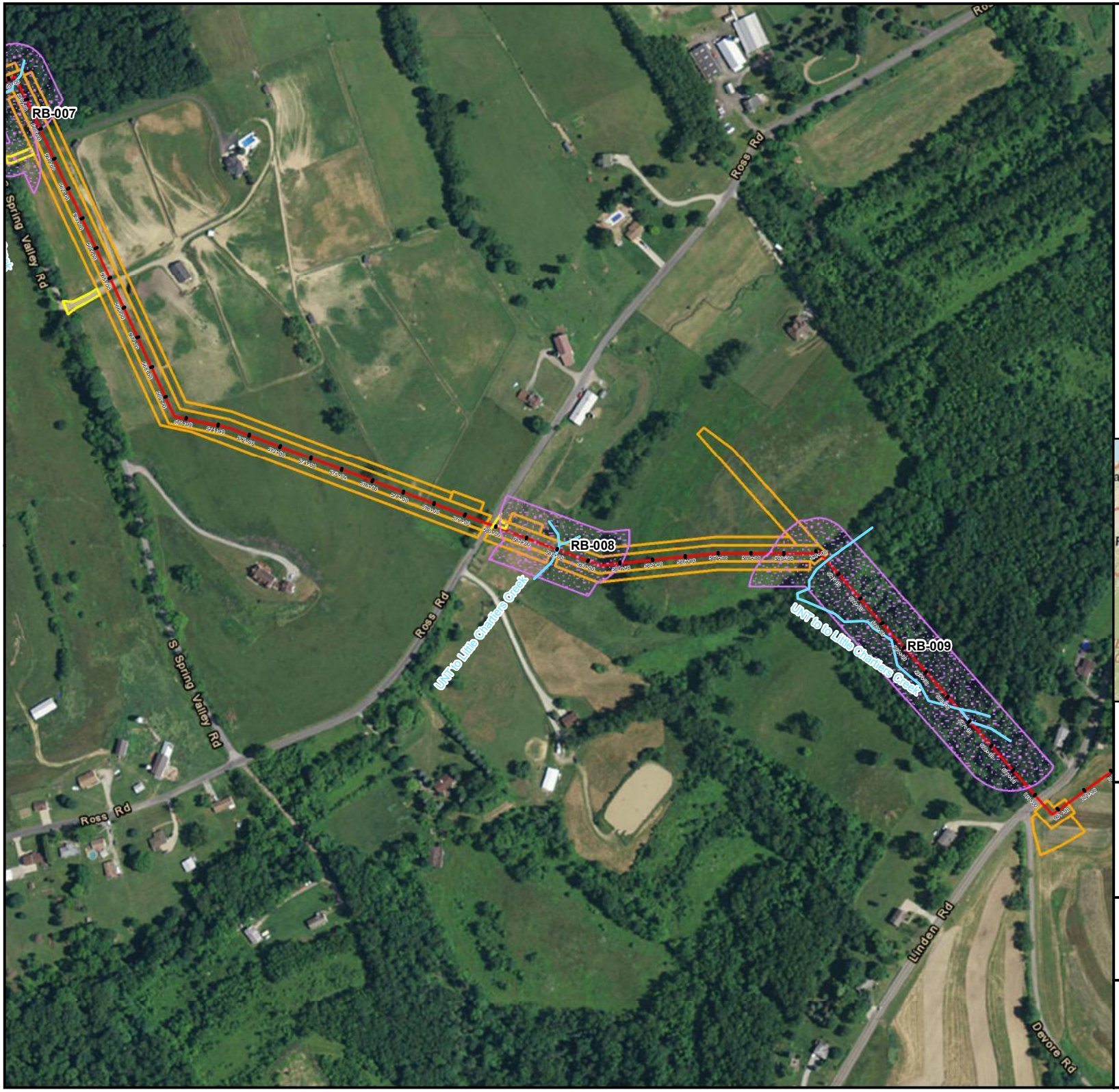

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-008
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-010
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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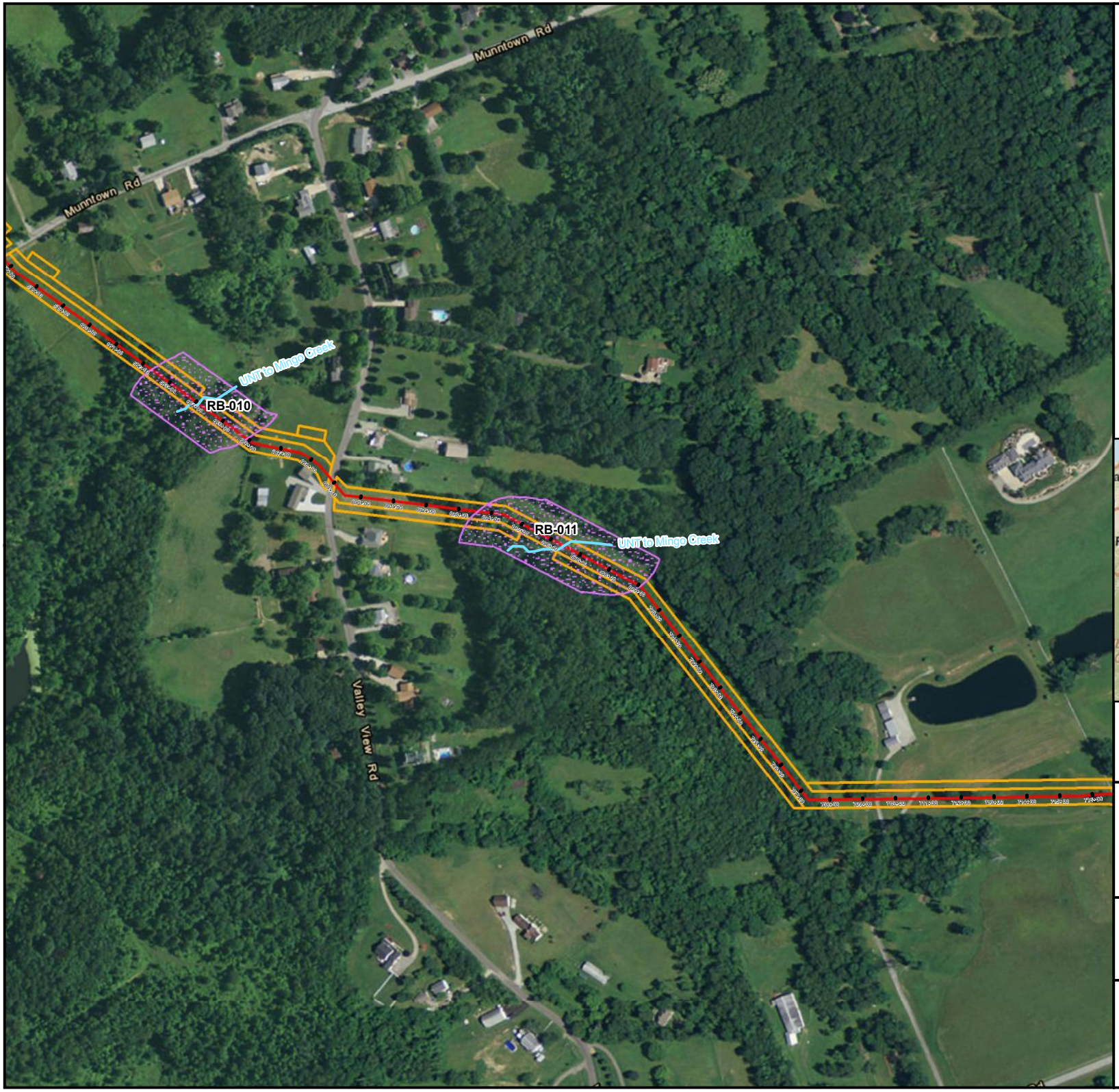

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

Feet: 0 200 400
Meters: 0 60.95 121.9

RB-011
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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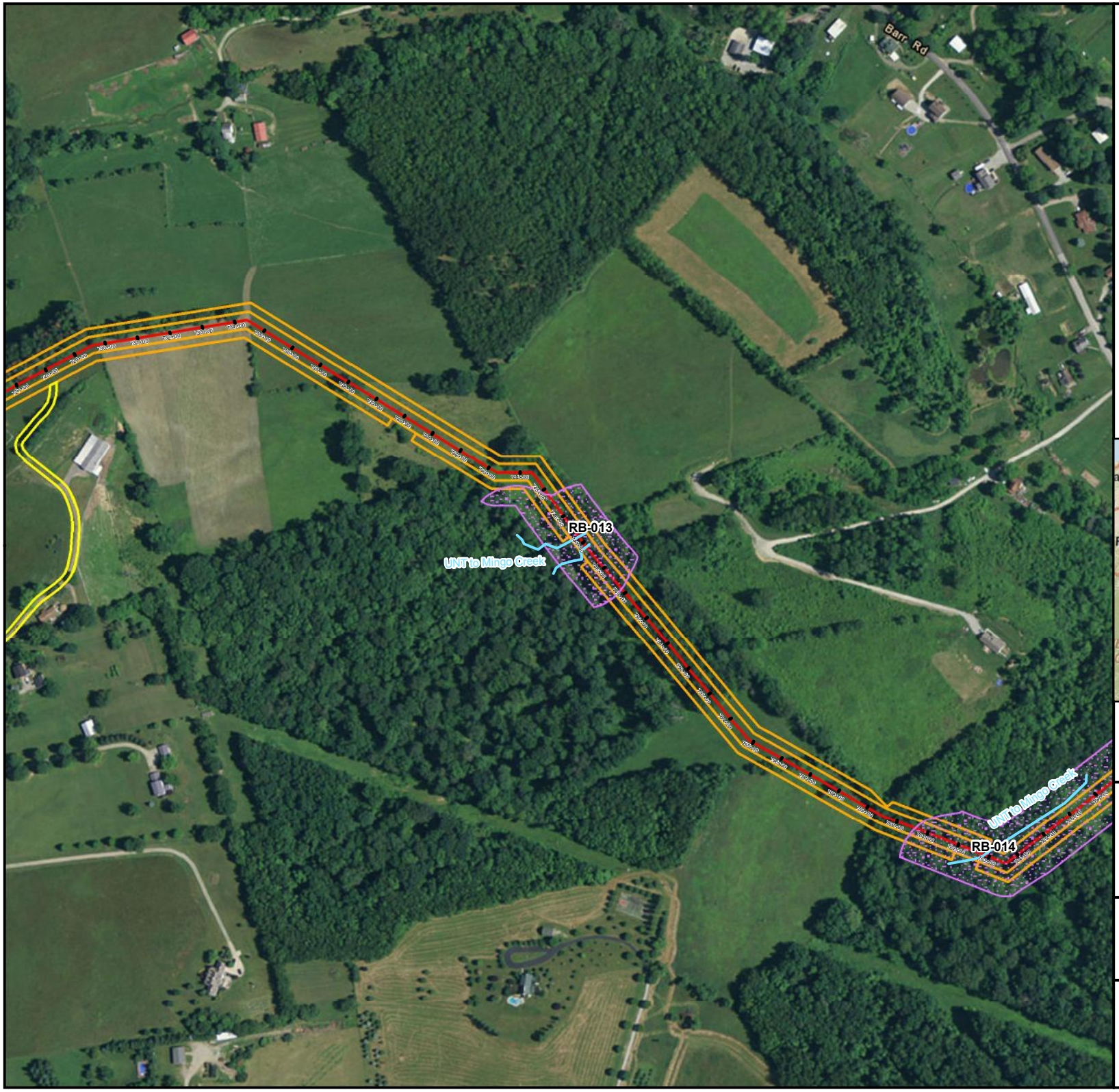

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-013
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-014
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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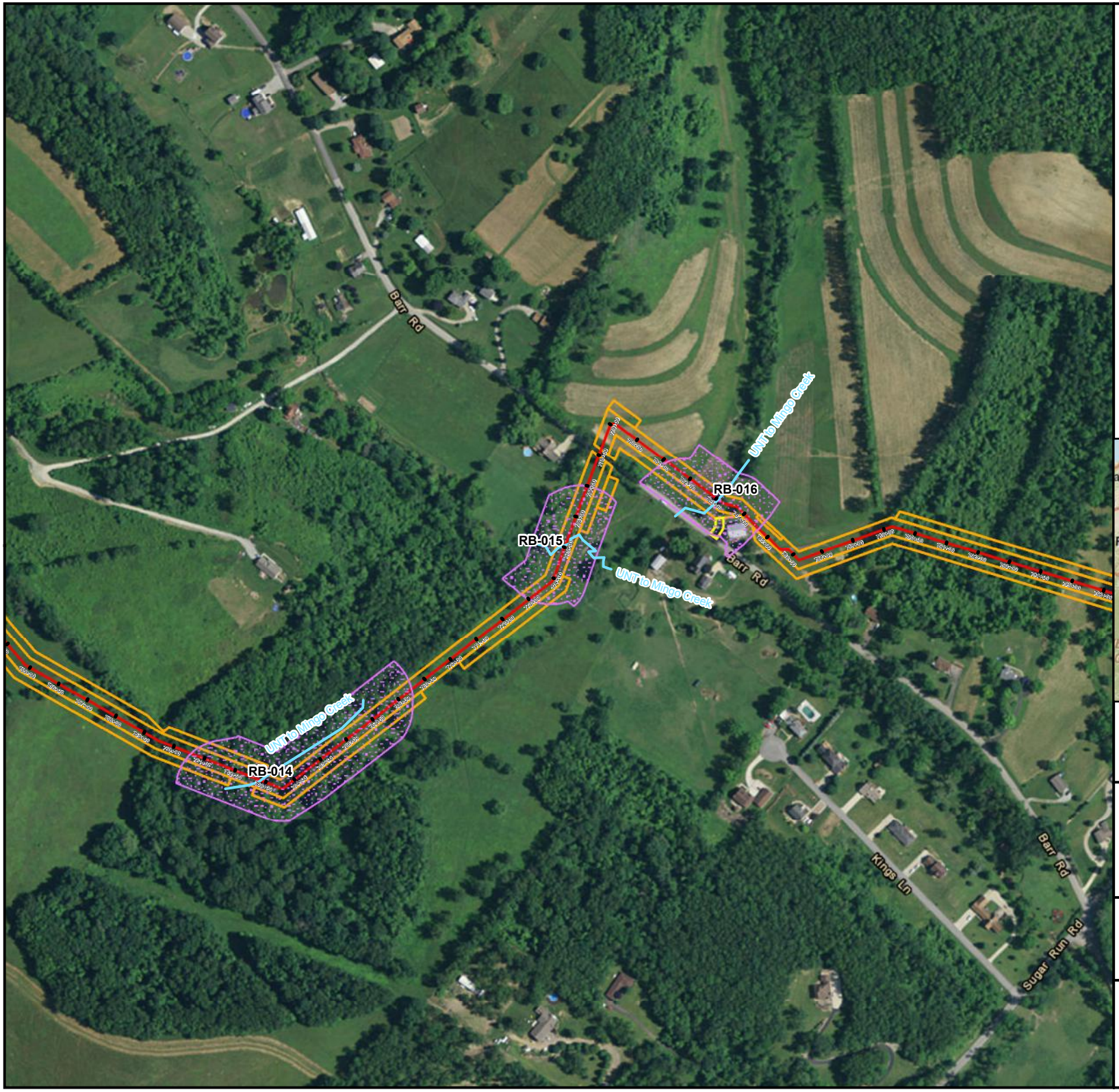

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-015
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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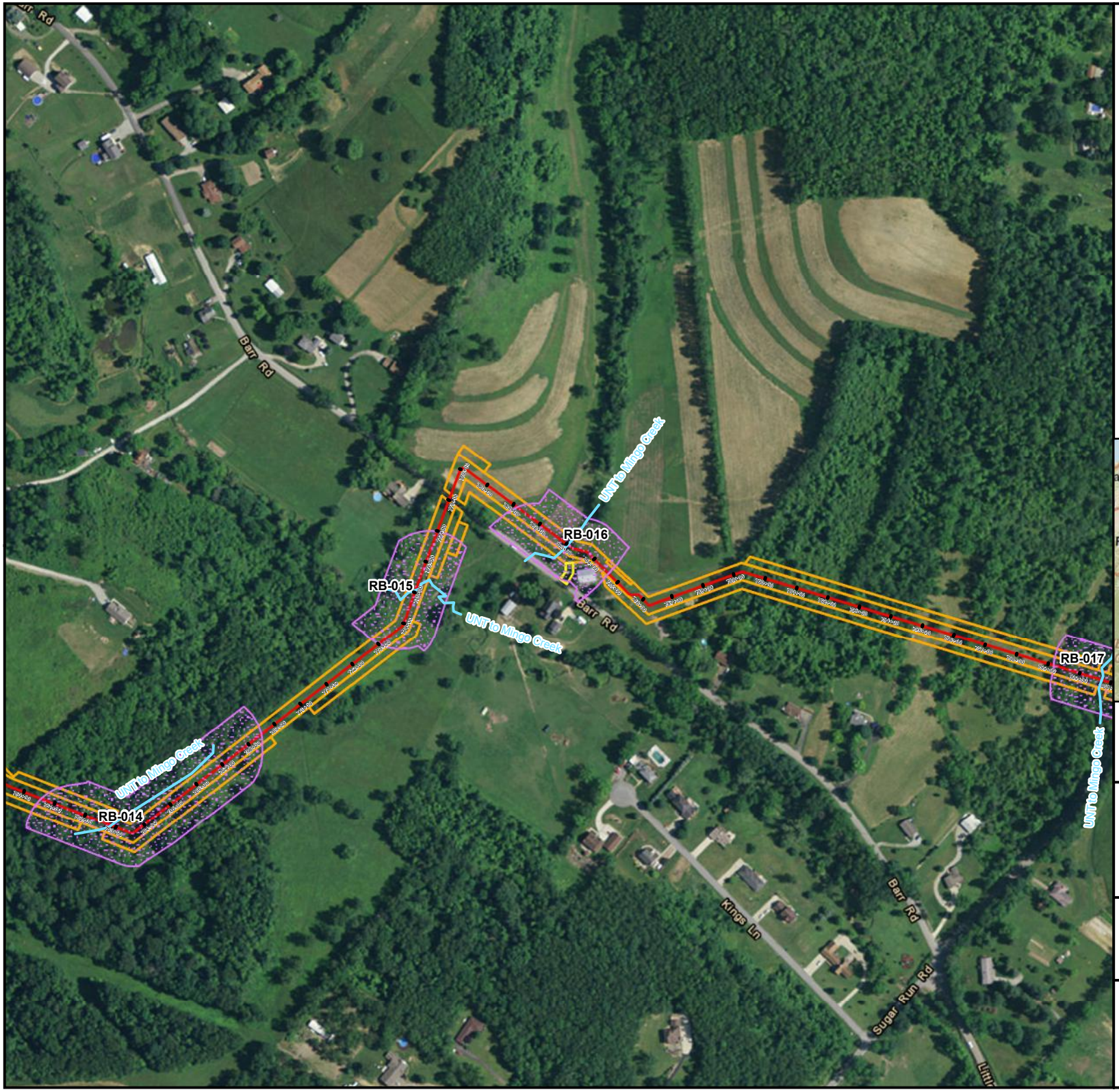

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-016
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-017
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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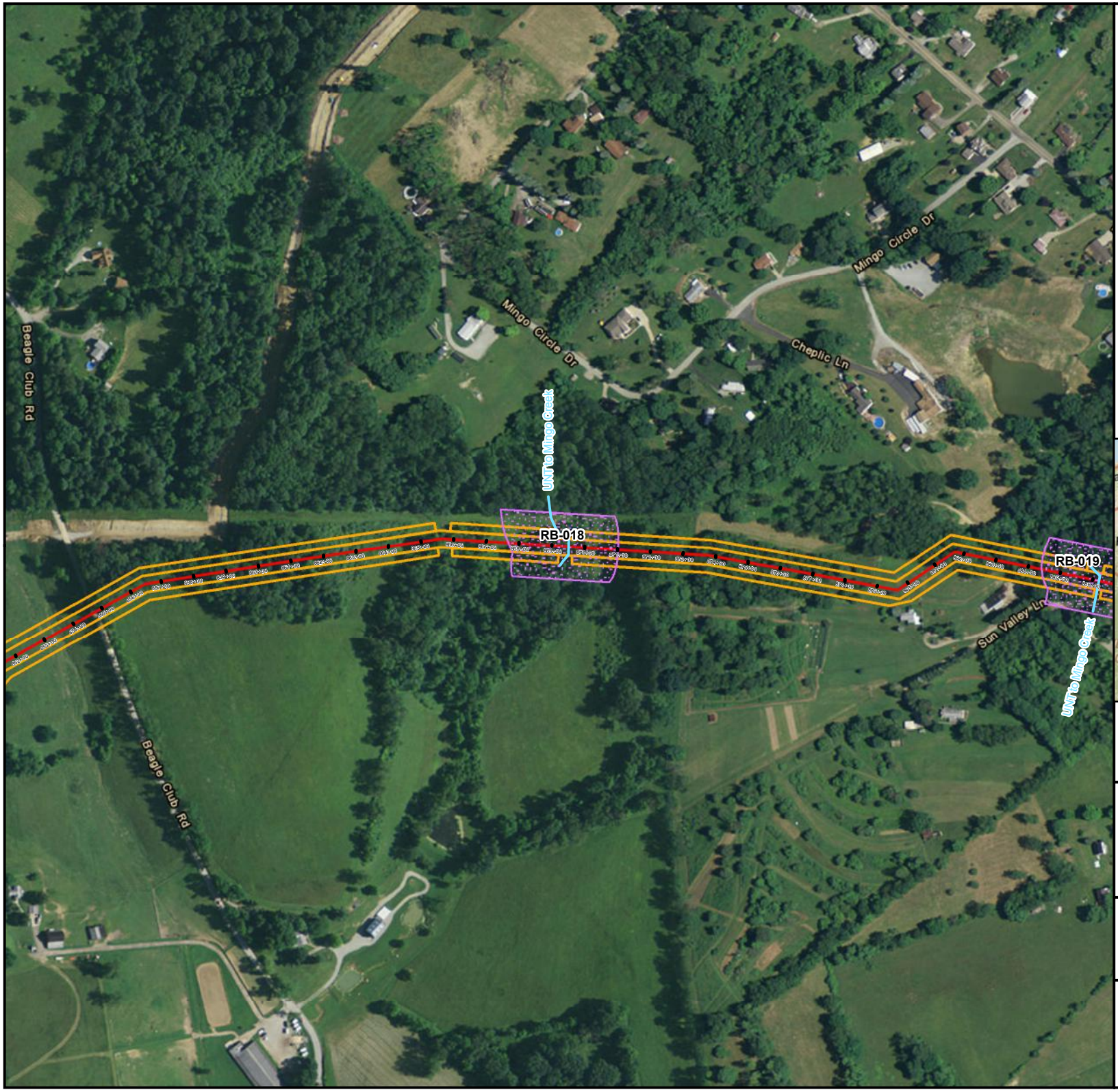

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-018
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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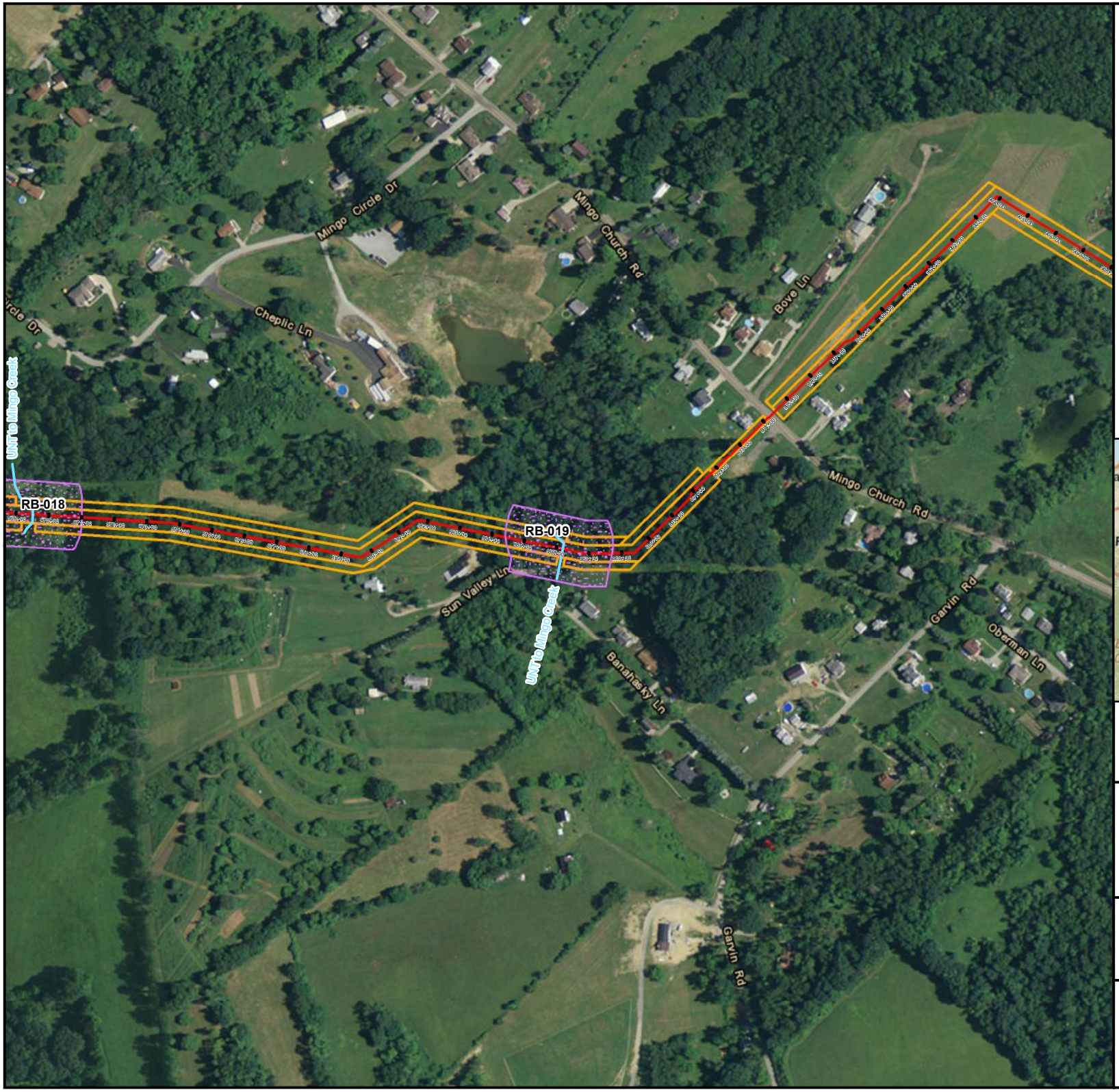

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-019
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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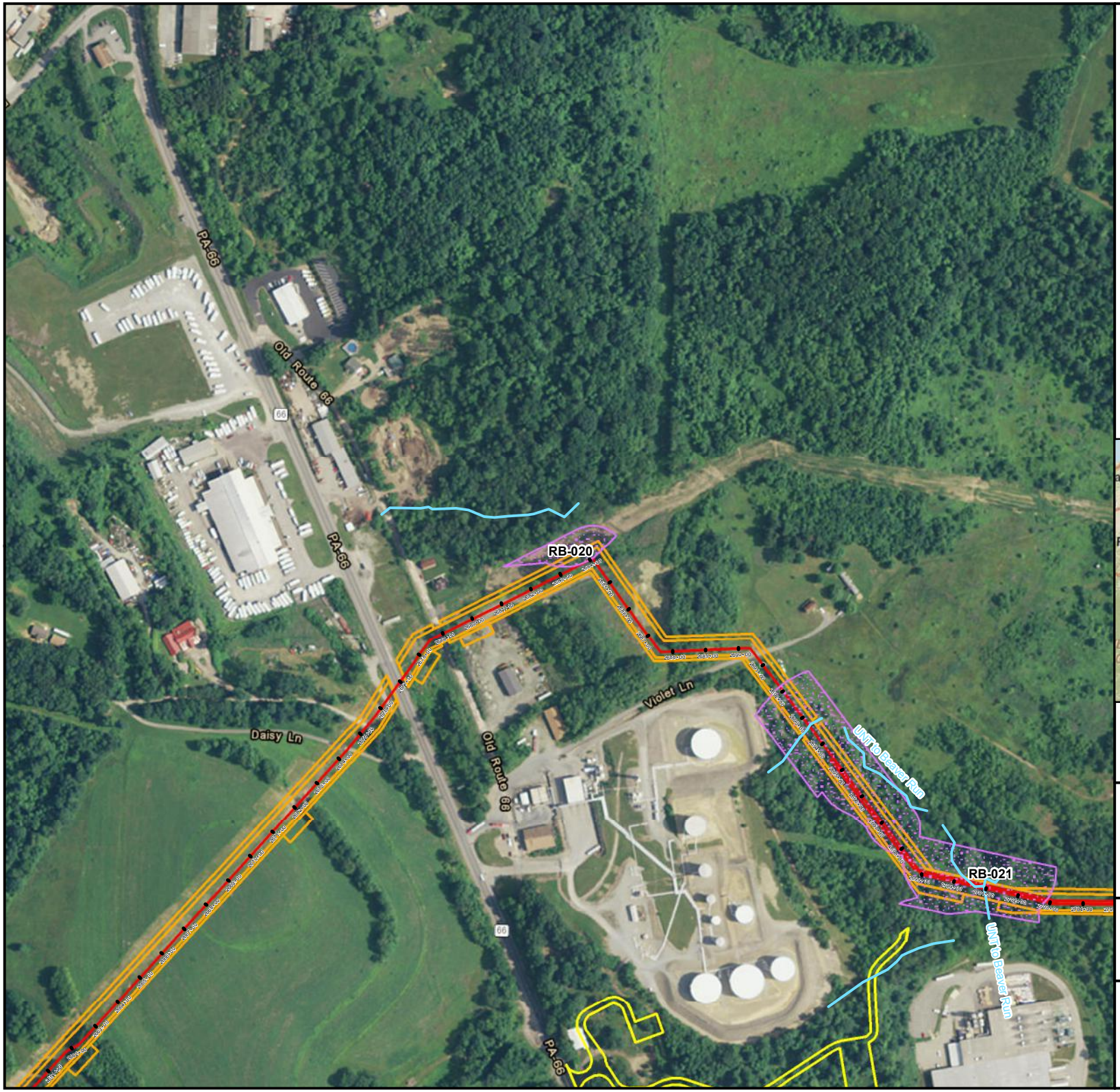

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-020
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
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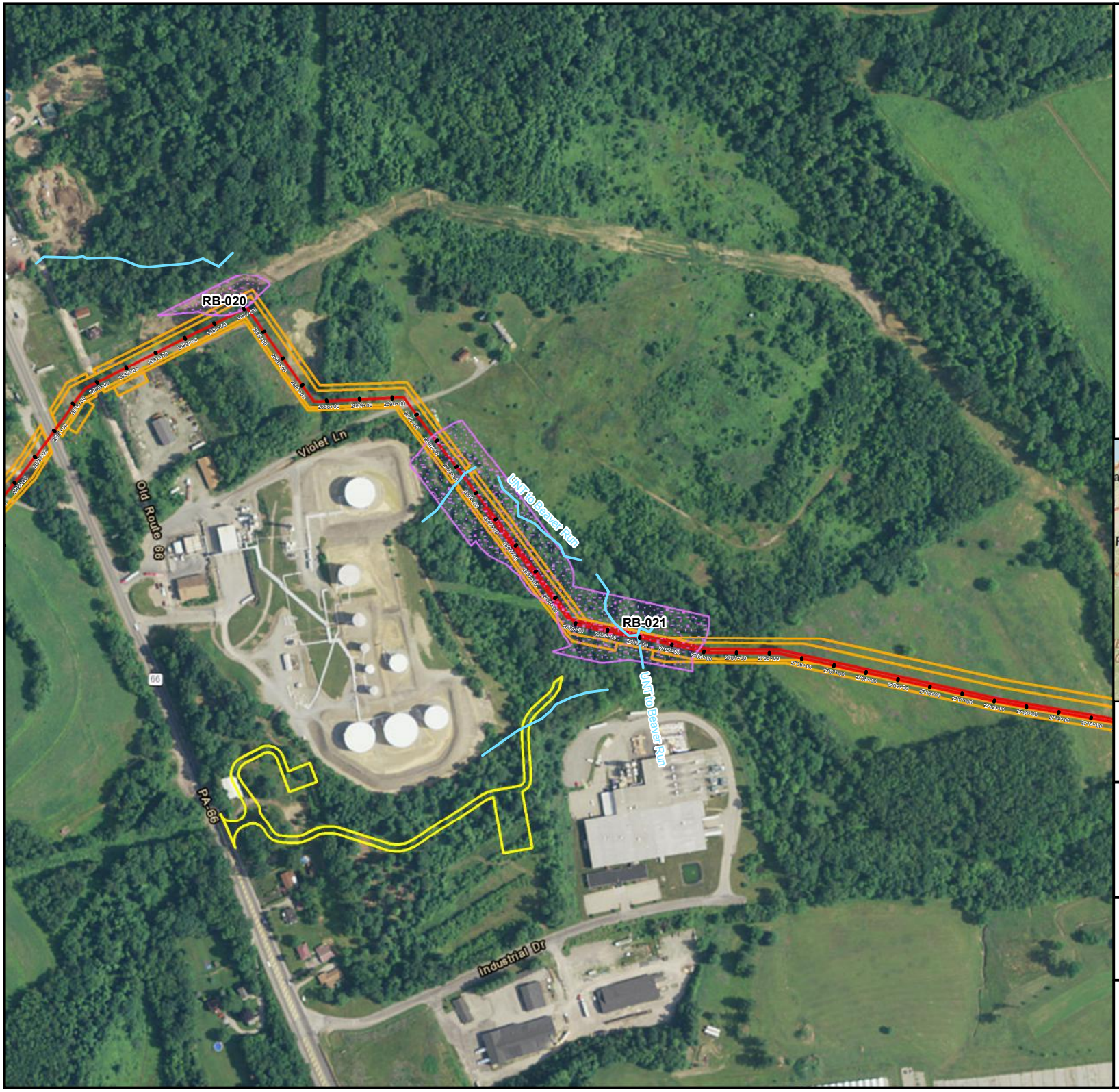
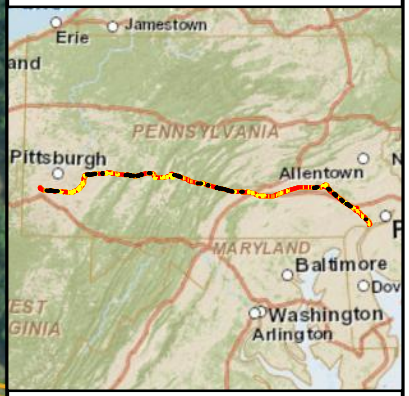


Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier



Feet: 0 200 400
Meters: 0 60.95 121.9

RB-021
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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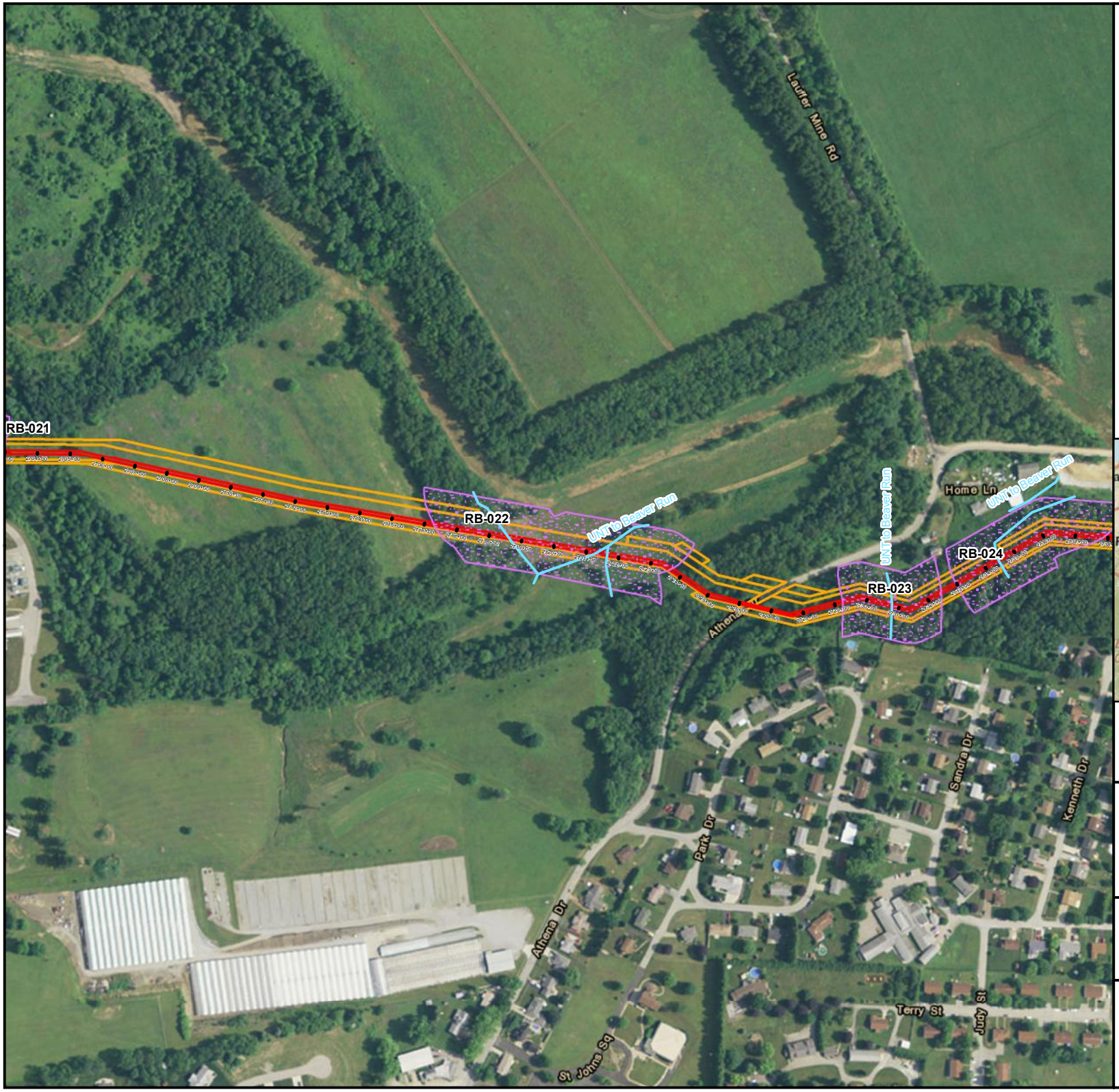

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-022
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
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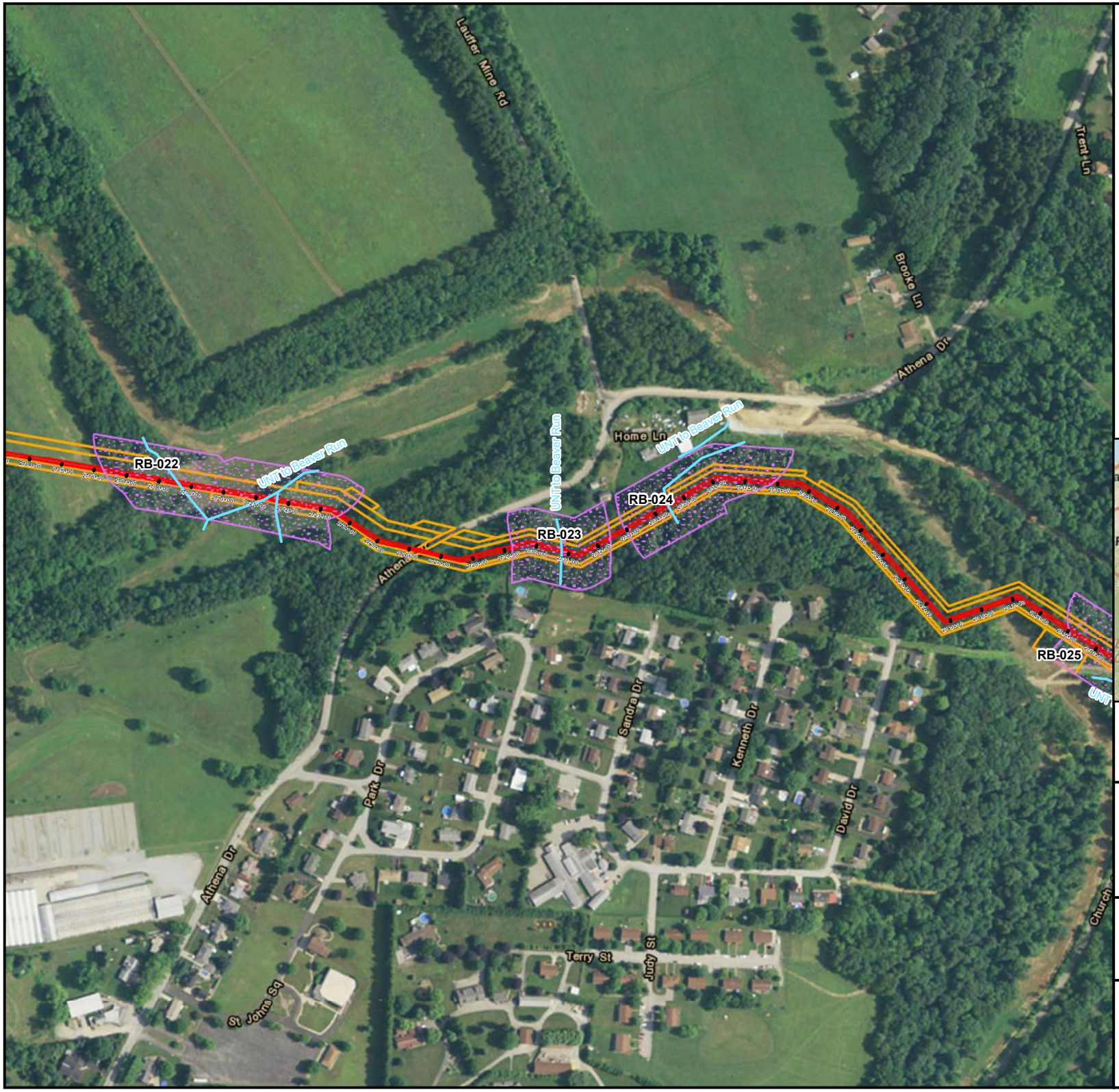

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-023
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-024
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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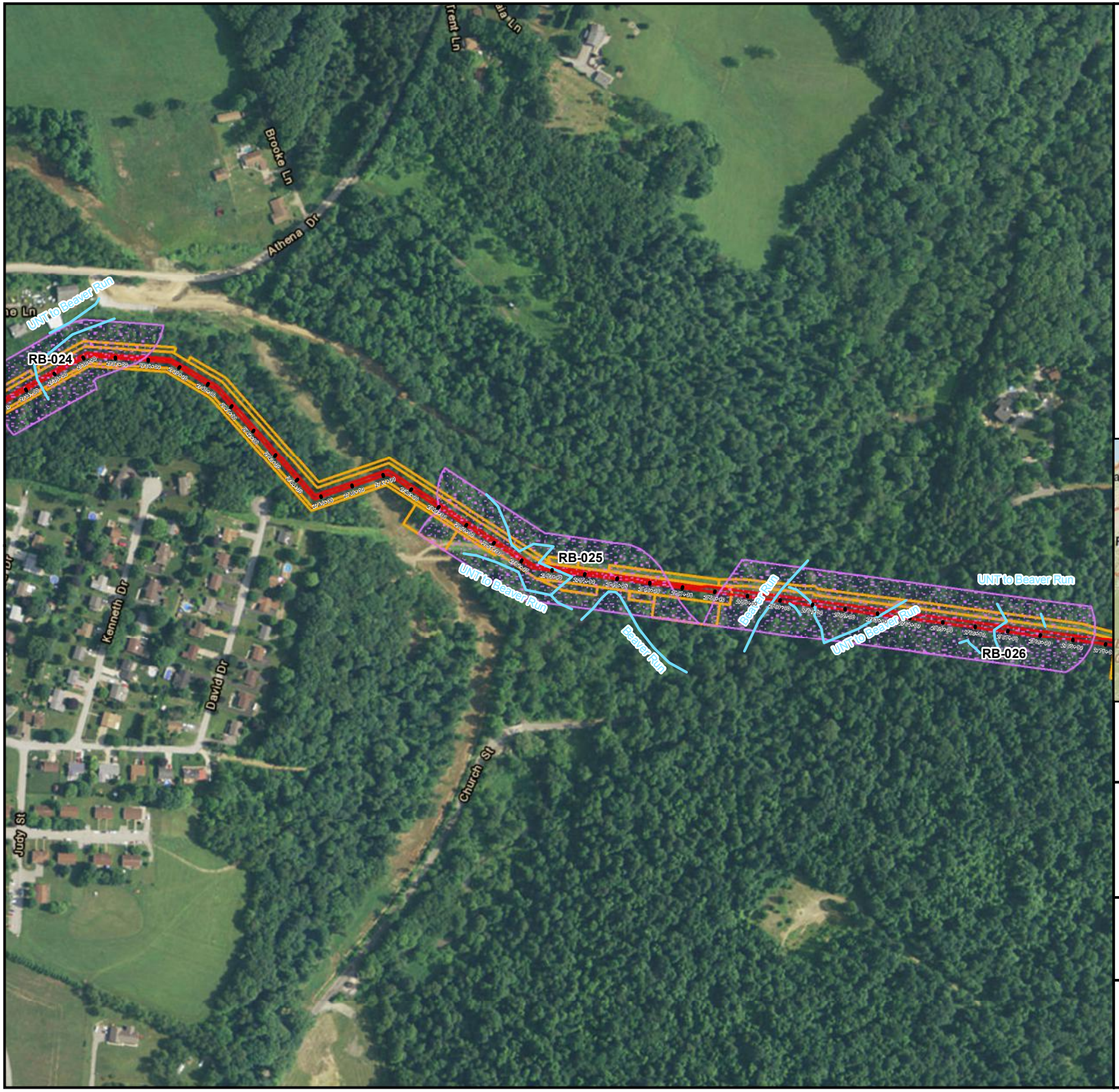

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-025
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-026
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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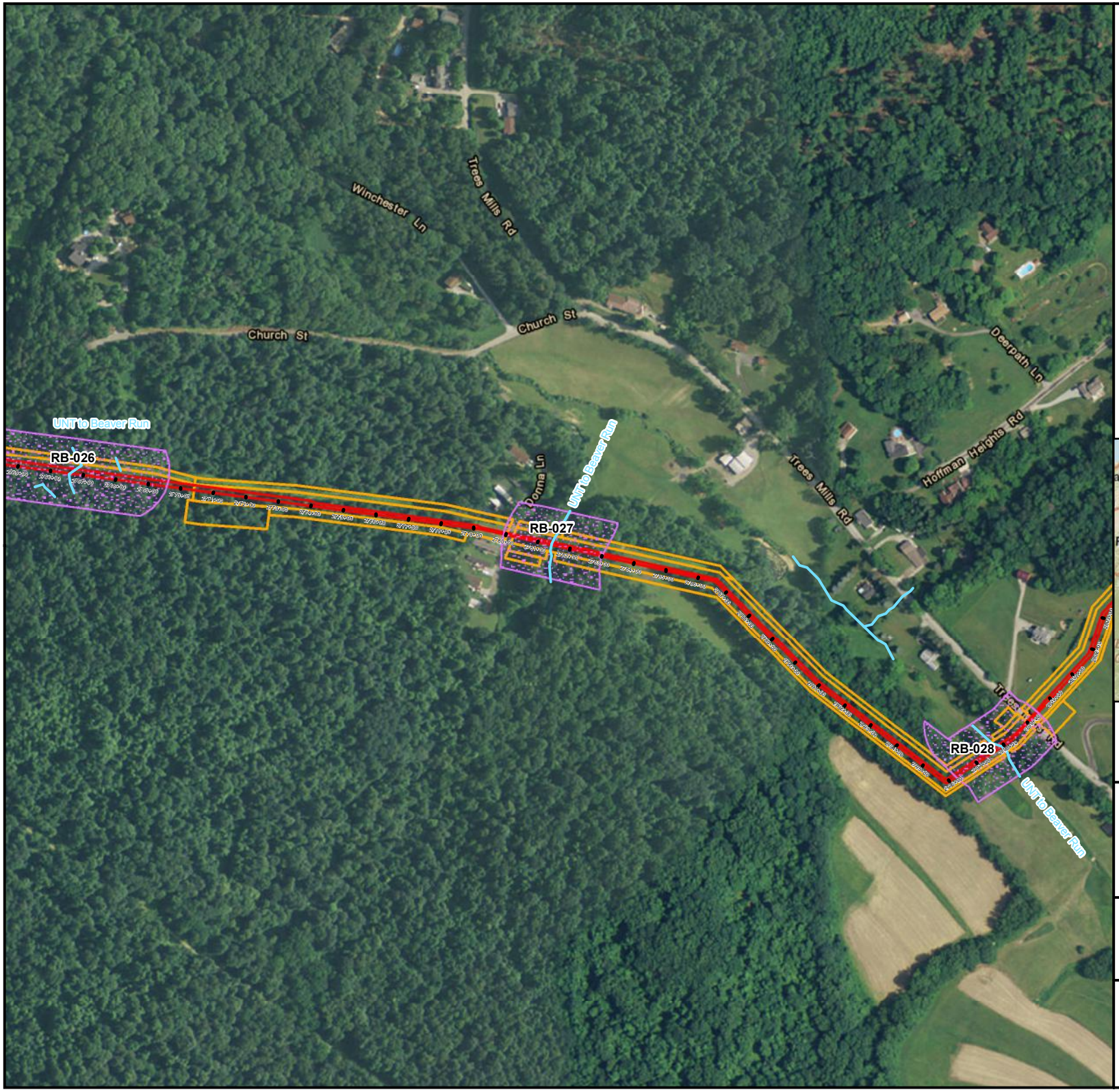

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-027
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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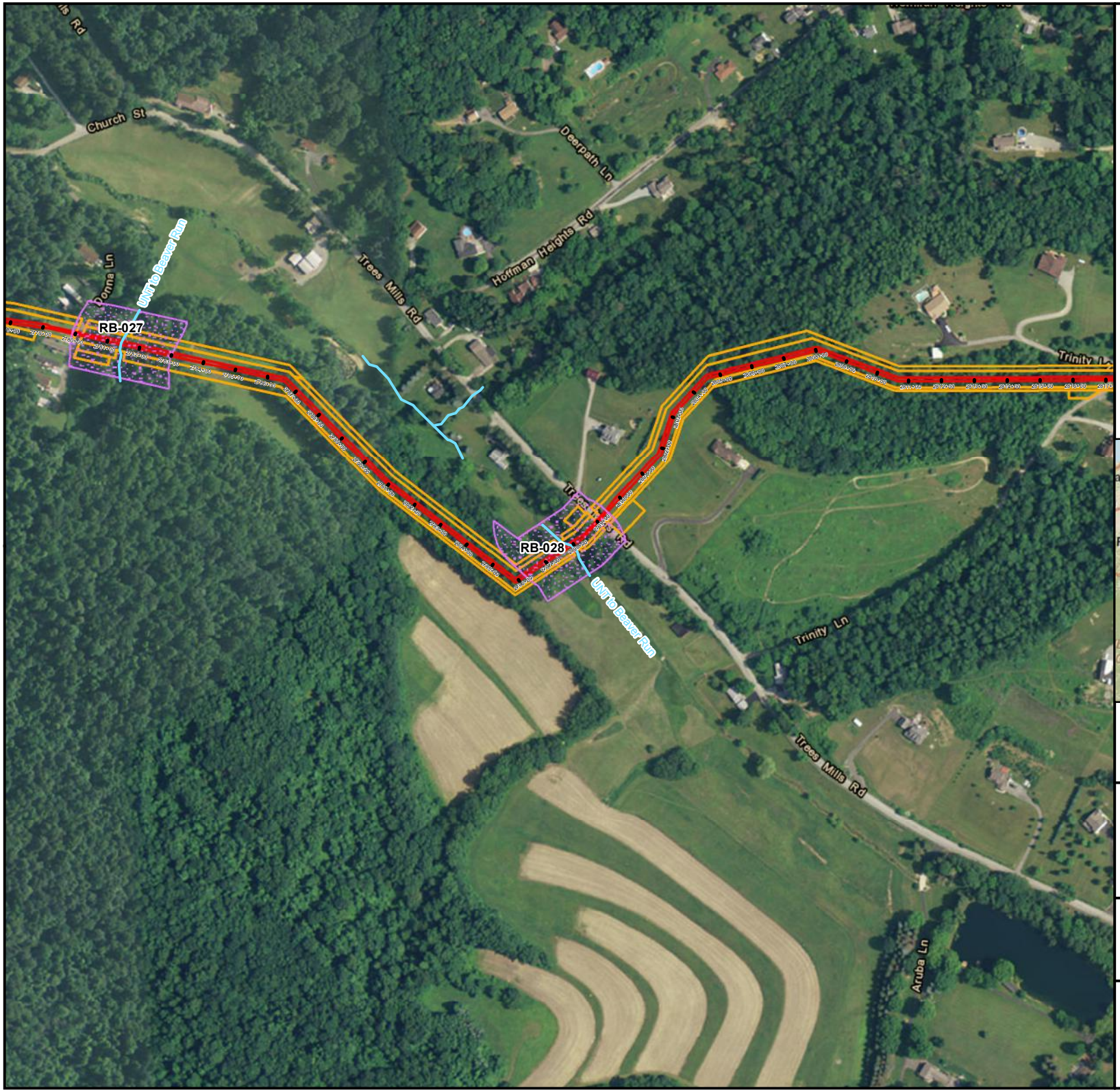

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-028
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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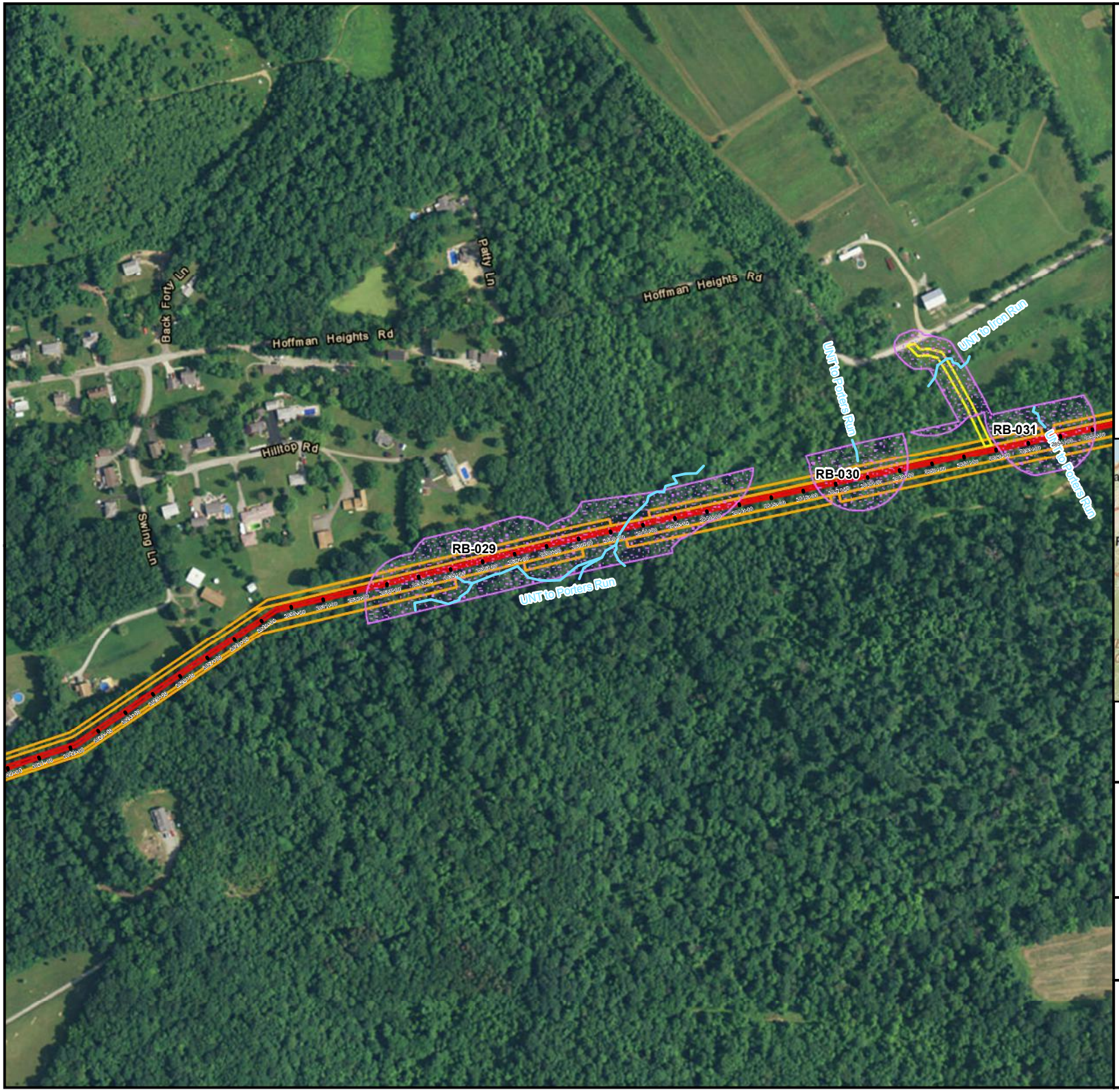

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-029
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
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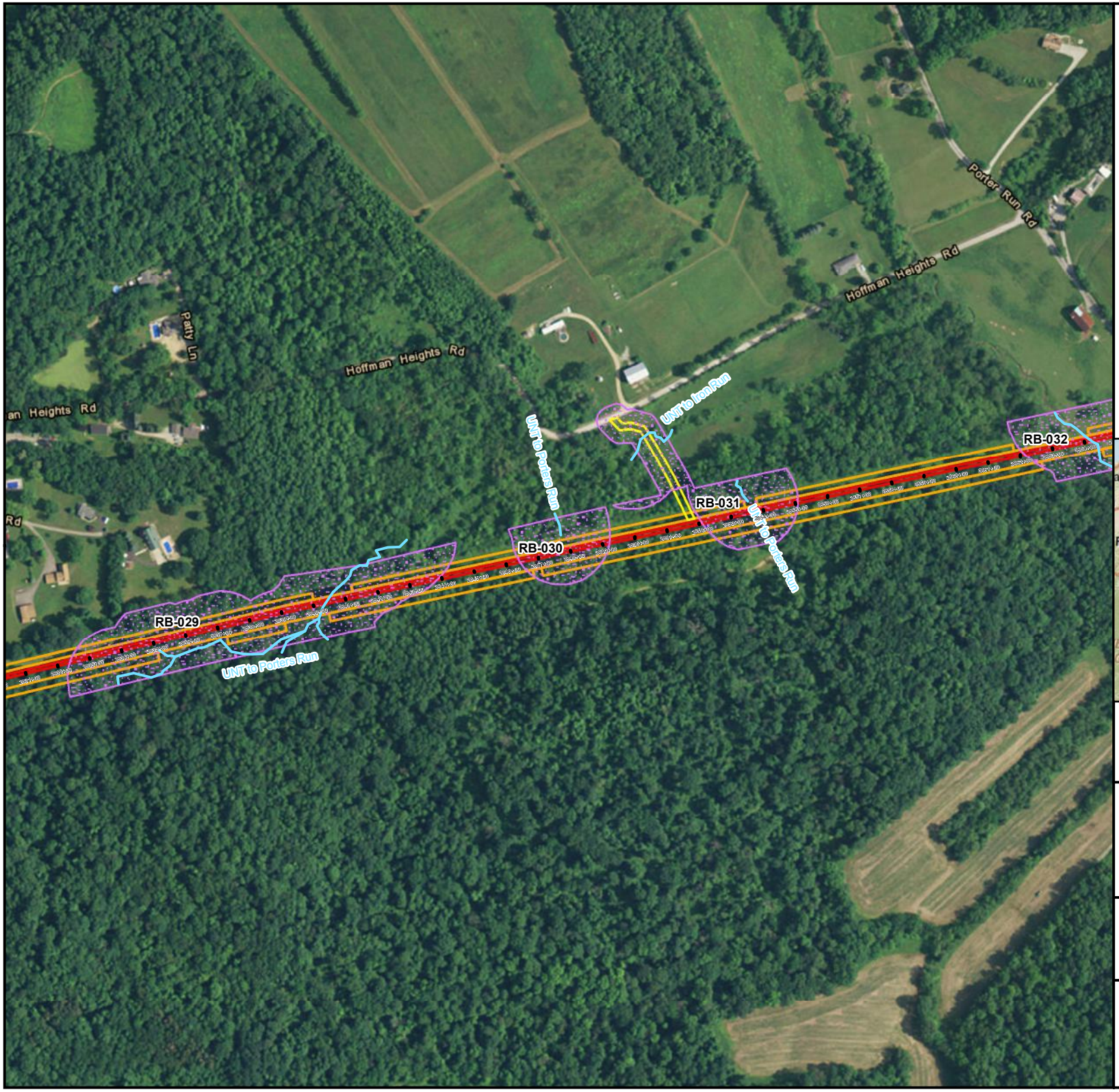

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-030
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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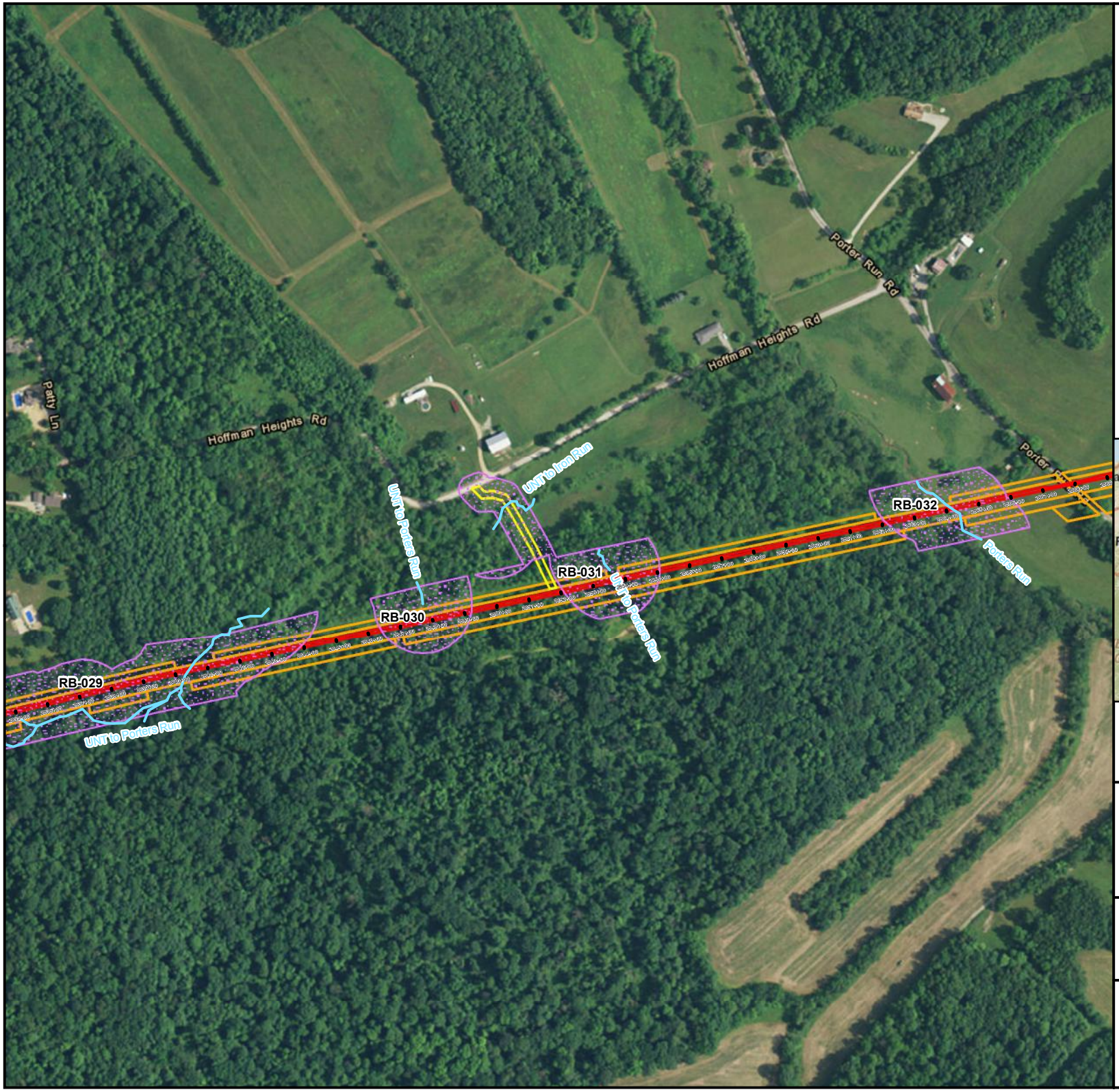

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-031
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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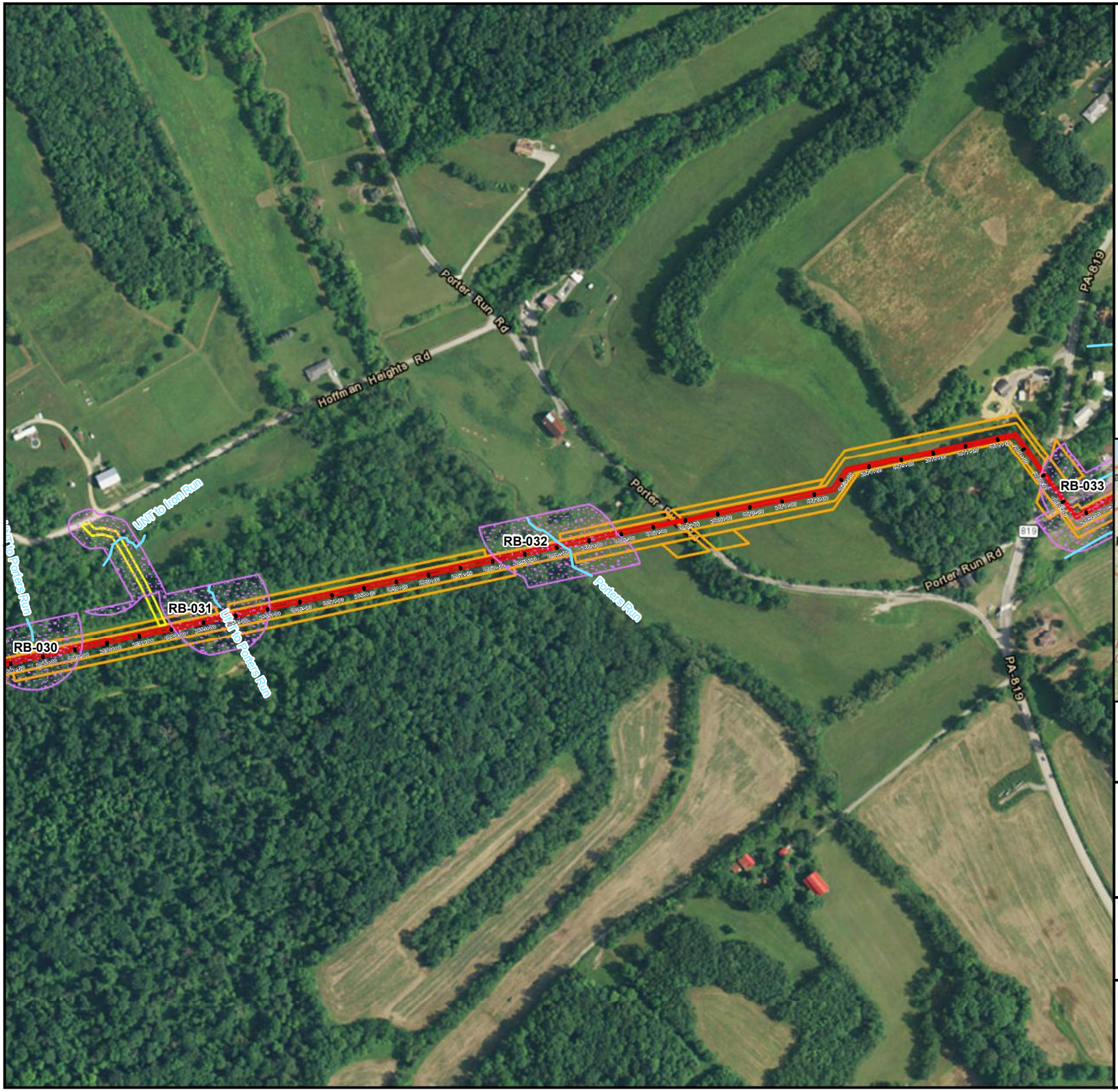

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-032
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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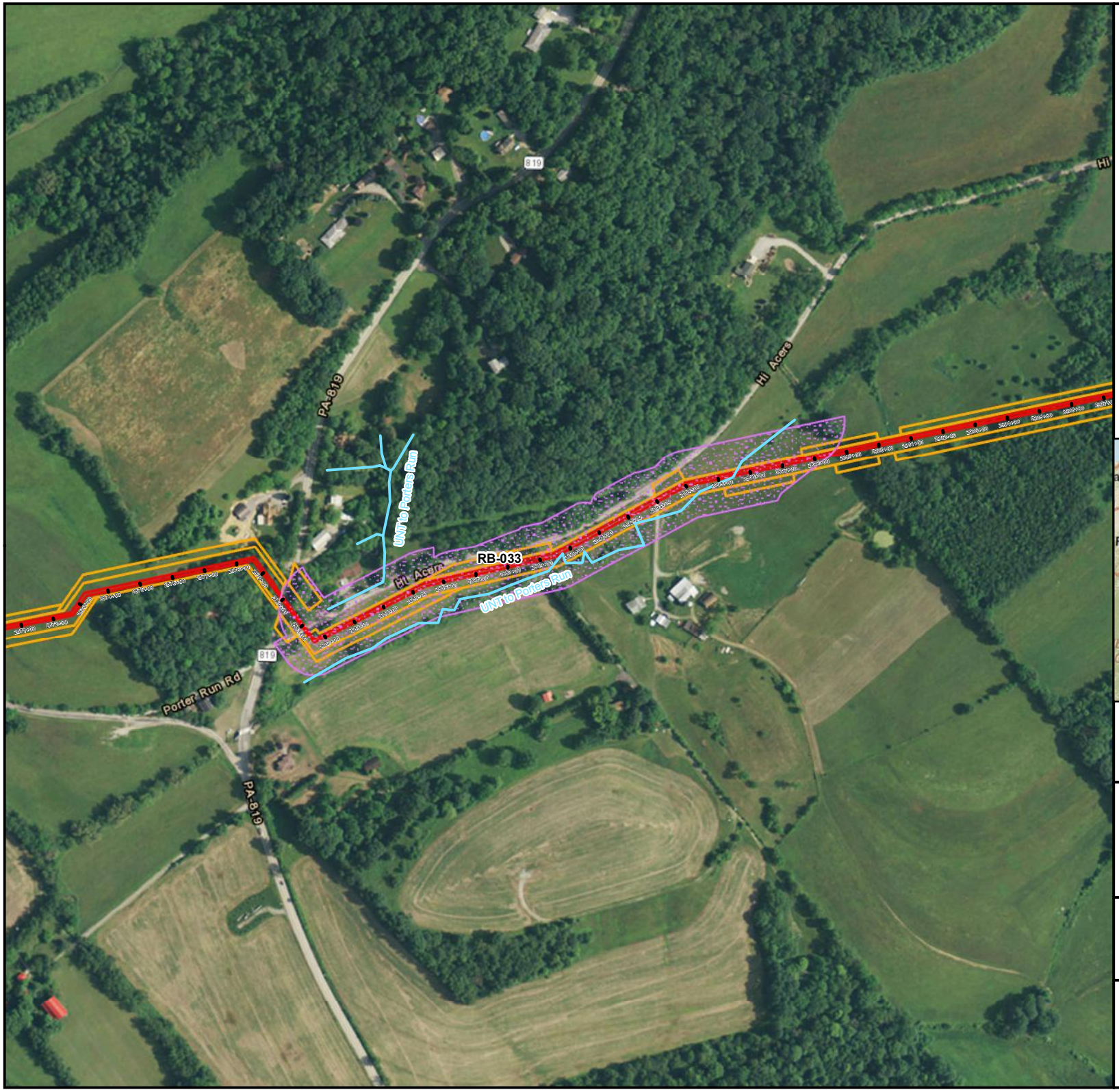

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-033
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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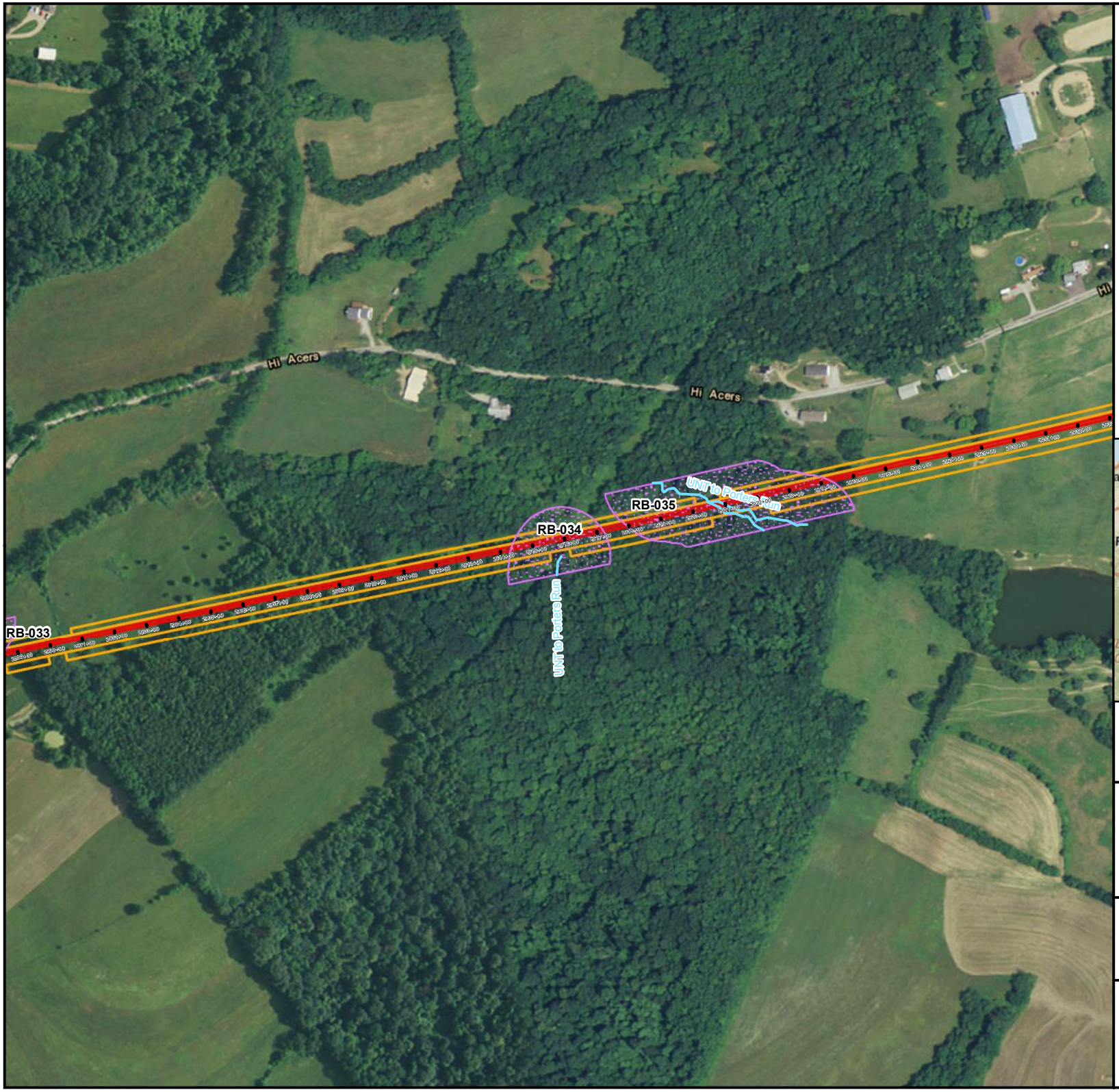

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-034
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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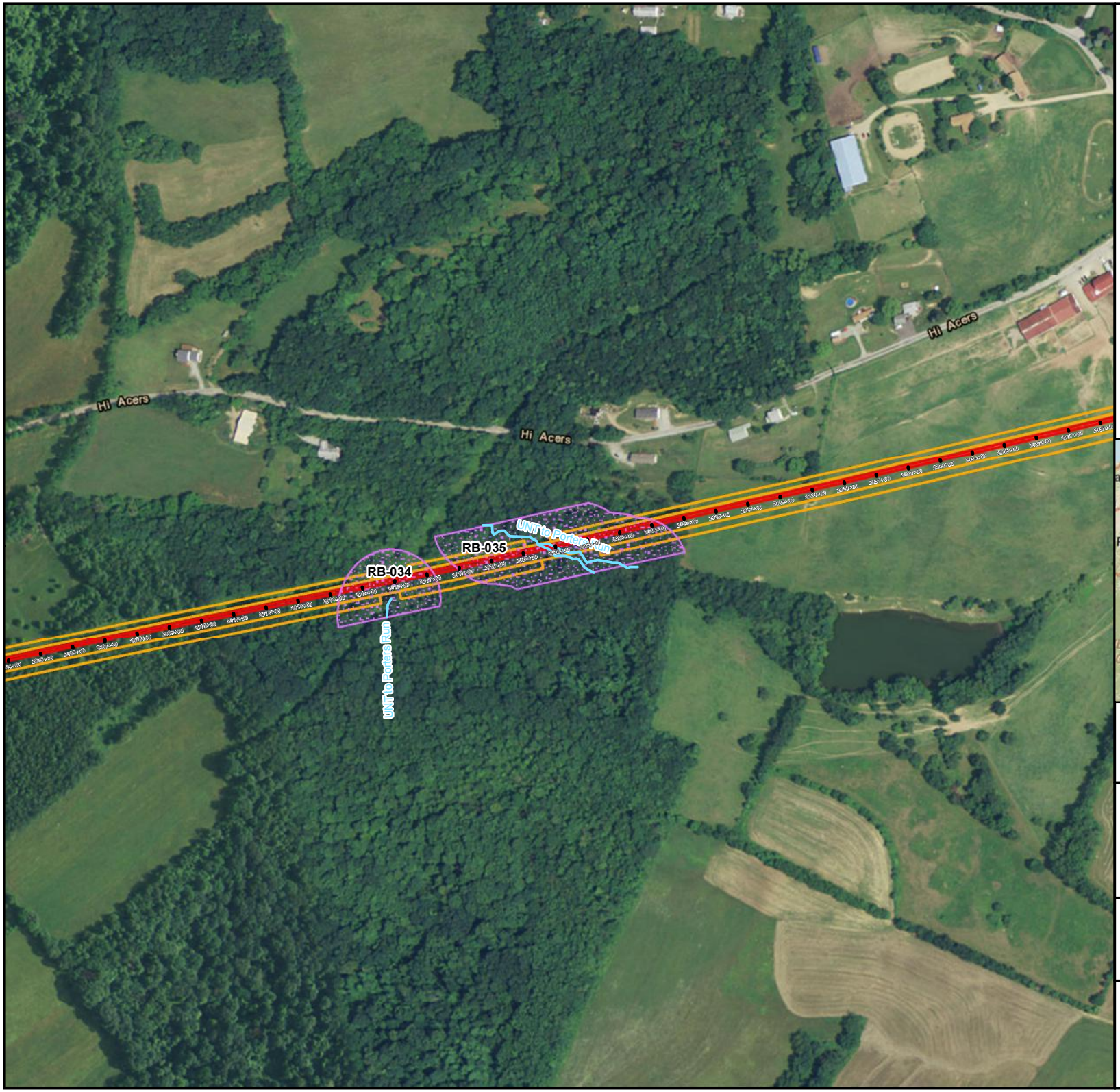

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-035
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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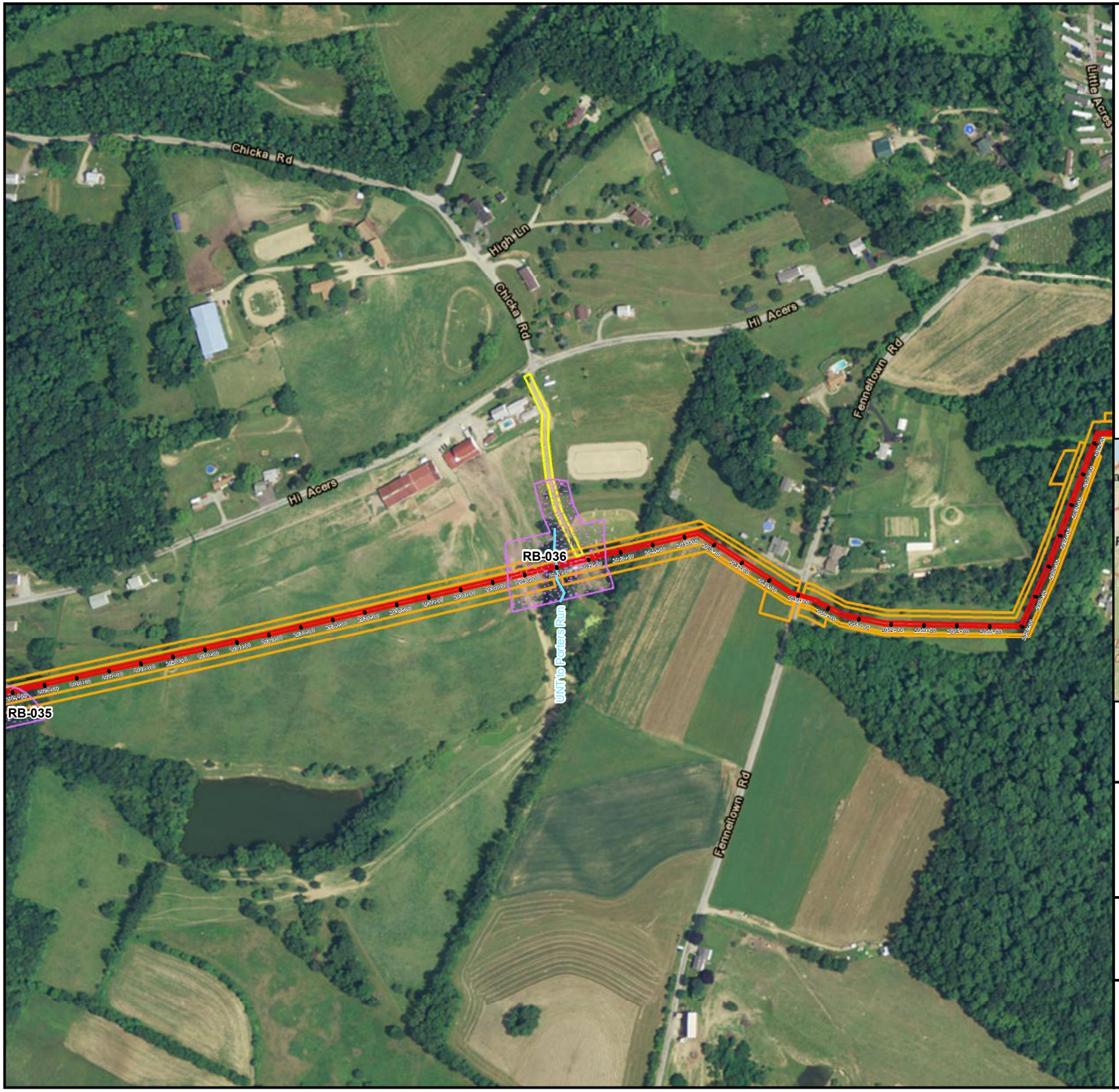

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-036
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-037
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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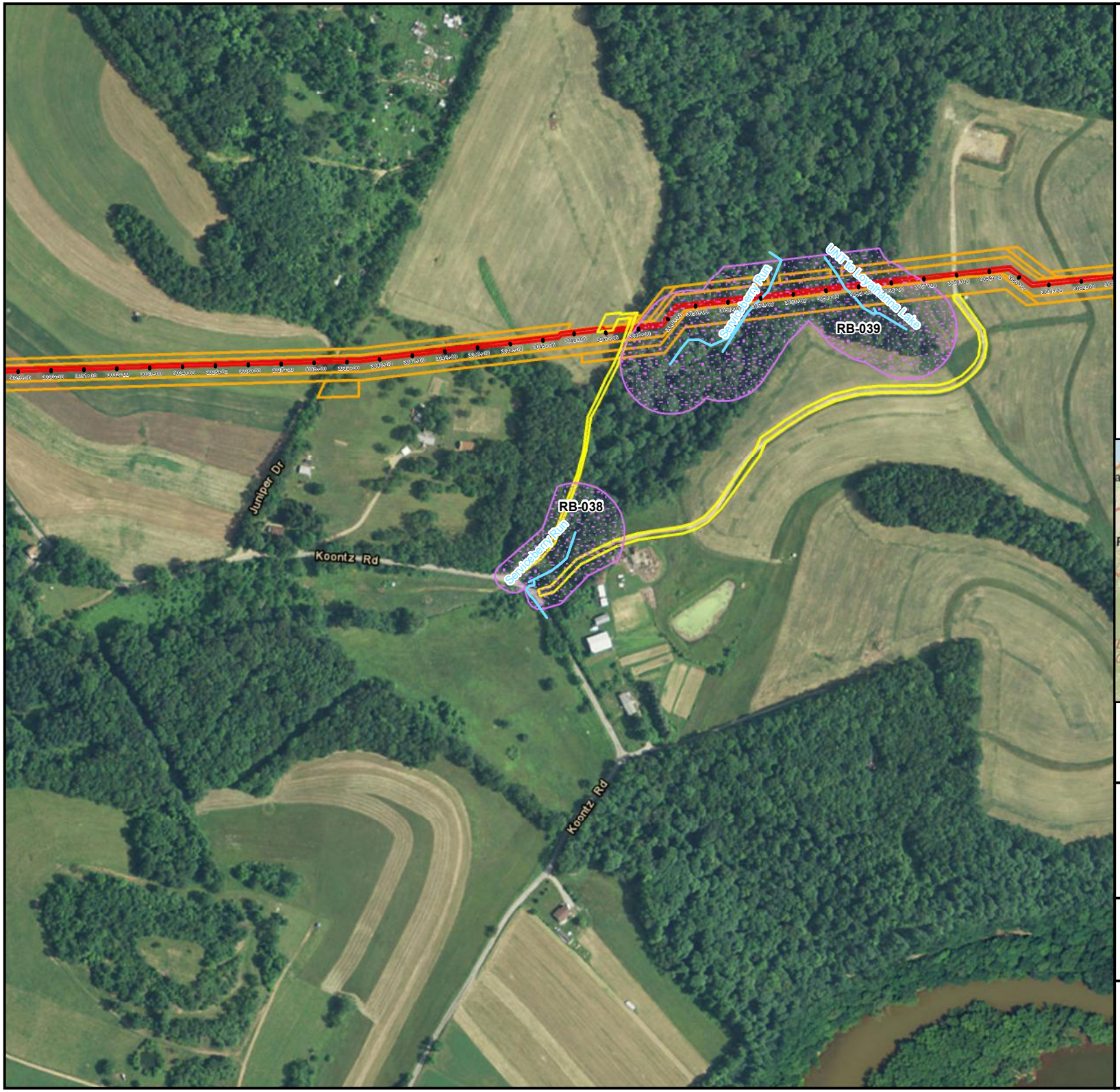
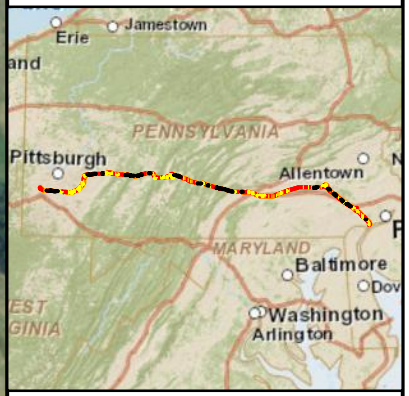


Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier



N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-038
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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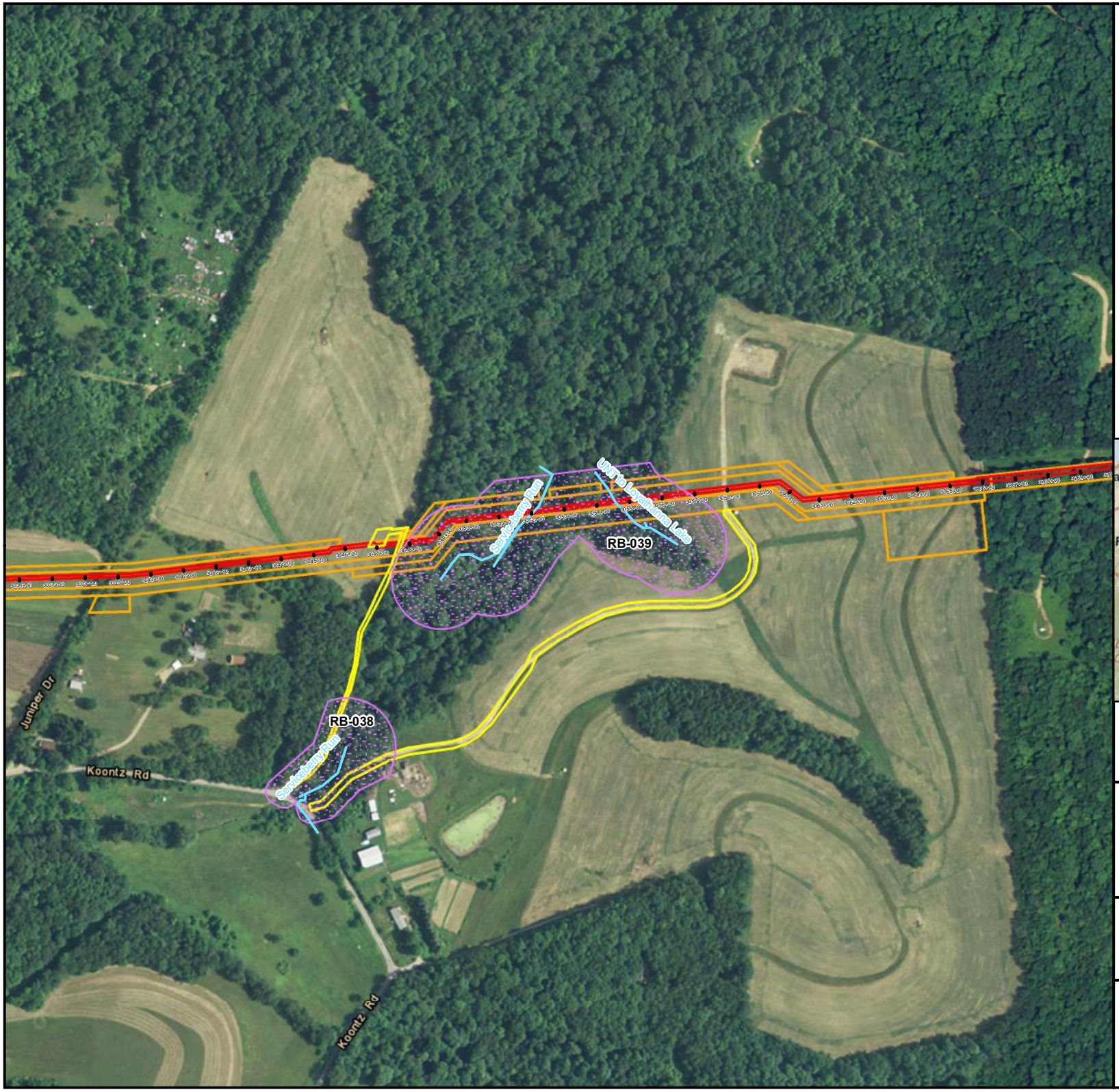

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-039
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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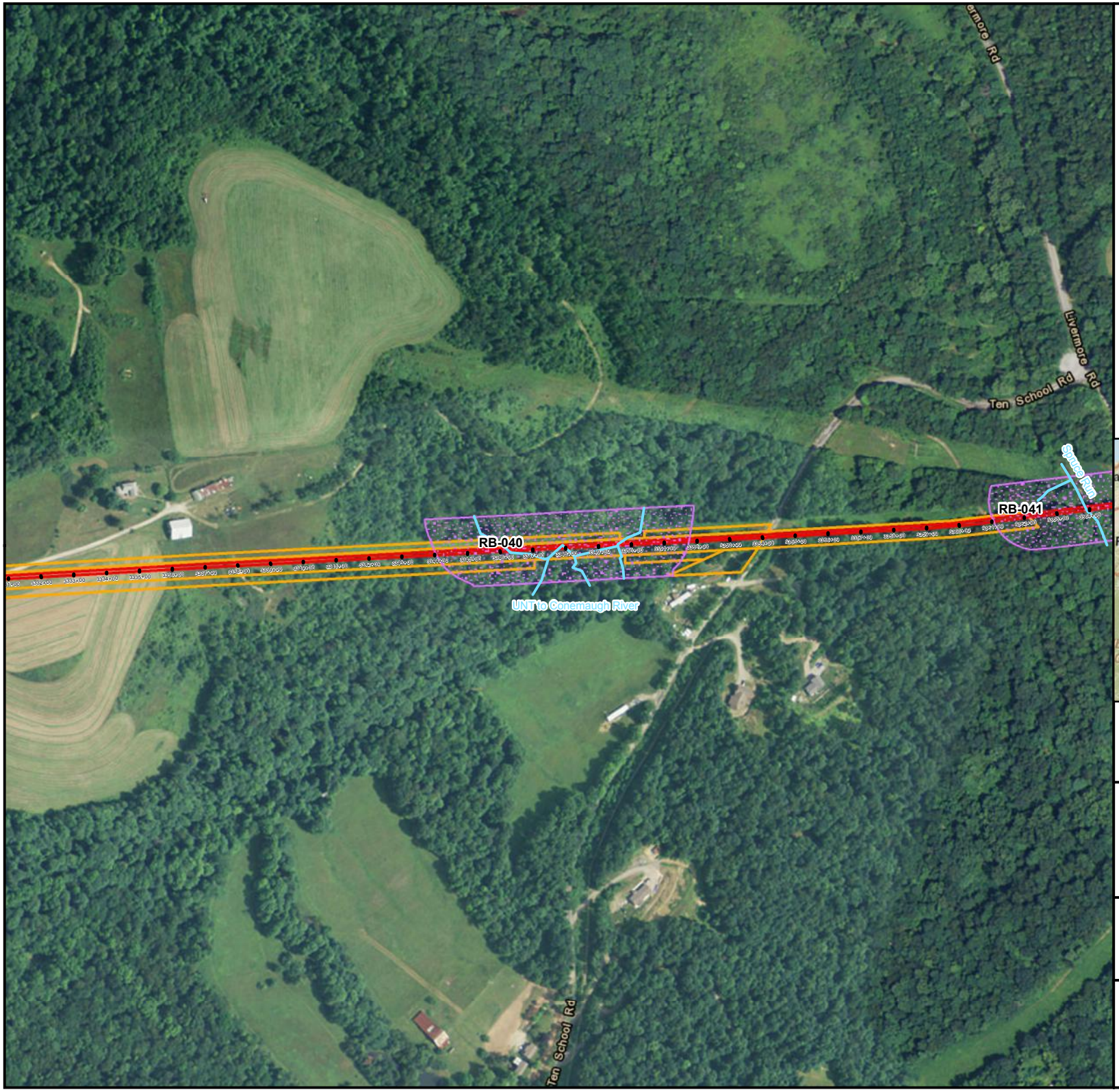

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-040
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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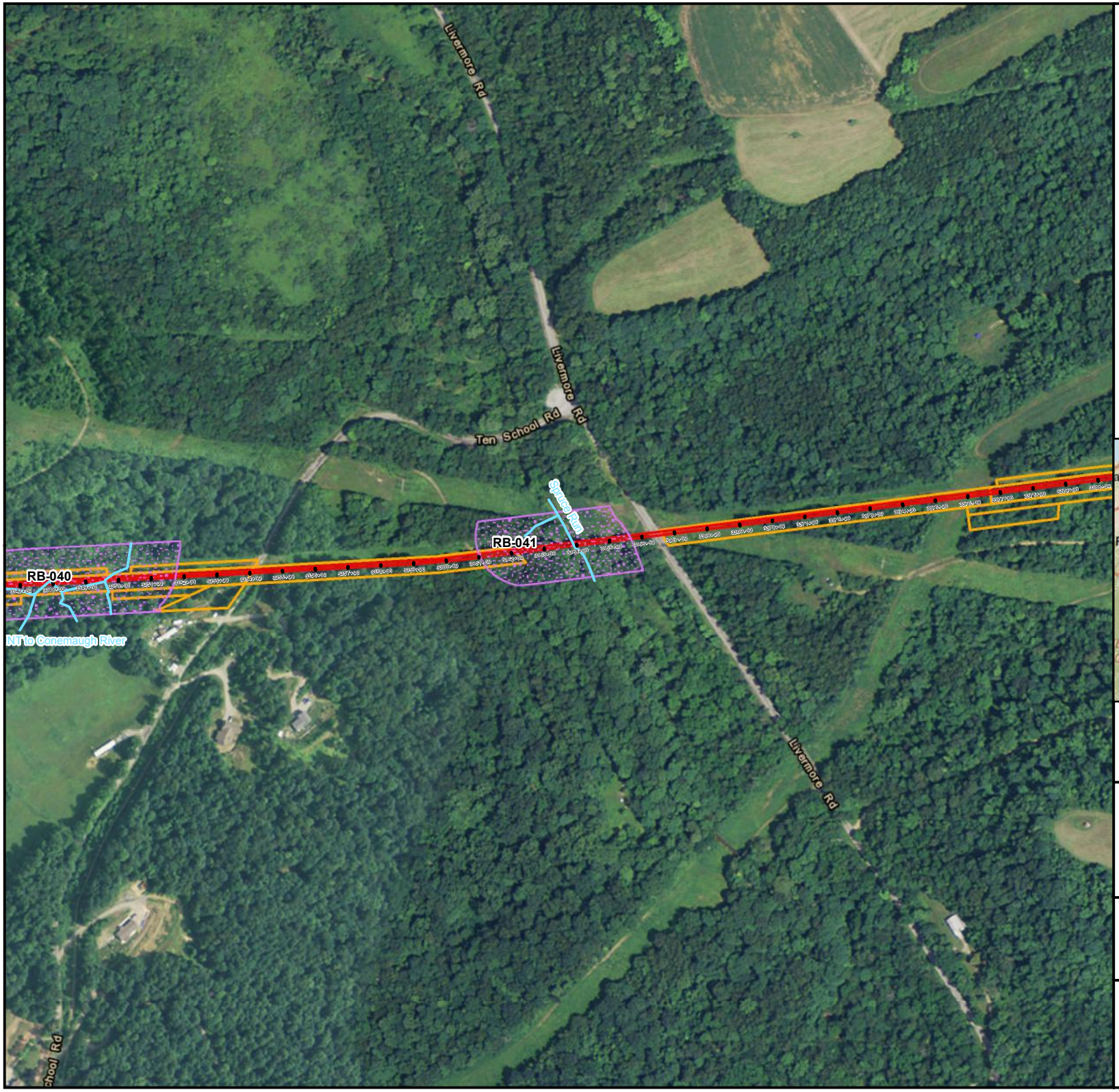

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-041
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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TETRA TECH

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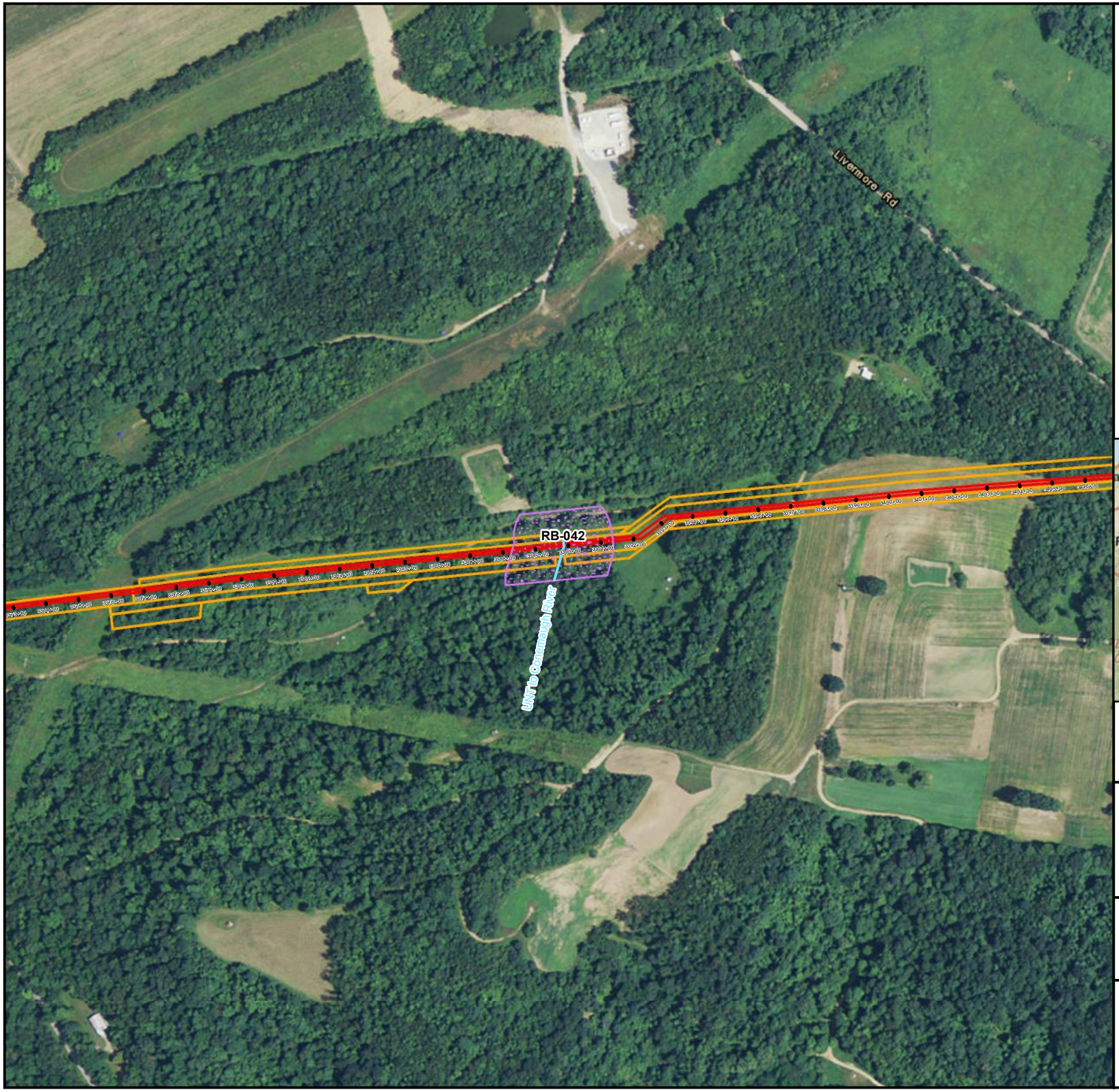
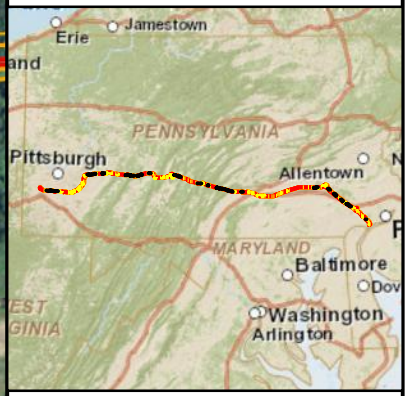


Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier



N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-042
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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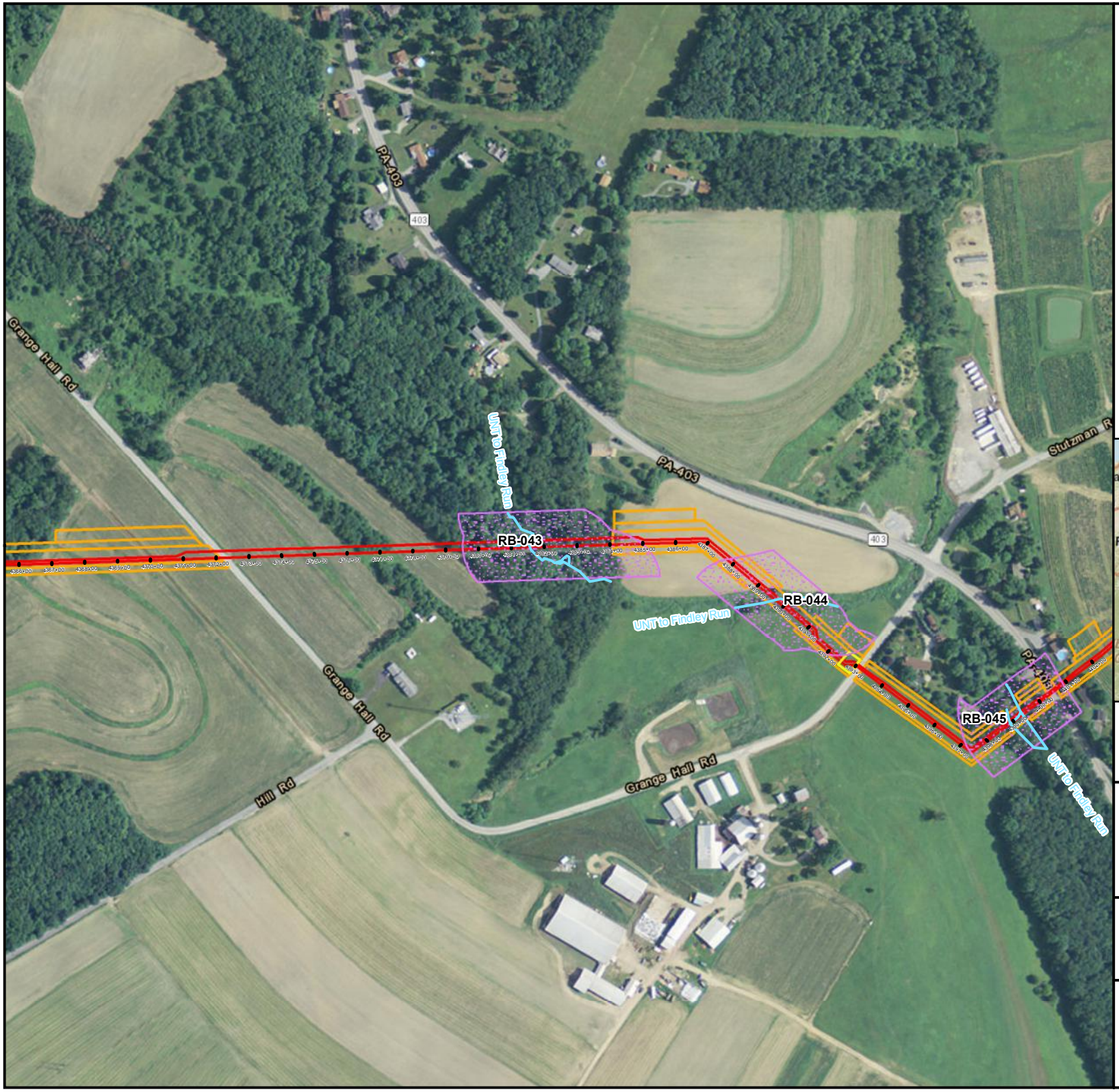

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-043
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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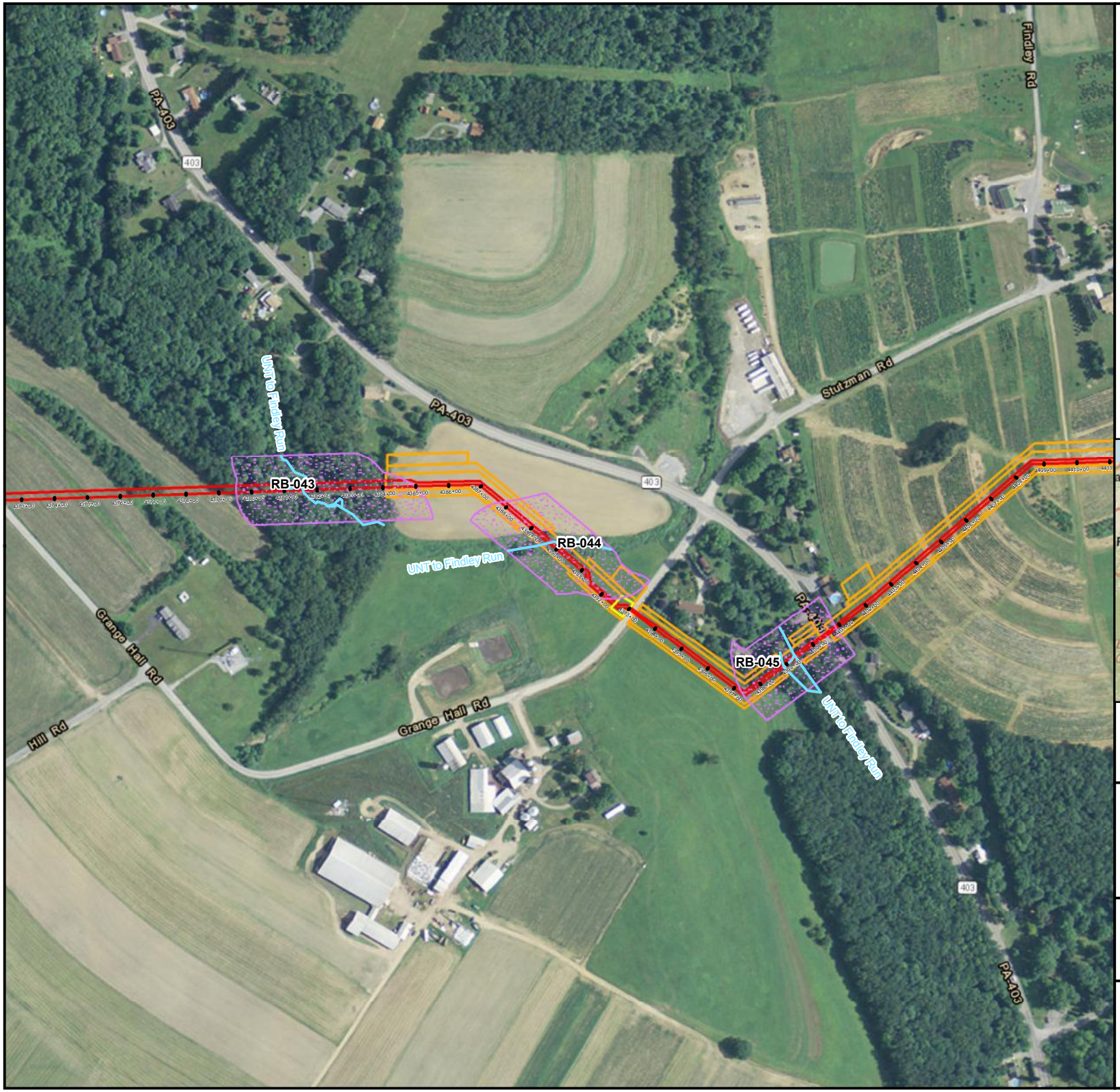

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-044
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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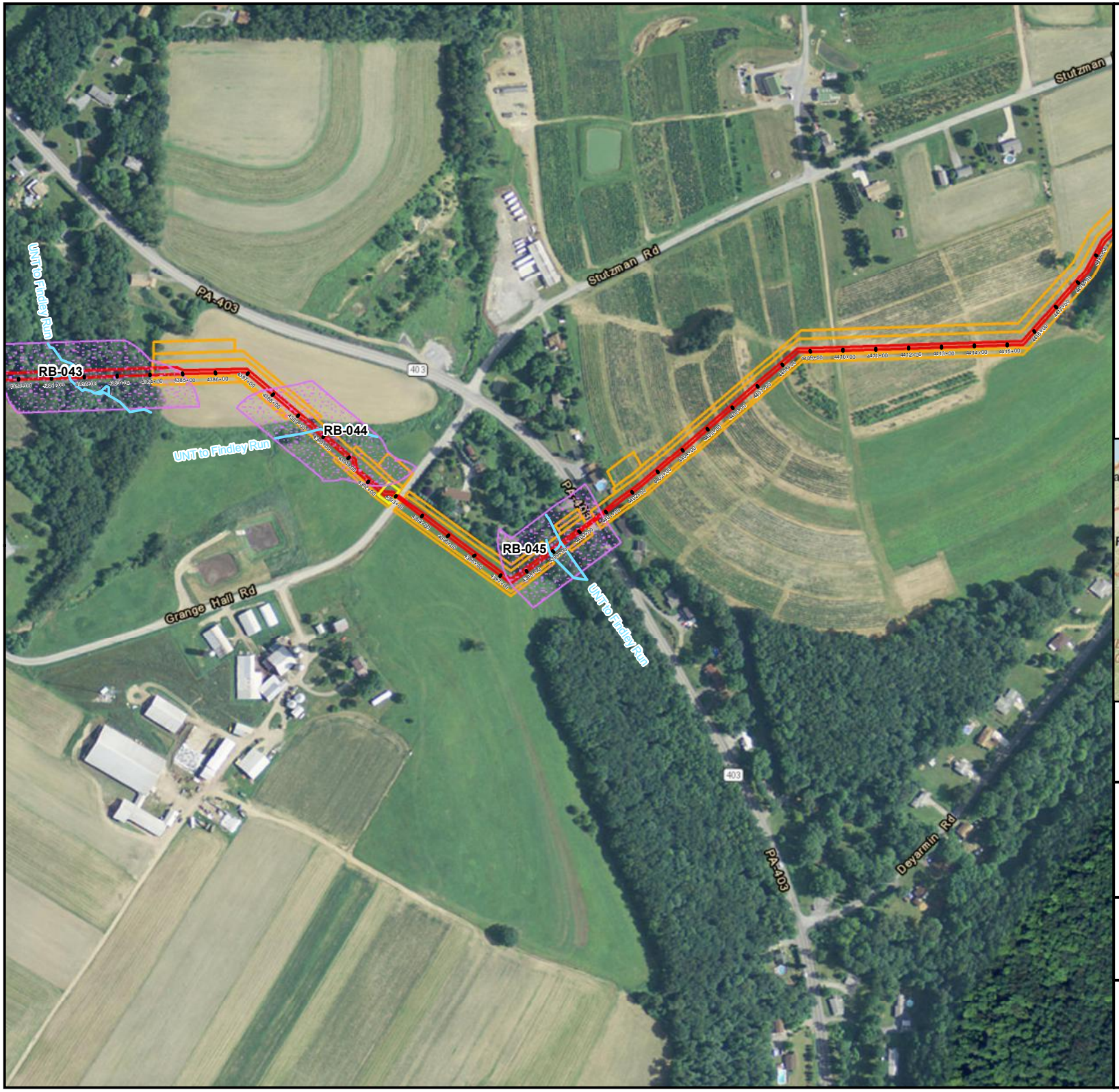

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-045
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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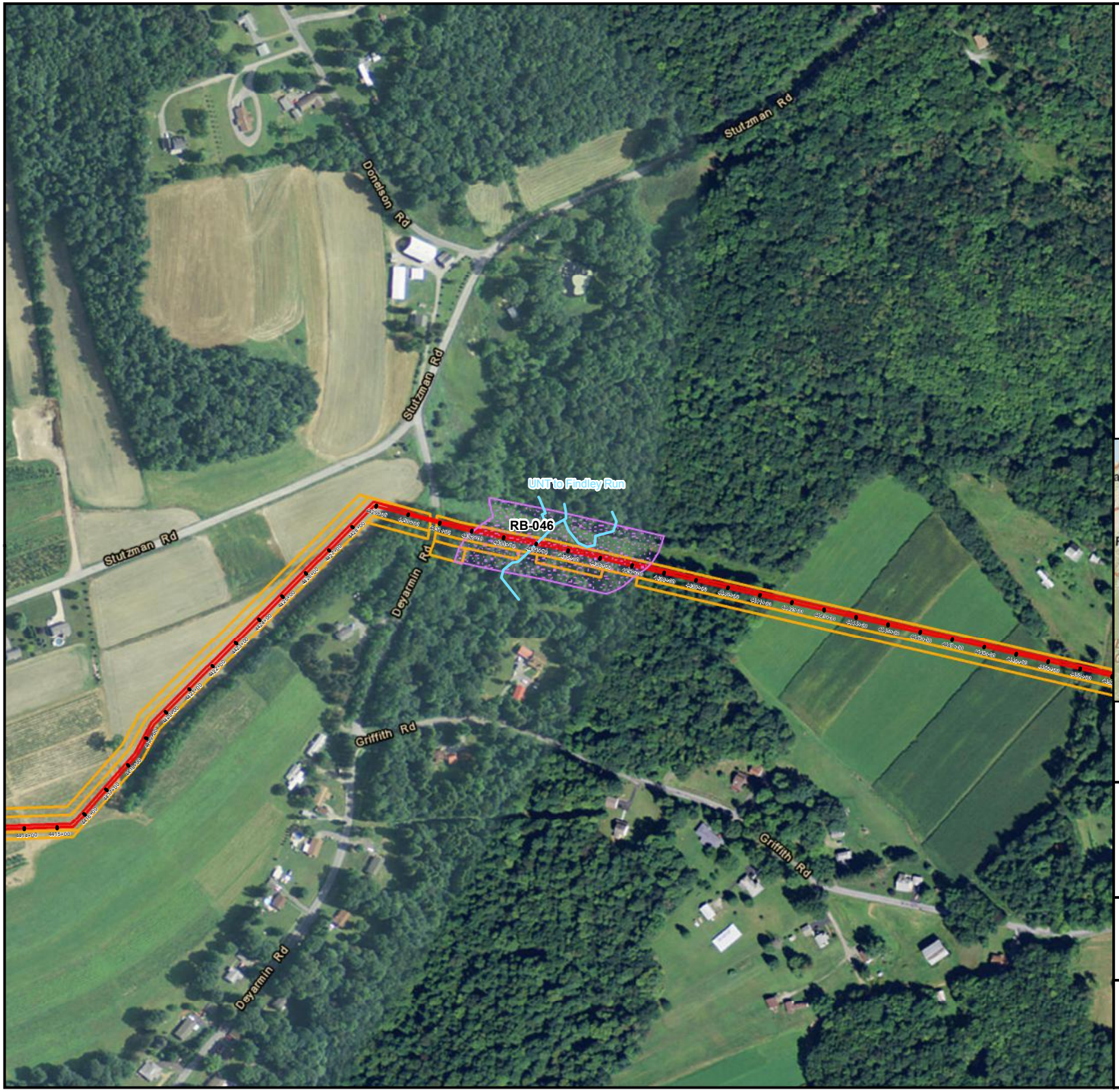

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-046
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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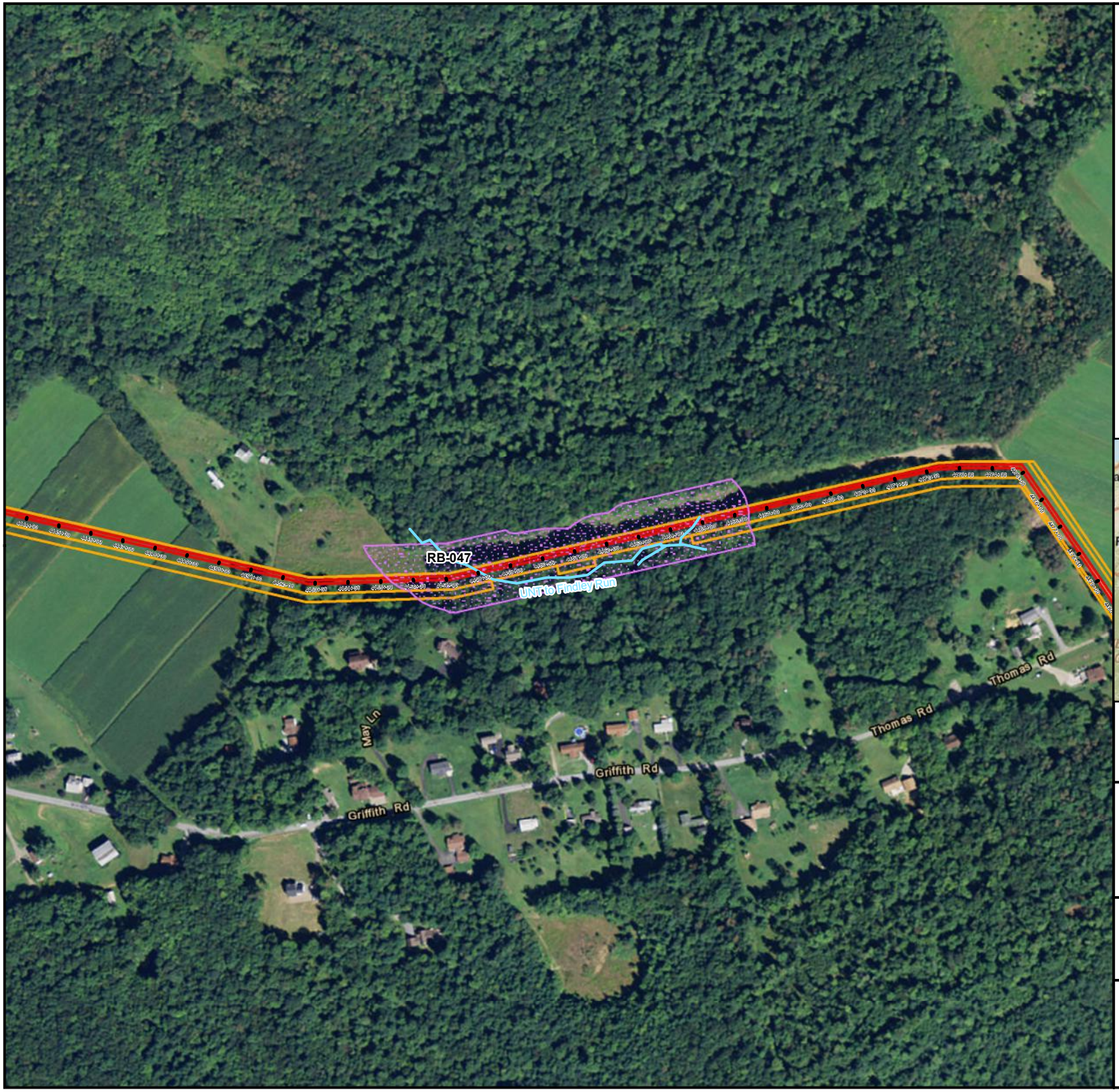

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

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Feet: 0 200 400

Meters: 0 60.95 121.9

RB-047
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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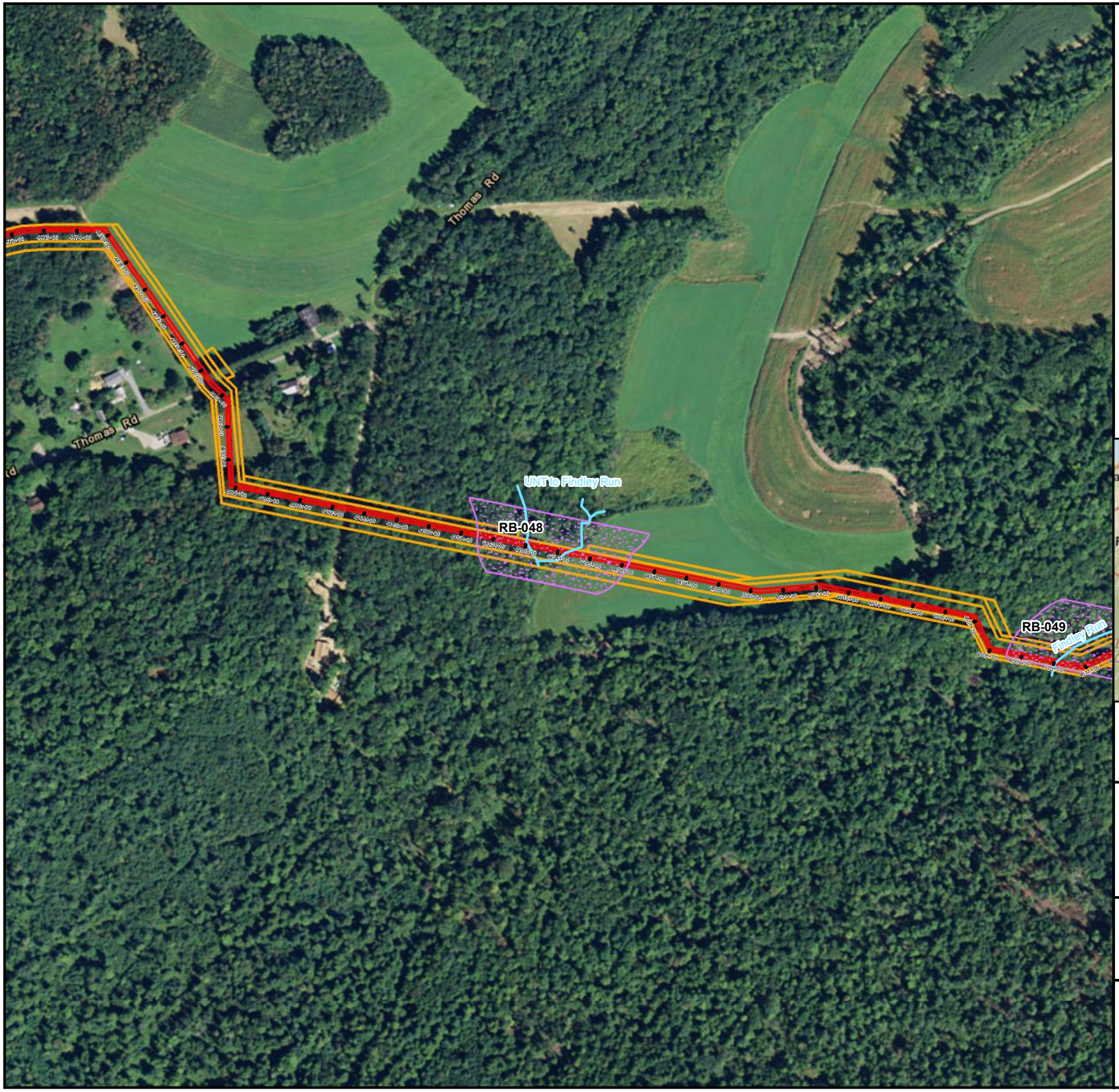

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-048
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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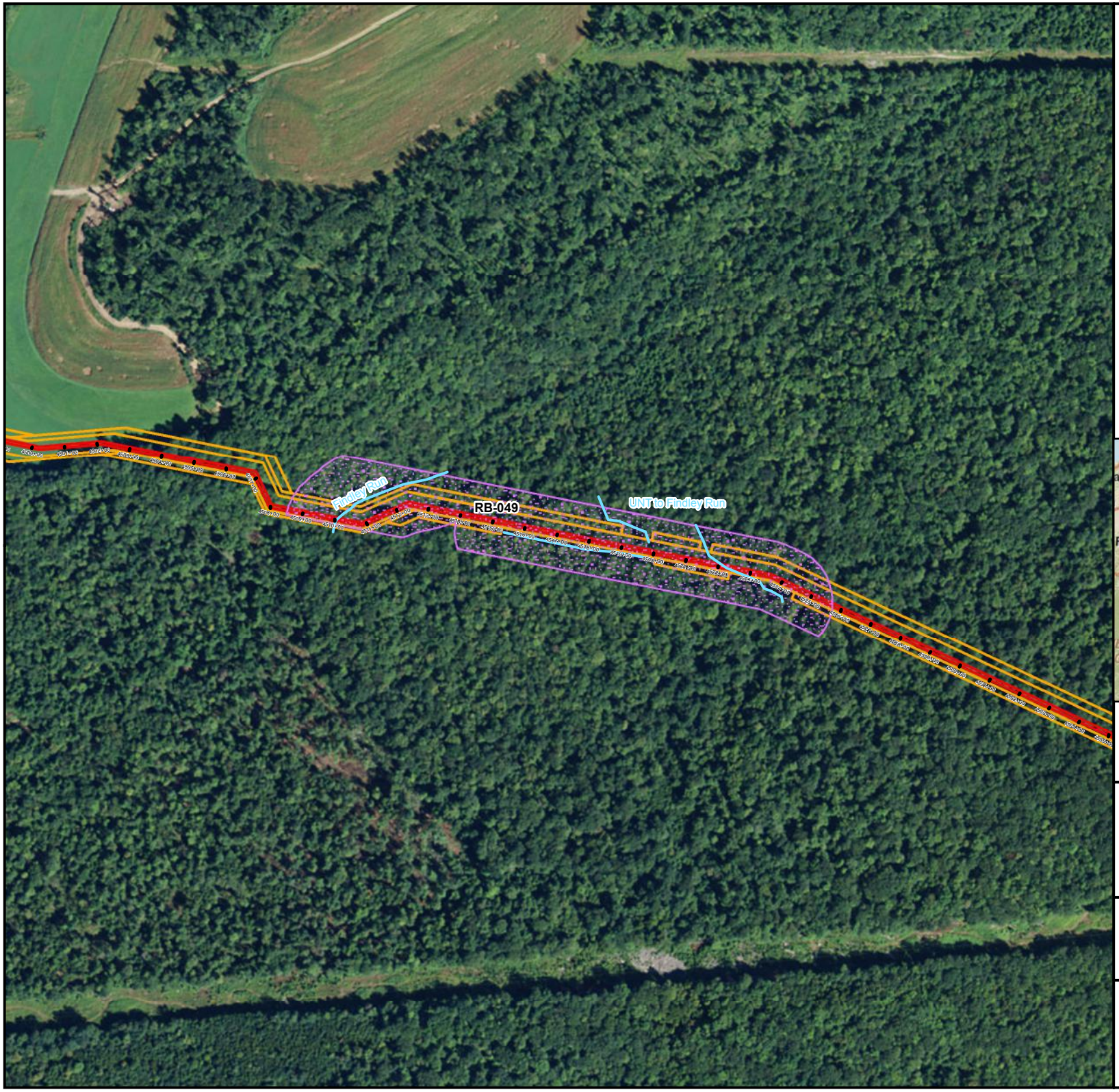

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-049
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

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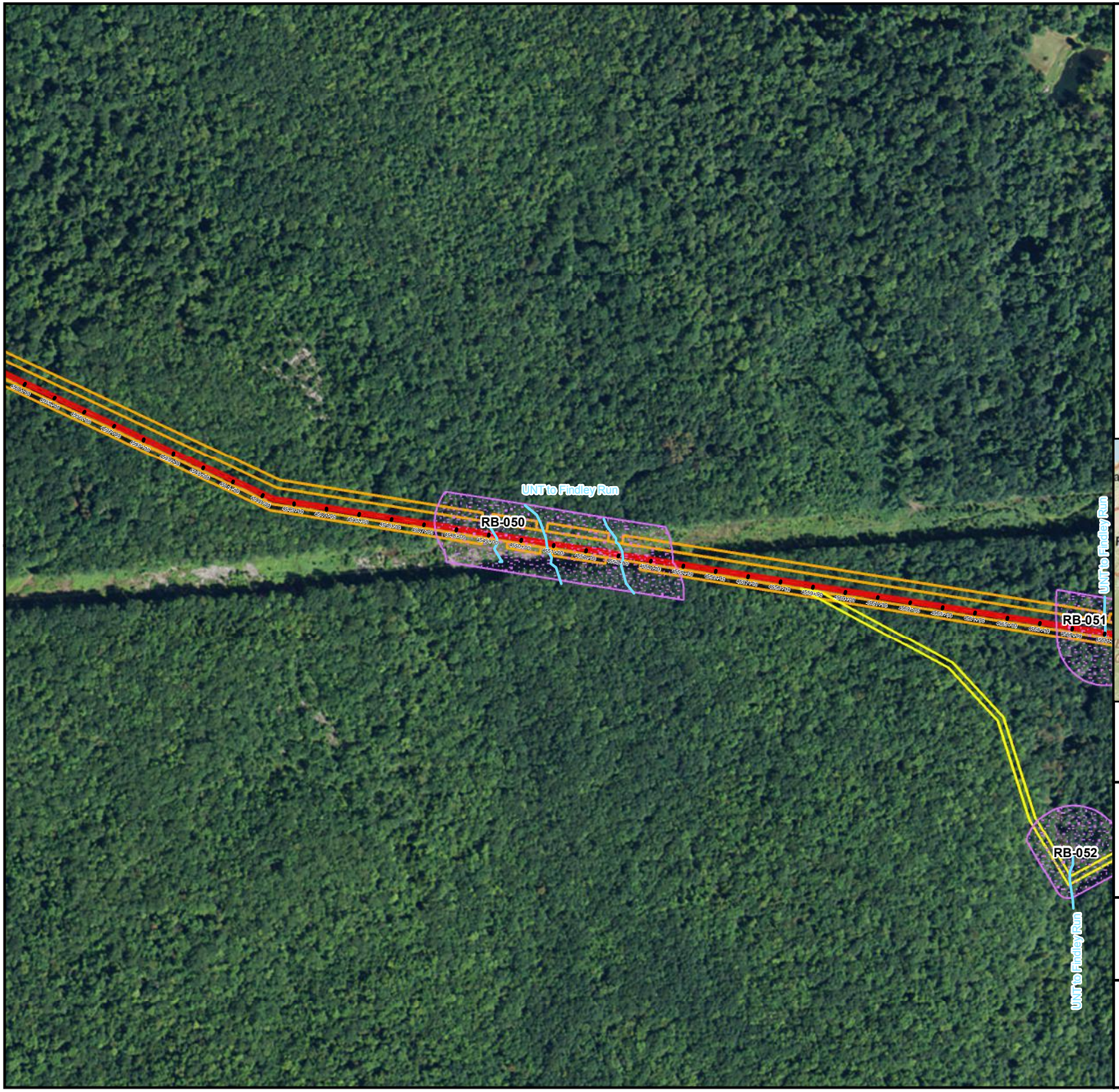

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

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RB-050
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
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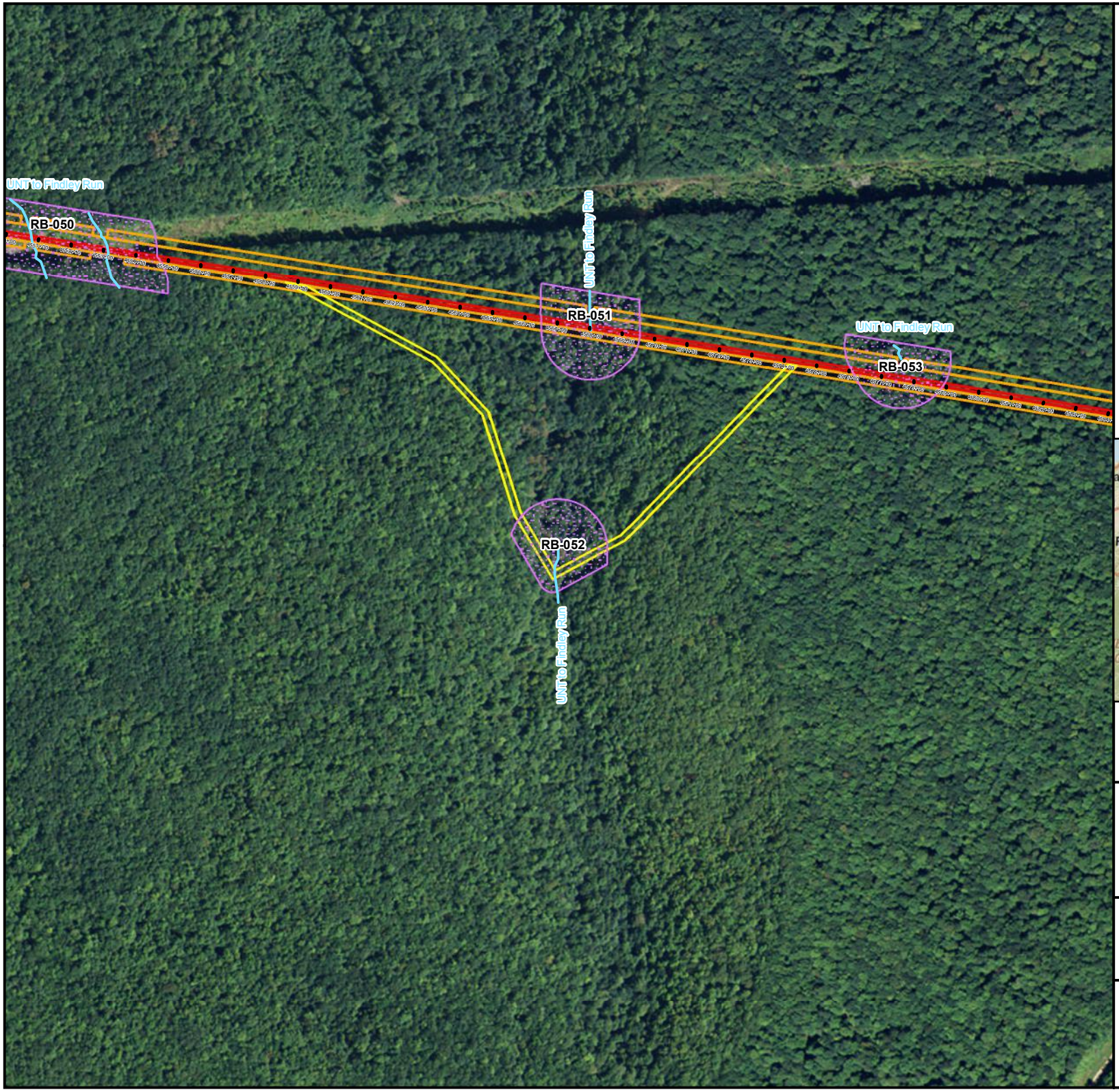

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-052
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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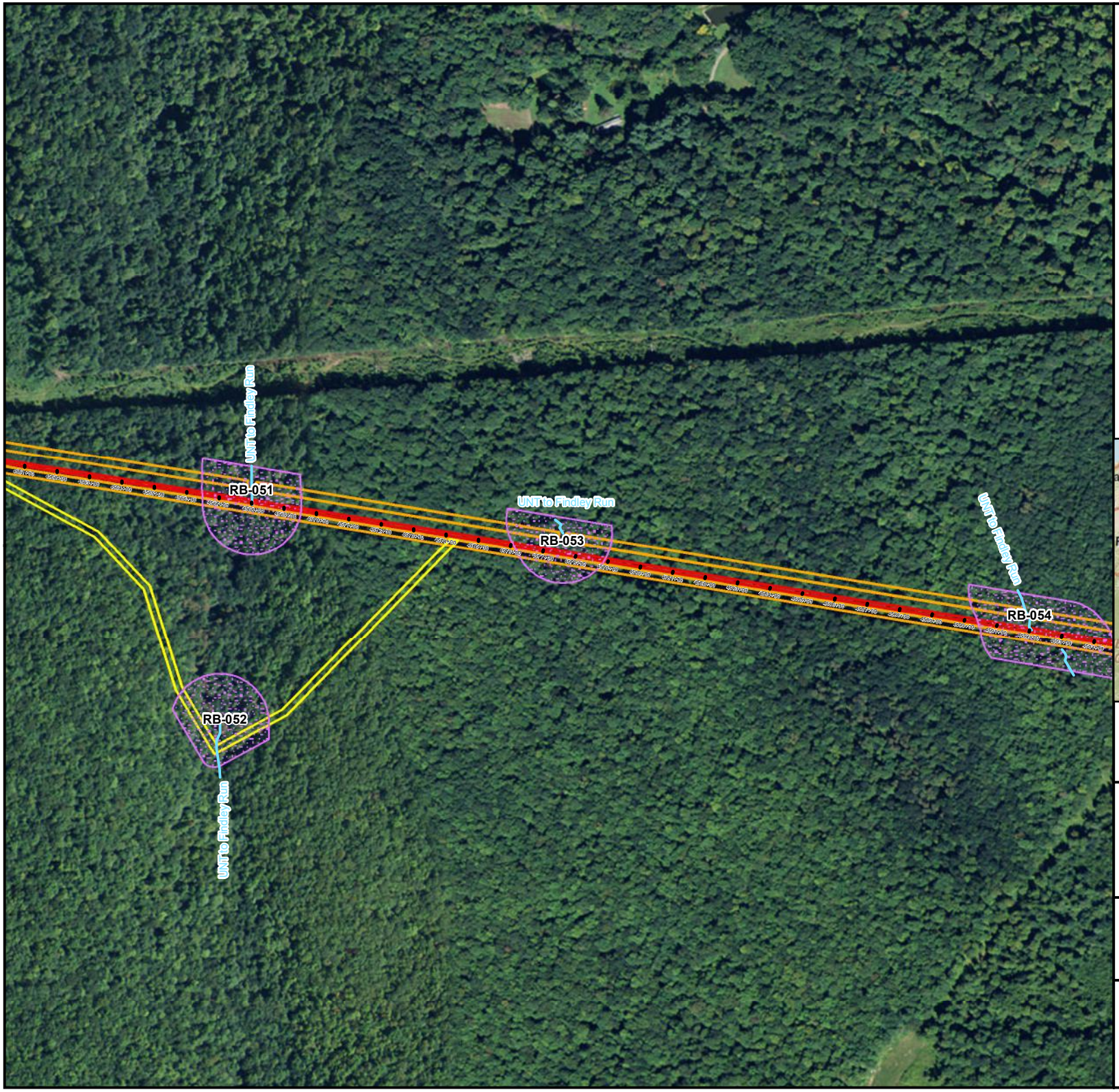

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-053
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-054
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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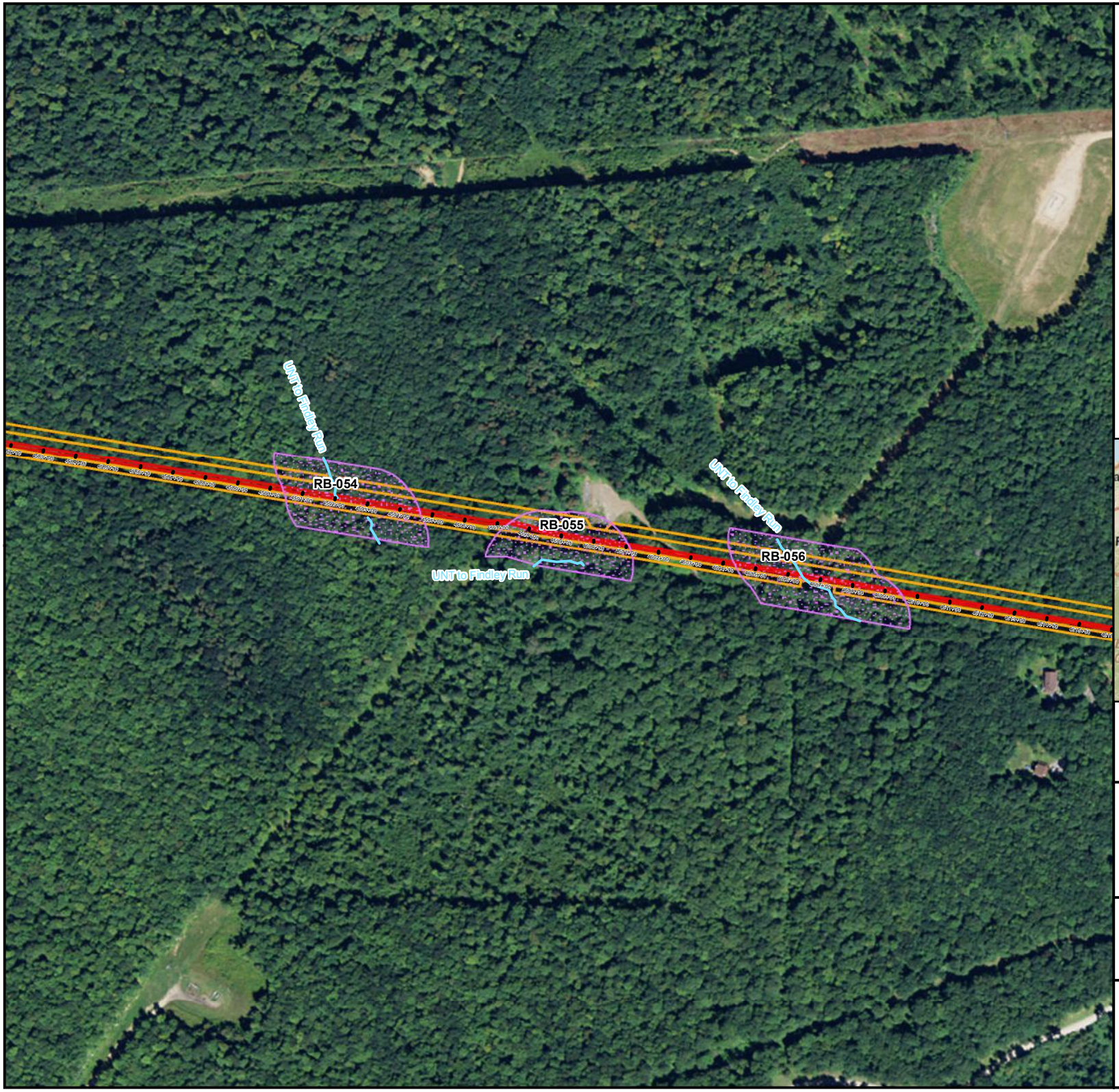

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-055
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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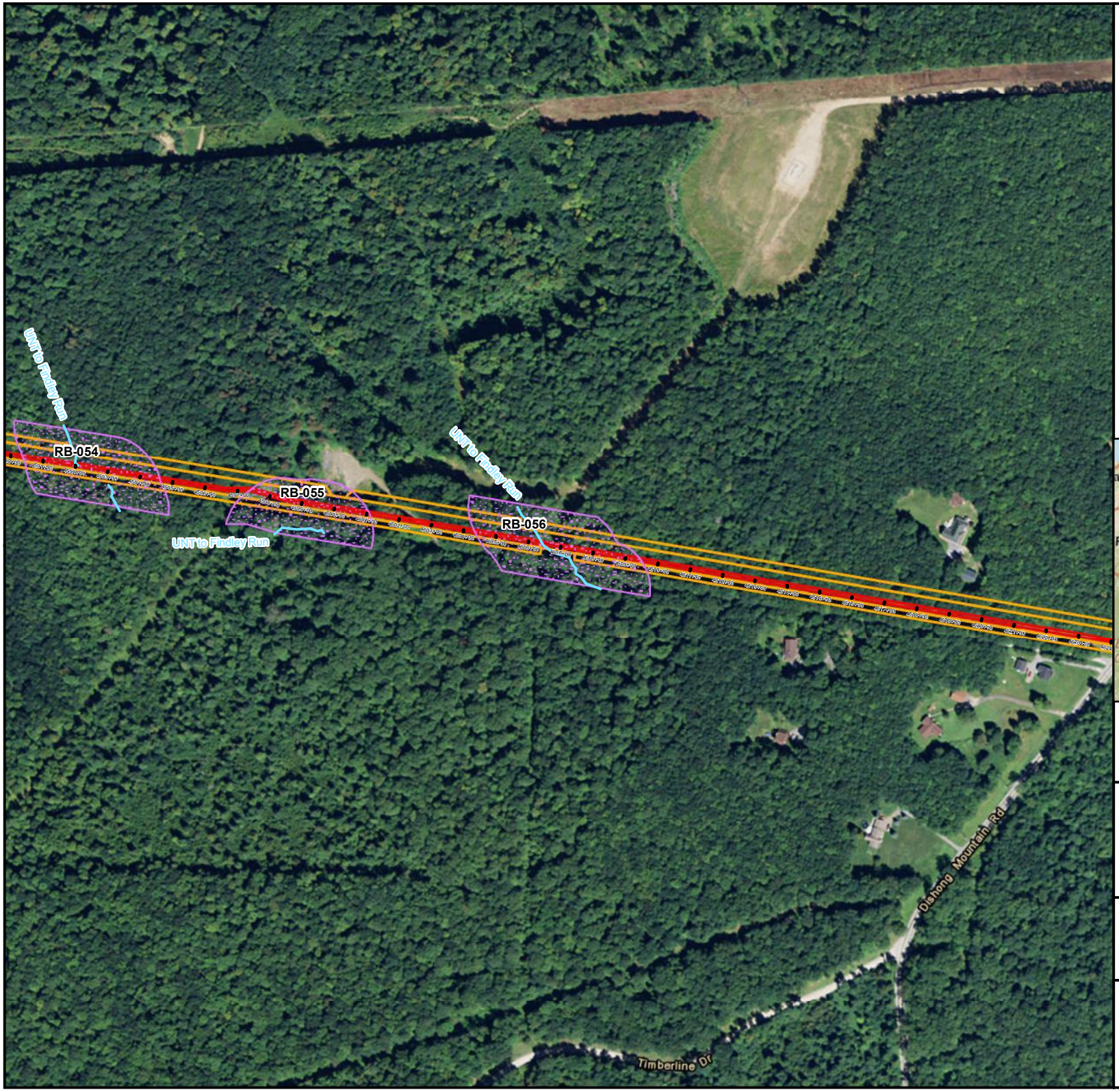

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

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Feet: 0 200 400

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RB-056
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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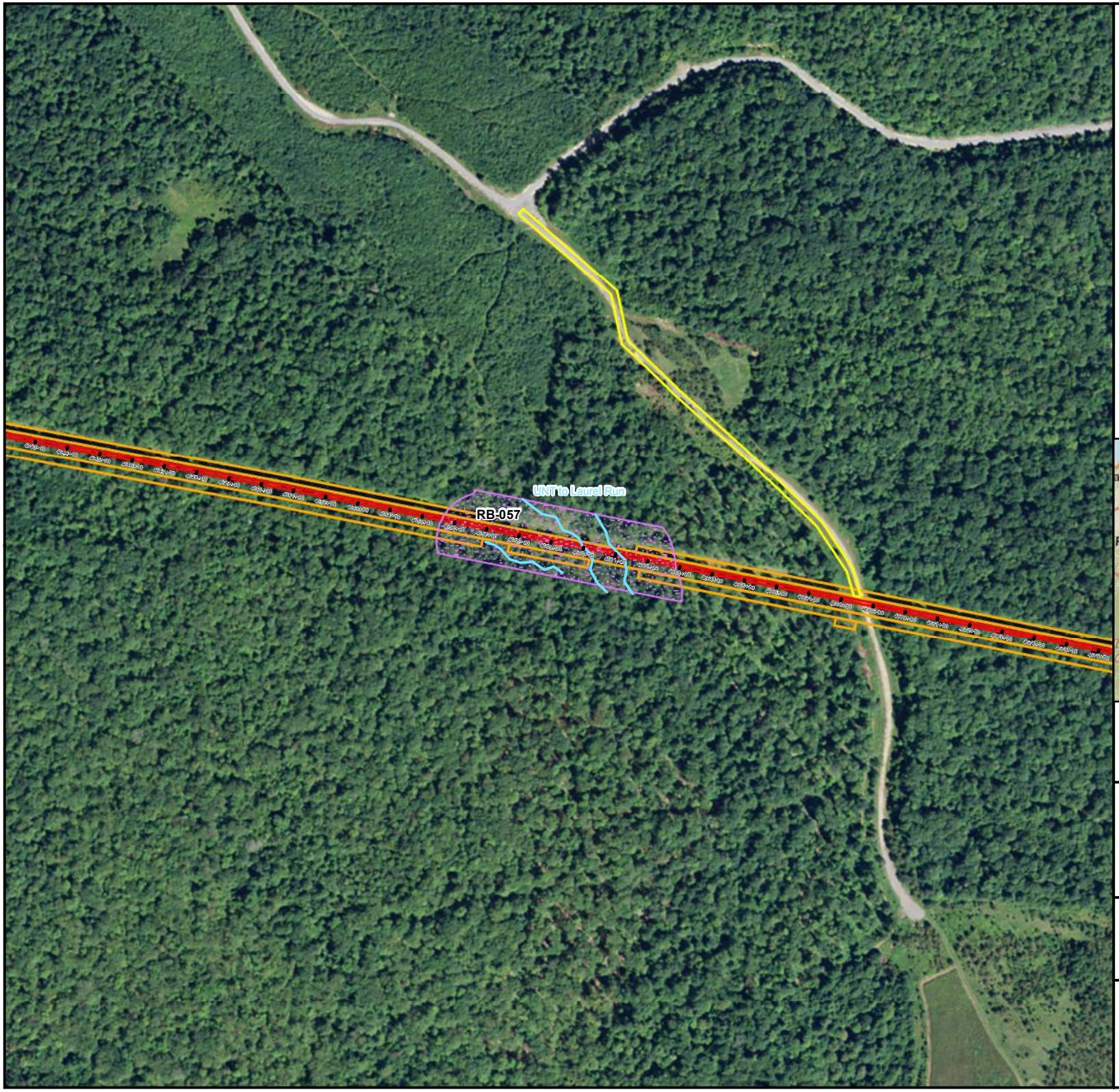

Legend

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HQ-EV RIPARIAN BUFFER
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FEBRUARY 25, 2016 ALIGNMENT
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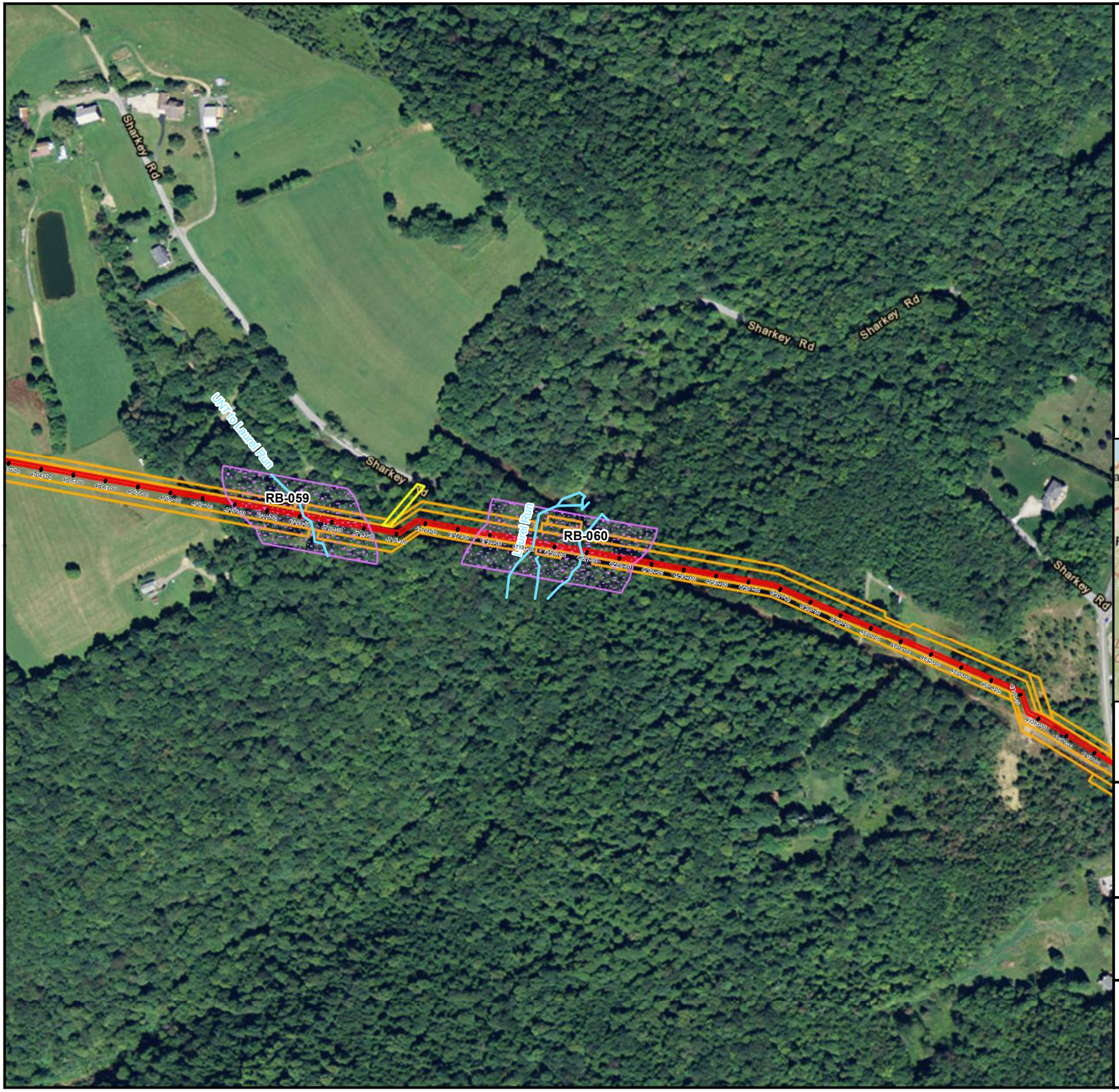

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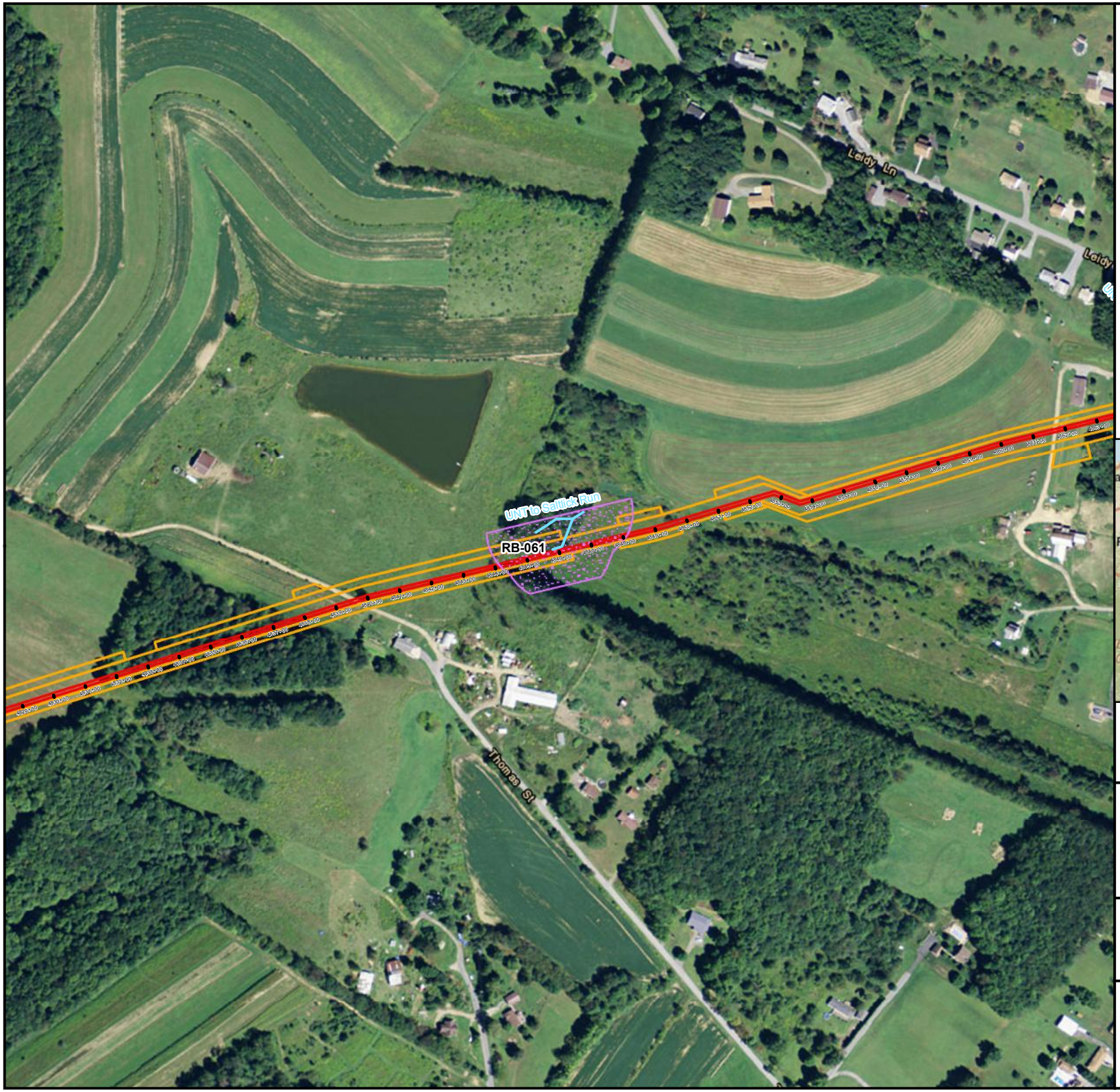

Legend

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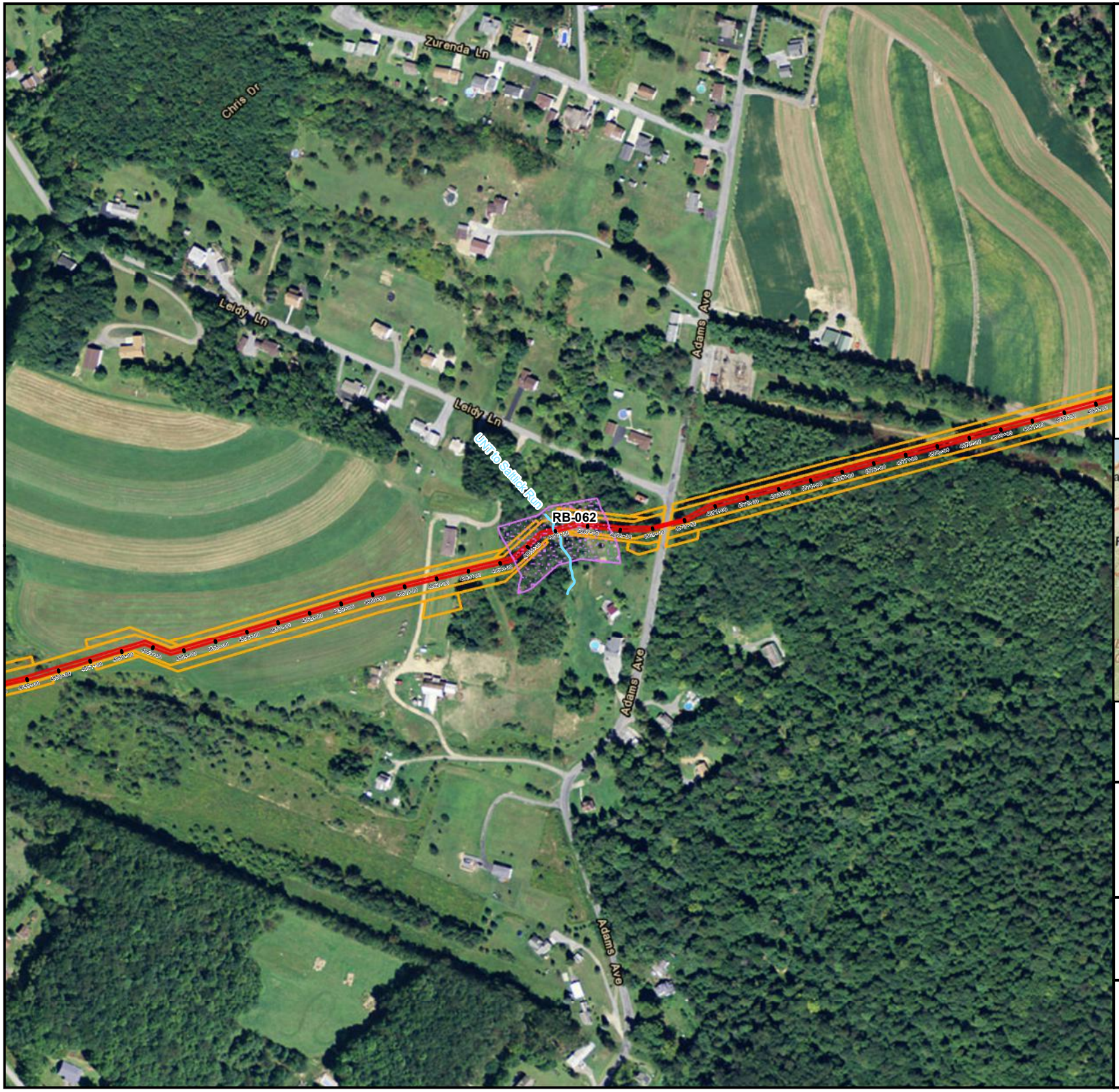

Legend

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RB-062
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Legend

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RB-063
HQ-EV RIPARIAN BUFFER
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FEBRUARY 25, 2016 ALIGNMENT
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Legend

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RB-064
HQ-EV RIPARIAN BUFFER
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FEBRUARY 25, 2016 ALIGNMENT
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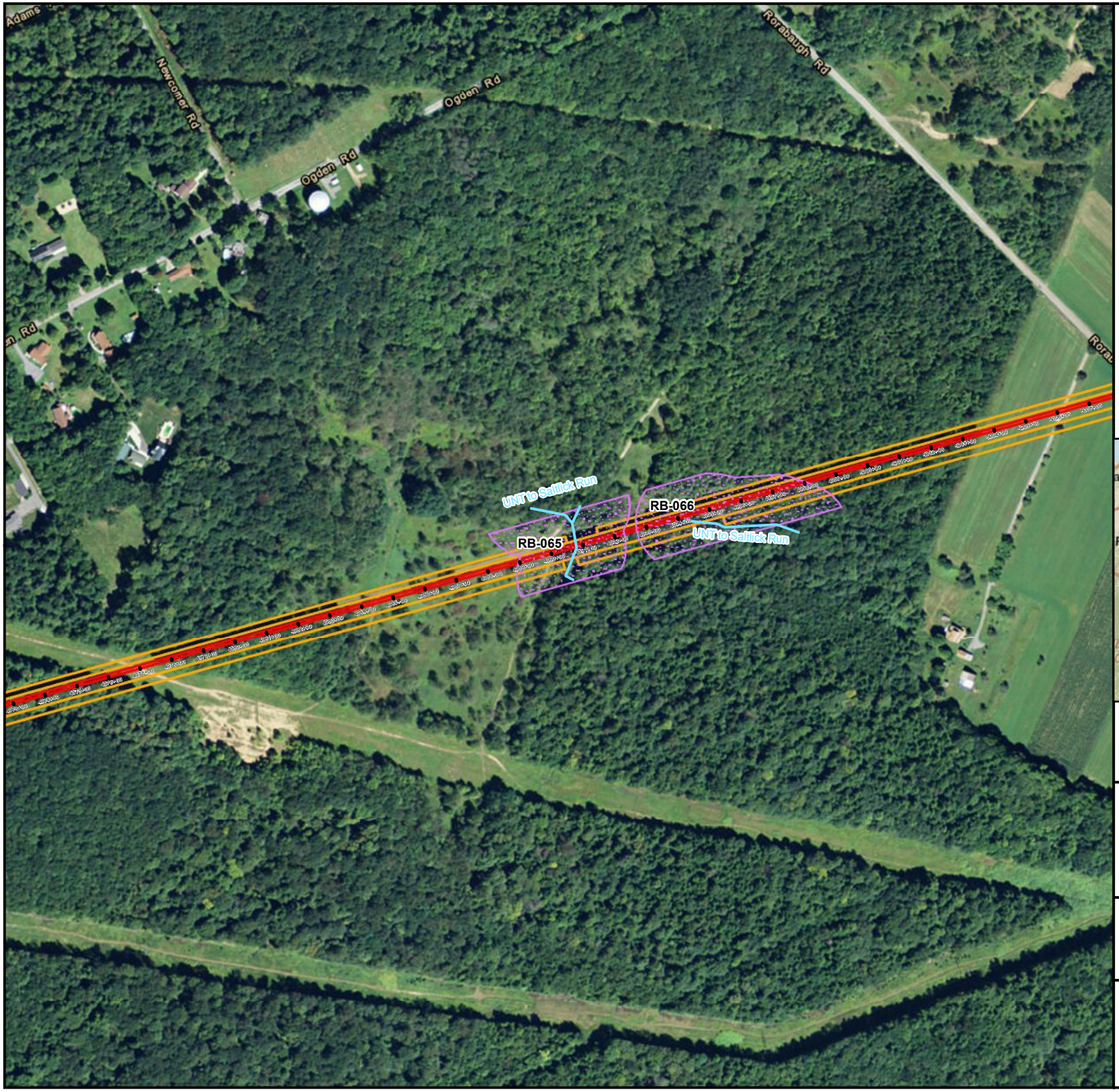

Legend

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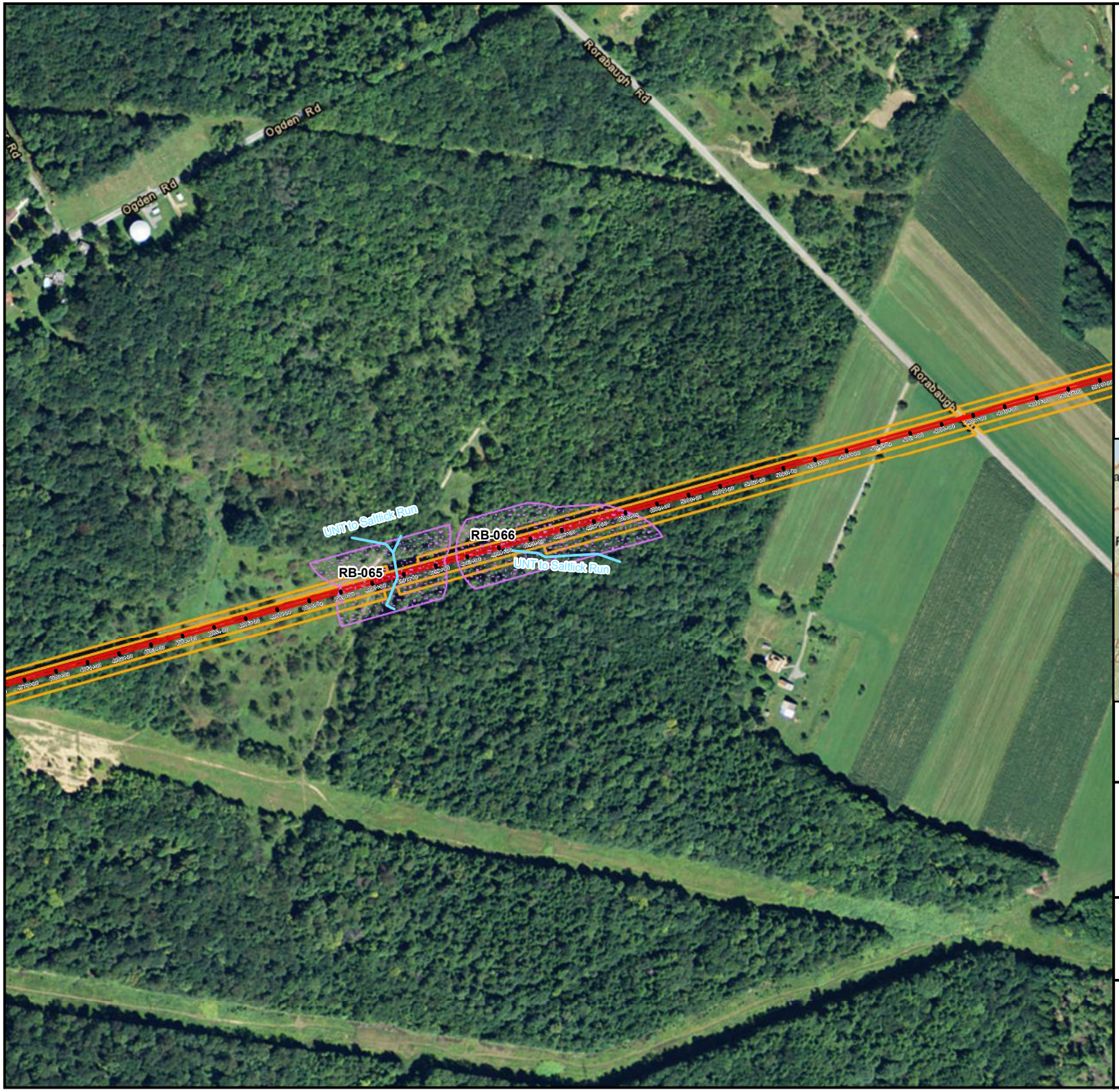

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-066
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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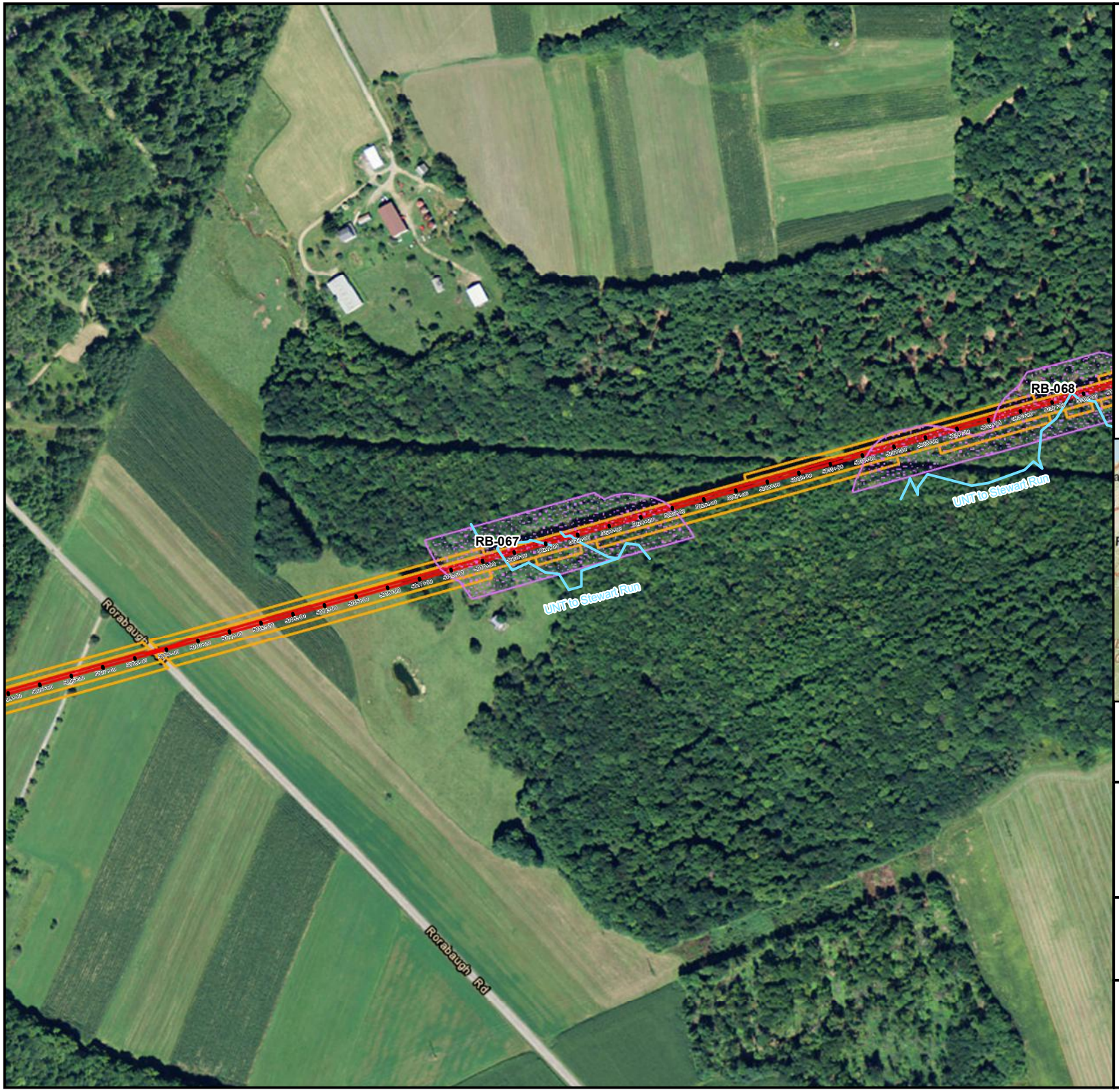

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

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Feet: 0 200 400

Meters: 0 60.95 121.9

RB-067
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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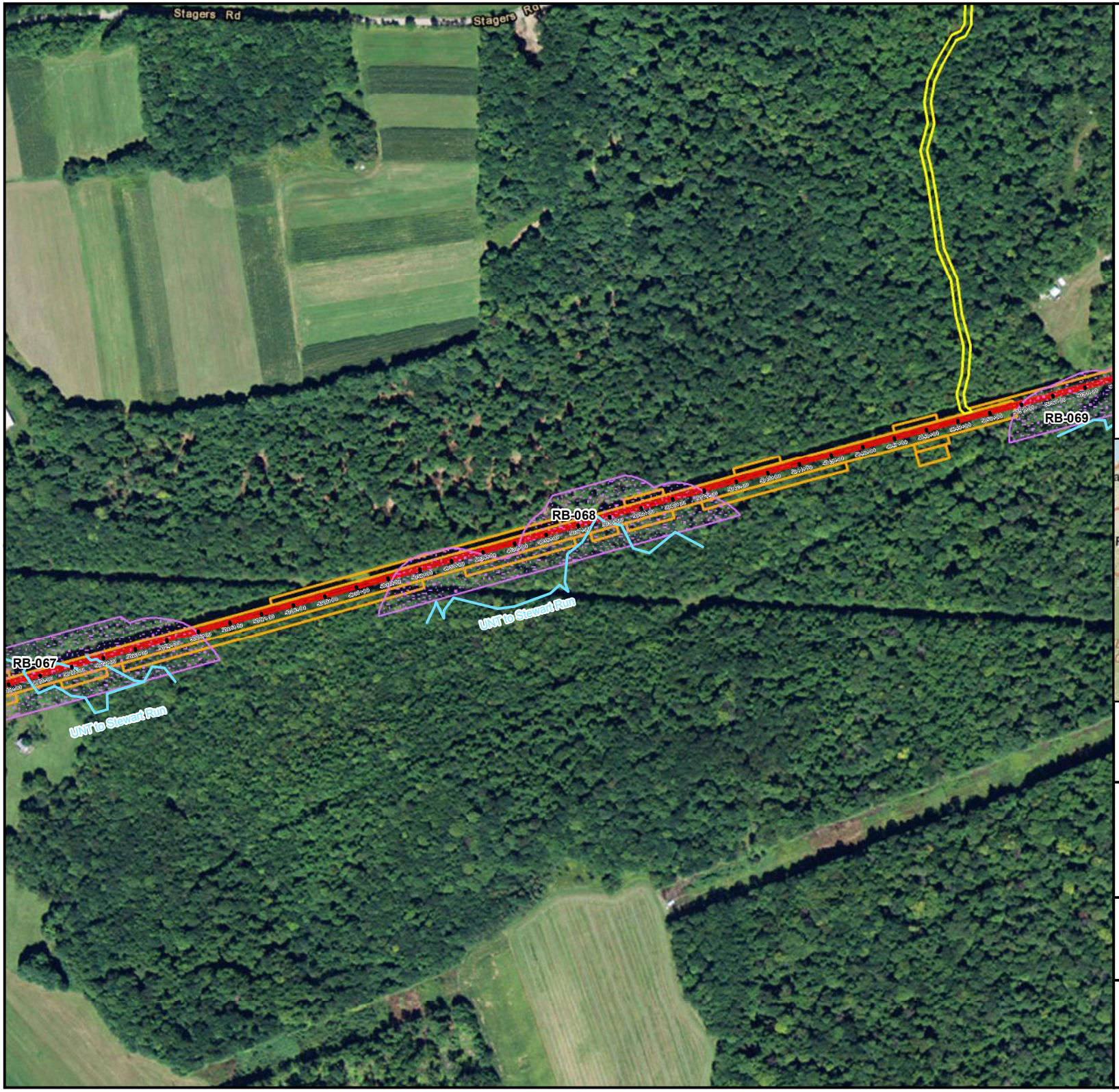

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-068
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
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- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-069
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

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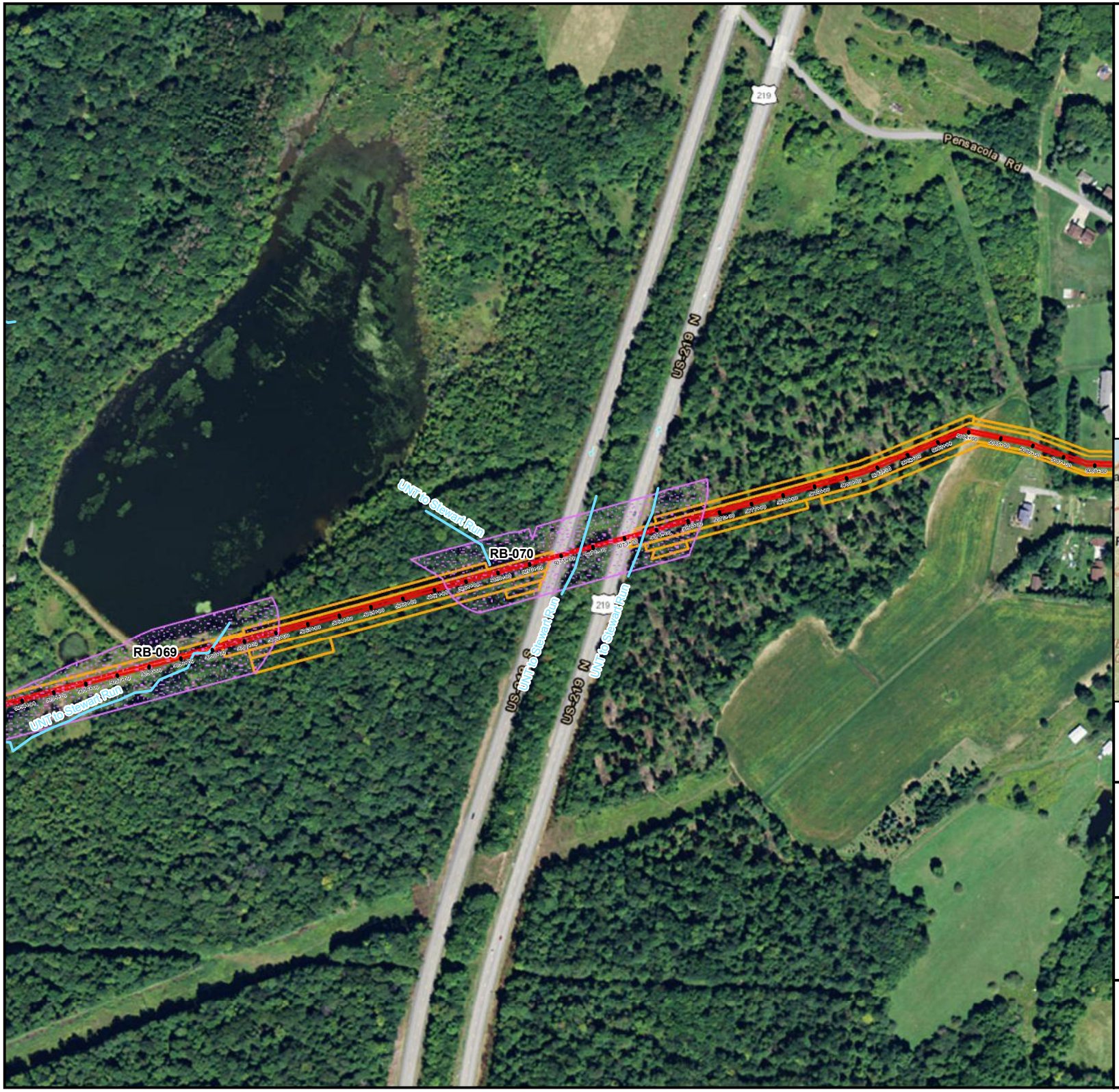

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-070
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
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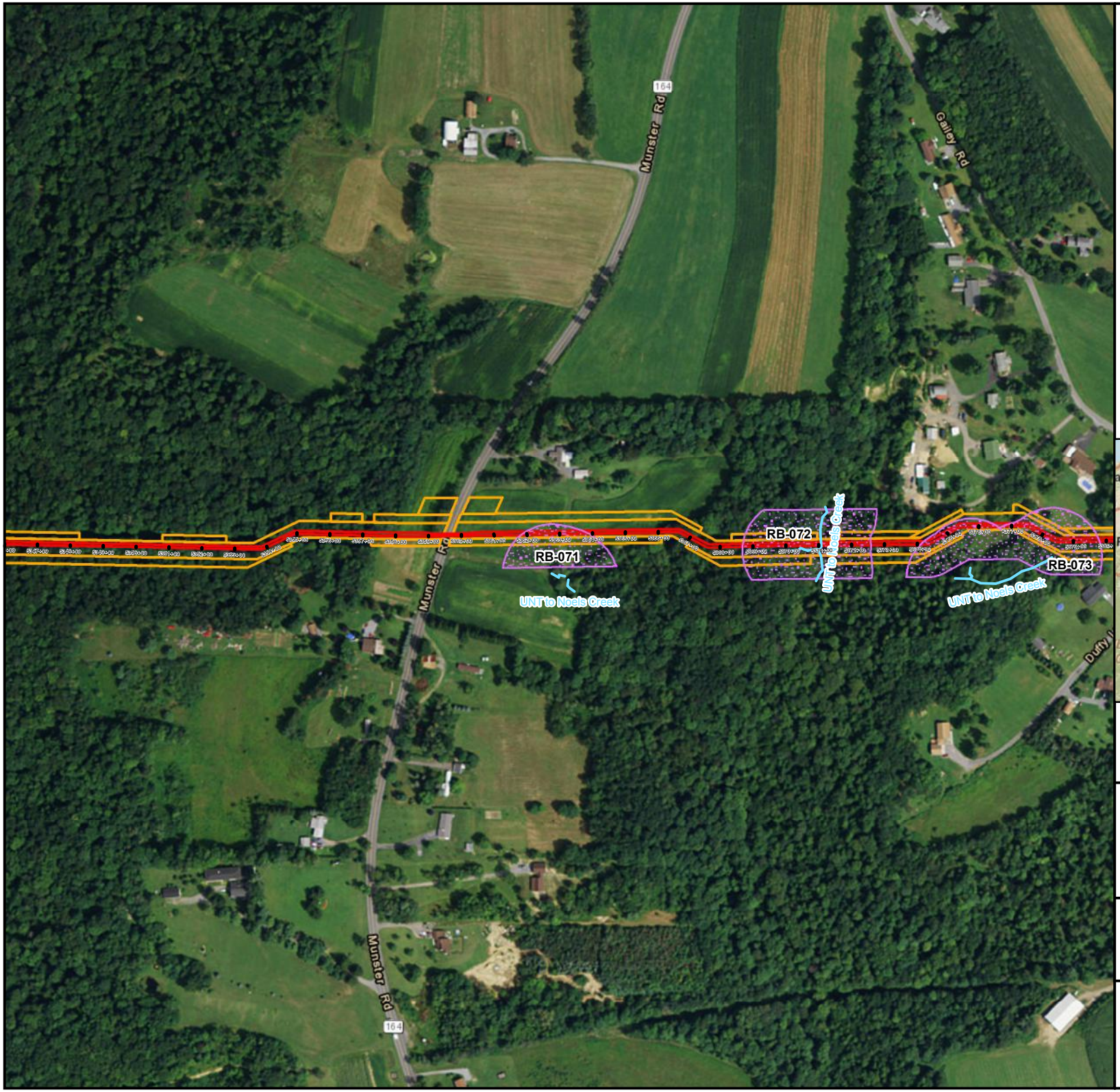

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-071
HQ-EV RIPARIAN BUFFER
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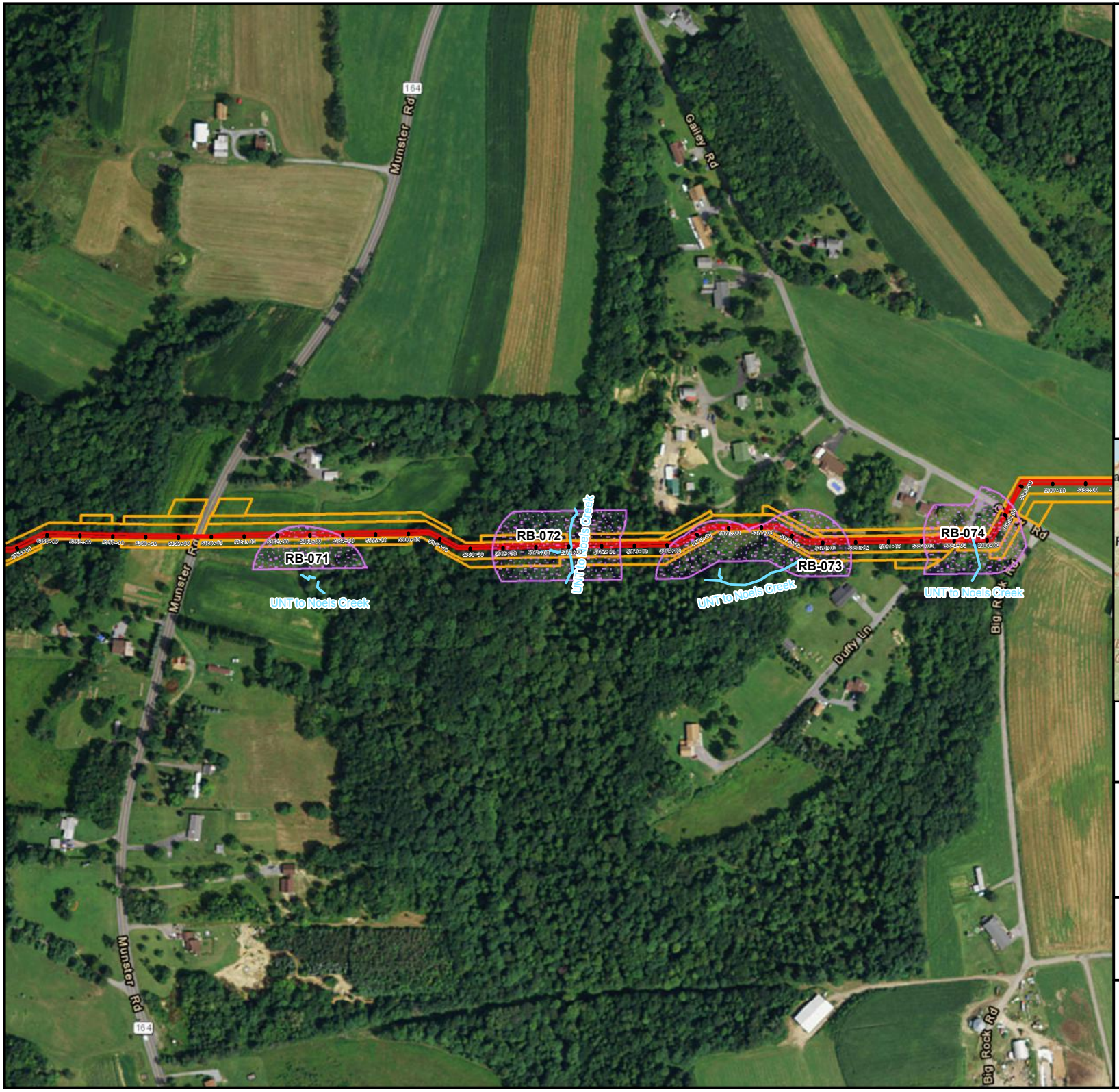

Legend

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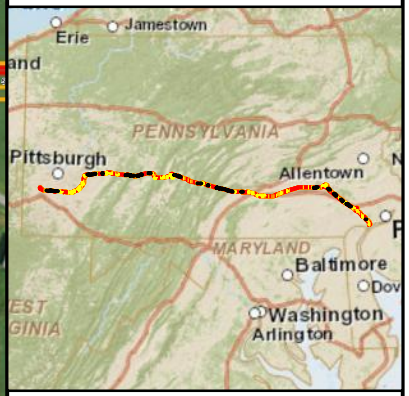

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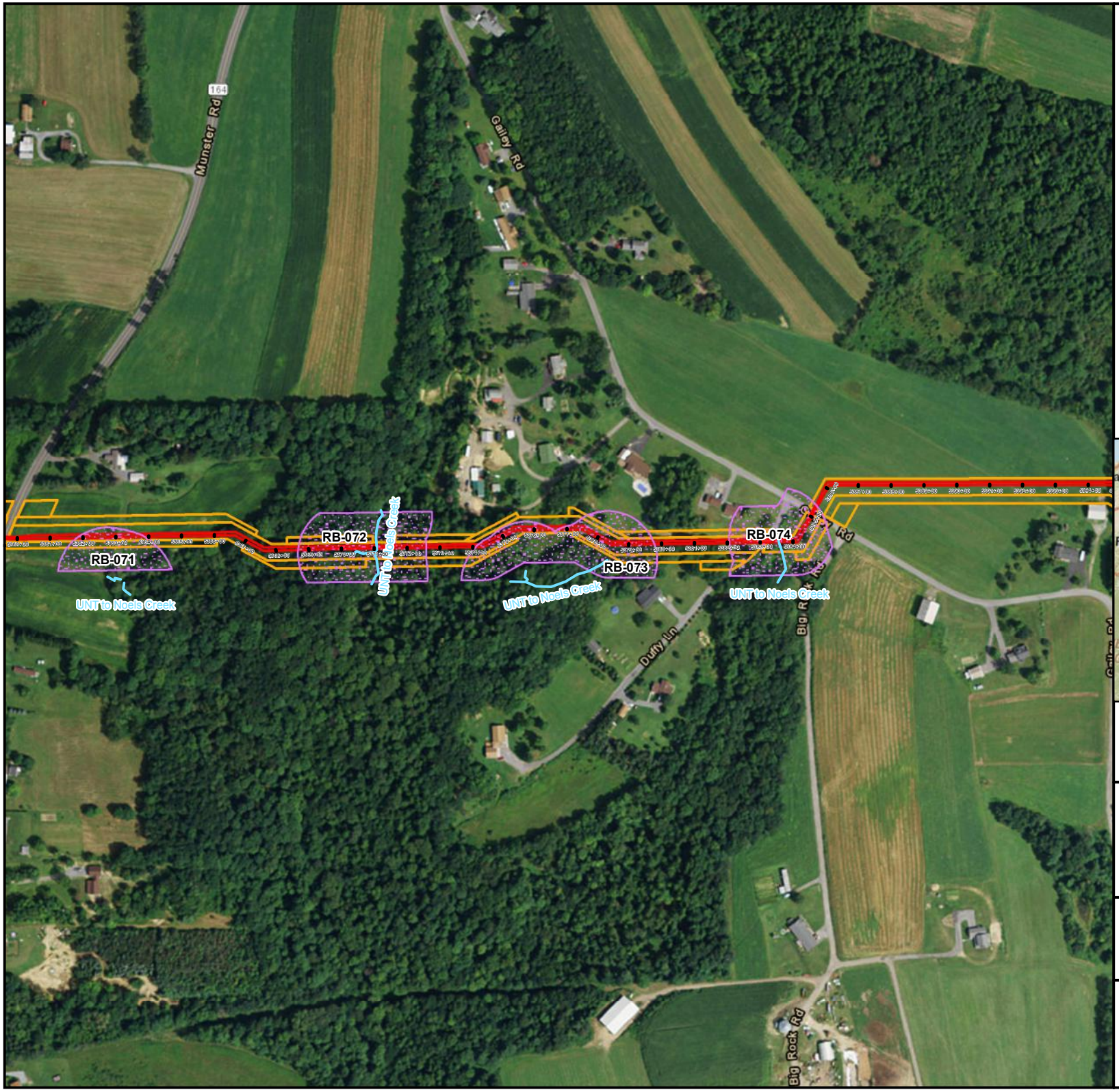

Legend

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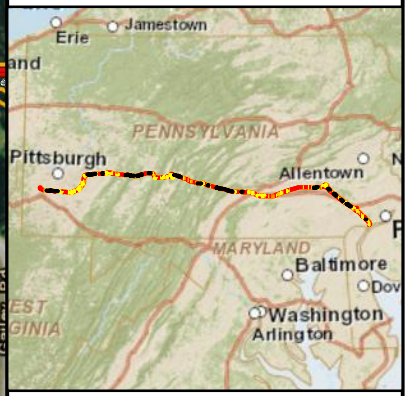

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RB-073
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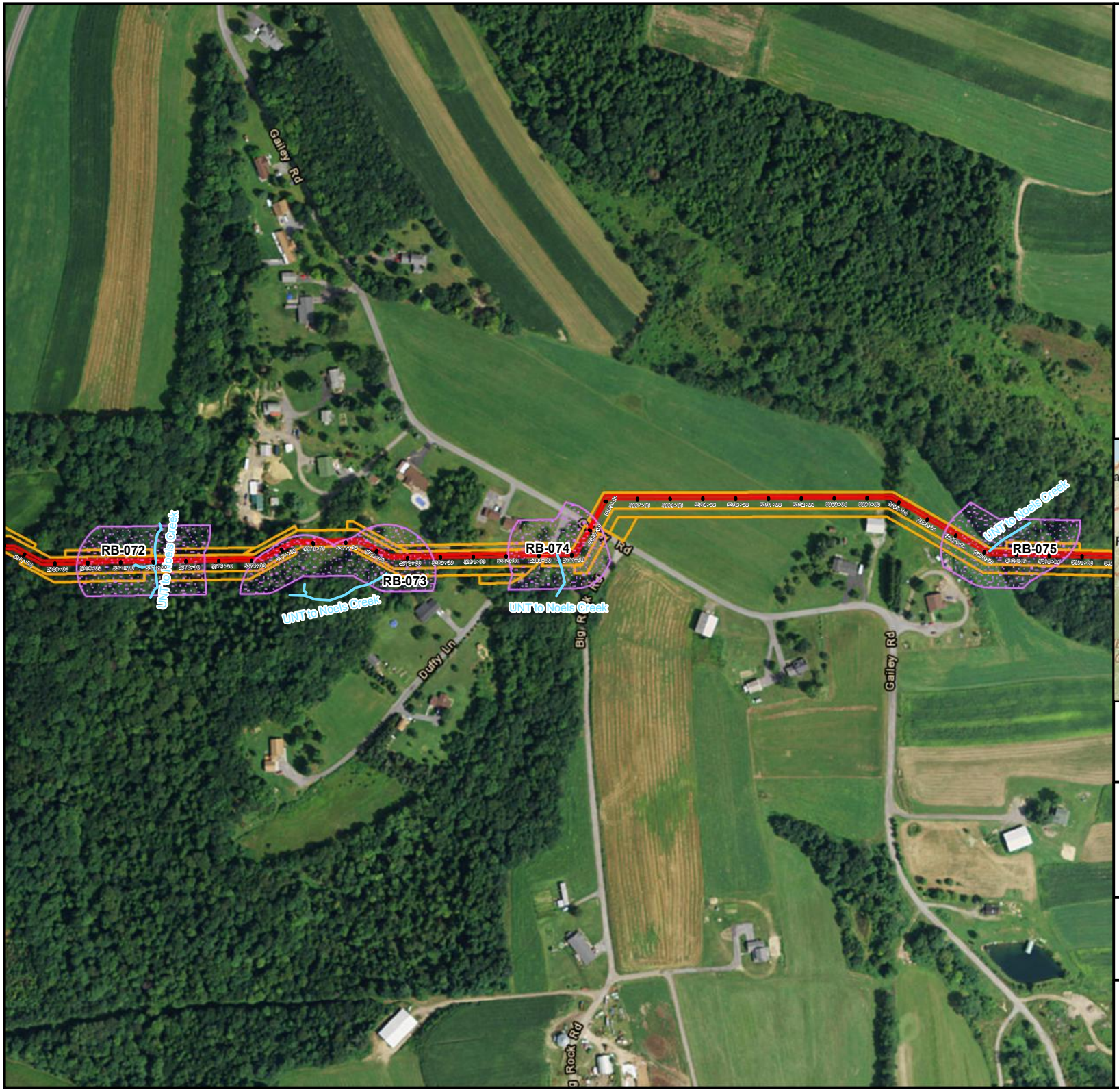

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HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
SUNOCO LOGISTICS, L.P.
PENNSYLVANIA

TETRA TECH

Notes:
1) Aerial photograph provided by ESRI's ArcGIS Online World Imagery map service (© 2011 ESRI and its data suppliers).

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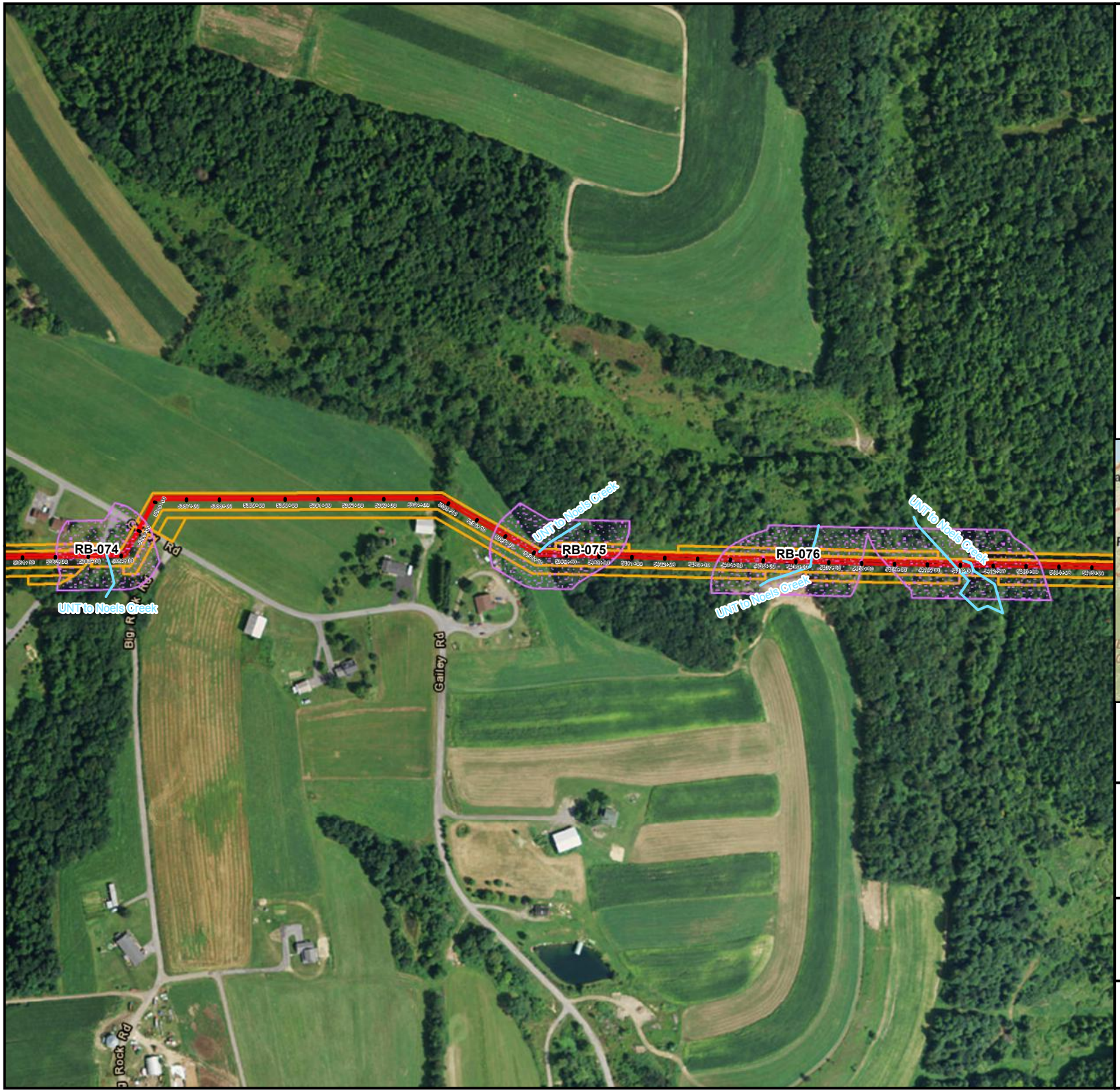
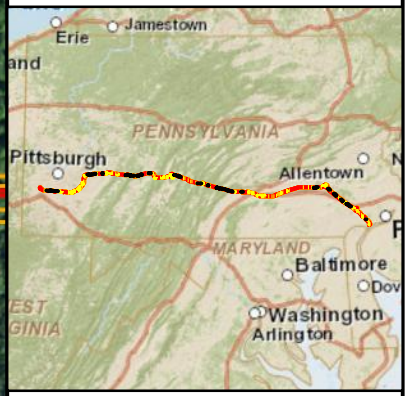


Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier



N

Feet: 0 200 400

Meters: 0 60.95 121.9

RB-075
HQ-EV RIPARIAN BUFFER
PENNSYLVANIA PIPELINE PROJECT
FEBRUARY 25, 2016 ALIGNMENT
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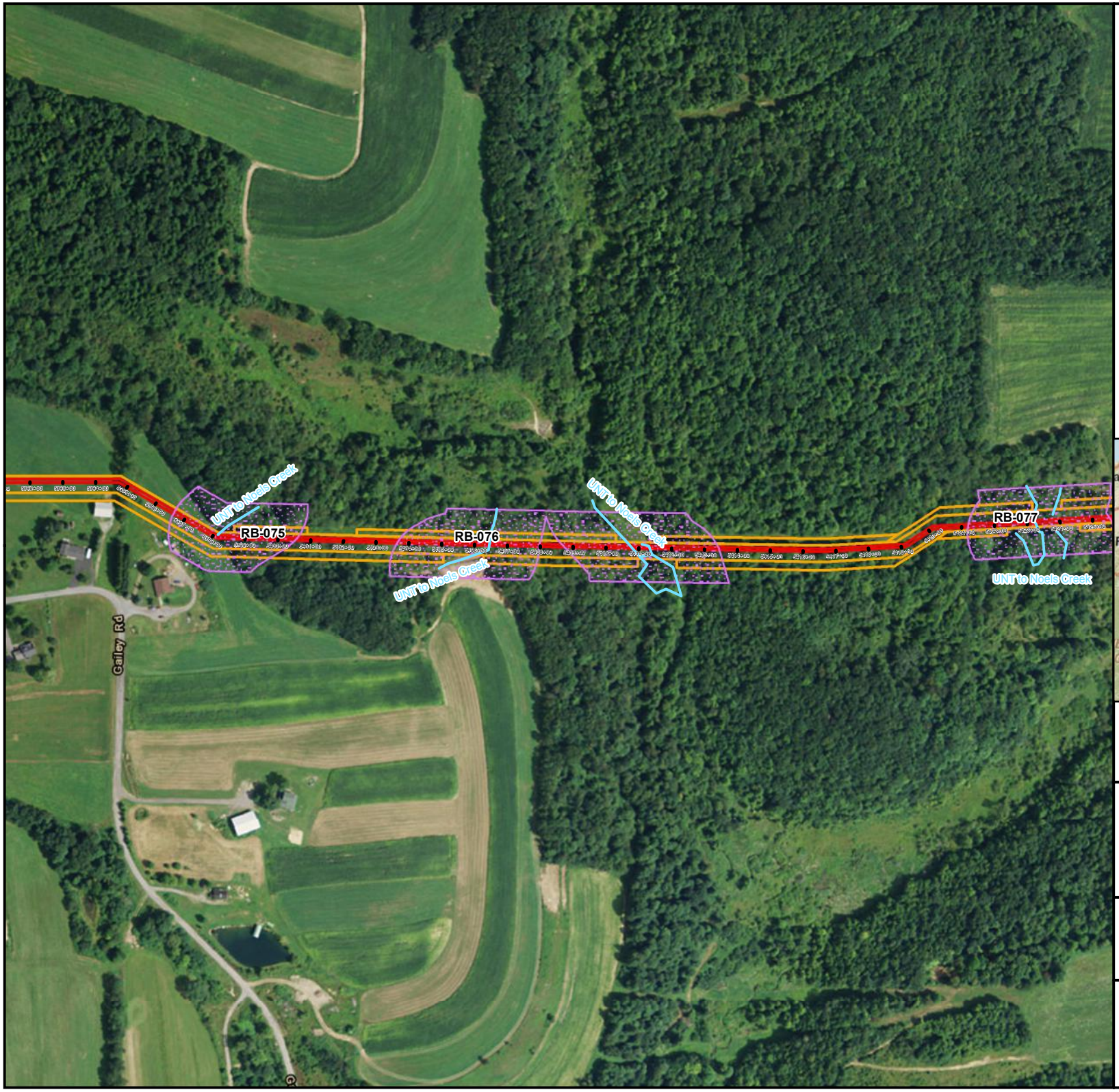

Legend

- Stationing
- Stream
- Riparian Buffer (HQ-EV)
- Access Road
- Alignment Centerline
- Limit of Disturbance
- ATWS
- Block Valve Site Layout
- Pump Station Layout

Sheet Identifier

N

Feet: 0 200 400

Meters: 0 60.95 121.9

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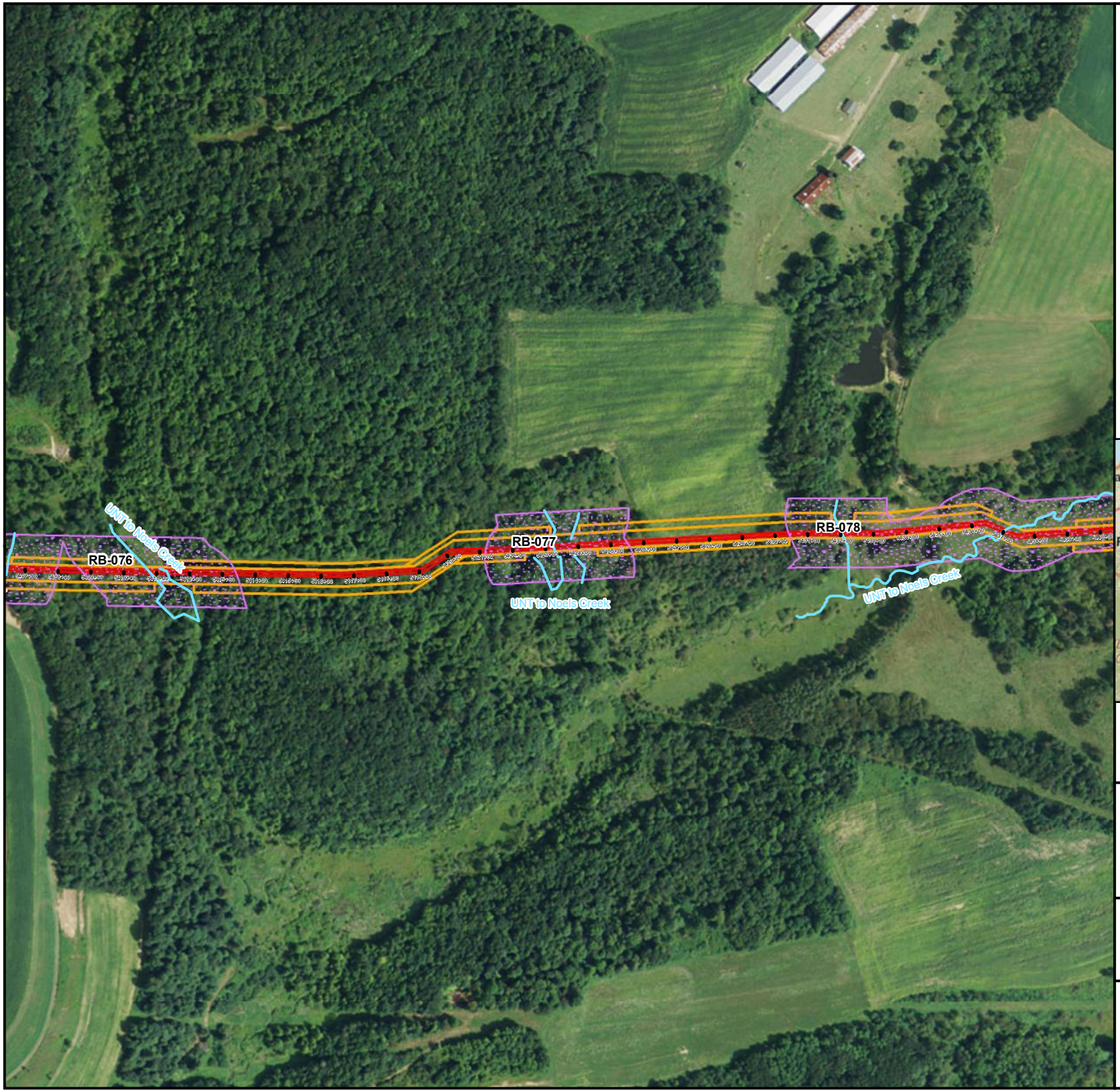

Legend

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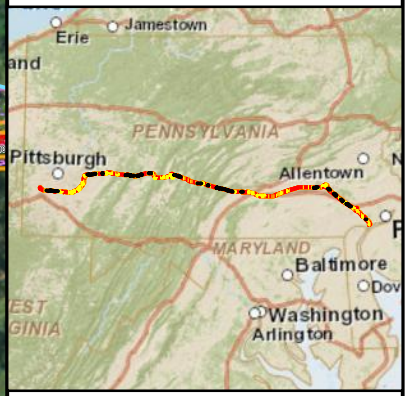
Sheet Identifier



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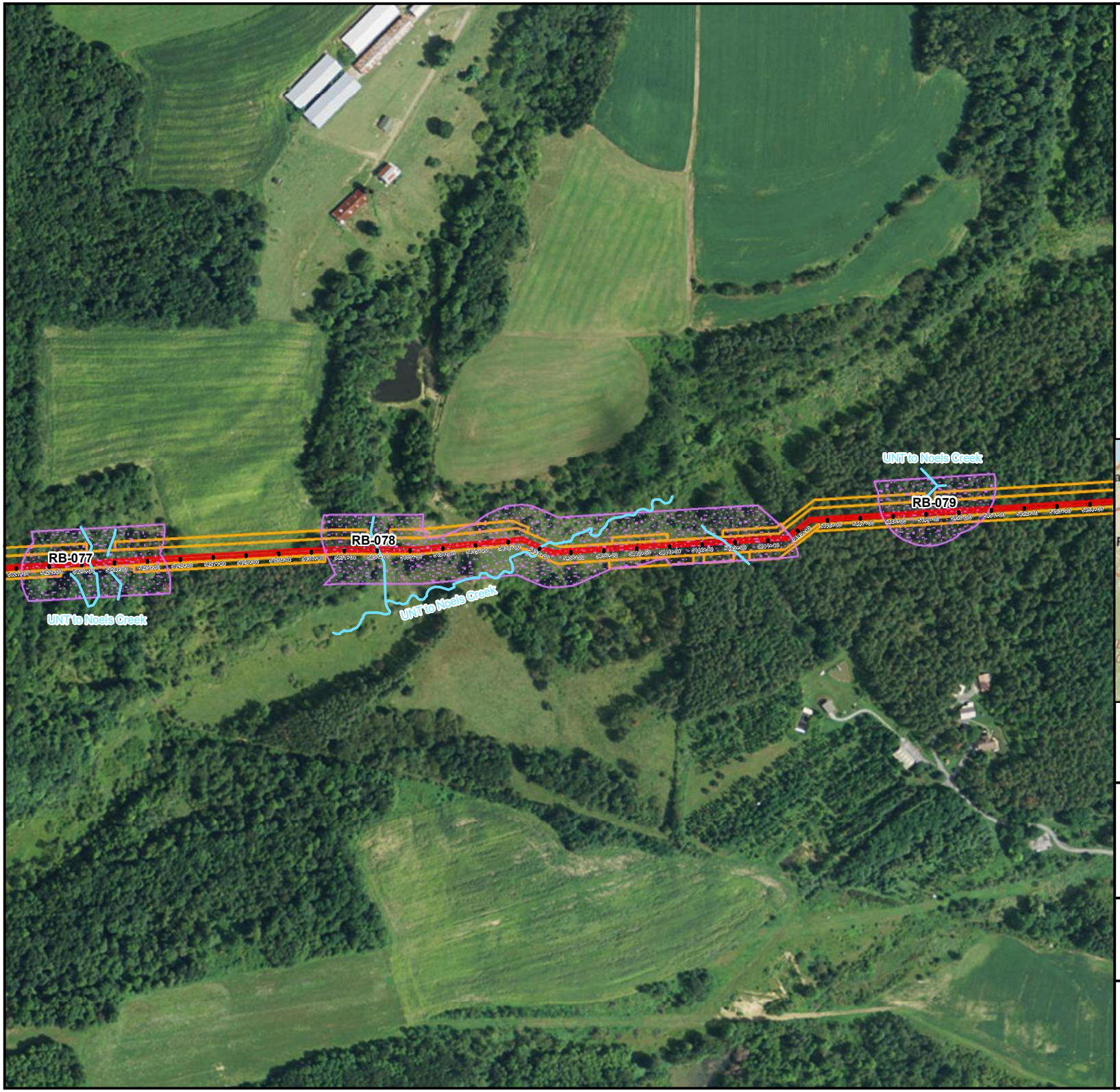

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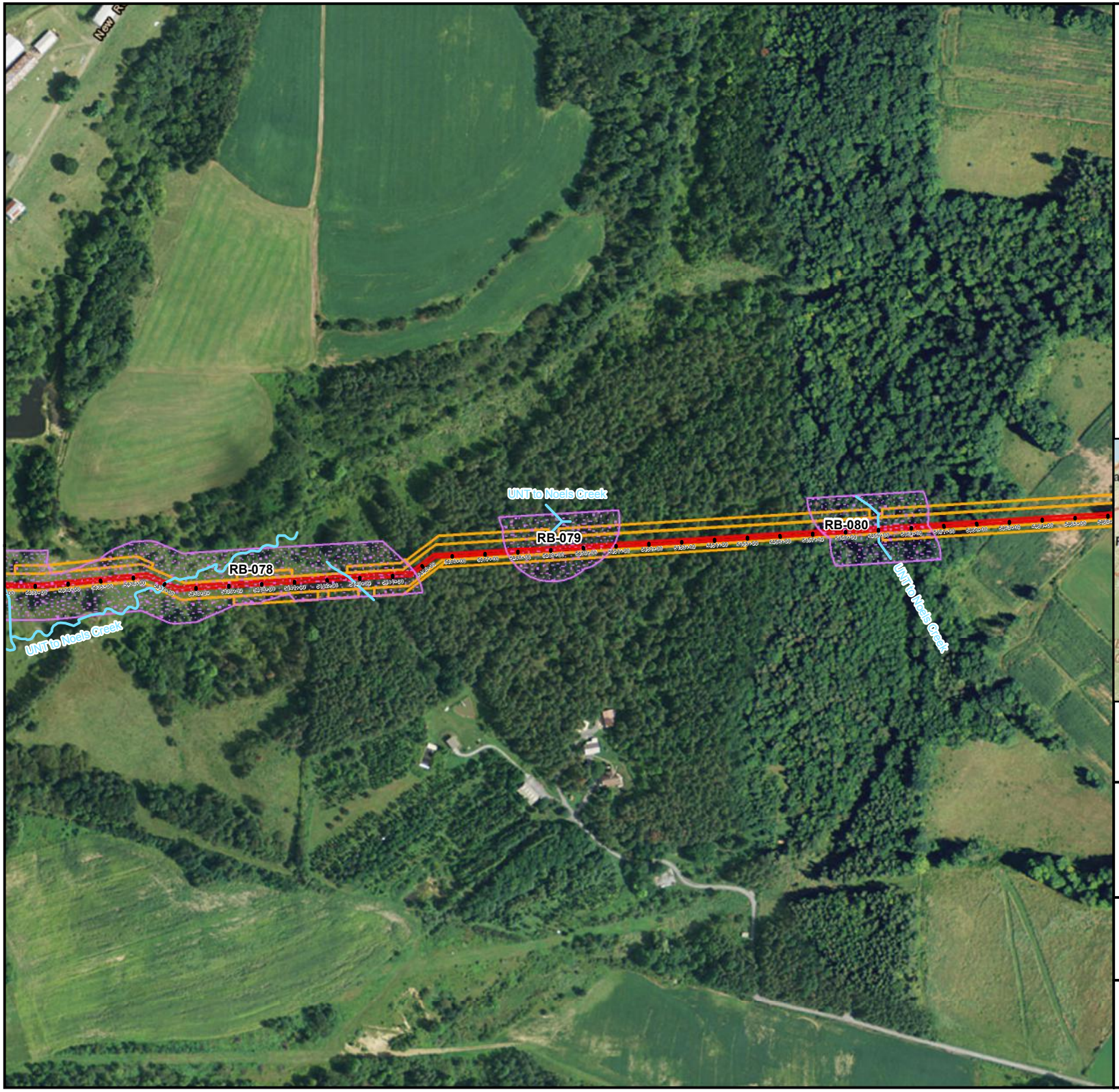

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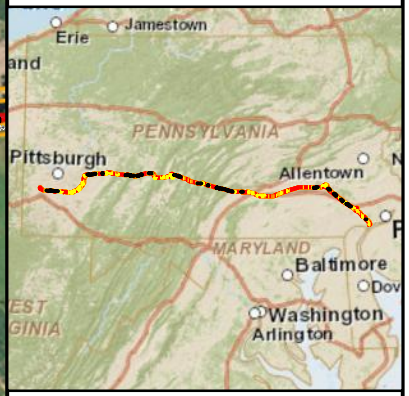

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Feet: 0 200 400

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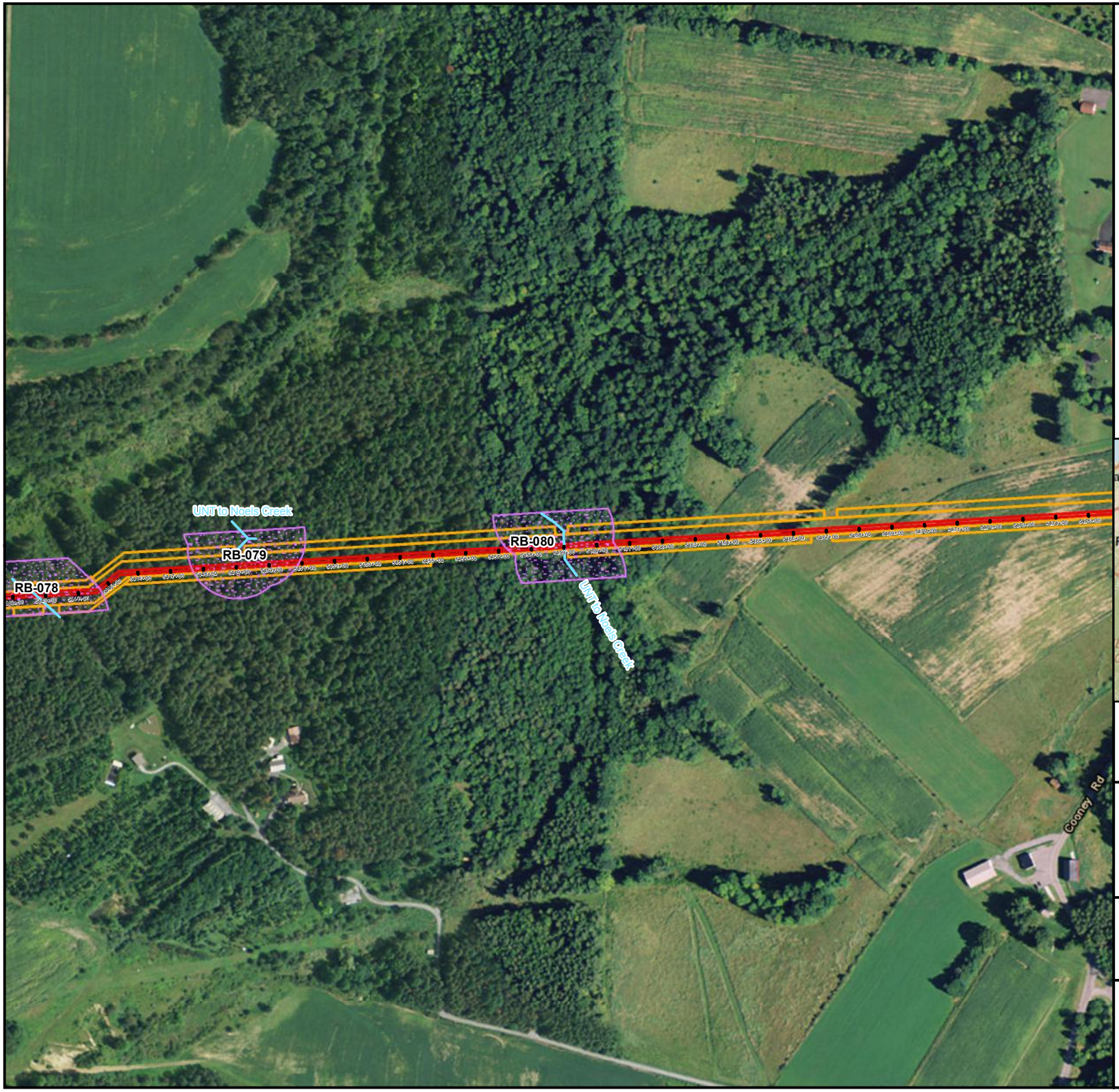

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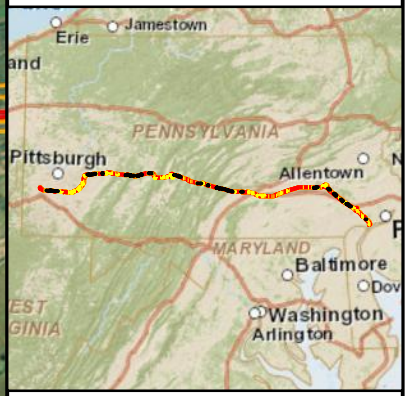

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