state college area
CONNECTOR

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Wetland and Watercourse Impacts Technical Memorandum

for the

State College Area Connector Project

January 2026

Pennsylvania
Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

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List of Acronyms

APR	Acid Producing Rock
CWF	Cold Water Fishes
EIS	Environmental Impact Statement
EV	Exceptional Value
HGM	Hydrogeomorphic
HQ-CWF	High Quality-Cold Water Fishes
FEMA	Federal Emergency Management Agency
FP	Flood Plain
GIS	Geographic Information System
LOD	Limit of Disturbance
NEPA	National Environmental Policy Act
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
PA DEP	Pennsylvania Department of Environmental Protection
PEL	Planning and Environmental Linkages
PEM	Palustrine Emergent
PFO	Palustrine Forested
POW	Palustrine Open-Water
PSS	Palustrine Scrub-Shrub
SCAC	State College Area Connector
SSURGO	Soil Survey Geographic Database
US	United States
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey

1.0 Introduction

1.1 Project Location and Description

Skelly and Loy, Inc., *A Terracon Company*, conducted wetland and watercourse investigations during the period of January 2023 through September 2023 for the Pennsylvania Department of Transportation (PennDOT), Engineering District 2-0, State College Area Connector (SCAC) project in Harris and Potter Townships, Centre County, Pennsylvania (see **Appendix A, Figure 1 – Project Location Map**). This project will involve the expansion of a section of United States (US) 322 east/southeast of State College, Pennsylvania. The easternmost limit of the project area is located at approximately 40.7950° latitude and -77.6291° longitude and the westernmost limit is located at approximately 40.7842° latitude and -77.7875° longitude. The project area for the delineations included approximately six (6) square miles: approximately 8.75 miles east to west with an approximate maximum width of 1.25 miles north and south of US 322. Delineations were conducted on a parcel-by-parcel basis, with access contingent upon prior landowner coordination. Two hundred eighteen (218) wetlands and one hundred four (104) watercourses were delineated within the project area. Additionally, numerous stormwater features, including non-jurisdictional stormwater wetlands, stormwater conveyances, and stormwater retention basins, were identified throughout the project area. The extent of the wetlands and watercourses that were delineated within the project area within the alternative routes are depicted on the attached wetland and watercourse location mapping in **Appendix A**. A detailed, virtual copy of the project area and delineated resources can be found on the ArcGIS Public Webmap by selecting the "Wetland Delineation" tab on the left-hand side of the browser window:

https://terracon.maps.arcgis.com/apps/webappviewer/index.html?id=e41bc8fe87ba4903bbc4c10a17283269

This report summarizes the existing wetland and watercourse conditions and describes the proposed impacts associated with the three project alternatives that are being advanced as part of the National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS). Supporting information related to the existing conditions or the proposed impacts are included in the technical appendices, including:

Appendix A – Wetland and Watercourse Location / Impact Map with Alternatives;
Appendix B – Representative Engineering Design Cross Sections for Design Alternatives;
Appendix C – Detailed Wetland and Watercourse Impact Tables;
Appendix D – References.

Encroachment into, or obstruction of, jurisdictional wetlands and watercourses potentially requires the acquisition of Federal Authorization from the United States Army Corps of Engineers (USACE) under Section 404 of the Federal Clean Water Act as well as state authorization from the Pennsylvania Department of Environmental Protection (PA DEP) under Pennsylvania Code (PA Code), Title 25, Chapter 105, Dam Safety and Waterway Management.

2.0 Aquatic Resource Delineation Methodology

2.1 Off-Site Review

The wetland and watercourse investigation included both off-site and on-site reviews, including a detailed review of the Planning and Environmental Linkages (PEL) Study previously completed, to identify potential wetlands and watercourses. The off-site investigation consisted of reviewing the following existing information: United States Geological Survey (USGS) mapping (Centre Hall, State College); U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping; Centre County Soil Survey; readily available (Internet) aerial photography; PA DEP eMapPA online application (http://www.depgis.state.pa.us/emappa); Federal Emergency Management Agency (FEMA) Flood Map Service Center (https://www.fema.gov); United States Department of Agriculture (USDA) - Natural Resources Conservation Service's (NRCS) Web Soil Survey (http://websoilsurvey.sc.egov.usda.gov); and the Pennsylvania County Listing of Hydric Soils. A review of the FEMA Flood Map Service Center indicates that portions of this project are located within mapped 100-year FEMA floodplains associated with Sinking Creek including Boal Gap Run and Spring Creek including Galbraith Gap Run.

2.2 On-Site Evaluations and Data Collection

The on-site wetland and watercourse investigation was conducted using the Routine On-Site Wetland Delineation Method described in the USACE's Wetland Delineation Manual, Technical Report Y-87-1 (1987) and the Regional Supplement to the USACE's Wetland Delineation Manual: Eastern Mountains and Piedmont (2012). If present, wetlands identified were classified in accordance with the USFWS' Classification of Wetlands and Deepwater Habitats of the United States (Cowardin, et al., 1979). Dominant vegetation, soil characteristics, and indicators of hydrology were evaluated for potential wetland and upland habitat in the project area.

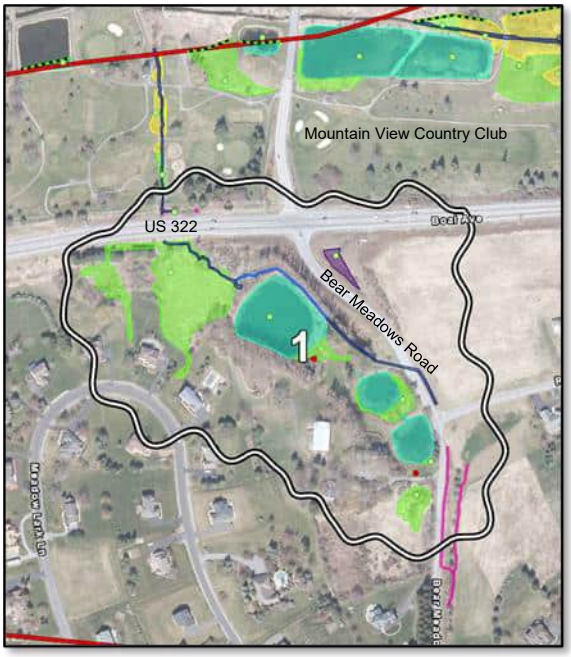
Details regarding the Wetland and Watercourse study methodologies and results are described in the State College Area Connector Wetland and Watercourse Identification and Delineation Report (January 2025). A summary of the existing conditions is described as follows in Section 3.0.

3.0 Existing Conditions

The land use/land cover features in the vicinity of the project area include wooded lots, wooded scrub-shrub riparian corridors, farmsteads, agricultural fields, pastures (horse and livestock), mowed areas (lawns and roadsides), miscellaneous businesses, recreational parks, US 322, commercial and residential driveways, commercial and recreational parking lots, and secondary roadways. Two hundred eighteen (218) wetlands and one hundred four (104) watercourses were delineated within the project area. The wetlands and watercourses are illustrated on the location mapping provided in **Appendix A**. Detailed listings of the delineated wetlands and watercourses for the project are provided in the SCAC Wetland Identification and Delineation Report (prepared as a separate report).

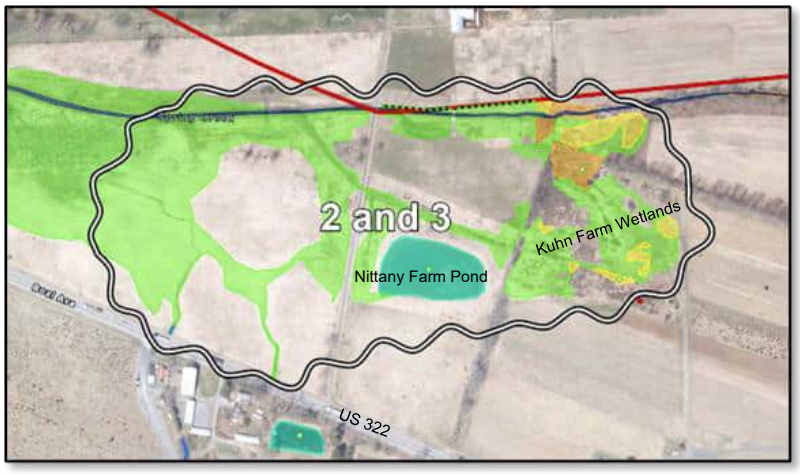
There are several large palustrine floodplain features and/or notable aquatic resource areas including:

1. **Bear Meadows Ponds**: The groundwater-fed wetland system, consisting of several man-made ponds, is located west of Bear Meadows Road and immediately south of existing US 322. This hydrologic system drains north under US 322 and through the Mountain View Country Club before ultimately confluencing with/contributing to Spring Creek.

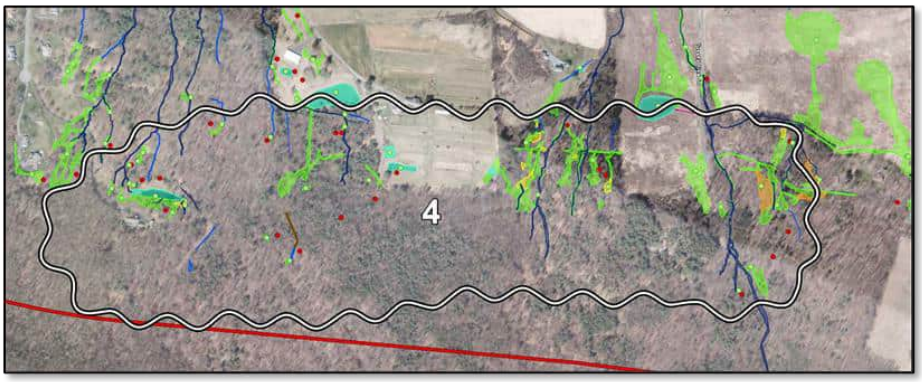


2. **Nittany Farm Pond**: On the Nittany Farms property, north of existing US 322, a large pond can be seen from the roadway. This pond is of mesic nature, is man-made, and is likely used as a drinking water source for the cattle on the property. The following inset map figure identifies the Nittany Farm Pond.

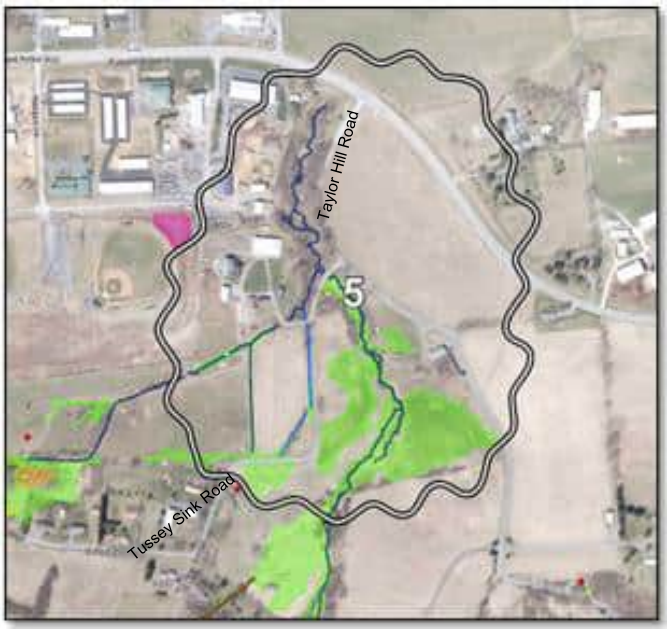
3. **Kuhn Farm:** A large wetland complex is located on the back side of the Kuhn Tree Farm property north of existing US 322, continues west onto the Nittany Farms property, and ultimately drains onto and through the Mountain View Country Club golf course. This large system consists of a significant volume of wetland acreage, including groundwater-fueled systems, as well as Spring Creek and its floodplain.



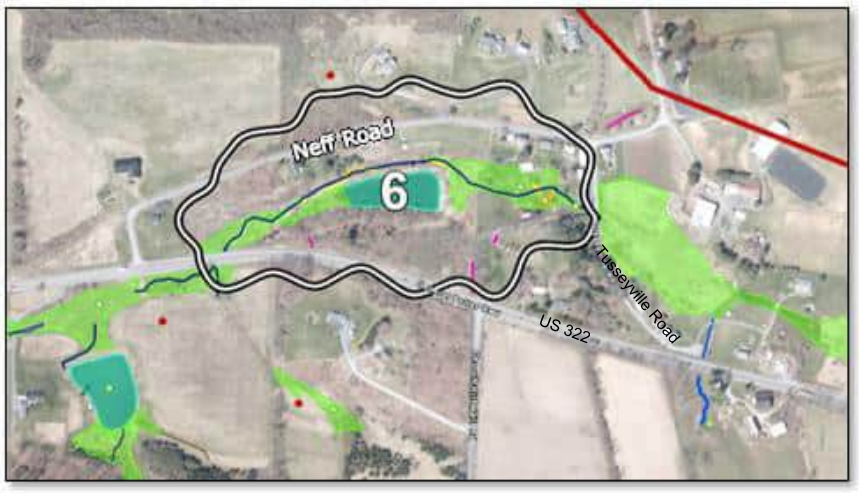
4. **Tussey Ridge**: Several high-volume headwater streams, fueled by both groundwater and precipitation recharge off the adjacent mountain ridge, located along and immediately east and west of the Harris-Potter Townships line. These partly subterranean streams contribute significantly to the hydrologic integrity of Spring Creek. Additionally, several spring/seep-fed wetlands are located at or near the headwaters of these streams.



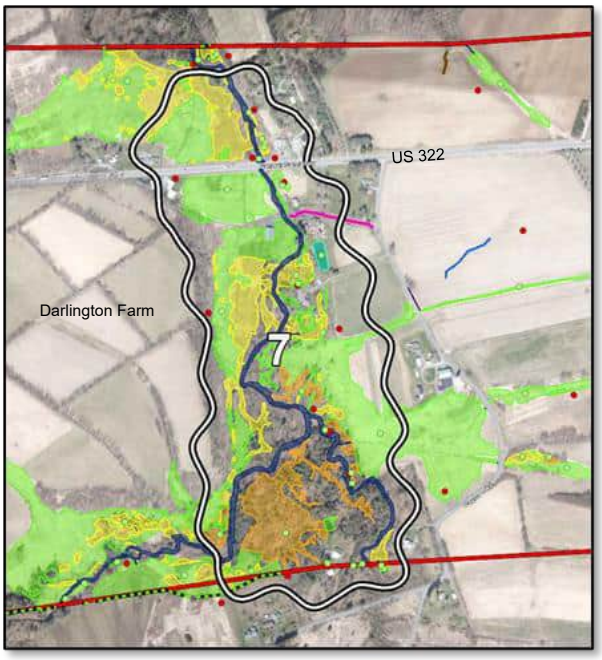
5. **Tussey Sink**: The area colloquially referred to as "Tussey Sink" located south of existing US 322, west of Taylor Hill Road, and both east and west of Tussey Sink Road. This area is comprised of several aquatic resources including Sleepy Creek, several unnamed tributaries, and significant acreage of wetlands, primarily palustrine emergent systems. Additionally, the area is historically known for its karst geology and could present challenges such as potential for sinkholes and foundation issues.



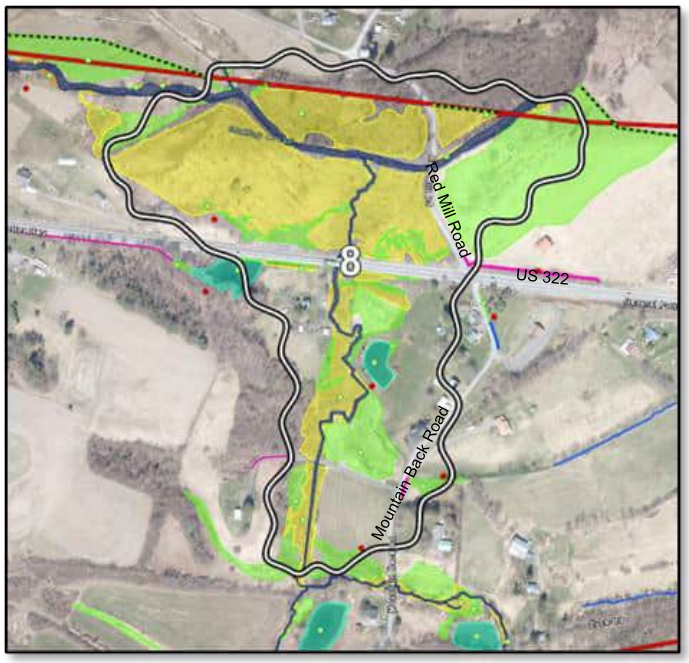
6. **Neff Pond:** The area located within the limits of Tusseyville, south of Neff Road and both east and west of Tusseyville Road, possesses a significant quantity of spring-fed wetlands and contributes hydrologically to Sinking Creek to the east. Additionally, a spring-fed wetland complex located south of existing US 322 and west of the intersection with Neff Road contributes hydrologically to the Tusseyville wetland system and ultimately Sinking Creek.



7. **Darlington Sinking Creek Stream Valley:** The most prominent resources associated with Sinking Creek within the project area are located west and north of Dogtown Road and east of Church Hill Road. Multiple unnamed tributaries, Sinking Creek, and Sinking Creek's palustrine floodplain, including considerable acreage of palustrine forested (PFO) wetland, occupy the wide floodplain south of existing US 322 while the narrower floodplain north of existing US 322 possess primarily palustrine emergent (PEM) and palustrine scrub-shrub (PSS) communities.



8. **Maggie's Dip:** The area colloquially referred to as "Maggie's Dip" near the eastern limit of the study area, immediately west of the intersection of Mountain Back Road/Red Mill Road and existing US 322. This area is characterized by a relatively narrow palustrine floodplain south of existing US 322 and a rather extensive palustrine floodplain associated with a large perennial unnamed tributary of Sinking Creek and Sinking Creek to the north of existing US 322.



3.1 Drainage Basins and Watercourses

The project area contains two primary drainage basins: Sinking Creek (east) and Spring Creek (west). The approximate divide of the drainages is located between Summer Lane (Potter Athletic Complex) and Taylor Hill Road. It should also be noted that Sleepy Creek, located between these two roadways, is associated with the Tussey Sink and does not directly connect to either Sinking Creek or Spring Creek via a surface water connection. Wetland and watercourse locations can be seen in **Appendix A, Figure 2 – Wetland and Watercourse Location Map**.

According to PA Code, Title 25, Chapter 93.9L, watercourses identified within the Sinking Creek portion of the project area have protected water uses for Cold Water Fishes (CWF) and watercourses within the Spring Creek portion of the project area have protected water uses for High-Quality Cold Water Fishes (HQ-CWF).

Sinking Creek is identified as a stream that supports the natural reproduction of trout (i.e., a wild trout stream). Sinking Creek and its unnamed tributaries are anticipated to have an in-stream trout time-of-year restriction for wild trout (October 1 through December 31). Additionally, Sinking Creek is identified as a Stocked Trout Waters through the project area and is subject to an in-stream time-of-year restriction for Stocked Trout (February 15 through June 1).

Spring Creek and its unnamed tributaries are identified as streams that support the natural reproduction of trout (i.e., wild trout streams). Spring Creek is also designed as a Class A Wild Trout Stream. Spring Creek and its tributaries are anticipated to have a restriction for Class-A mixed brook/brown wild trout (October 1 through April 1). PFBC 2009 stream reports Spring Creek receives significant groundwater contributions that provide a stable source of cold, fertile water (https://pfbc.pa.gov/images/fisheries/afm/2009/3x03_09spring.htm). These conditions are also noted by the PFBC to provide ideal conditions for wild trout populations. The 2009 PFBC report also comments that the total biomass of brown trout, including the number of quality-size fish make Spring Creek one of the best Class A wild trout streams in Pennsylvania. Spring Creek is also referenced as one of the few streams in the northeastern United States that support this caliber of wild trout fishery.

There are 104 watercourses located within the project area. The extent of the watercourses includes over 100,000 linear feet of watercourse channels, with over 60,000 linear feet in Spring Creek and over 27,000 linear feet in Sinking Creek. The watercourses were classified by flow regime, as determined in the field (i.e., ephemeral, intermittent, and perennial). Table 1 provides a summary of the distribution of watercourses throughout the project area.

Table 1. Watercourse Existing Conditions (Total)

	Total (Linear Feet)	Spring Creek Drainage (Linear Feet)	Sinking Creek Drainage (Linear Feet)	Tussey Sink Drainage (Linear Feet)
Total[1+]	100,458.9	63,567.7	27,694.1	9,197.2
Ephemeral	3,665.8	2,152.2	666.7	847.0
Intermittent	18,120.0	14,634.6	2,691.7	793.7
Perennial	78,673.1	46,780.9	24,335.7	7,556.6

1: (Linear feet calculations rounded to 0.1-place. Minor discrepancies within characteristic fields do not exceed 0.2 linear foot)

+: (Several Watercourses possess multiple flow regimes)

3.2 Vegetative and Hydrogeomorphic Classes

Delineated wetlands were determined to include a range of vegetative and hydrogeomorphic classes. As part of the Functional and Rapid Assessments, the wetlands were generally grouped into the following categories: large floodplain systems (greater than or equal to 0.5 acre), small floodplain benches (less than 0.5 acre), ponds, hillside/headwater seeps, mesic/farmland wetlands, and depressional wetlands. The depressional wetlands were identified as resources that were separated (not-connected) from other aquatic resources. Details regarding the project wetlands and watercourses are provided in the SCAC Wetland and Watercourse Identification and Delineation Report (March 2025).

Table 2 below summarizes the total wetlands in the project area, including the distribution of the different types of wetlands through the project area based upon the drainage basin, relative size, Vegetative Classification, Hydrogeomorphic (HGM) classification, and Exceptional Value (EV).

Table 2. Wetland Existing Conditions (Total)

Characteristic	Total	Spring Creek	Sinking Creek	Tussey Sink (Sleepy Creek)
Total Size (acres) [1]				
< 0.1 acre	3.0	1.9	1.0	0.1
0.1 – 0.5 acres	10.0	6.7	2.7	0.6
0.5 – 1.0 acres	13.2	6.7	6.5	N/A
> 1.0 acres	255.3	92.9	147.8	14.6
Vegetative *(Several wetlands possess multiple strata)*				
PEM	208.6	80.1	113.7	14.8
PSS	43.5	13.9	29.5	0.1
PFO	9.4	2.2	6.8	0.4
POW	20.0	12.0	8.0	N/A
HGM *(Several wetlands possess multiple HGM categories)*				
Large FP	229.5	77.5	140.7	11.3
Small FP	4.3	2.3	1.5	0.5
Hillside	23.1	15.7	5.2	2.2
Depressional	1.0	0.7	0.3	N/A
Mesic/Farmland	3.6	0.1	2.3	1.2
Pond	20.0	11.9	8.1	N/A
Exceptional Value				
	251.9	89.4	162.5	N/A

1: (Acreage calculations rounded to 0.1-place. Minor discrepancies within characteristic fields do not exceed 0.2 acre)

4.0 Alternatives

The three alternatives that were recommended in the PEL Study to move forward into the NEPA phase of the project were renamed to North, Central and South. Following public and agency involvement, refinements were made to all three alternatives. Descriptions of each alternative are listed below and can be seen on the Figures in **Appendix A** and Representative Engineering Design Cross Sections for Design Alternatives are available in **Appendix B**.

4.1 North Alternative

The western end alignment would be the same for all three alternatives, from the SR 45 interchange to just east of the Elks Club Road. At the western end, the existing US 322 would remain in its current location and the new US 322 4-lane highway would be on the south side of the existing US 322. The western end alignment would also include a pedestrian/bicycle trail on the north side of the existing US 322. Just east of the Elks Club Road, the alignment would start to move north of the existing US 322 through the Nittany Farm and around the Kuhn tree farm. It would continue through the agricultural fields on the north side of US 322, avoiding the commercial area on US 322 in Potter Township. The alignment would return to the existing US 322 alignment through Tusseyville. The eastern end would maintain the existing US 322 as the local access road in its current position and the 4-lane highway alignment would be on the south side of the existing US 322 from approximately Tusseyville to Potters Mills, see **Appendix A, Figure 3 – North Alternative Wetland and Watercourse Impacts**.

4.2 Central Alternative

The western end alignment would be the same for all three alternatives, from the SR 45 interchange to just east of the Mountain View Country Club. At the western end, the existing US 322 would remain in its current location and the new US 322 4-lane highway would be on the south side of the existing US 322. The western end alignment would also include a pedestrian/bicycle trail on the north side of the existing US 322. Just east of the Mountain View Country Club, the alignment would start to move north of the existing US 322 through the Nittany Farm and around the Kuhn tree farm. It would then cross over the existing US 322 and travel through the Potter Township Athletic Complex on the south side of US 322, avoiding the commercial area in Potter Township.

It is noted that at the time of the May 8, 2025 Public Meeting, the Central Alternative was located through the baseball fields within the Potter Township Athletic Complex. As part of the public involvement and follow-up from the public meeting, Potter Township issued a letter (June 23, 2025) to PennDOT raising concern with the proposed impact to the fields and requested PennDOT consider avoidance and minimization of the property. PennDOT shifted the Central Alternative to the south to avoid the baseball fields and will only impact the undeveloped portion of the Potter Township property.

From there, the alignment crosses Sleepy Creek (stream that drains to Tussey Sink) and starts to move north towards the existing US 322. The alignment would return to the existing US 322 alignment near Tusseyville. The eastern end would maintain the existing US 322 as the local access road in its current position and the 4-lane highway alignment would be on the south side of the existing US 322 from approximately Tusseyville to Potters Mills, **see Appendix A, Figure 4 – Central Alternative Wetland and Watercourse Impacts**.

4.3 South Alternative

The western end alignment would be the same for all three alternatives, from the SR 45 interchange to just east of the Elks Club Road. At the western end, the existing US 322 would remain in its current location and the new US 322 4-lane highway would be on the south side of the existing US 322. The western end alignment would also include a pedestrian/bicycle trail on the north side of the existing US 322. Just east of the Elks Club Road, the alignment would start to move south of the existing US 322 through the Tait Farm and along the side of the Tussey Mountain ridge behind the neighborhoods and communities along the south side of the existing US 322. It would then cross over Sleepy Creek (stream that drains to Tussey Sink) and start to move north towards the existing US 322. The alignment would return to the existing US 322 alignment near Tusseyville. The eastern end would maintain the existing US 322 as the local access road in its current position and the 4-lane highway alignment would be on the south side of the existing US 322 from approximately Tusseyville to Potters Mills, see **Appendix A, Figure 5 – South Alternative Wetland and Watercourse Impacts.**

5.0 Alternatives Impact Analysis

All three project alternatives impact wetlands and watercourses. Engineering design incorporated avoidance and minimization measures to limit direct impacts. Bridge spans were included at numerous watercourse crossings to avoid and minimize direct impacts to wetlands and watercourses.

5.1 Bridge Span Avoidance and Minimization

Each of the alternatives cross numerous wetlands and streams. To avoid and minimize impacts to the streams, floodplains and adjacent wetlands, several bridge structures are proposed along the different alternatives. Bridge span minimization includes those wetland and watercourses that are within the limits of disturbance of an alternative, but the design includes a bridge to span the wetland, watercourse, and floodplain, so as to avoid the direct filling or excavation of the wetlands (avoid a direct impact) and maintain the hydrologic conditions to maintain the wetland and watercourse functions (avoid indirect impacts).

Alternative	Spanned Wetlands	Spanned Watercourses
North:	11 acres	3,509 linear feet
Central:	15 acres	5,767 linear feet
South:	10 acres	5,320 linear feet

Table 3 identifies the bridge locations and resources to be spanned to avoid direct and indirect impacts.

Table 3. Bridge Spans

Bridge Station (location)	North	Central	South	Description
123	X	X	X	Bridge spans S-LTZ-035-PER (Spring Creek).
147	X	X	X	Bridge spans S-LTZ-077-PER (Galbraith Gap Run)
171 – 178	X	X	X	Bridge spans S-LTZ-038-PER and WL-LTZ-147 downstream of the series of ponds along Bear Meadows Road.
197 - 202	X	X	X	Bridge spans S-LTZ-073-PER and parts of WL-LTZ-143-PEM at Somerset Drive
217 - 225	X	X		Bridge spans portions of WL-LTZ-067-PEM and S-LTZ-070-INT at Nittany Farm
243 - 249	X	X		Bridge spans S-LTZ-035-PER (Spring Creek) and its floodplain wetlands, north of existing US 322 and in proximity to Sharer Road
267 – 275		X		Bridge spans S-LTZ-035-PER (Spring Creek) and its floodplain wetlands, north of existing US 322
306 - 312		X		Bridge spans S-LTZ-035-PER (Spring Creek), S-LTZ-045-PER, and adjacent floodplain wetlands west of Tussey View Lane and south of existing US 322
320 – 323			X	Bridge spans S-LTZ-035-PER (Spring Creek), S-LTZ-040-PER, S-LTZ-041-PER, and floodplain wetlands
349 – 361		X		Bridge span of Sleepy Creek (S-LTZ-025-PER), S-LTZ-095-PER, S-LTZ-028-PER, S-LTZ-027-INT, and adjacent wetlands at Tussey Sink.
356 - 366			X	Bridge spans S-LTZ-025-PER (Sleepy Creek) and WL-LTZ-052-PEM at Tussey Sink
384 – 391		X	X	Bridge spans upper reaches of Sinking Creek, S-LTZ-023-PER
404 – 410	X			Bridge spans Neff Pond, including S-LTZ-023-PER and WL-LTZ-043-POW, north of existing US 322
436 – 451	X	X	X	Bridge crossing spans Darlington Sinking Creek stream valley area, S-LTZ-001-PER & WL-LTZ-040-PEM, south of US 322
474 – 479	X	X	X	Bridge spans twin pond area, WL-LTZ-028-POW, south of existing US 322
502 – 513	X	X	X	Bridge spans the PEM and POW wetland system, conveying hydrology through existing US 322 and fueling S-LTZ-010-PER north of the highway. Bridge spans the wetland floodplain along Sinking Creek at “Maggie’s Dip”, south of existing US 322

Because the proposed bridges span the wetland and streams, the direct fill impact is considered avoided and therefore the impact value is represented as a “negative value” that is subtracted from the direct impact values shown in Tables 4 and 5 to represent the “net” impacts anticipated for each alternative.

5.2 Types of Impacts

Types of Impacts/Regulated Activities

The proposed project includes total, direct, indirect and bridge impacts. Each of these impact types is considered a PA Chapter 105 Encroachment and may be considered a Clean Water Act Section 404 discharge of dredge or fill material and will be permitted accordingly. Consistent with both Chapter 105 and Section 404 guidelines, design measures have been developed to avoid and/or minimize impacts, including the use of bridges to span wetlands, watercourses and floodways. The bridge structure spanning these resources is accounted for as a regulated activity, as a Chapter 105

Encroachment (i.e. a permanent structure/facility) but the use of a bridge to span wetland/watercourse resources is considered as a mitigation measure to avoid and minimize direct or indirect impacts and is not considered to result in the permanent loss of resource or function which would require compensatory mitigation.

Each type of impact/regulated activity is described as follows:

- Total Impacts include those wetlands and watercourses that are located within the Alternative's limit-of-disturbance.
- Direct loss impacts to wetlands and watercourses are those that are located within the Alternative's limit-of-disturbance and are anticipated to be permanently disturbed through direct filling or excavation due to construction.
- Indirect loss Impacts to wetlands and watercourses are those that are adjacent or in proximity to the Alternative's limit-of-disturbance and the proposed filling or excavation could negatively affect the hydrology and or functions of the resource.
- Bridge Span Mitigation to wetlands and watercourse are those that may be exposed to disturbance during construction but are anticipated to be restored. The wetlands and watercourses proposed to be spanned may be exposed to temporary impacts associated with the construction of the bridge structure. Upon completion of the bridge construction, the encroachments to wetlands and watercourses within the limit-of-disturbance would be restored.

Table 4 below summarizes the total wetland impacts for each alternative, both direct and indirect, and presents wetland impact reduction via bridge span minimization. Additionally, the primary types of wetlands to be impacted, with respect to size, vegetative classification, HGM classification, and EV designation are presented in Table 4. In general, the alternatives impact large PEM floodplain EV wetlands. Impacts per individual wetland can be found in **Appendix C**.

Table 4. Wetland Impact Table

	North (acres)	Central (acres)	South (acres)
Total Impact	**25**	**30**	**18**
Primary Characteristics of Impacted Wetlands (acres)			
Size - > 1.0 acres	94 % (23.8 ac)	92% (28.1 ac)	81% (14.6 ac)
Vegetative - PEM	76% (19.7 ac)	82% (24.9 ac)	81% (14.6 ac)
HGM - Large Floodplain	81% (20.6 ac)	77% (23.5 ac)	66% (11.9 ac)
Exceptional Value	98% (24.9 ac)	77% (23.4 ac)	83% (14.9 ac)
Spring Creek Drainage Basin			
Total Impact	**12.7**	**18.1**	**4.6**
Sinking Creek Drainage Basin			
Total Impact	**12.7**	**11.1**	**11.1**
Tussey Sink (Sleepy Creek) Drainage Basin			
Total Impact	**N/A**	**0.8**	**2.2**
Total Impact	25	30	18
Total Indirect Impact	0.0	0.0	4

	North (acres)	Central (acres)	South (acres)
Bridge Span Mitigation/Minimization	-11	-15	-10
Total Net Direct/Indirect Impact Loss	14	15	12
1: (Acreage calculations rounded to 0.1-place or 1.0-place. Minor discrepancies within totals may result)			

Table 5 below summarizes the total watercourse impacts, both direct and indirect, in each alternative, including the distribution of watercourses by flow regime and drainage basin. Additionally, Table 5 also presents watercourse impact reduction via bridge span minimization.

Table 5. Watercourse Impacts within Alternatives

	North (LF)	Central (LF)	South (LF)
Total Impact	5,125	9,566	10,563
Intermittent	969	1,678	3,383
Perennial	4,156	7,888	7,180
Spring Creek Drainage Basin			
Total Impact	3,482	6,152	6,188
Intermittent	726	1,128	2,410
Perennial	2,756	5,024	3,778
Sinking Creek Drainage Basin			
Total Impact	1,643	1,712	1,722
Intermittent	243	323	308
Perennial	1,400	1,389	1,414
Tussey Sink (Sleepy Creek) Drainage Basin			
Total Impact	N/A	1,540	2,652
Intermittent	N/A	350	665
Perennial	N/A	1,190	1,987
Total Impacts	5,124	9,566	10,563
Total Indirect Impacts	0	0	3,209
Bridge Span Mitigation/Minimization	-3,509	-5,767	-5,320
Total Net Direct/Indirect Impact Loss	1,615	3,799	8,452
1: (Linear feet calculations rounded to 1.0-place. Minor discrepancies within totals may result) *+: (Several Watercourses possess multiple flow regimes)*			

5.1.2 Indirect Impacts

The North and Central Alternatives extend across open valley karst terrain. Much of the profile of the North and Central Alternatives is at grade with the existing terrain which avoids additional indirect impacts to wetlands and watercourses. Hydrologic conditions can be conveyed through the proposed roadway.

The middle portion of the South Alternative traverses across the lower portion of Tussey Mountain Ridge (Tussey Ridge). The location of the South Alternative on the ridge will require substantial excavation, with rock cuts extending from 5 to 180 feet deep. The extent of excavation creates the potential for indirect wetland and stream impacts from intercepting recharge areas and disrupting hydrologic discharges to downstream waters. In addition, rock excavation presents water quality concerns for thermal impacts and encountering acid producing rock (APR). The proposed rock excavation would intercept the Reedsville and Bald Eagle formations, which consists of shale and sandstone, and for which exhibited APR characteristics on PennDOT's recent and nearby US Route 322 Potters Mills Gap project.

Indirect impacts would only occur within the South Alternative, north (downstream) of the proposed alignment. These indirect impacts are anticipated as a result of deep excavation (cut) in portions of the alignment along the mountain side and can be seen in **Appendix A, Figure 6 – South Alternative Indirect Wetland and Watercourse Impacts**.

South: 4 acres of wetlands and 3,209 linear feet of streams

- The preliminary engineering design of the South Alternative requires substantial depths of cut ranging from 5 to 180 feet, as it traverses approximately 1.5 miles across the Tussey Ridge side.
- Most of the cross sections of these cut areas include cuts on both the upslope and downslope side of the alignment.
- The deep cuts through this stretch, located south (upstream) of delineated wetlands and streams, present the opportunity to negatively affect the ground water recharge zones on the ridge that feed these aquatic resources at lower elevations.
- Wetlands and / or streams that originated within the limits of disturbance within these excavation areas were considered to have both direct and indirect impacts.
- Wetlands and / or streams that are located within 200 feet downslope of the alternative would be considered to have the existing hydrologic recharge / discharge zone changed and therefore considered as indirect impacts due to anticipated loss or reduction in hydrology.
    - The use of the 200-foot downslope distance for indirect impacts was based upon the Hydrogeologic Characterization Study that PennDOT District 2-0 completed for the Interstate 99 project that involved roadway cut excavation in a ridge side setting.
    - As with the I-99 project, should the recommended preferred alternative involve roadway cut construction in a ridge side setting, then a detailed Hydrogeologic Characterization Study would be recommended to further assess the potential for indirect impacts.

Representative cross-sections, illustrating the depths and extent of excavation planned for the South Alternative along the Tussey Ridge Area are provided in **Appendix B**.

The proposed design for the North and Central Alternatives involves relatively shallow excavations and roadway fills so that maintenance of hydrology for wetlands and / or streams through the limit of disturbance would be anticipated to be accomplished with a culvert, bridge or cross pipe. Representative cross sections of the proposed cuts and fills along the North and Central Alternatives are provided in **Appendix B**. Indirect impacts to wetlands and streams along the North of Central Alternatives are not anticipated.

5.1.3 Alternatives Impact Analysis Summary

Table 6. Impact Summary

	Impact	North	Central	South
Wetlands	Total Direct Impact	25	30	18
	Total Indirect Impact	0	0	4
	Bridge Span Mitigation	-11	-15	-10
	Total Net Impacts	14	15	12
Watercourses	Total Direct Impacts	5,124	9,566	10,563
	Total Indirect Impacts	0	0	3,209
	Bridge Span Mitigation	-3,509	-5,767	-5,320
	Total Net Impacts	1,615	3,799	8,452

5.2.1 North Alternative

The North Alternative would directly impact 25.4 acres of wetlands and indirectly impact 0.0 acres. The implementation of bridge spans would reduce the direct impacts by 10.4 acres. The net total wetland impact from the North Alternative would be 15.0 acres of wetland. The North Alternative would directly impact 5,125 linear feet of streams and would have 0 linear feet of indirect stream impacts. Bridge spans would reduce the direct impacts by 3,521 linear feet. The net total stream impact for the North Alternative would be 1,604 linear feet.

- Impacts the least number of watercourses.
- Most of the wetland impacts occur to large PEM floodplain wetlands.
- Wetland impacts are basically a 50/50 split between the Sinking Creek (“Maggie’s Dip” and Tusseyville) and Spring Creek (Nittany Farms) drainage basins.
- Much of the profile of the proposed engineering is along the existing terrain and therefore, there are limited areas of deep excavation.

- Located mostly within karst geology.
- Bridge crossings are planned for most of the stream valley locations to avoid and minimize impacts.
    - The majority of the wetlands along the stream valley crossing are palustrine emergent systems.
    - The bridge spans will maintain the existing wetland functions and values including floodflow alteration, sediment stabilization, groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, production export, and wildlife habitat.
    - The bridge spans maintain the existing stream functions including riffle pool complexes, floodplain interaction, in-stream substrate conditions, and aquatic passage.

5.2.2 Central Alternative

The Central Alternative would directly impact 30.0 acres of wetlands and indirectly impact 0 acres. The implementation of bridge spans would reduce the direct impacts by 15.0 acres. The net total impact for the Central Alternative would be 15.0 acres of wetlands. The Central Alternative would directly impact 9,566 linear feet of streams and would have 0.0 linear feet of indirect impacts. Bridge spans would reduce the direct impacts by 5,767 linear feet. The net total stream impact for the Central Alternative would be 3,799 linear feet.

- It has the most wetlands within the limit-of-disturbance.
- Most of the wetland impacts occur to large PEM floodplain wetlands.
- Most of the wetland impacts and crossings occur in the Spring Creek drainage basin; but the crossings are in a downstream location (north of existing US 322) and minimize hydrologic impacts to the downstream wetlands and watercourses.
- Much of the profile of the proposed engineering is along the existing terrain and therefore, there are limited areas of deep excavation.
- Located mostly within karst geology.
- Bridge crossings are planned for most of the stream valley locations to avoid and minimize impacts.
    - The majority of the wetlands along the stream valley crossing are palustrine emergent systems.
    - The bridge spans will maintain the existing wetland functions and values including floodflow alteration, sediment stabilization, groundwater recharge/discharge, sediment/toxicant retention, nutrient removal, production export, and wildlife habitat.
    - The bridge spans maintain the existing stream functions including riffle pool complexes, floodplain interaction, in-stream substrate conditions, and aquatic passage.

5.2.3 South Alternative

The South Alternative would directly impact 18.0 acres of wetlands and would indirectly impact 3.7 acres. The implementation of bridge spans would reduce the direct impacts by 9.7 acres. The net total impact from the South Alternative would be 12.0 acres of wetlands. The South Alternative would directly impact 10,563 linear feet of streams and would indirectly impact 3,209 linear feet. Bridge spans would reduce the direct impacts by 5,320 linear feet. The net total stream impact from the South Alternative would be 8,452 linear feet.

- Impacts the highest number of watercourses.
- Most direct impacts occur to wetlands within the Sinking Creek drainage basin, while the most indirect impacts to wetlands occur in the Spring Creek Drainage Basin.
- The preliminary engineering design of the South Alternative requires substantial depths of cut ranging from 5 to 180 feet, as it traverses approximately 1.5 miles along the lower portion of the Tussey Ridge. Most of the cross sections of these cut areas include cuts on both the upslope and downslope side of the alignment.
- To maintain the hydrologic pattern and distribution of the streams and hillside wetlands on the ridge side, the upslope hydrology would need to be collected off the cut face and conveyed underneath the alignment and daylighted through the downslope cut area. This would result in an increase in the impacts to downslope waters and wetlands.
- Additionally, with intercepting the discharge and recharge area immediately upslope of many of the wetlands and waters, it is anticipated that those “clusters” of wetlands and waters immediately downslope and within 200 feet of the alternative could be indirectly impacted due to a loss or reduction in hydrology.
- Intercepting the discharge and recharge area and altering the hydrologic condition of the hillside wetlands could result in a reduction in the effectiveness of the functions and values of these wetlands including groundwater recharge/discharge and wildlife habitat.
- The creation of the large cut slopes along the ridge has the potential to change the characteristics of the existing recharge/discharge area as it relates to water quality. The existing hillside is forested which provides shade cover for the existing headwater streams and wetlands. The extensive planned excavation would open a 1.5-mile section with open cut slopes. This would present the opportunity for increased solar exposure to the cut slopes and increase the potential for thermal impacts. Spring Creek is designated by the PFBC from its mouth upstream to its headwaters as a stream that supports a population of naturally reproducing trout. The addition of thermal influences to the numerous small headwater streams presents the potential for the reduction in the overall water quality of Spring Creek.
- The extent and depth of cuts along the ridge immediately upslope of the discharge of the headwater spring fed streams and wetlands represents a concern for the South Alternative. Significant hydrogeologic testing would be needed to further identify and model the groundwater recharge and discharge characteristics in this specific area in order to reduce and/or eliminate the potential concerns downstream from impacts to the headwaters of Spring Creek.

- The preliminary engineering design of the South Alternative requires substantial depths of cut ranging from 5 to 180 feet, as it traverses approximately 1.5 miles along the lower portion of the Tussey Ridge. Although much of the project area is underlain by karst / limestone geologic formations, the South Alternative cuts through the Reedsville and Bald Eagle Formations along the Tussey Ridge. Reedsville and Bald Eagle are non-karst formations, consisting of shales and sandstones. Based upon its position on the ridge side and depths of cut through the Reedsville and Bald Eagle formations, the South Alternative has the potential for encountering acid producing rock (APR). The construction of the Potter Mills Gap section of US 322 located to the east of the project area, encountered APR in the excavation through the Reedsville formation. The presence of the Reedsville and Bald Eagle formations coupled with the proposed depths of cut, represents a potential concern for the South Alternative, associated with encountering APR. Significant geologic testing would be needed to further identify, characterize, and even eliminate the potential concerns for the encountering of APR. Encountering APR would represent a water quality concern that could result in a reduction in the water quality to Spring Creek.

6.0 Summary

The project area includes approximately 6 square miles in Centre County. Two hundred eighteen (218) wetlands and one hundred four (104) watercourses were delineated within the project area, encompassing over 280 acres of wetlands and over 100,000 linear feet of watercourses. There are two main drainage basins, Sinking Creek to the east and Spring Creek to the west. The Tussey Sink and its feeding stream, Sleepy Creek, is centrally located between the drainage divide of Sinking Creek and Spring Creek. The three project alternatives were developed to avoid and minimize wetland and stream impacts, which involved the inclusion of bridges throughout the different alignments. The North and Central alternatives traverse through the karst valley terrain, a portion of the South alternative cuts through the lower portion of Tussey Ridge, outside of the karst terrain and into the Reedsville shale and Bald Eagle sandstone formations. The extent of impacts for each alternative is summarized as follows.

- The North has the lowest stream impacts due to its location through mostly agricultural lands.
- The South Alternative has the highest stream impacts and notable wetland impacts along with potential concerns for indirect impacts and the potential water quality concerns associated with encountering APR and changes to the existing recharge/discharge characteristics, including the potential for thermal influences.
- The Central Alternative has similar wetland and higher stream impacts when compared to the North Alternative, but lower stream impacts when compared to the South. The Central alternative crosses the wetlands and streams in a downstream location which is anticipated to avoid and minimize the concerns for indirect and water quality concerns that are identified with the South Alternative.

Impacts to wetlands and watercourses will be mitigated for through the purchase of bank credits from an approved bank site. PennDOT District 2-0 has initiated coordination with bank operators within the primary and secondary service areas and have identified that the Babbs Creek mitigation site has adequate capacity to fulfill the credit needs for the State College Area Connector Project.

7.0 List of Preparers

Paul DeAngelo, Senior Principal, Skelly and Loy, Inc., A Terracon Company

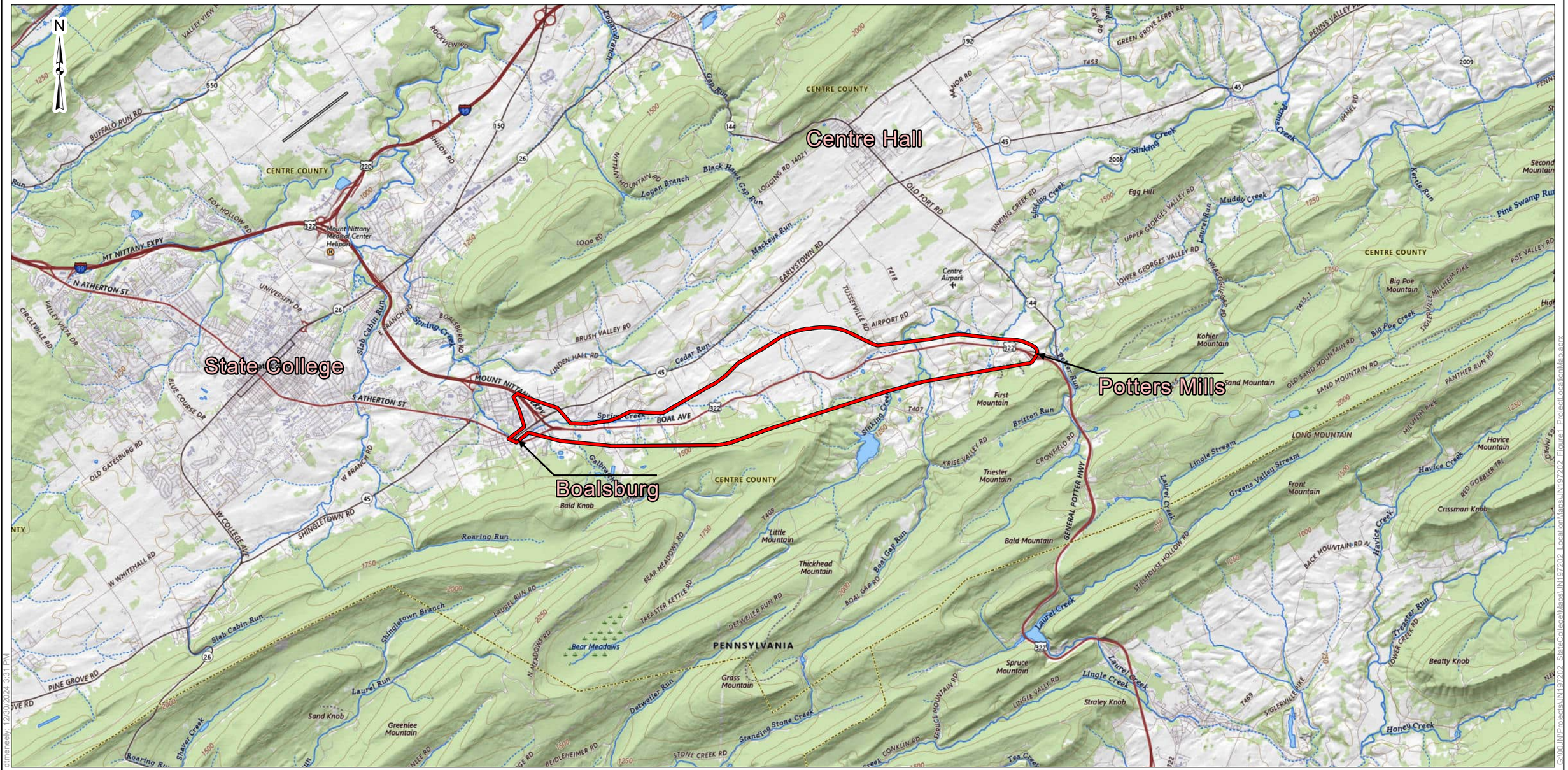
Doug Meneely, Senior GIS Analyst, Skelly and Loy, Inc., A Terracon Company

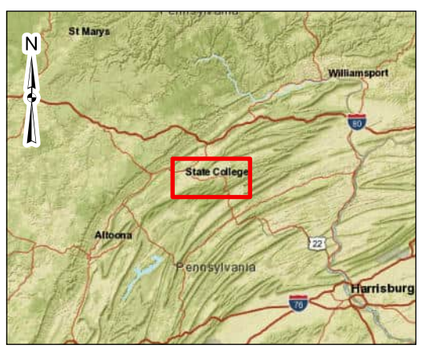
Logan Zugay, Project Scientist, Skelly and Loy, Inc., A Terracon Company

Alyssa Lynd, Senior Staff Scientist, Skelly and Loy, Inc., A Terracon Company

Megan Morris, Field Scientist, Skelly and Loy, Inc., A Terracon Company

APPENDIX A - FIGURES





Legend

Project Location

DATA SOURCE(S):
USGS Quadrangle - Centre Hall and State College, Pennsylvania 2023

Feet
0 2,500 5,000 10,000 15,000

Project No.:	JN197202
Date:	December 2024
Drawn By:	DTM
Reviewed By:	BSR

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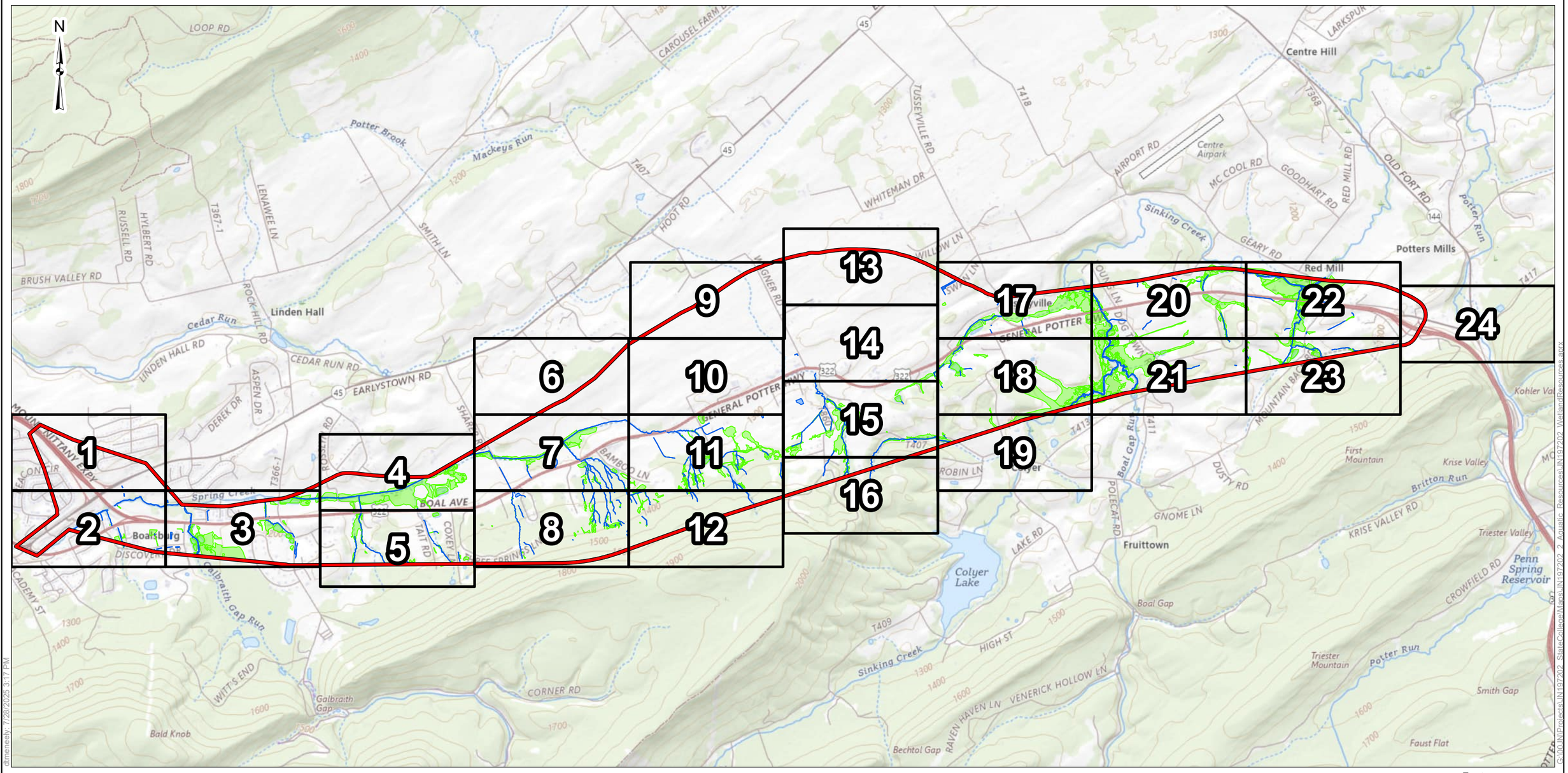
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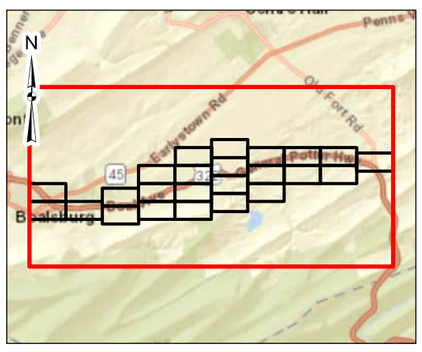
State College Area Connector Project
Centre County, Pennsylvania

Figure

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Legend

- Sheet
- Project Area
- Watercourse
- Wetland

DATA SOURCE(S):
USGS Quadrangle - Centre Hall and State College, Pennsylvania 2023
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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Wetland and Watercourse Location Map

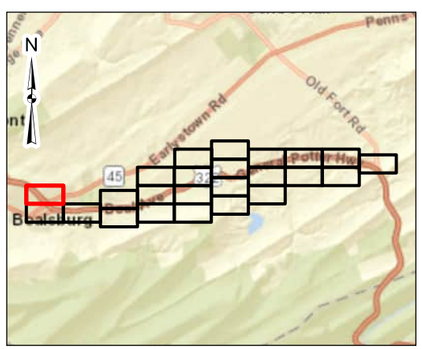
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
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- Wetland Soil Pit
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- Perennial (PER)
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- Assumed (A)
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- Palustrine Forested (PFO)
- Palustrine Open-water (POW)
- Palustrine Scrub-shrub (PSS)
- Stormwater Wetland (SWWL)

DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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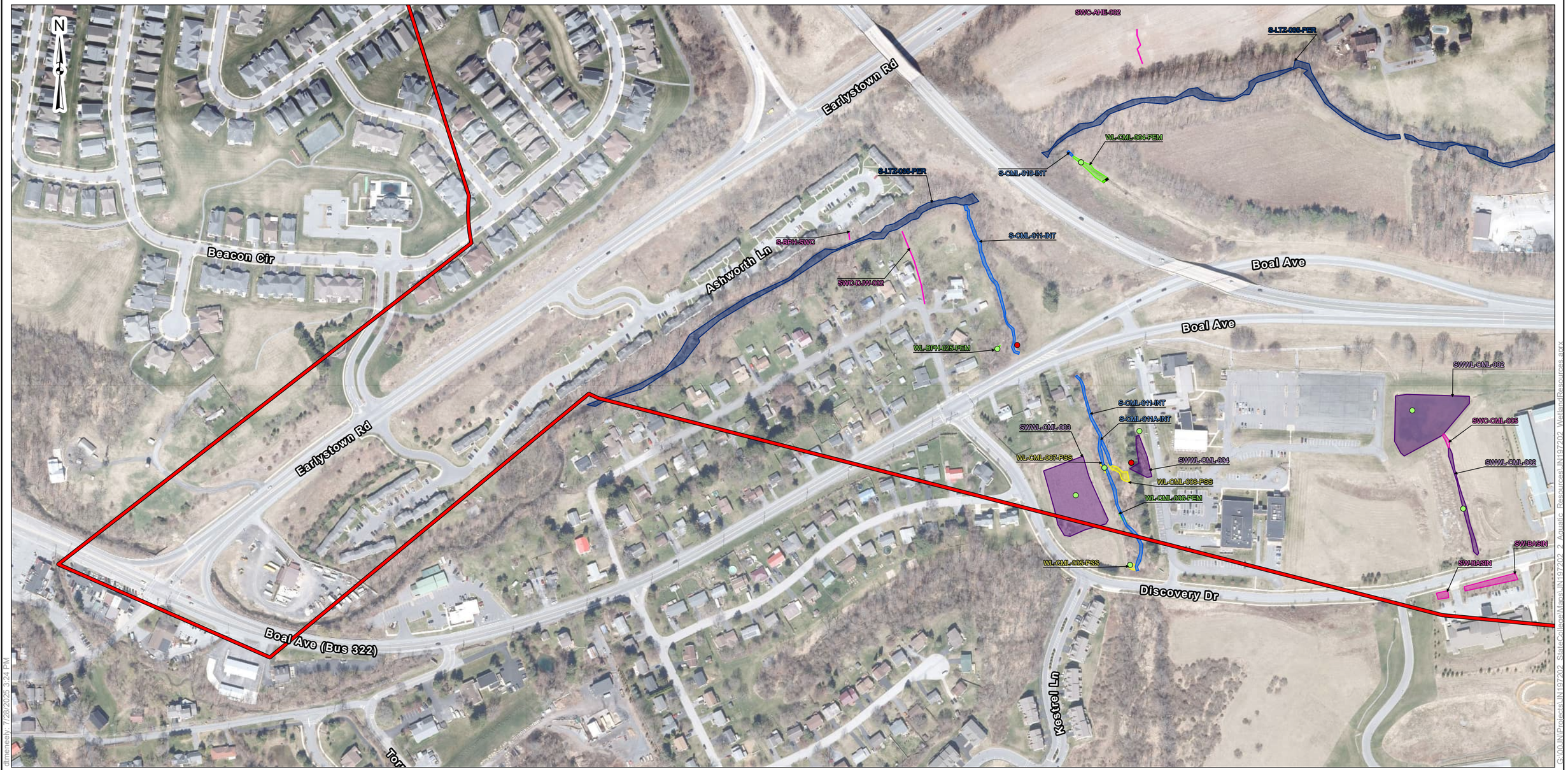
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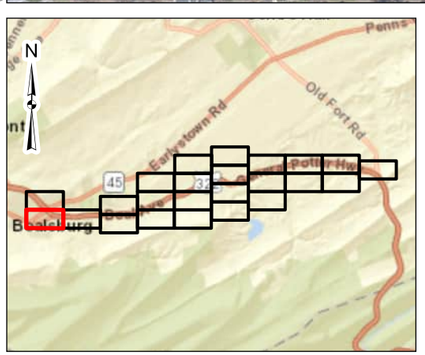
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Date:	July 2025
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Reviewed By:	LTZ

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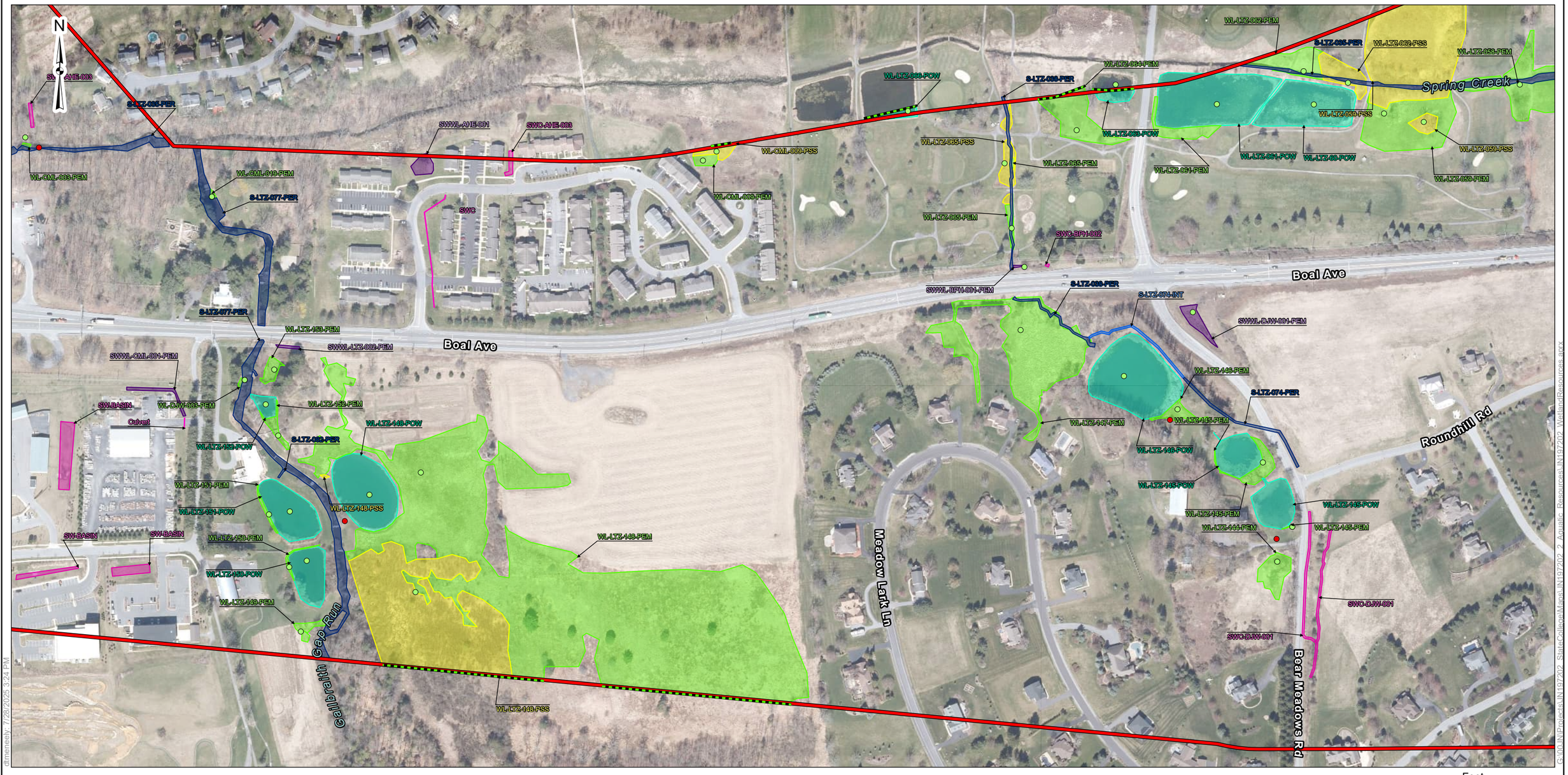
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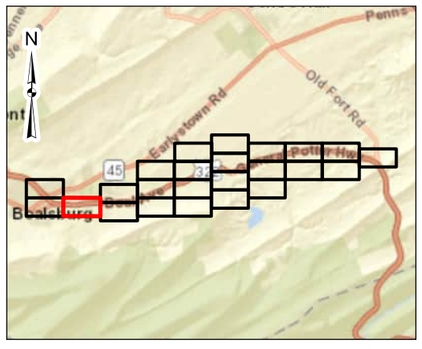
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

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Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
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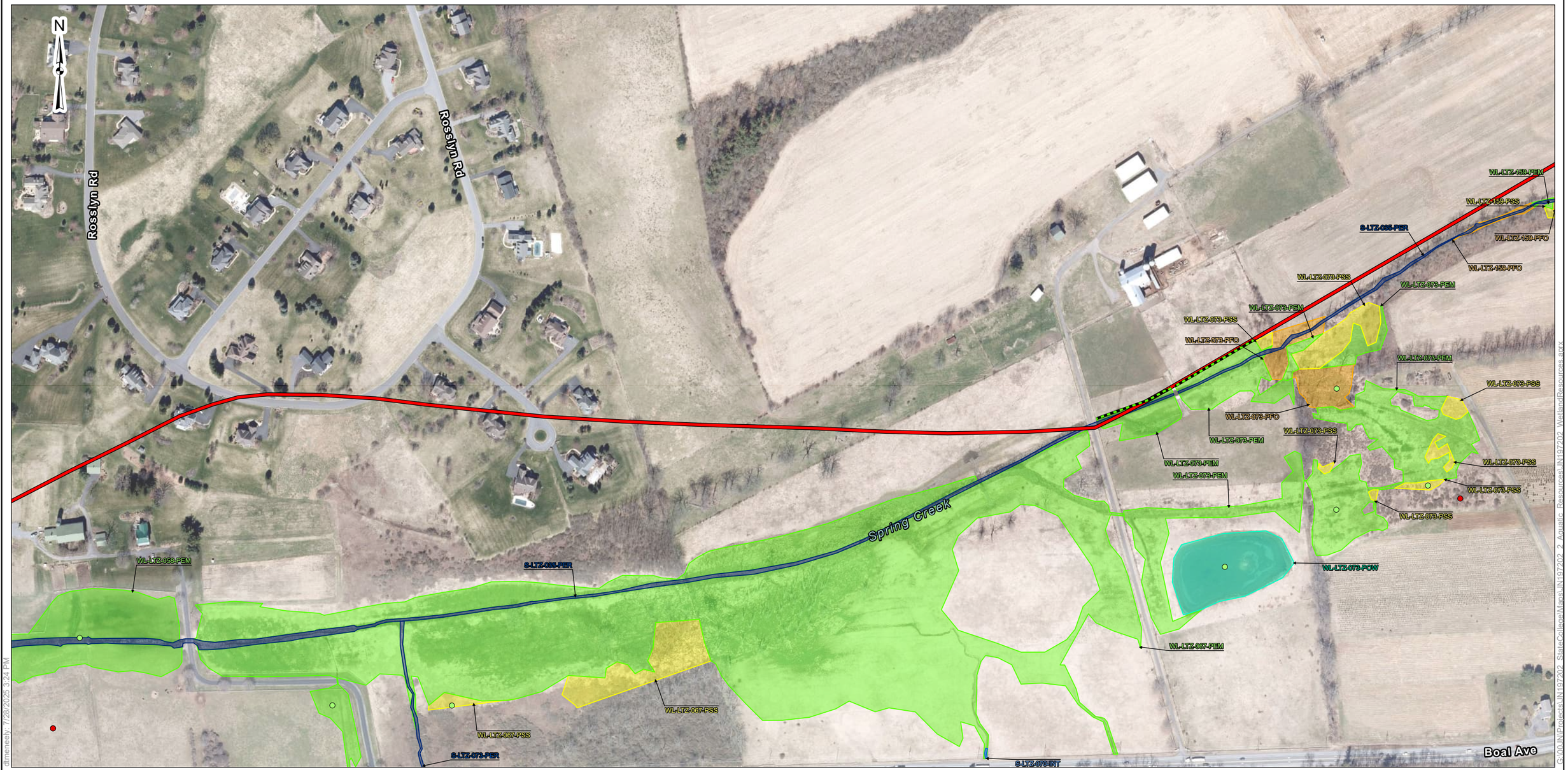
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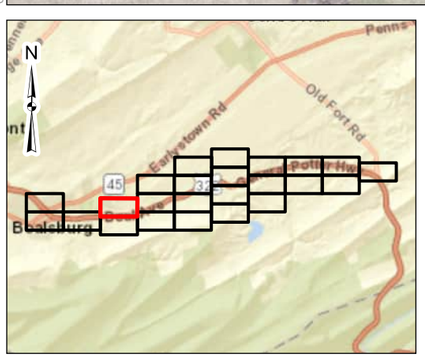
State College Area Connector Project
Centre County, Pennsylvania

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

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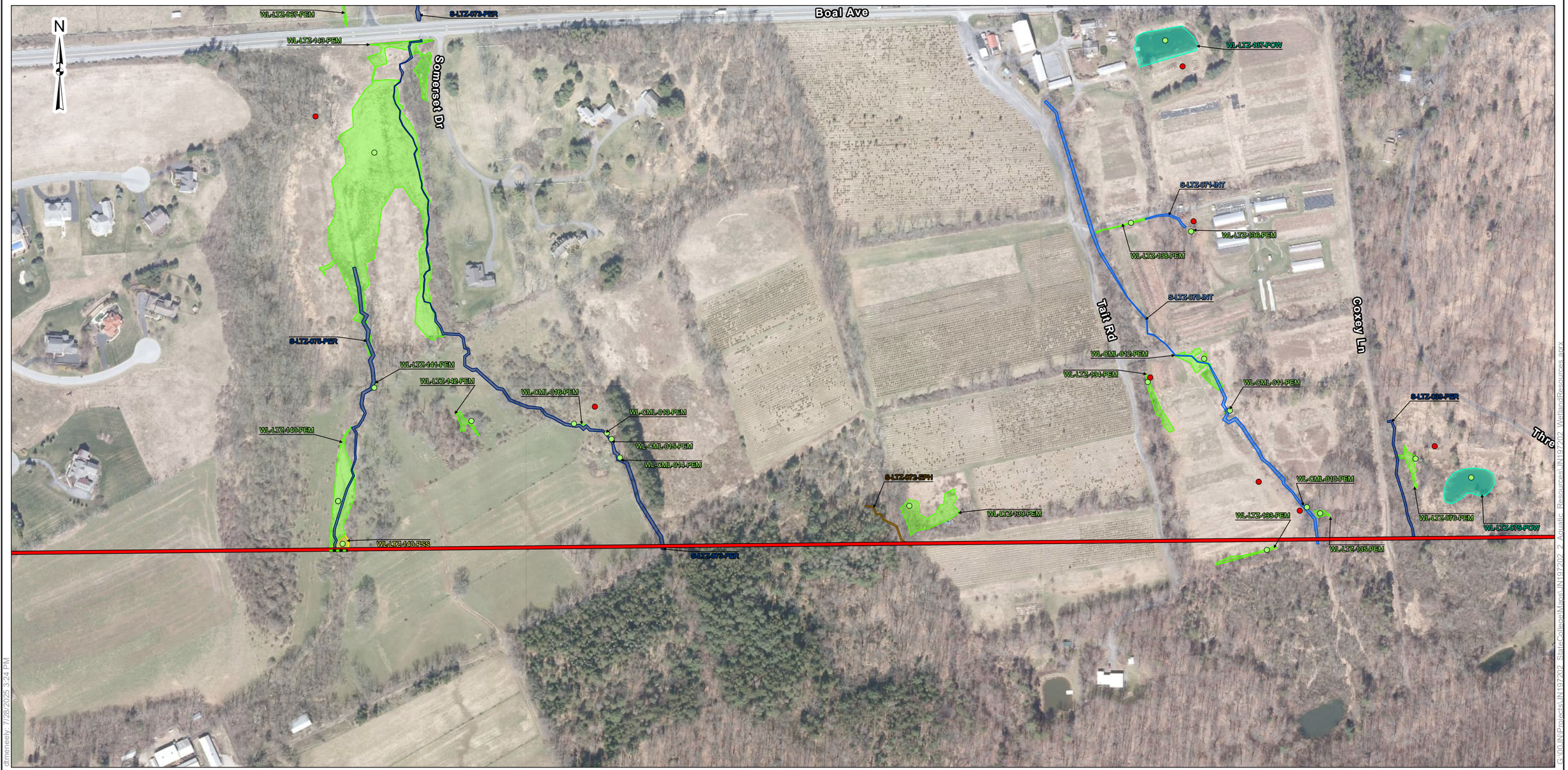
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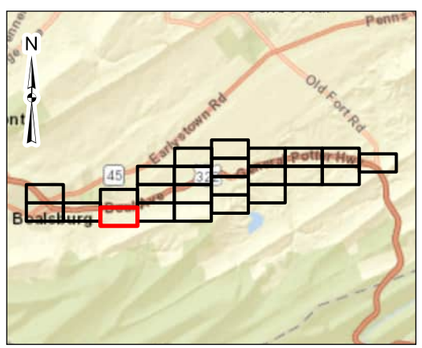
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

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Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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Wetland and Watercourse Location Map

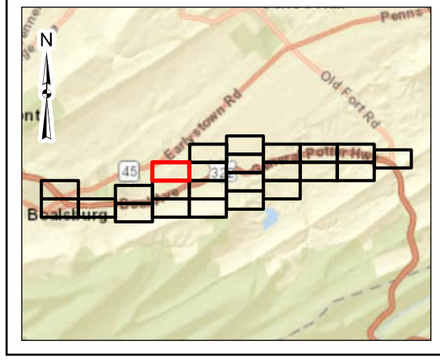
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

Sheet 5 of 24

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Skelly and Loy Inc. Delineation Teams, 2025

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Wetland and Watercourse Location Map

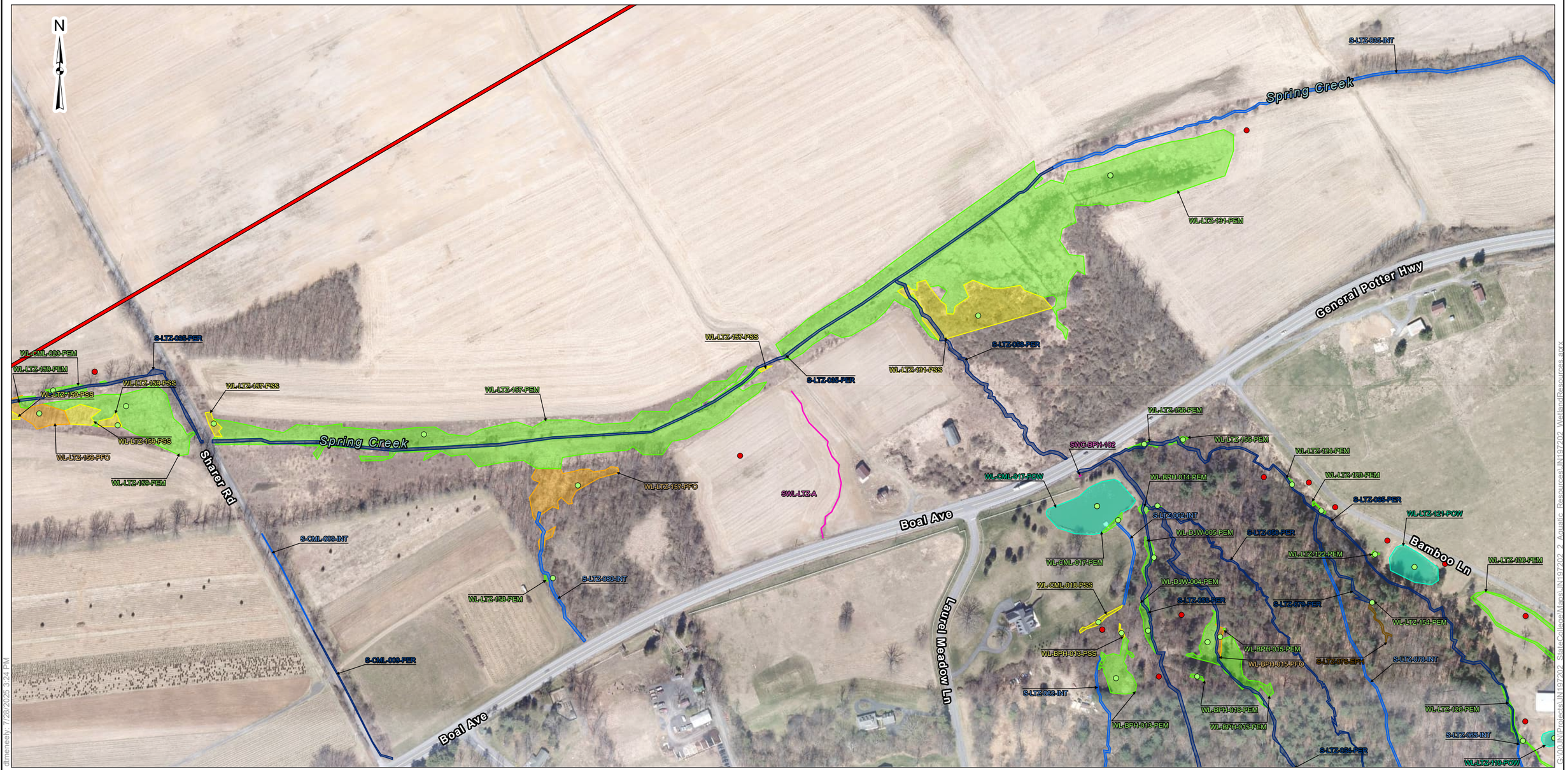
State College Area Connector Project
Centre County, Pennsylvania

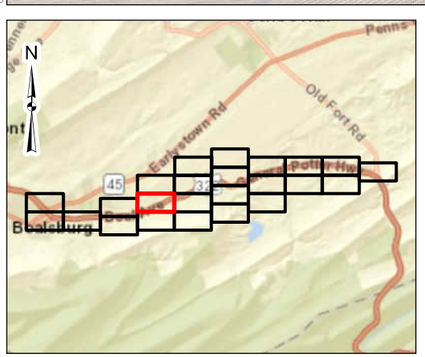
Appendix A

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Legend

- Project Area
- Upland Soil Pit
- Wetland Soil Pit
- Wetland OE
- Ephemeral (EPH)
- Intermittent (INT)
- Perennial (PER)
- Stormwater Conveyance (SWC)
- Assumed (A)
- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Palustrine Open-water (POW)
- Palustrine Scrub-shrub (PSS)
- Stormwater Wetland (SWWL)

DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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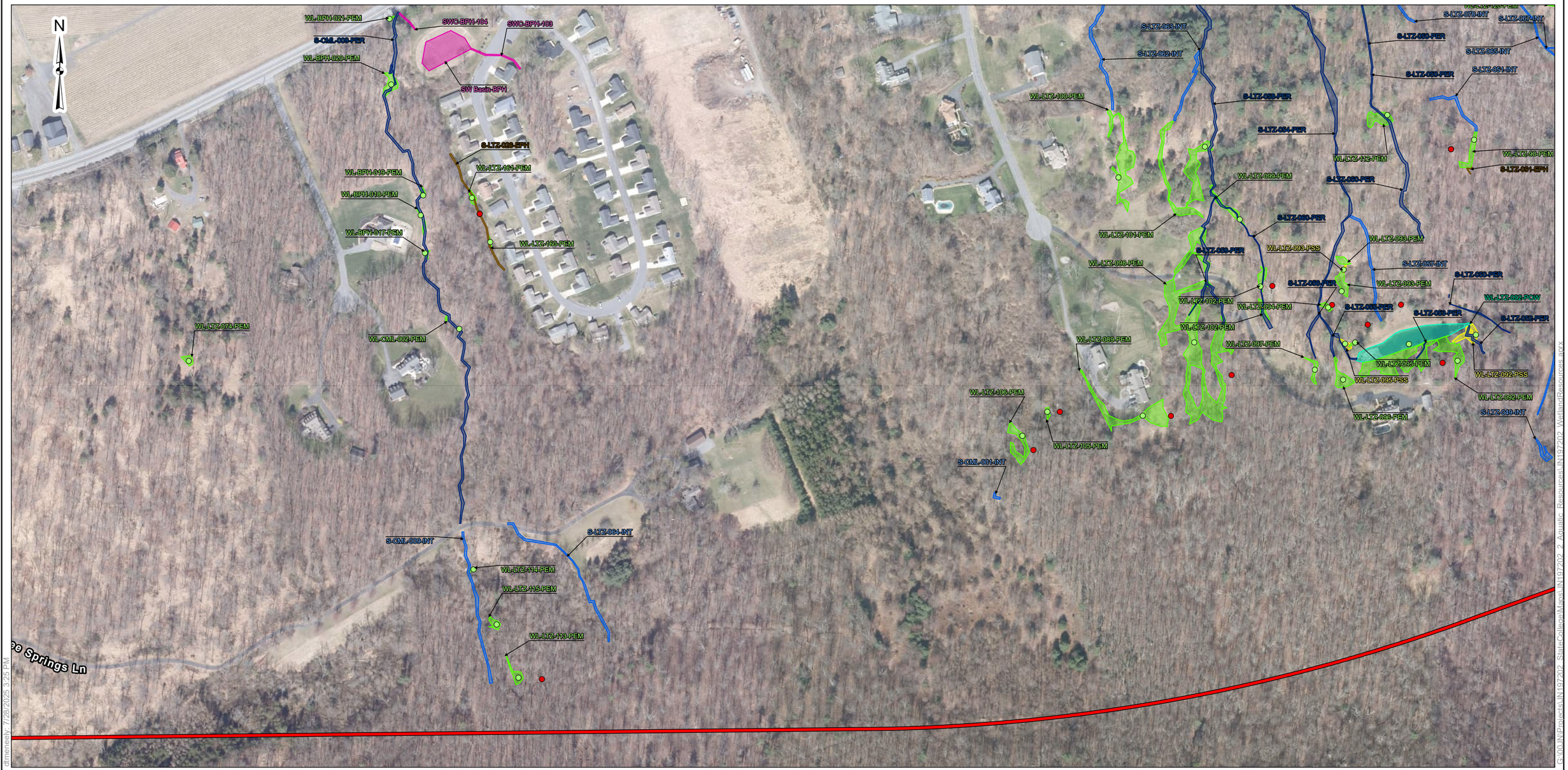
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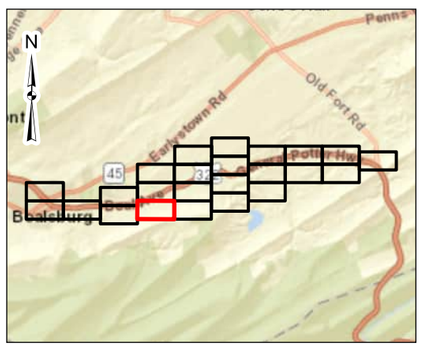
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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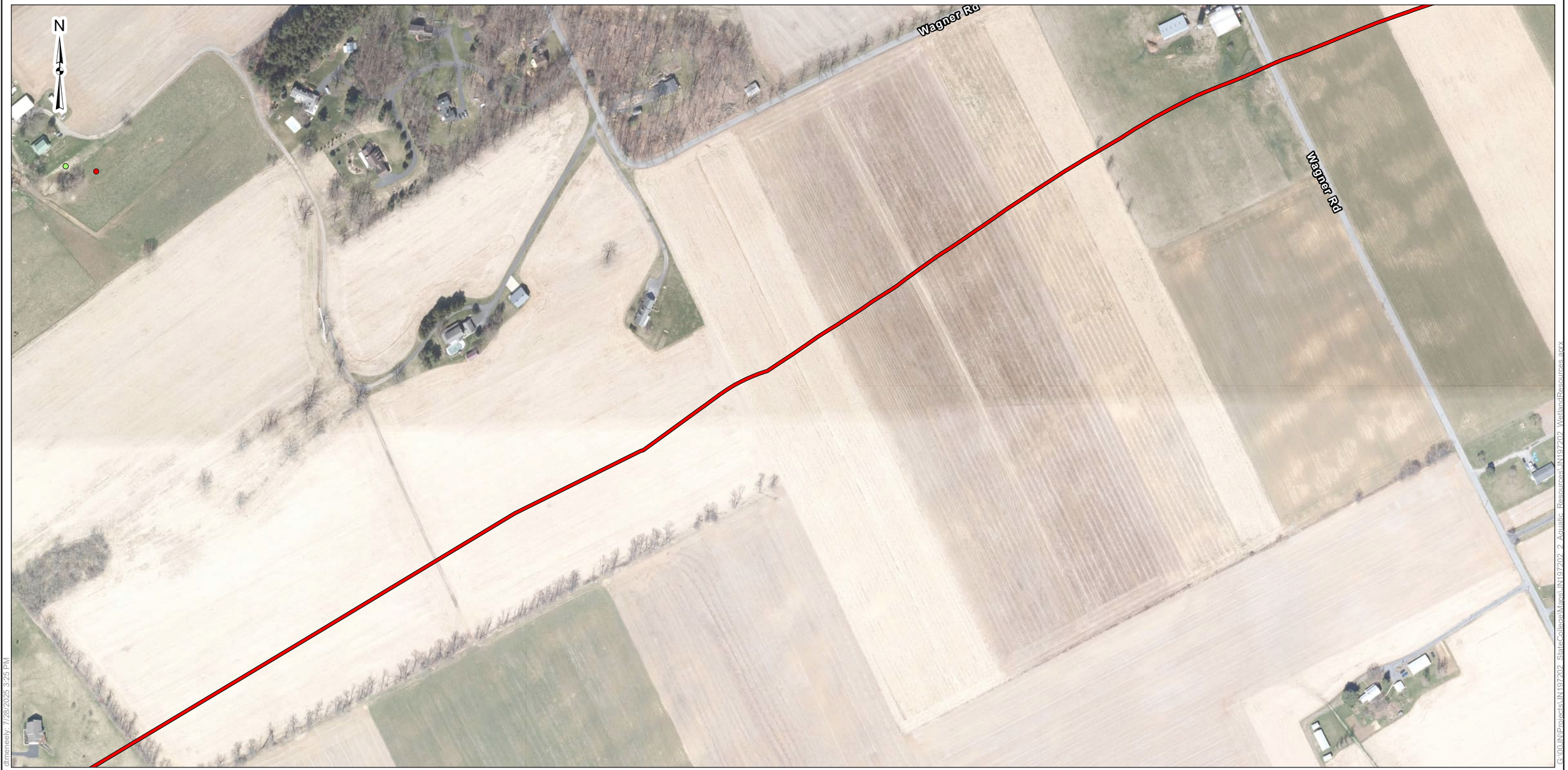
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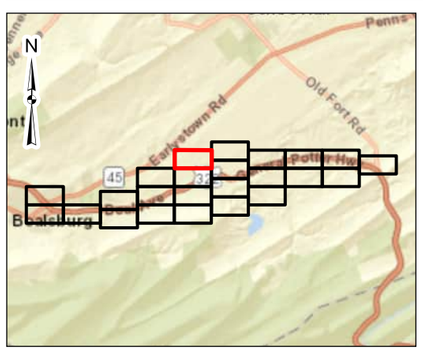
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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Wetland and Watercourse Location Map

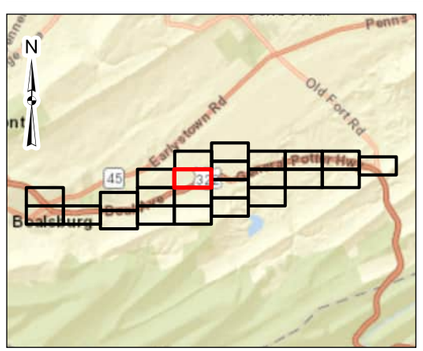
State College Area Connector Project
Centre County, Pennsylvania

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Legend

- Project Area
- Upland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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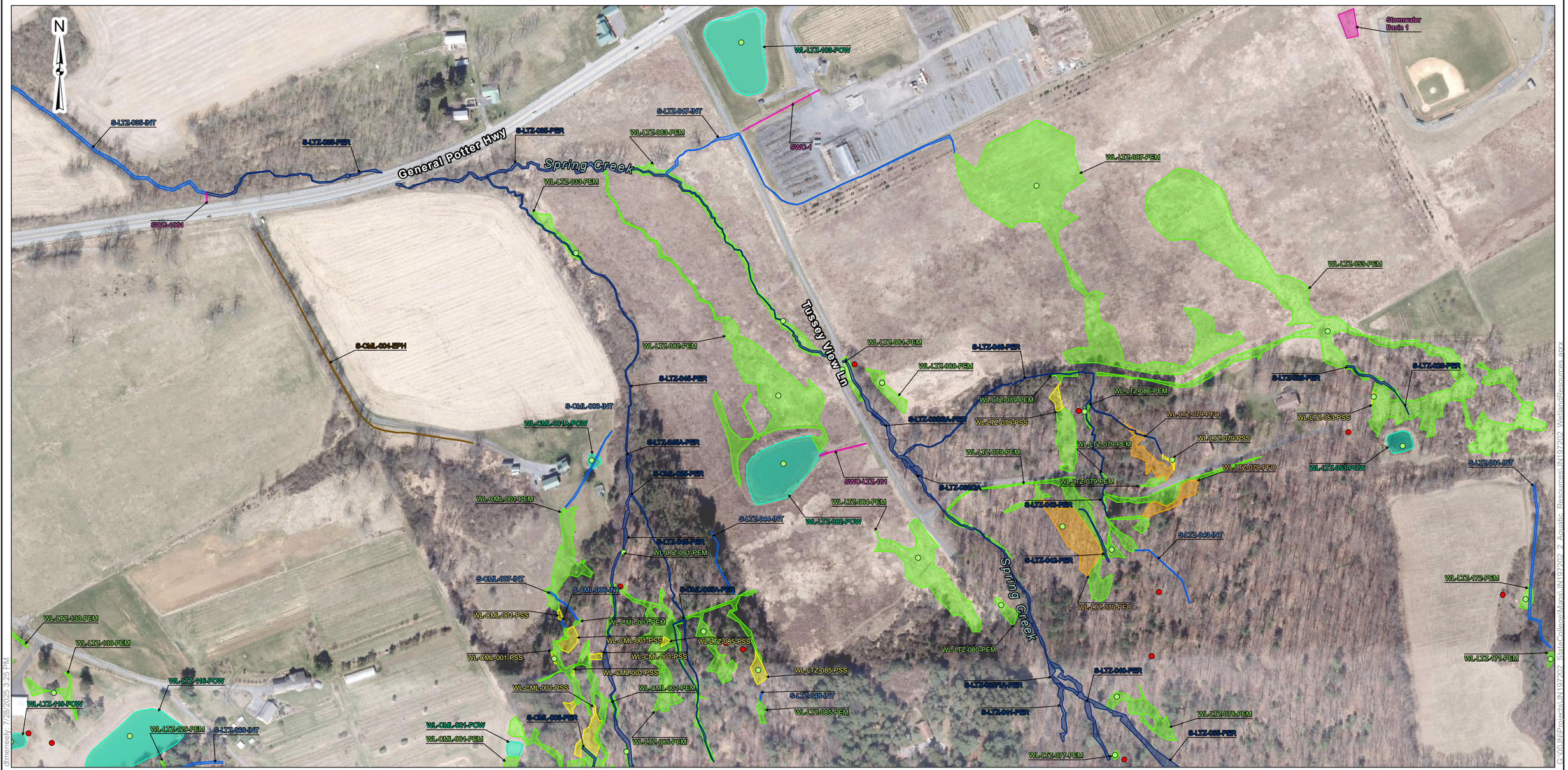
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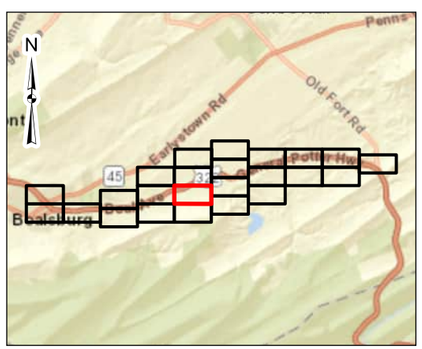
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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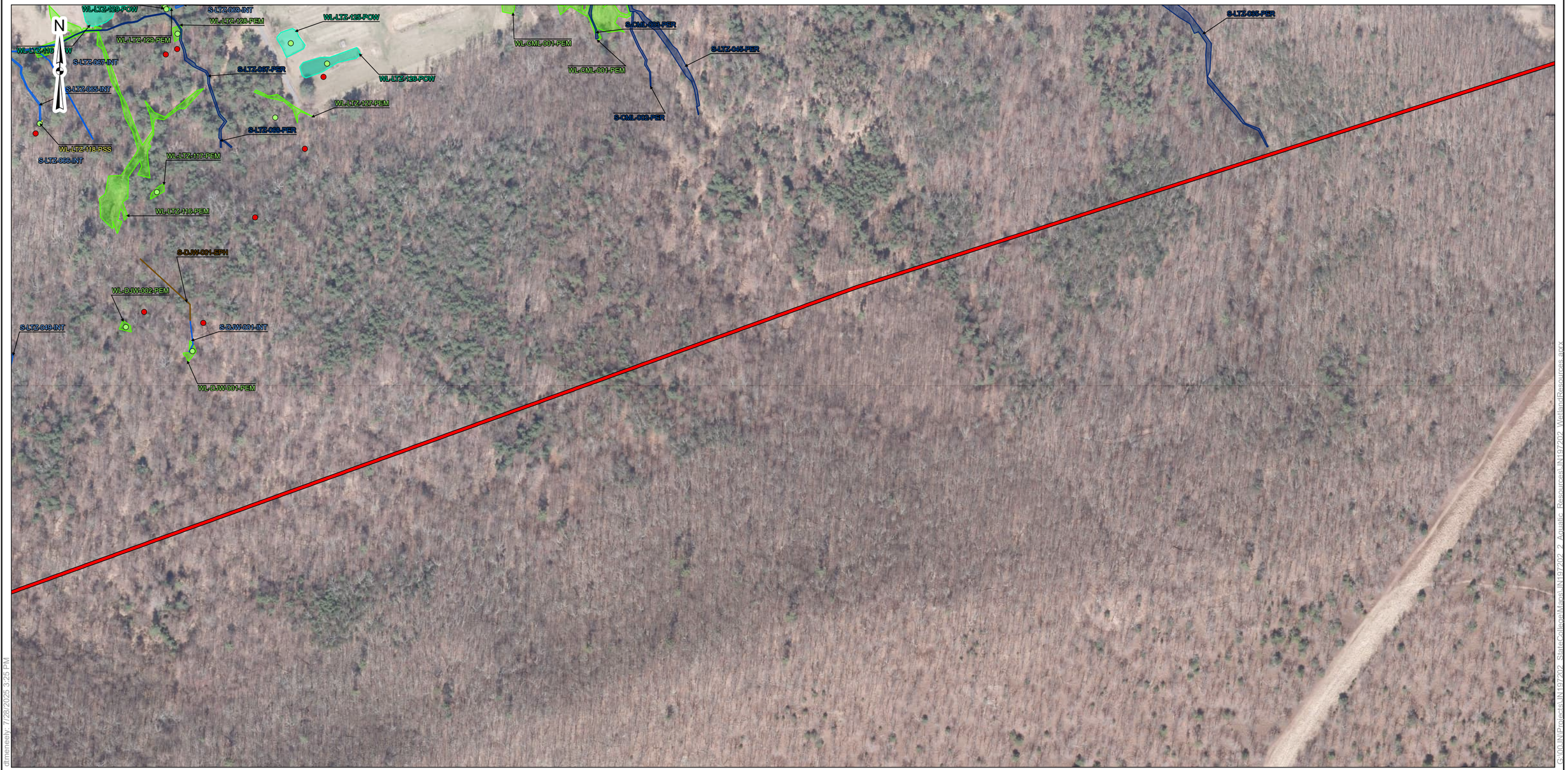
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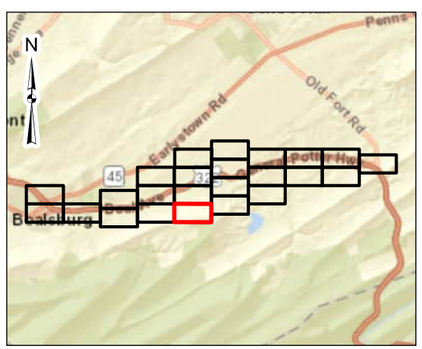
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
- Upland Soil Pit
- Wetland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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Wetland and Watercourse Location Map

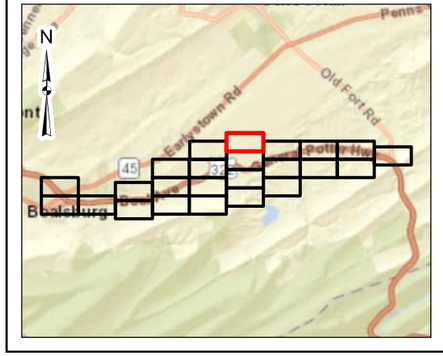
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
- Upland Soil Pit
- Wetland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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Wetland and Watercourse Location Map

State College Area Connector Project
Centre County, Pennsylvania

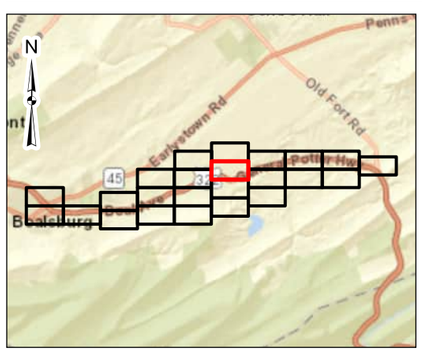
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Legend

- Project Area
- Upland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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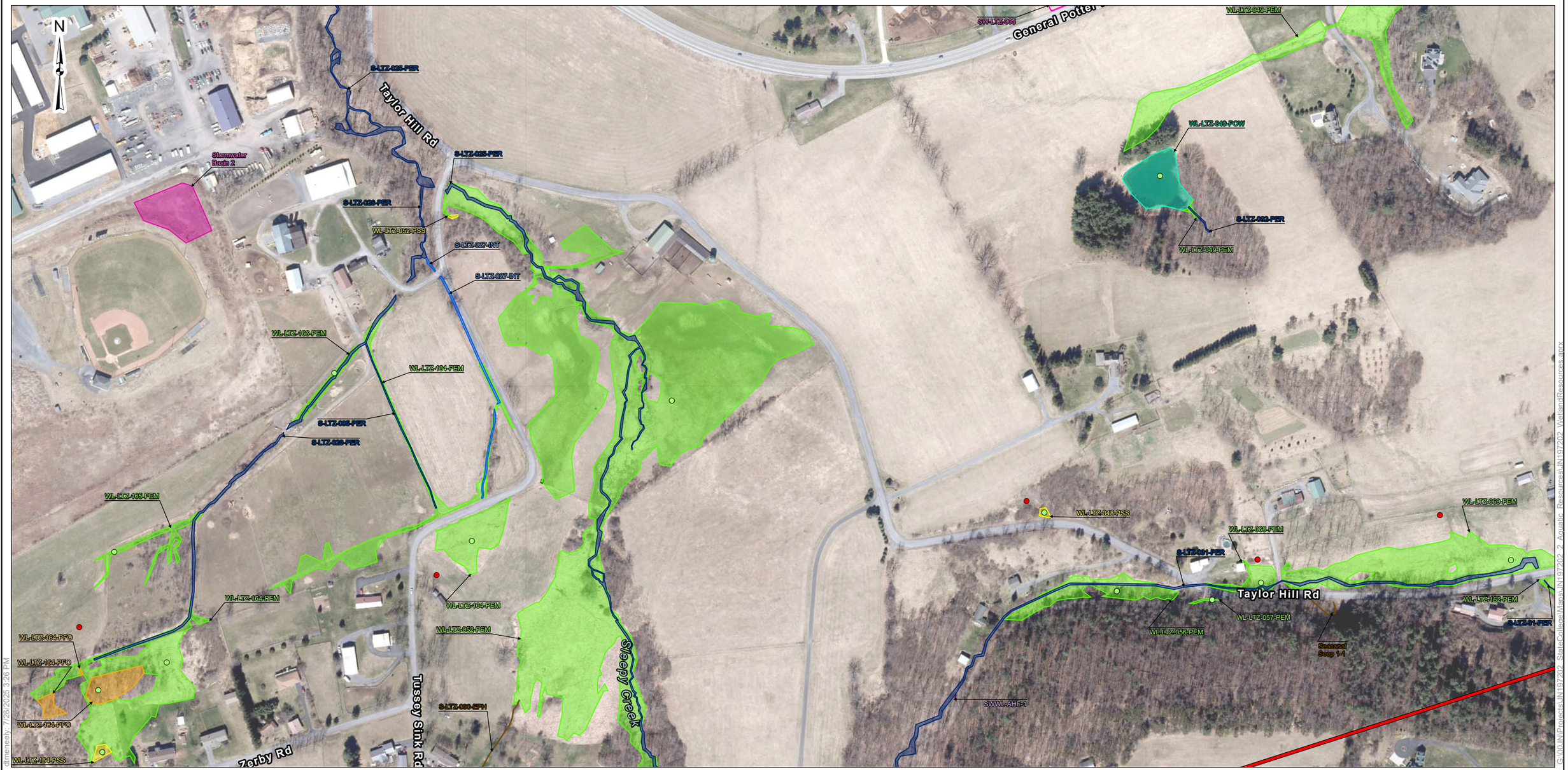
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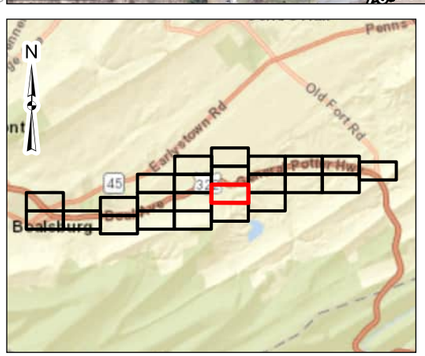
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
- Upland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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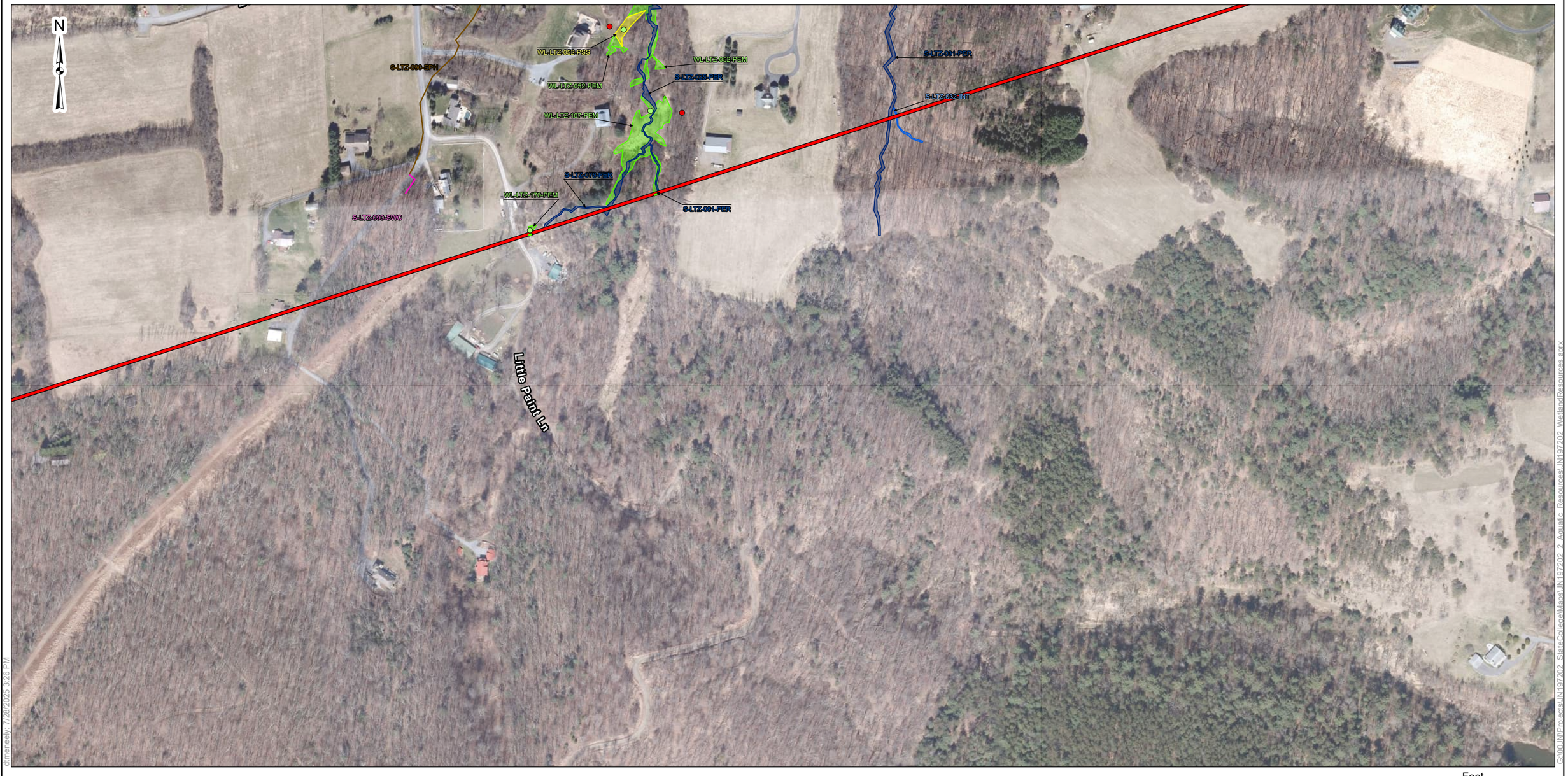
Wetland and Watercourse Location Map

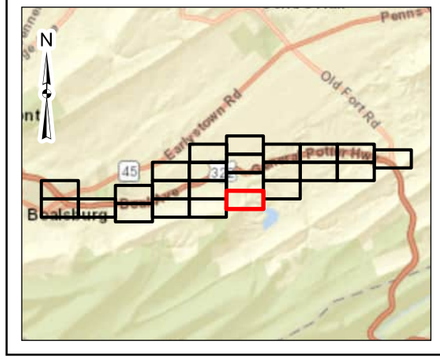
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
- Upland Soil Pit
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PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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Wetland and Watercourse Location Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A

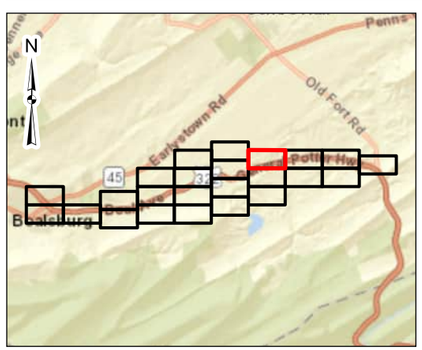
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Legend

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Wetland and Watercourse Location Map

State College Area Connector Project
Centre County, Pennsylvania

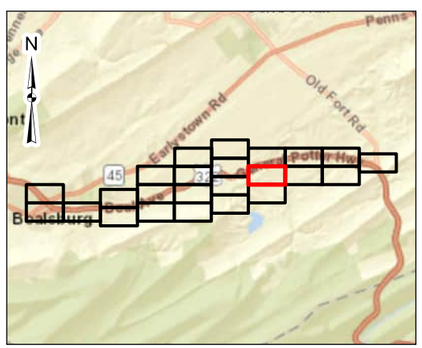
Appendix A

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Legend

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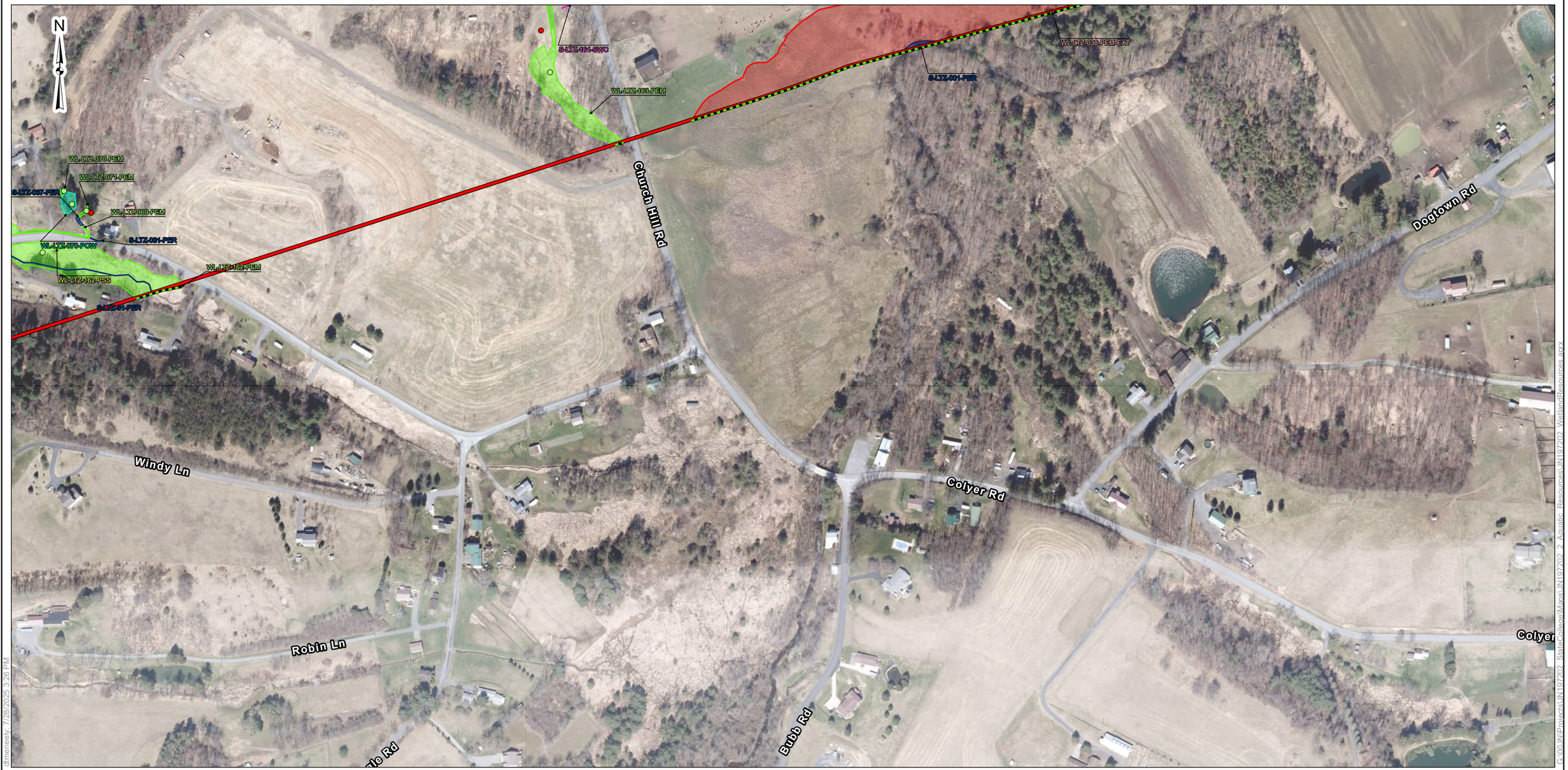
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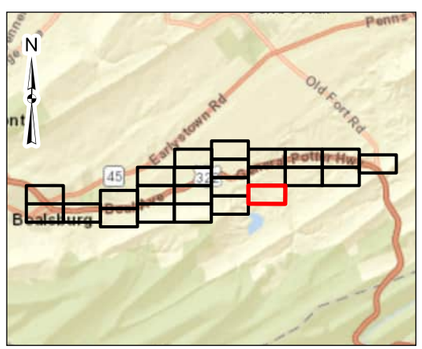
Wetland and Watercourse Location Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

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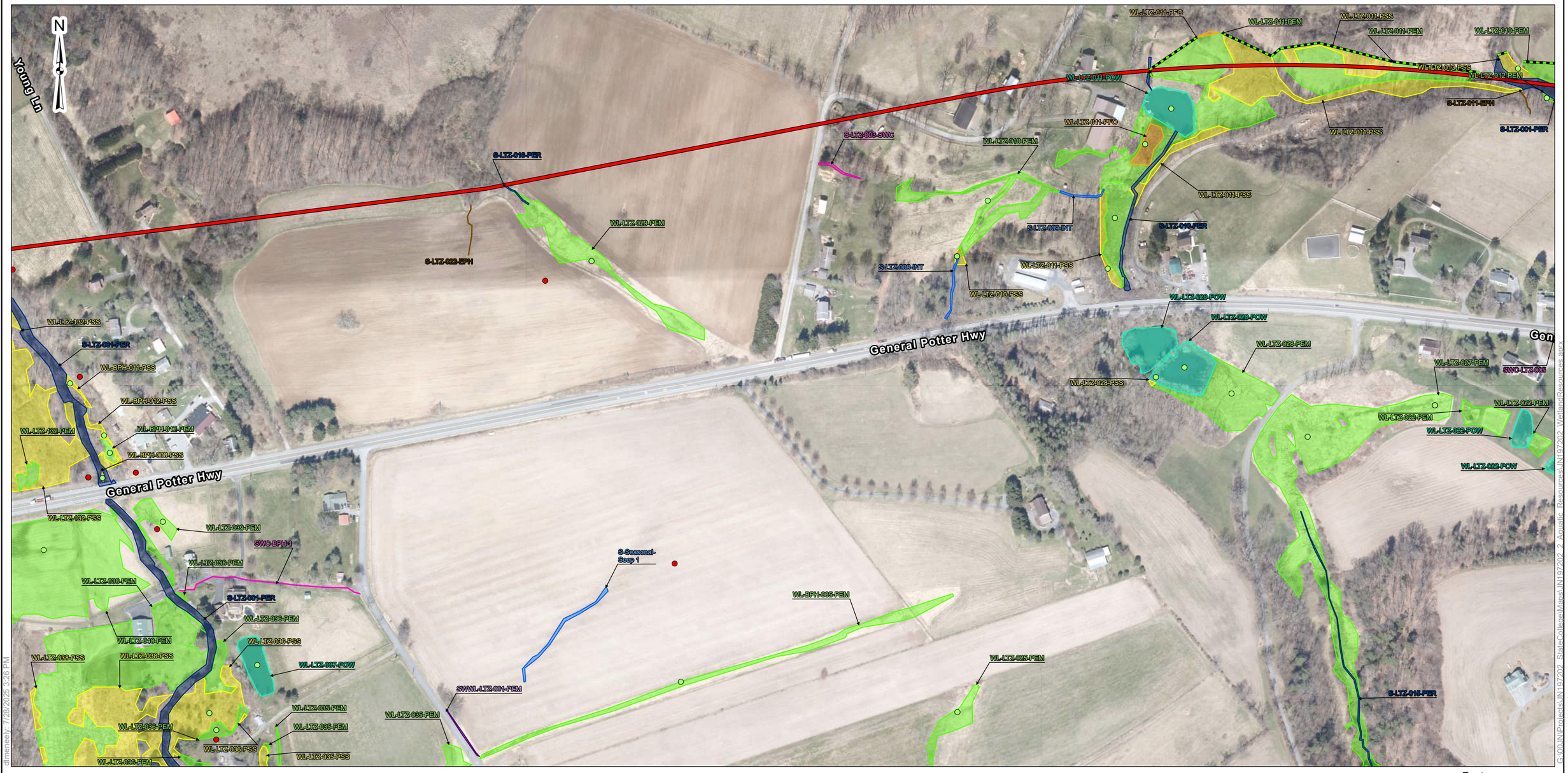
Wetland and Watercourse Location Map

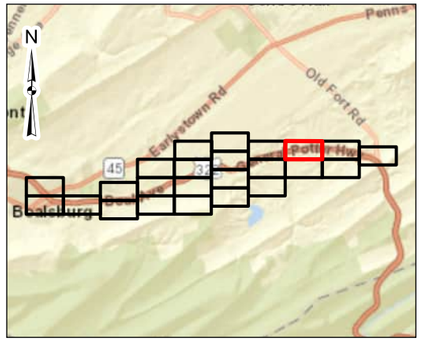
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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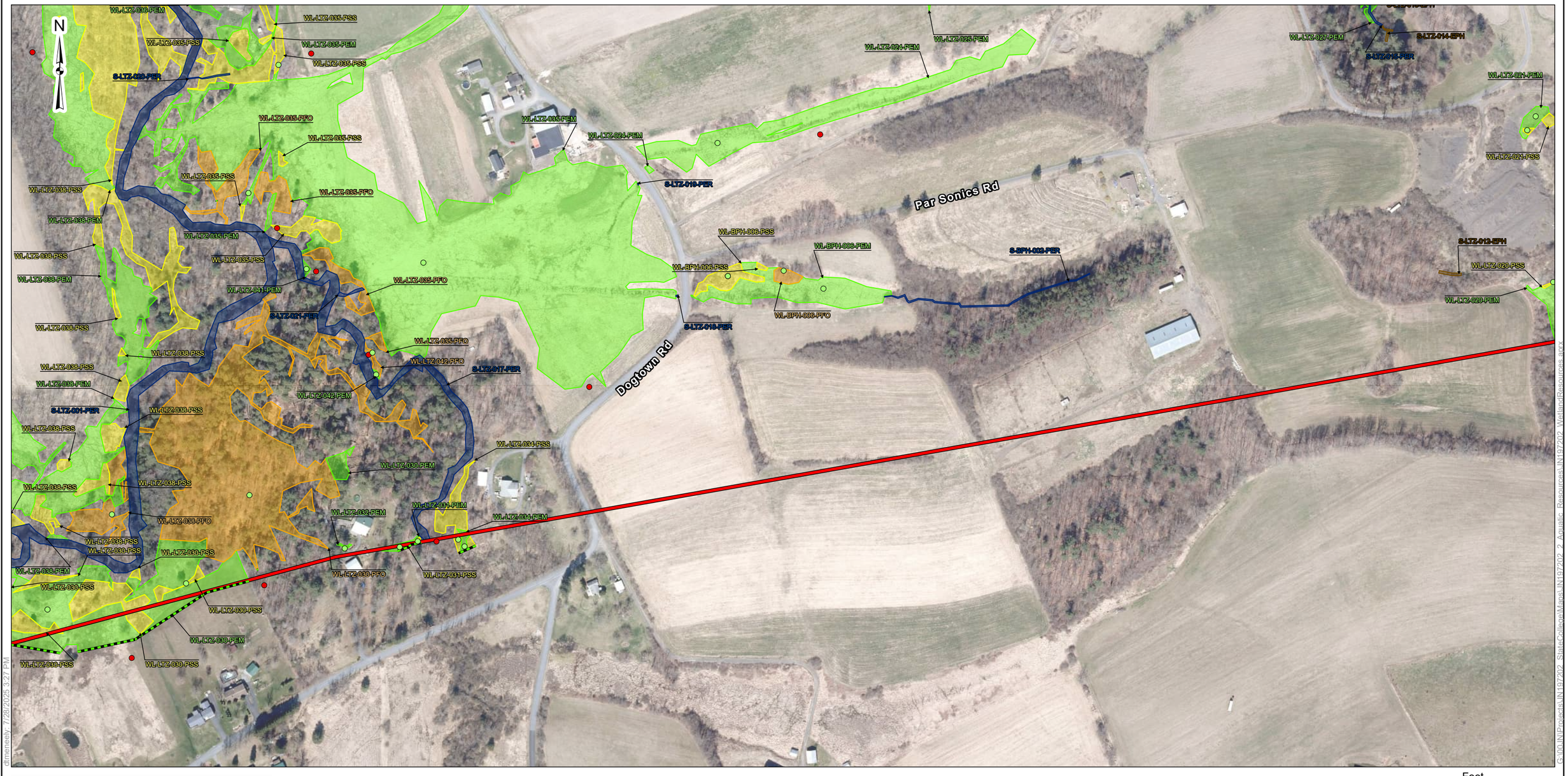
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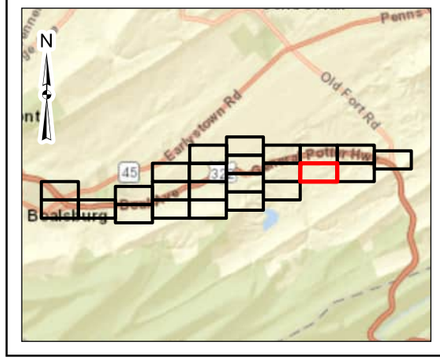
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
- Upland Soil Pit
- Wetland Soil Pit
- Wetland OE
- Ephemeral (EPH)
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- Palustrine Scrub-shrub (PSS)
- Stormwater Wetland (SWWL)

DATA SOURCE(S):
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Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
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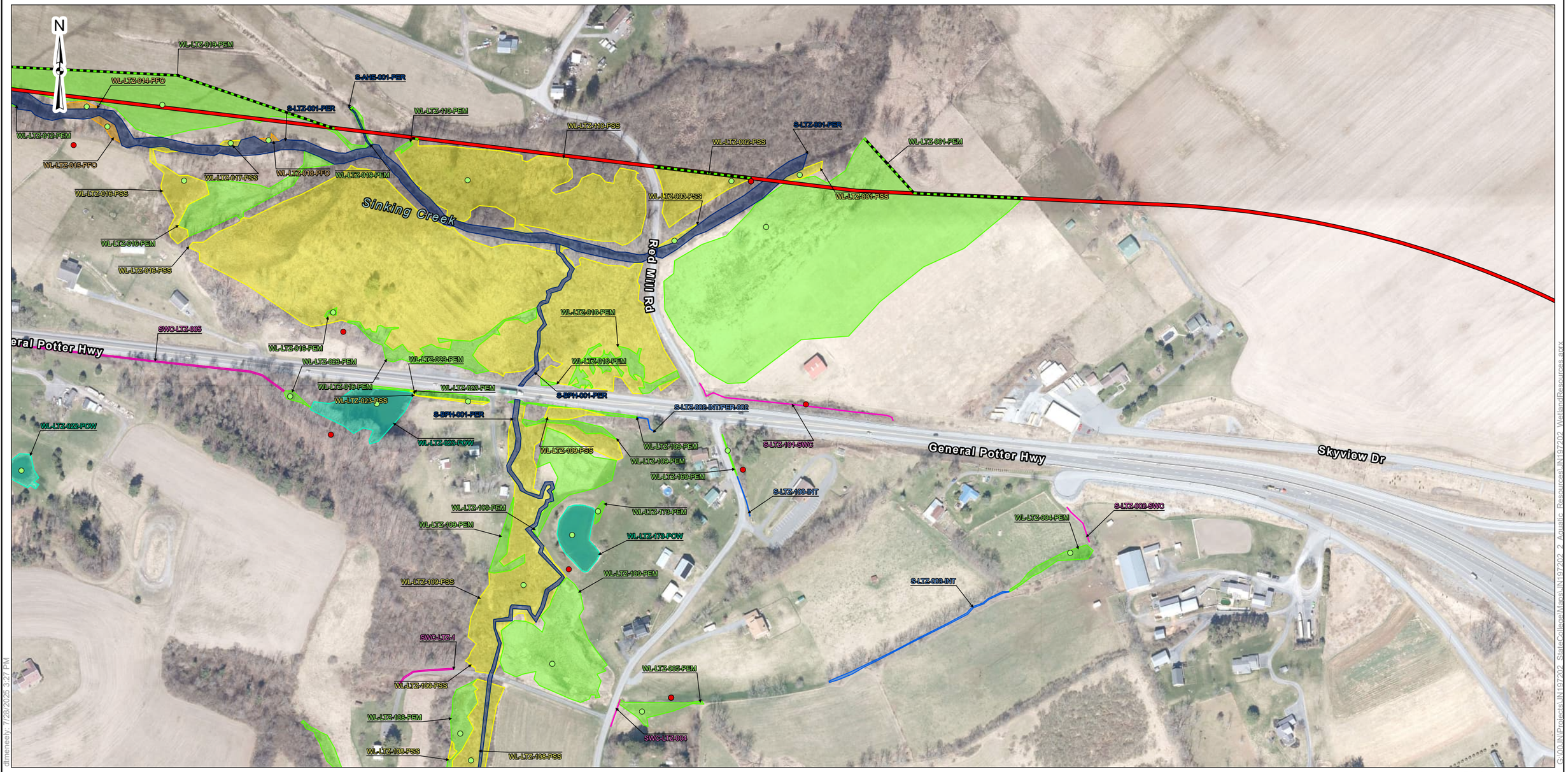
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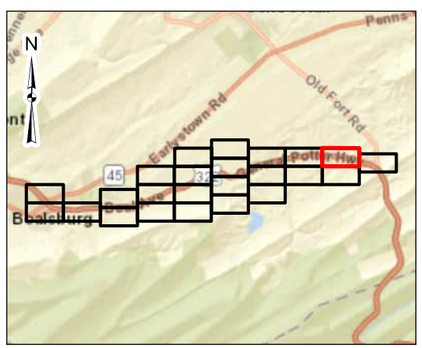
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

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Legend

- Project Area
- Upland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
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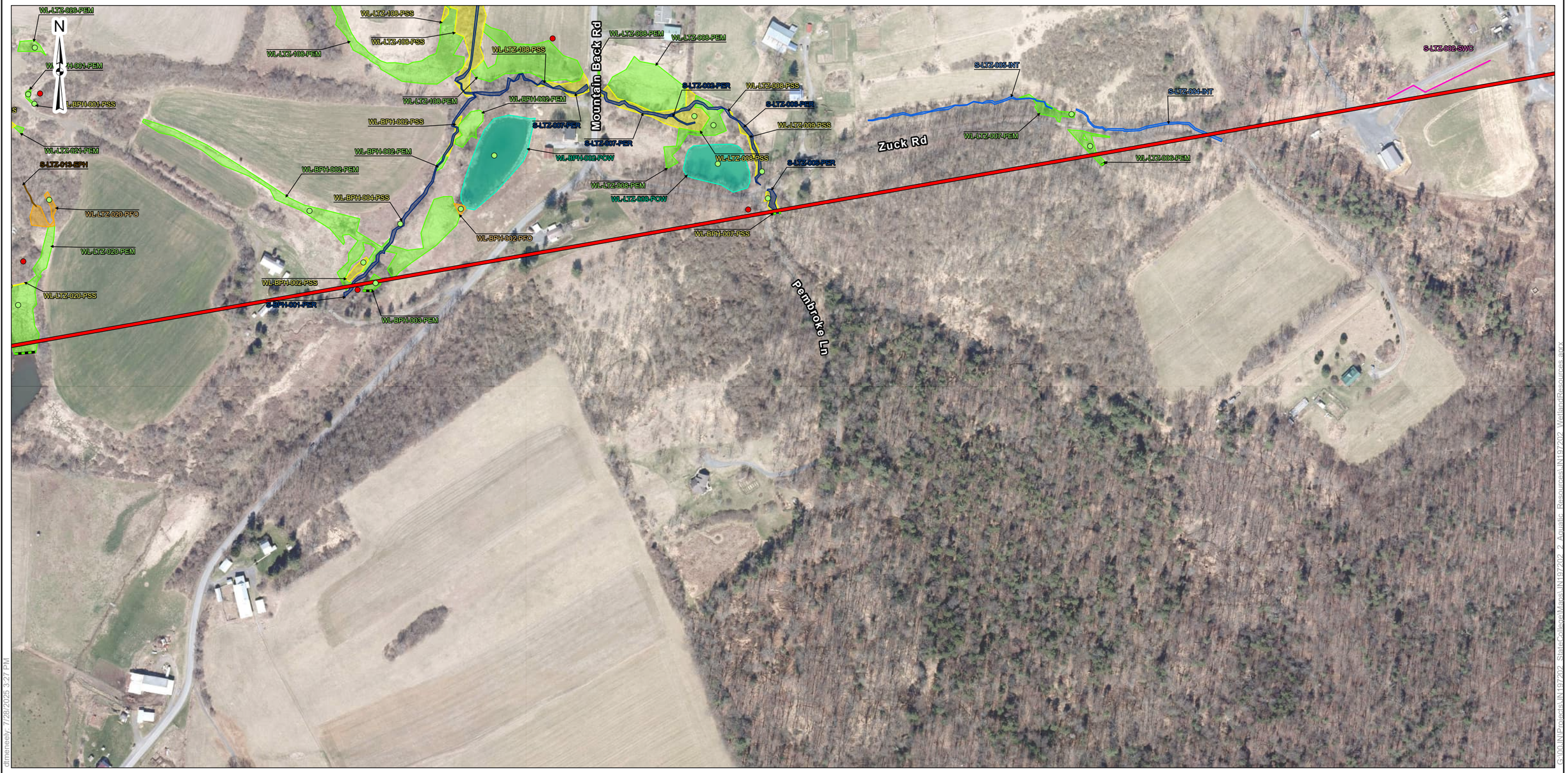
Wetland and Watercourse Location Map

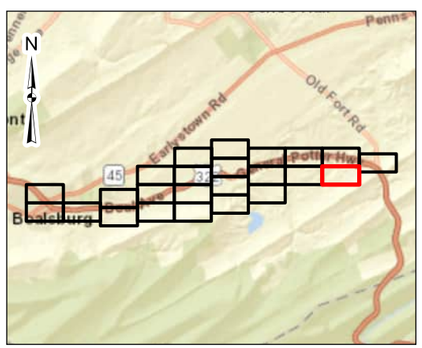
State College Area Connector Project
Centre County, Pennsylvania

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- Project Area
- Upland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
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Wetland and Watercourse Location Map

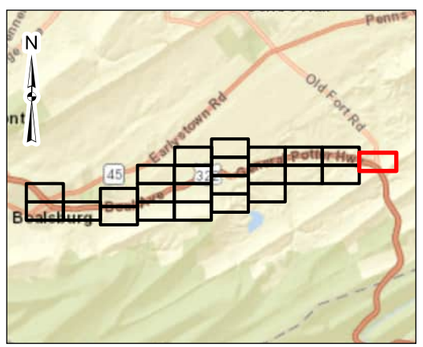
State College Area Connector Project
Centre County, Pennsylvania

Appendix A

Sheet 23 of 24

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Legend

- Project Area
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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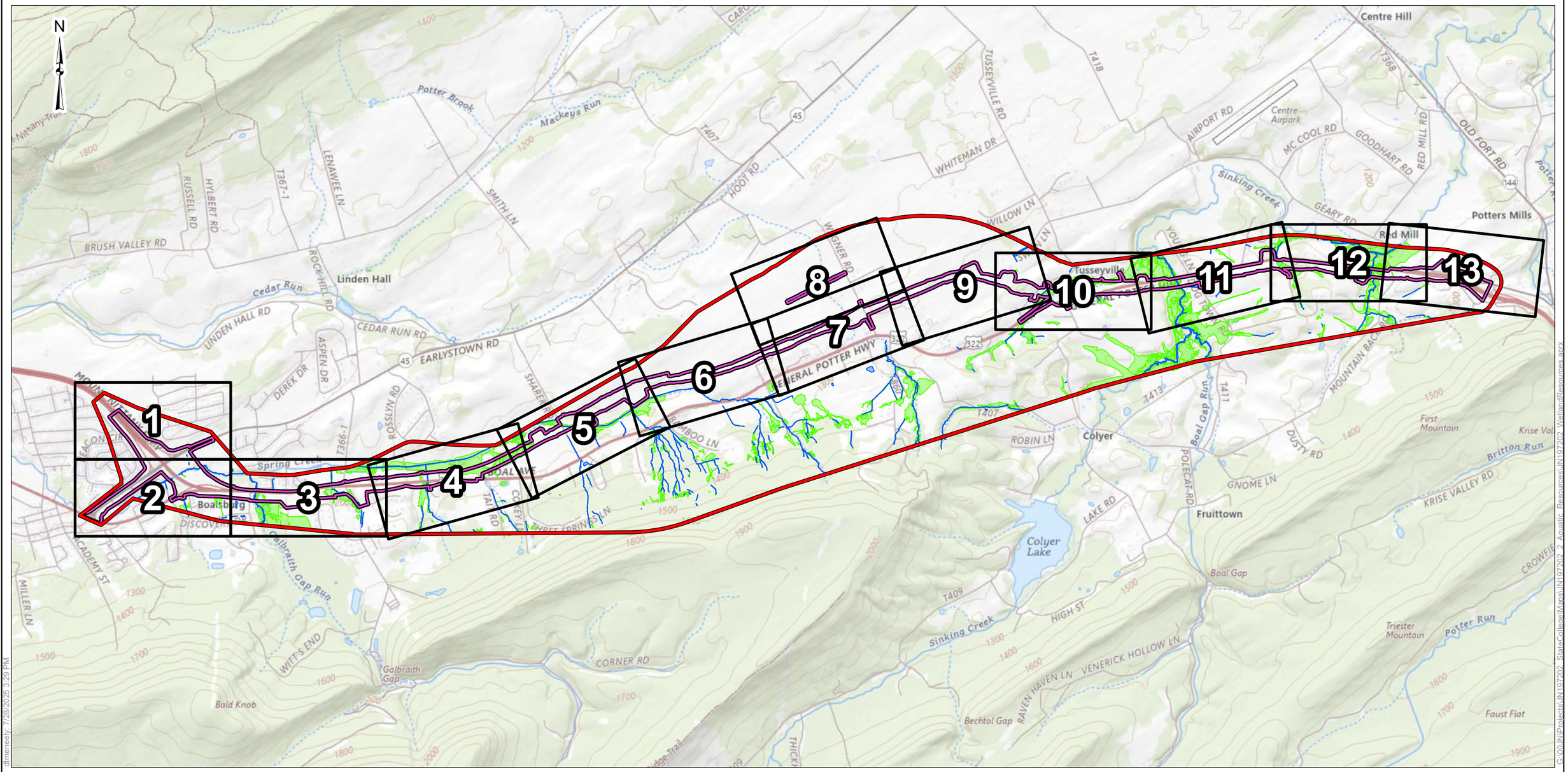
Wetland and Watercourse Location Map

State College Area Connector Project
Centre County, Pennsylvania

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Legend

- Sheet
- North Alternative
- Project Area
- Watercourse
- Wetland

DATA SOURCE(S):
USGS Quadrangle - Centre Hall and State College, Pennsylvania 2023
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 1,500 3,000 6,000

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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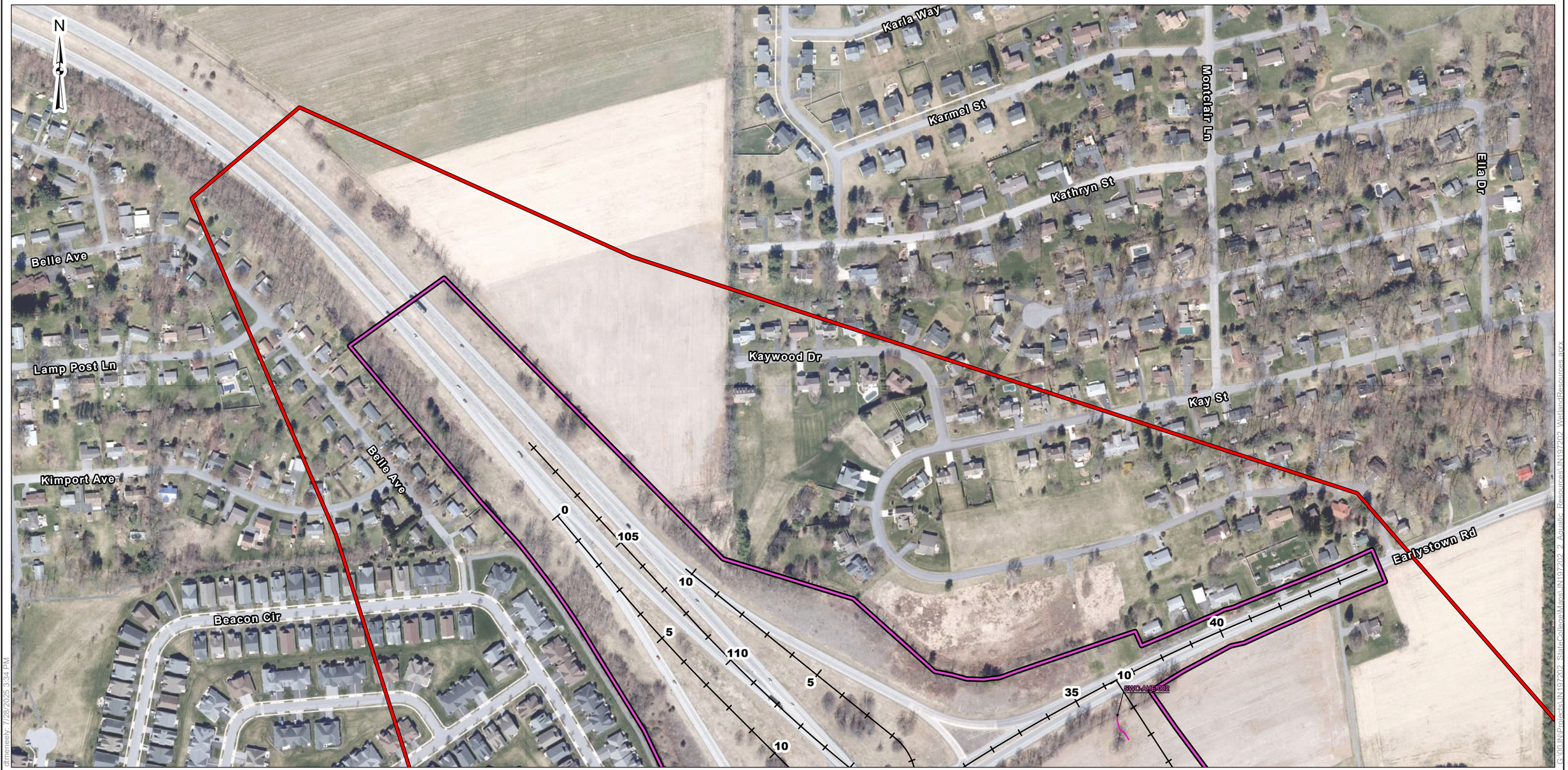
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Wetland and Watercourse Impact Map

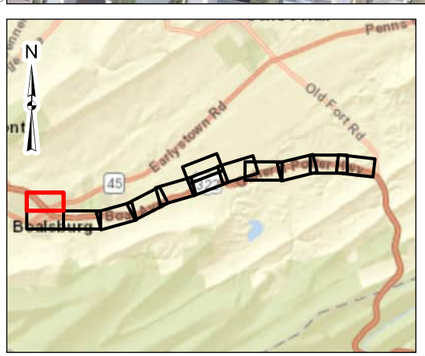
State College Area Connector Project
Centre County, Pennsylvania

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Legend

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- Project Area
- Roadway Design
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- Palustrine Forested (PFO)
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- Palustrine Scrub-shrub (PSS)
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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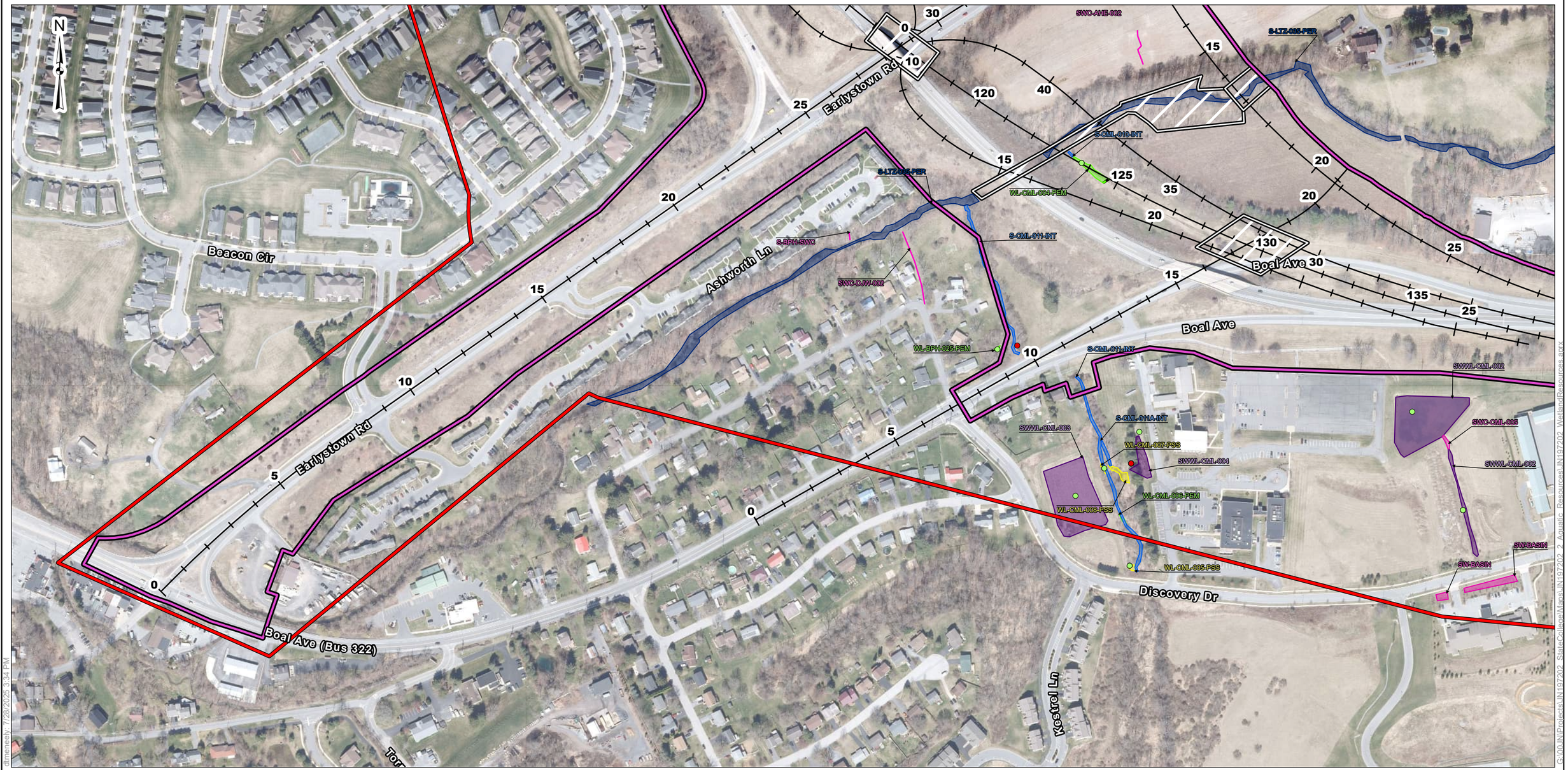
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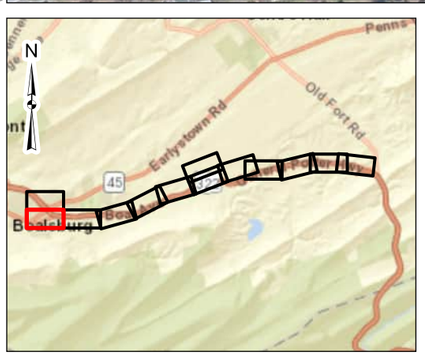
State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

Sheet 1 of 13

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Legend

- North Alternative
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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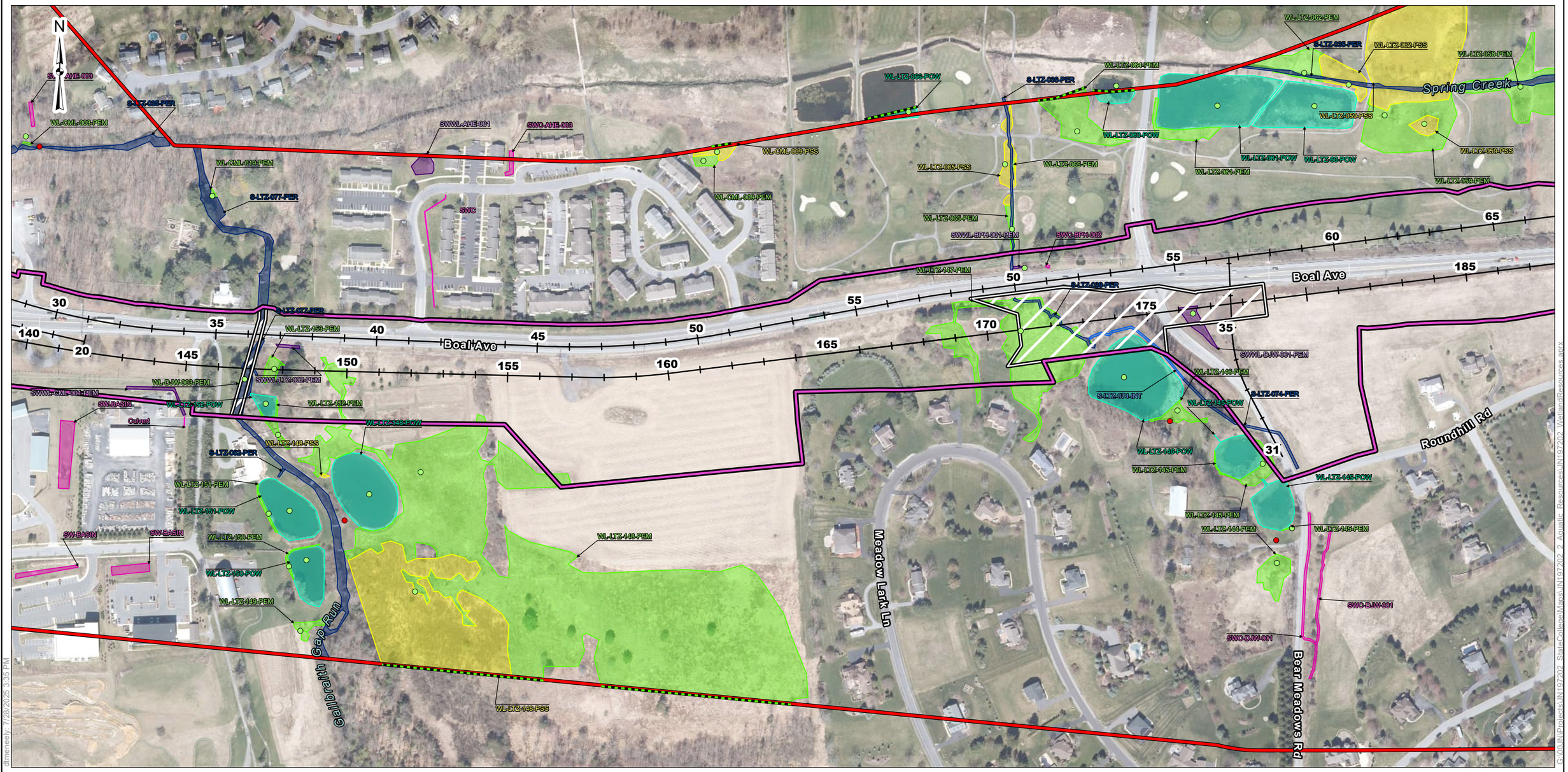
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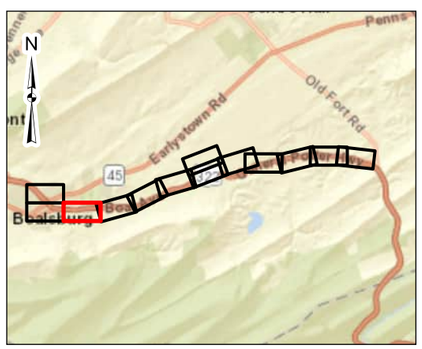
State College Area Connector Project
Centre County, Pennsylvania

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Legend

- North Alternative
- Bridge Span Minimization Area
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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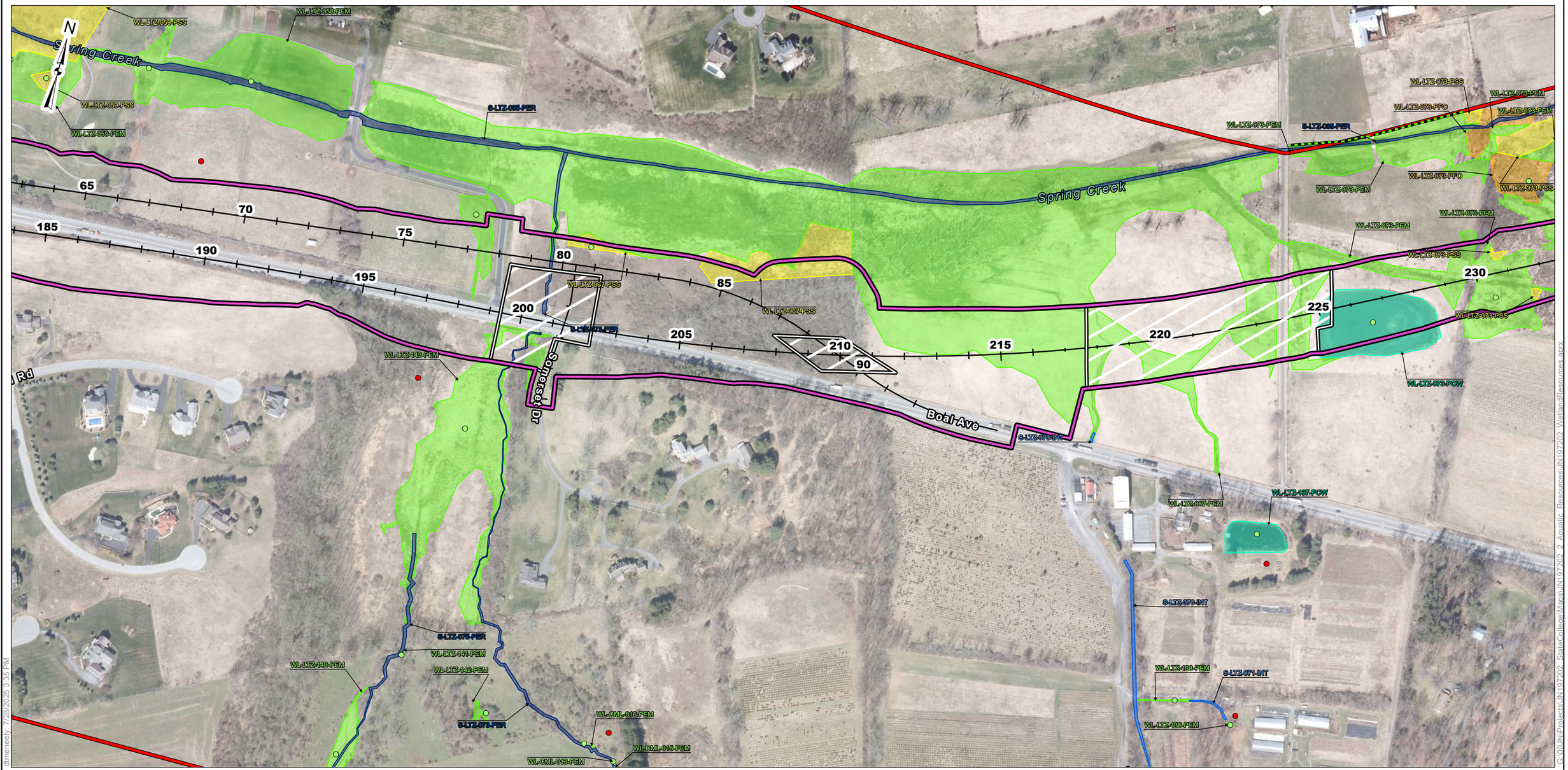
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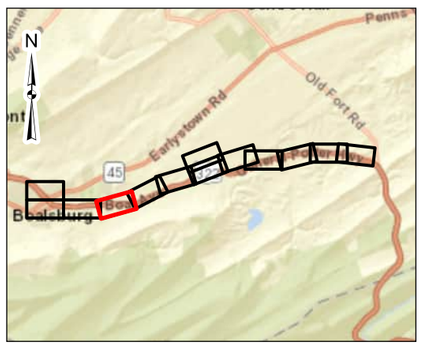
State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

Sheet 3 of 13

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Legend

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Feet
0 150 300 600

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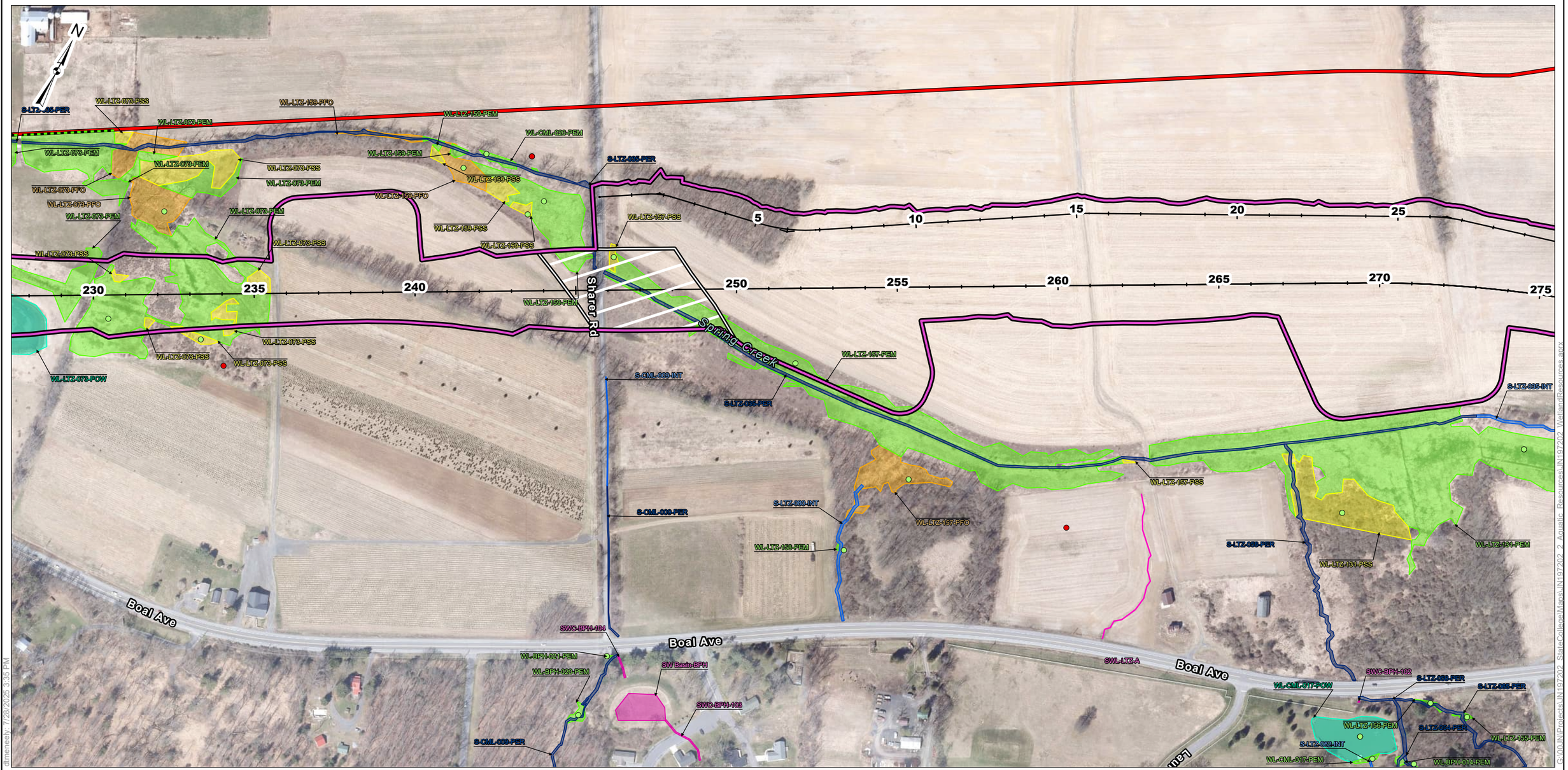
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Wetland and Watercourse Impact Map

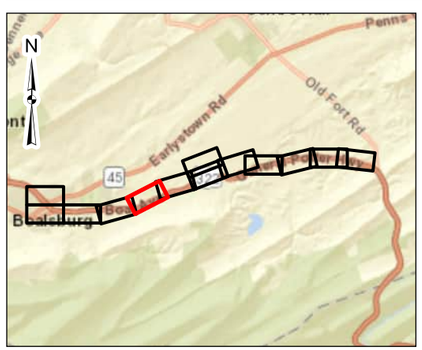
State College Area Connector Project
Centre County, Pennsylvania

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Sheet 4 of 13

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Legend

- North Alternative
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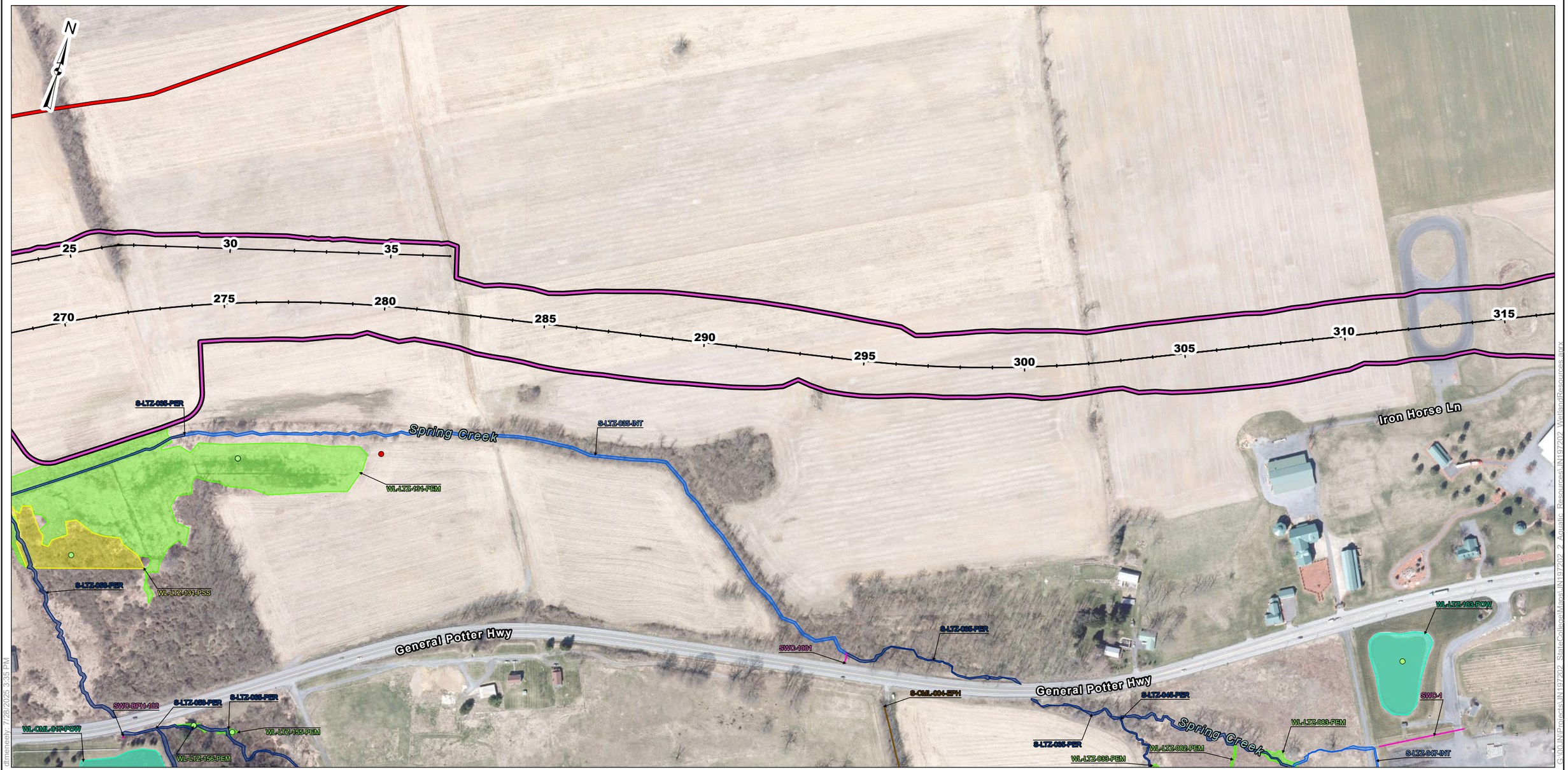
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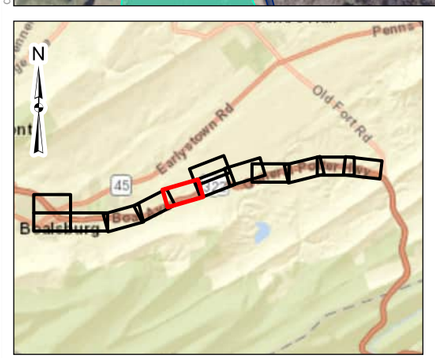
State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

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Legend

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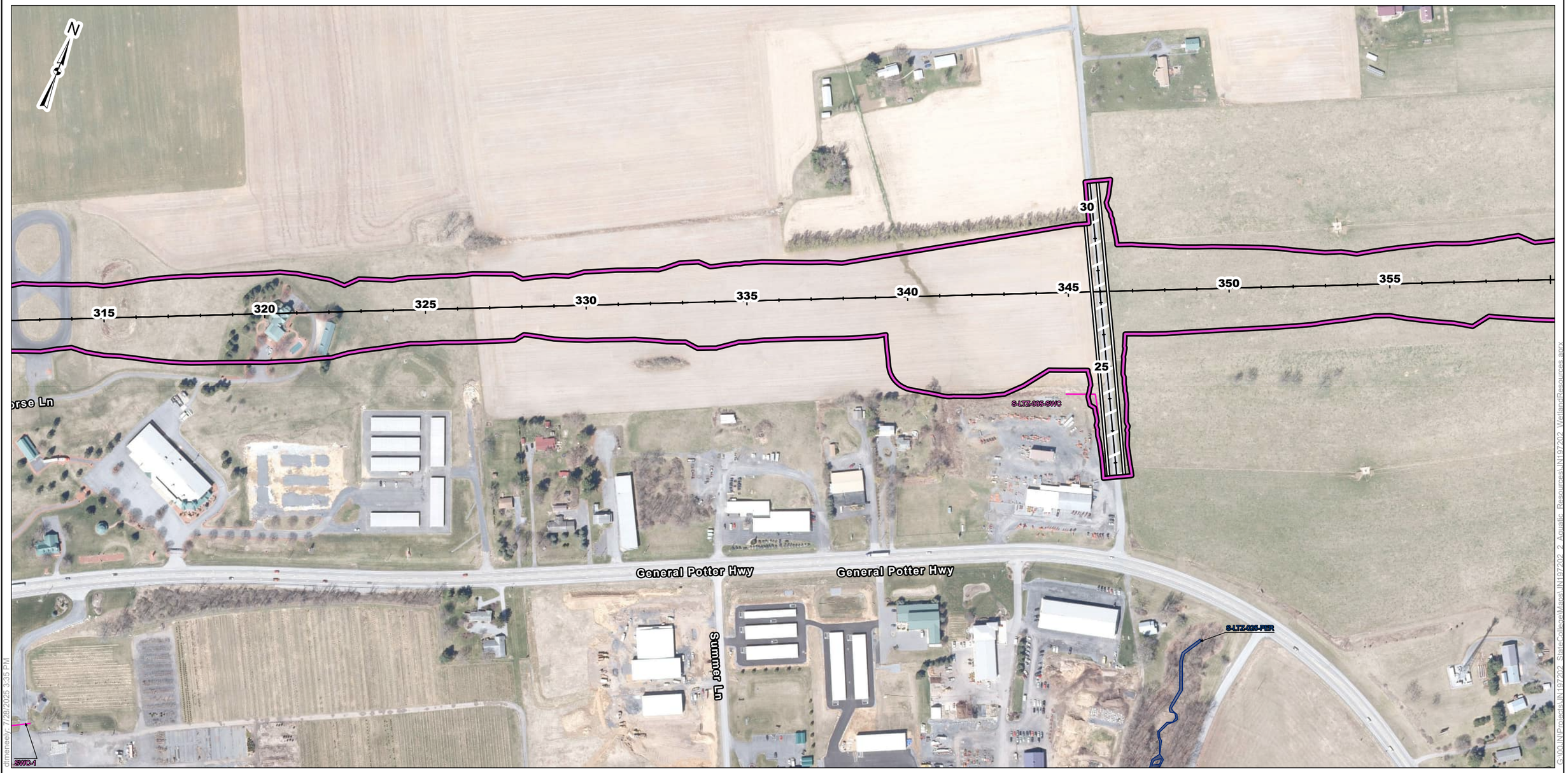
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Wetland and Watercourse Impact Map

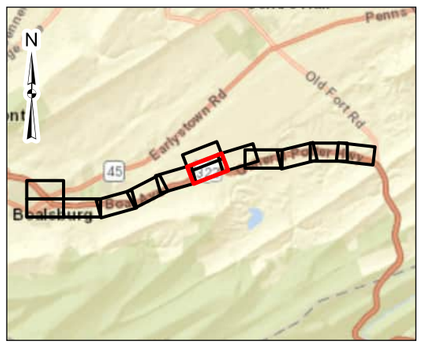
State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

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PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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North Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

Sheet 7 of 13

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Feet
0 150 300 600

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North Alternative
Wetland and Watercourse Impact Map

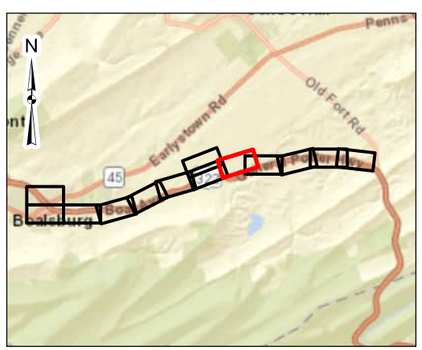
State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

Sheet 8 of 13

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Legend

- North Alternative
- Bridge Span Minimization Area
- Project Area
- Roadway Design
- Upland Soil Pit
- Wetland Soil Pit
- Wetland OE
- Ephemeral (EPH)
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- Perennial (PER)
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- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Palustrine Open-water (POW)
- Palustrine Scrub-shrub (PSS)
- Stormwater Wetland (SWWL)

DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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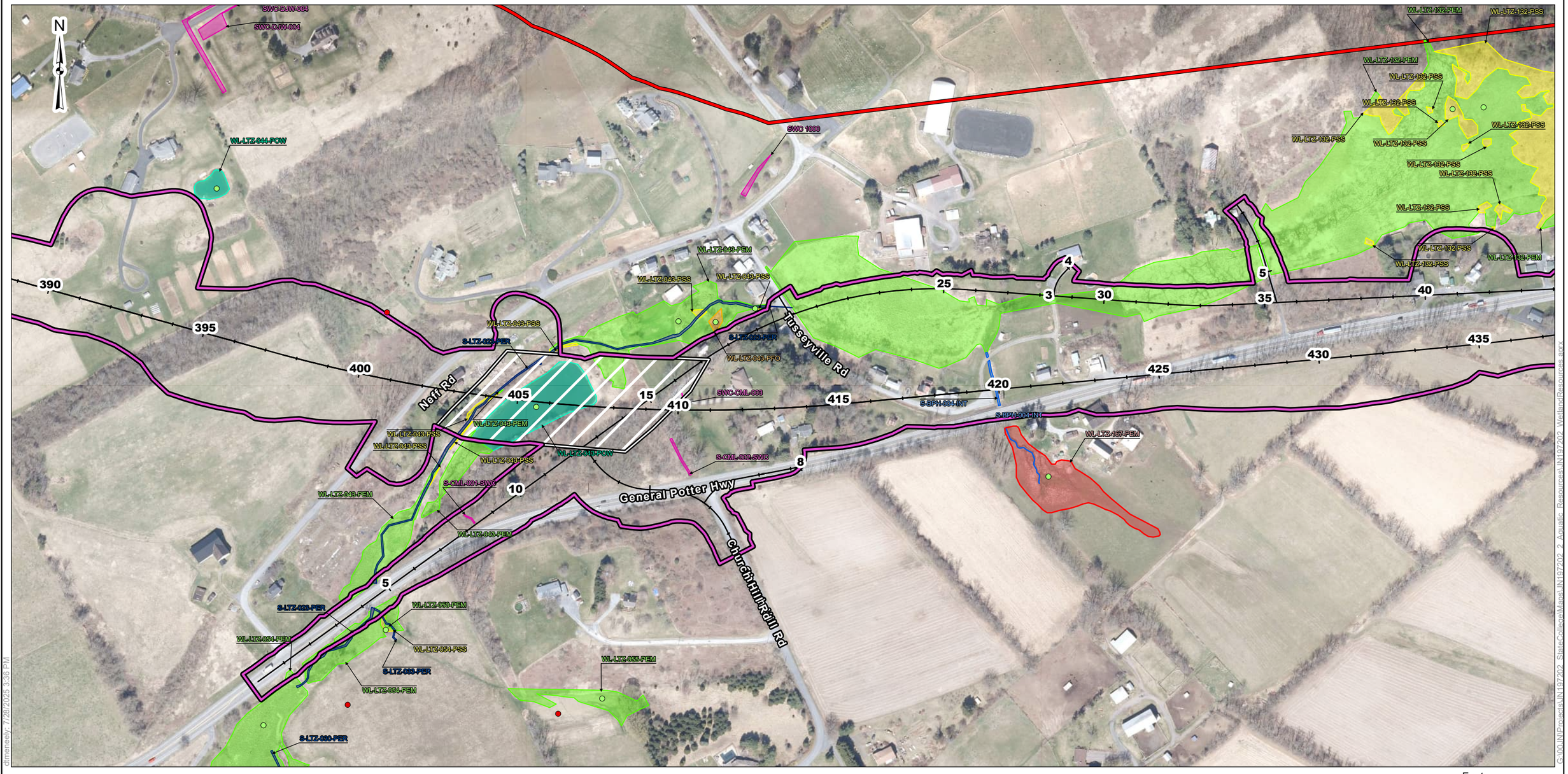
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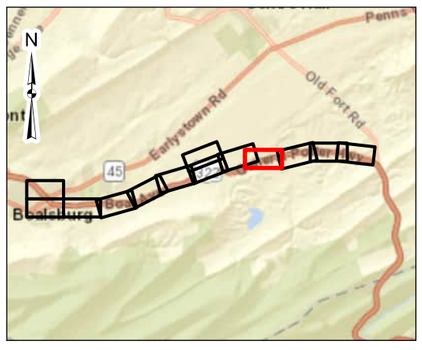
State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

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Legend

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Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
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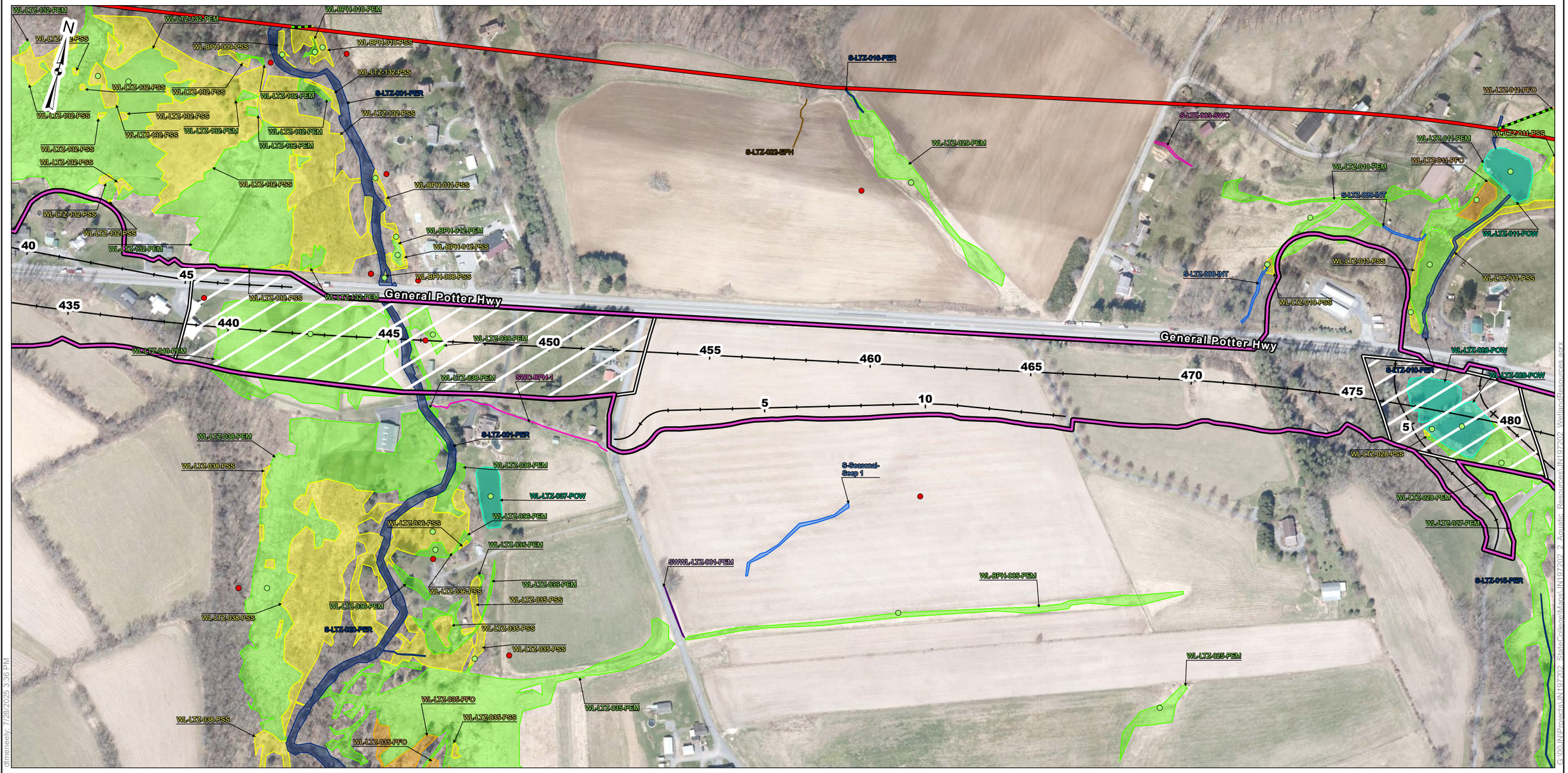
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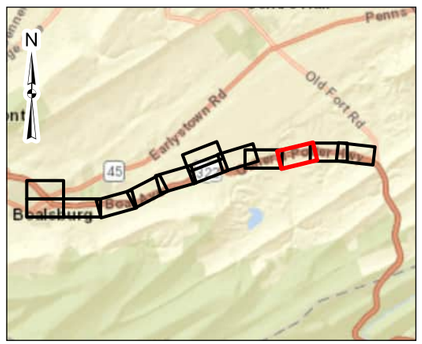
State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

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DATA SOURCE(S):
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Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
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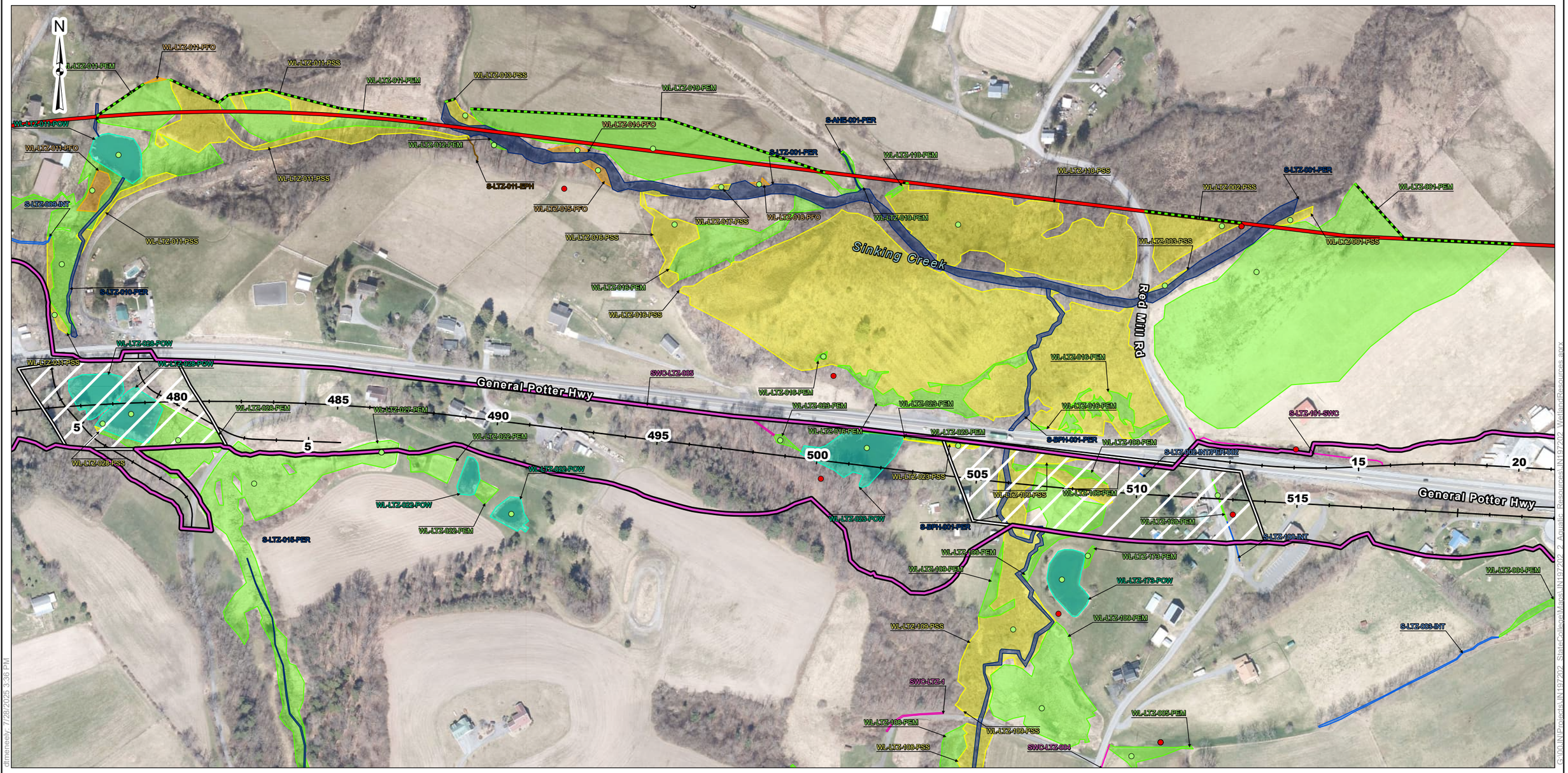
North Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

Sheet 11 of 13

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DATA SOURCE(S):
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Skelly and Loy Inc. Delineation Teams, 2025

Feet
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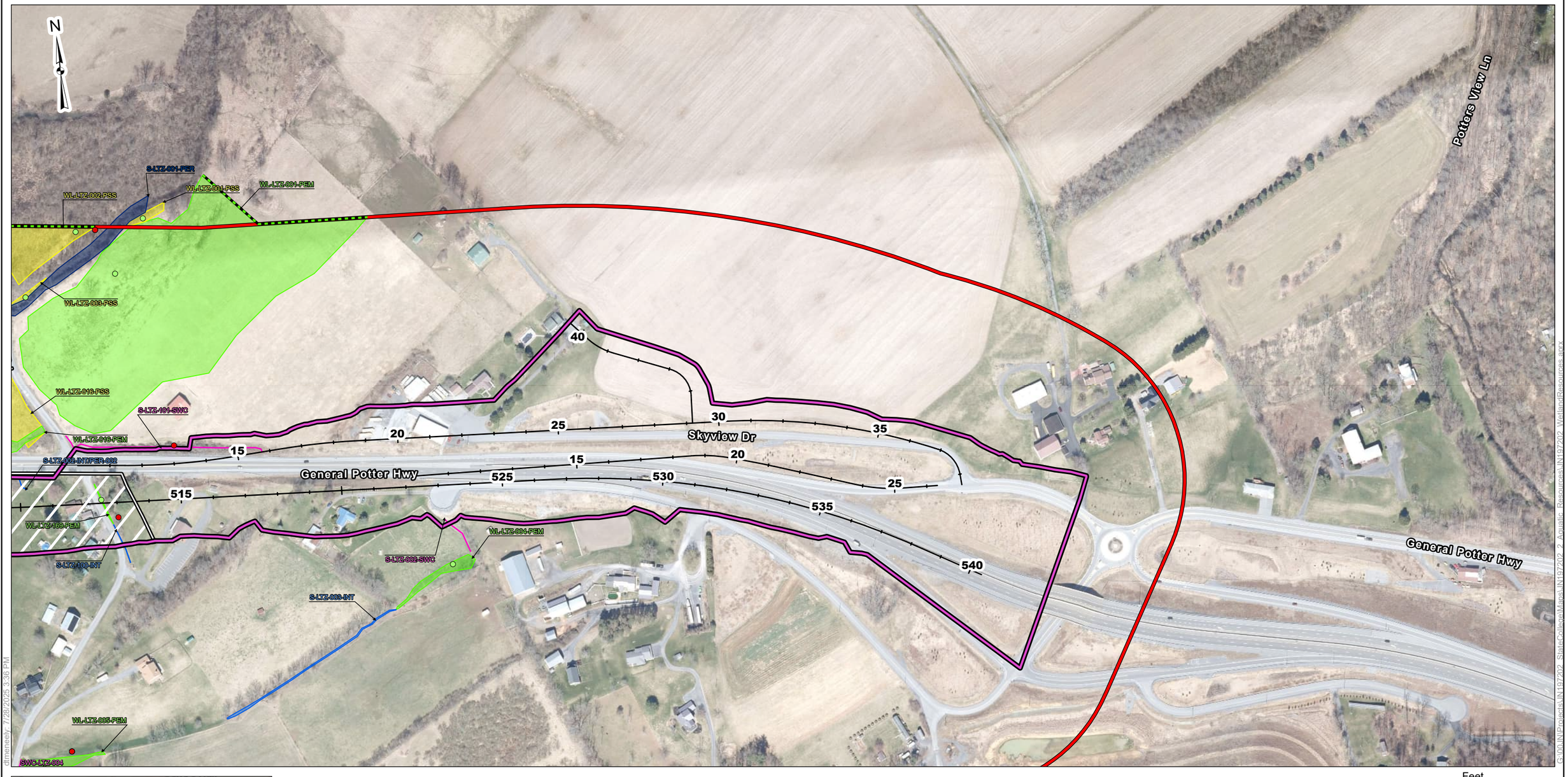
North Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

Sheet 12 of 13

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
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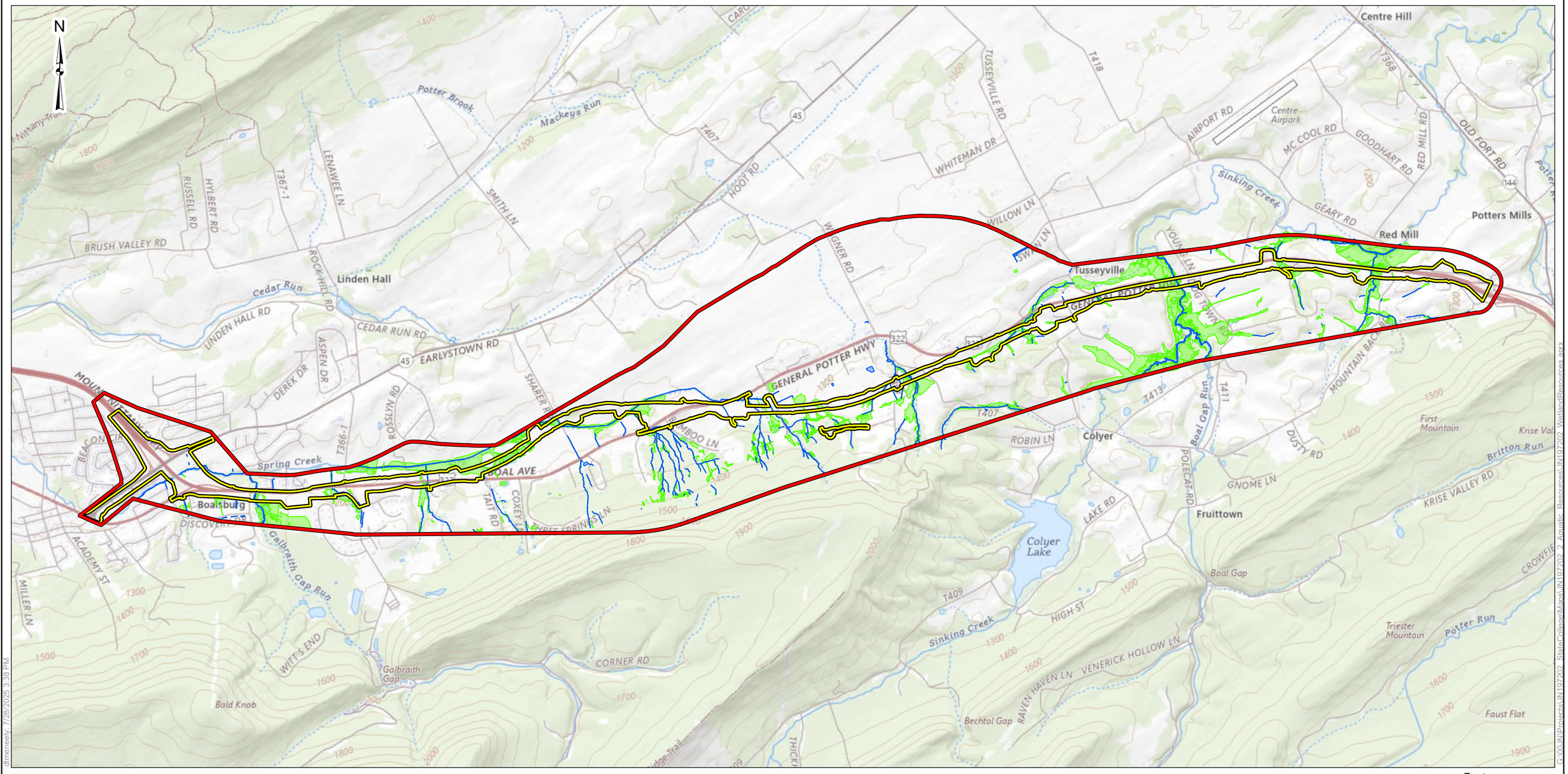
North Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A-1

Sheet 13 of 13

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Legend

- Project Area
- Central Alternative
- Watercourse
- Wetland

DATA SOURCE(S):
USGS Quadrangle - Centre Hall and State College, Pennsylvania 2023
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 1,500 3,000 6,000

Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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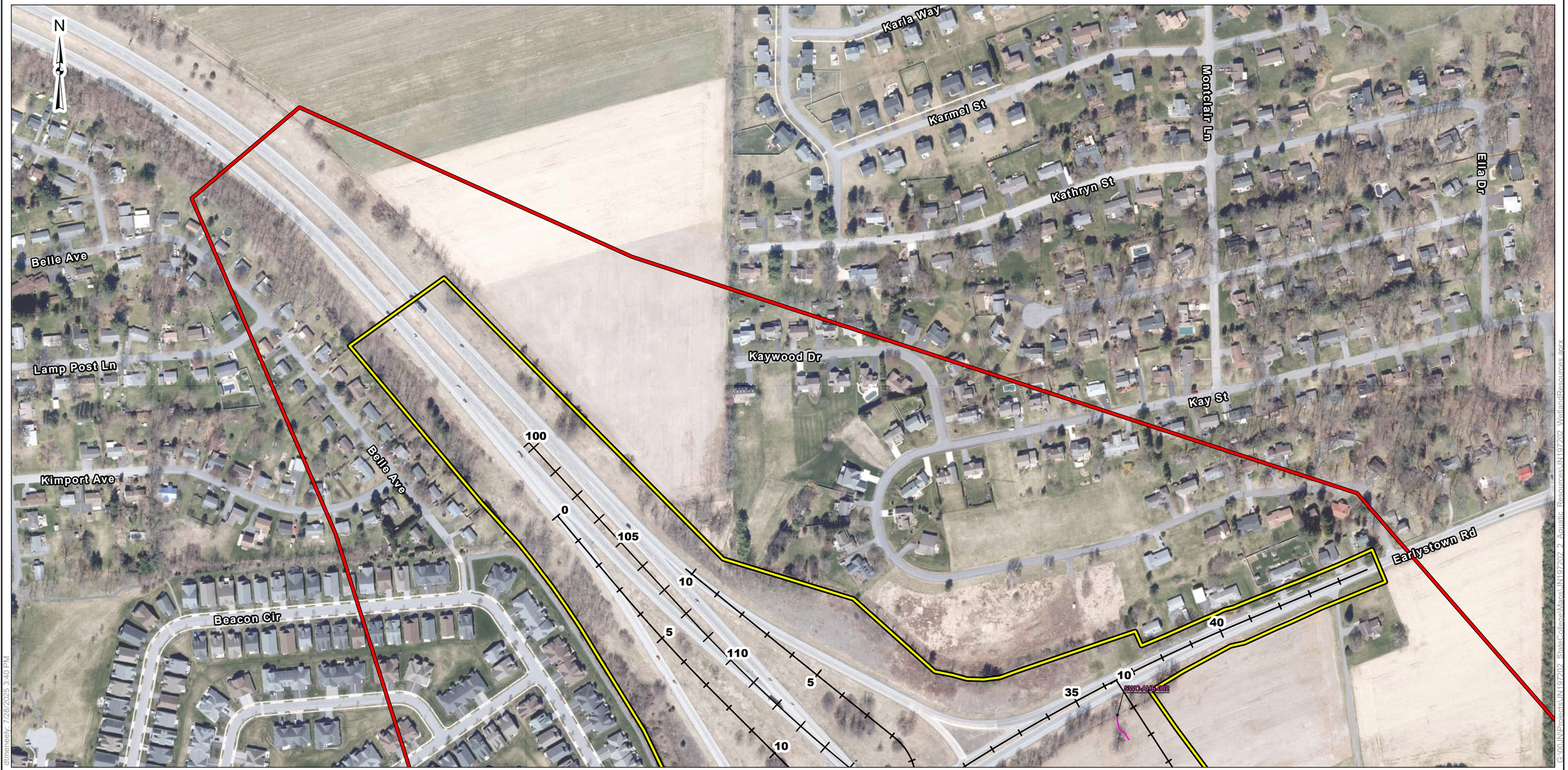
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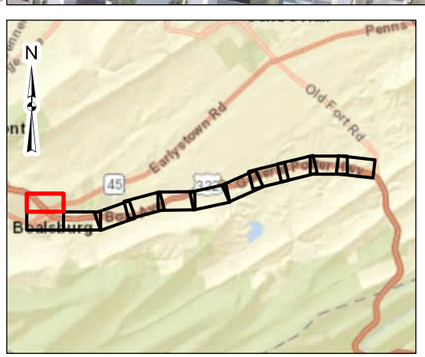
State College Area Connector Project
Centre County, Pennsylvania

Figure
2

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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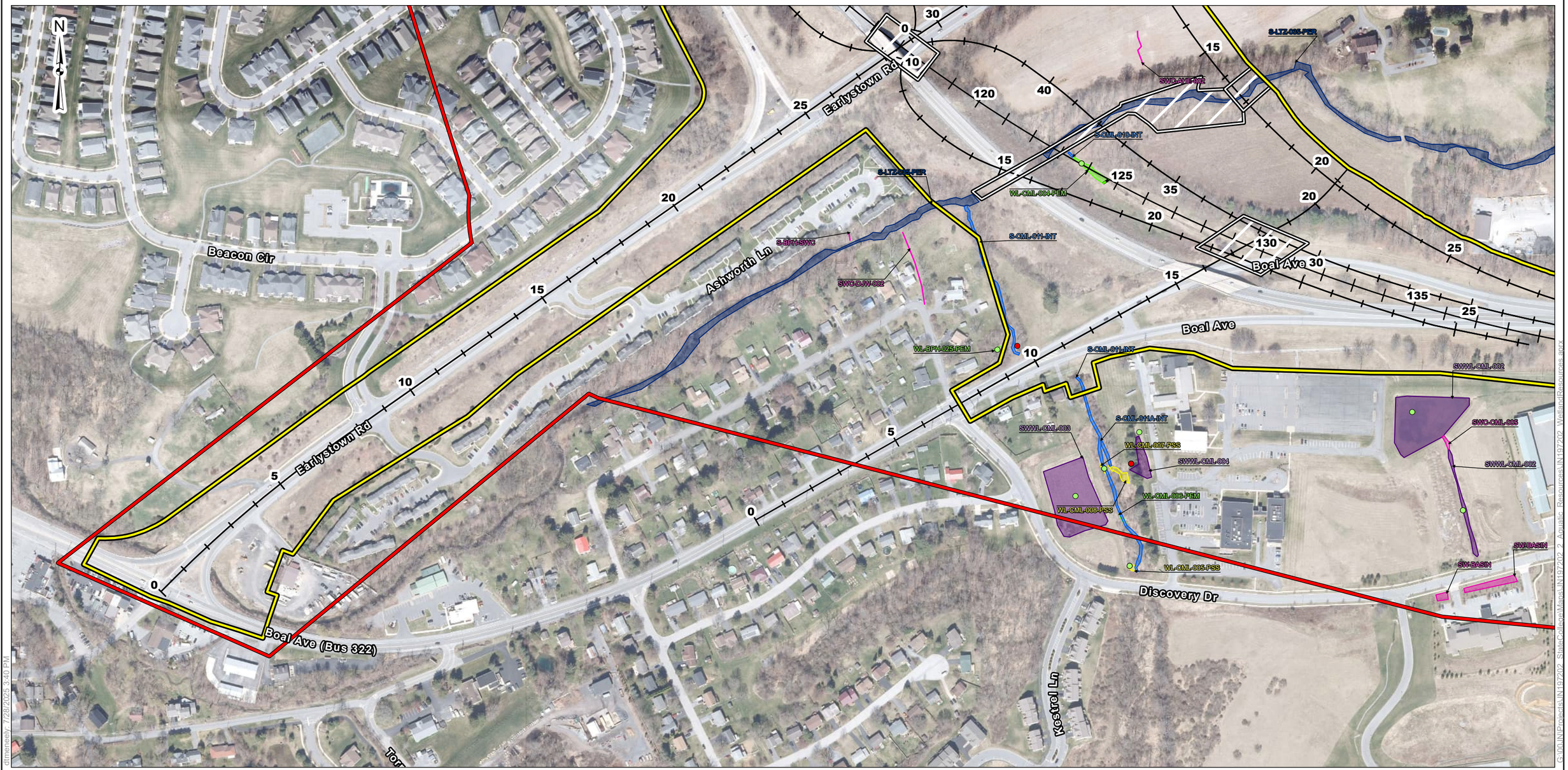
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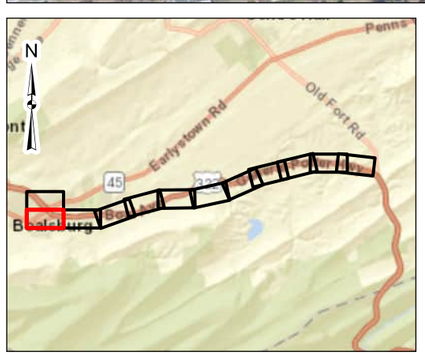
State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

Sheet 1 of 12

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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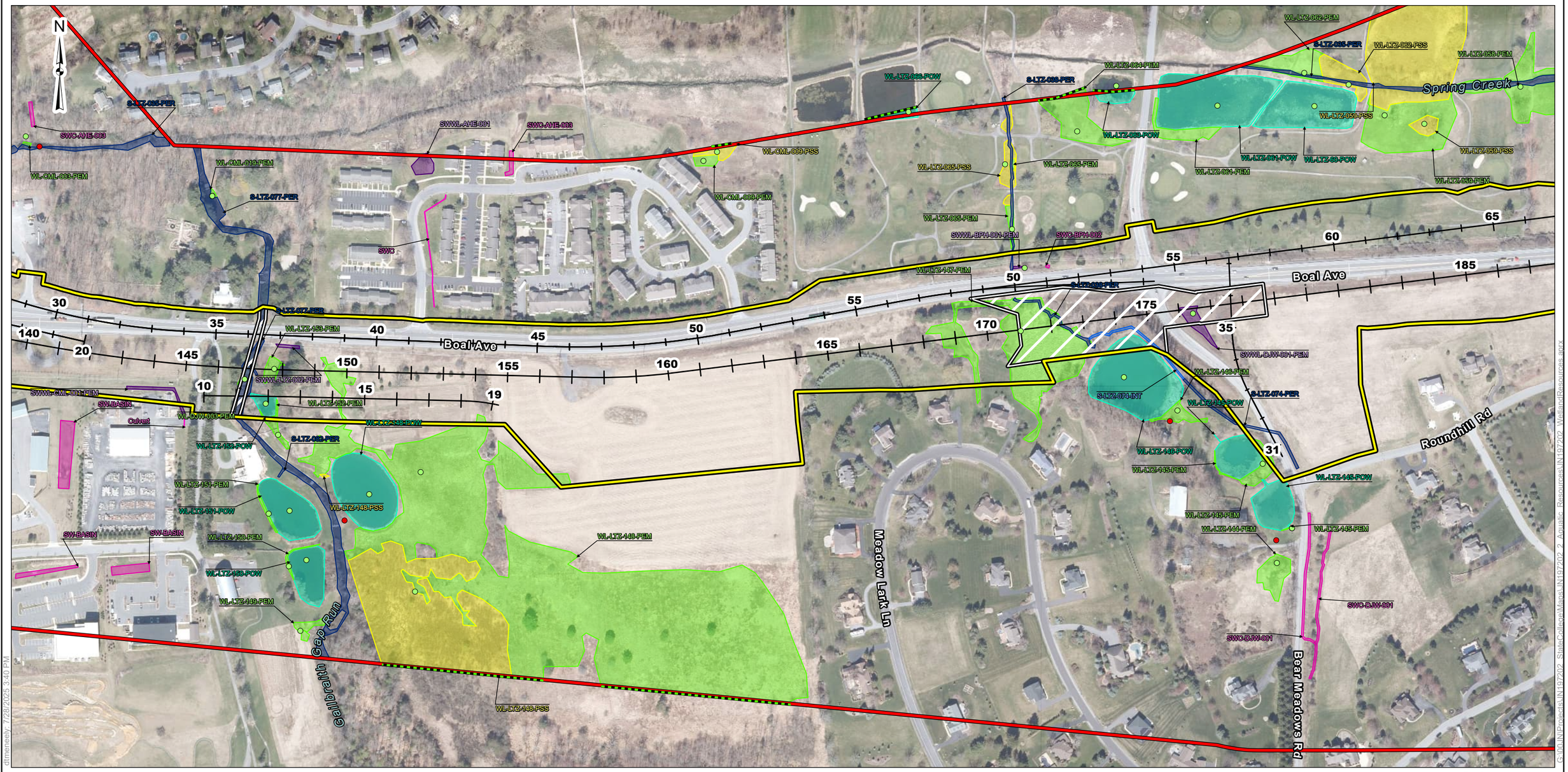
Central Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

Sheet 2 of 12

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Legend

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Feet
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Project No.:	JN197202
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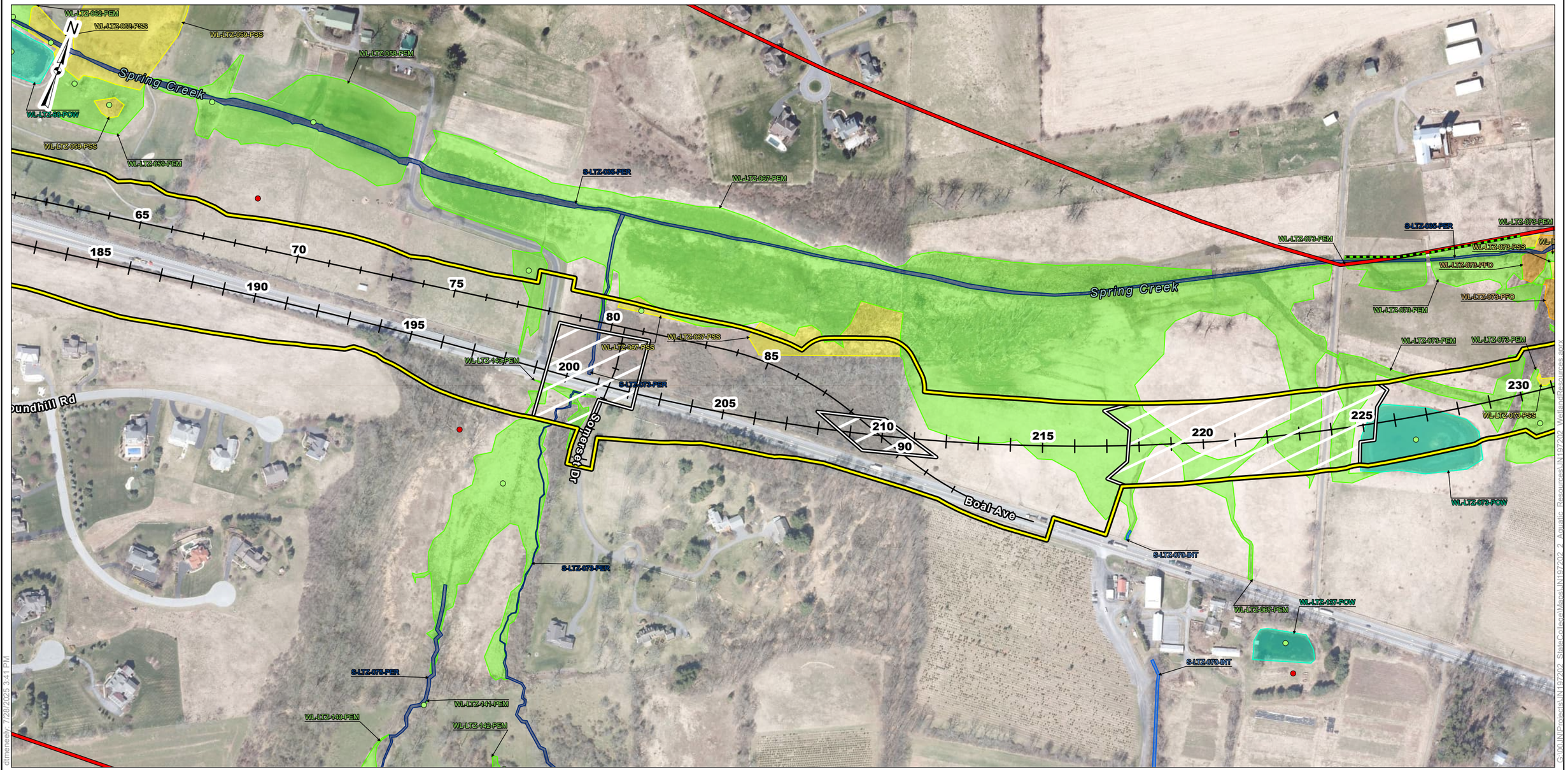
Central Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

Sheet 3 of 12

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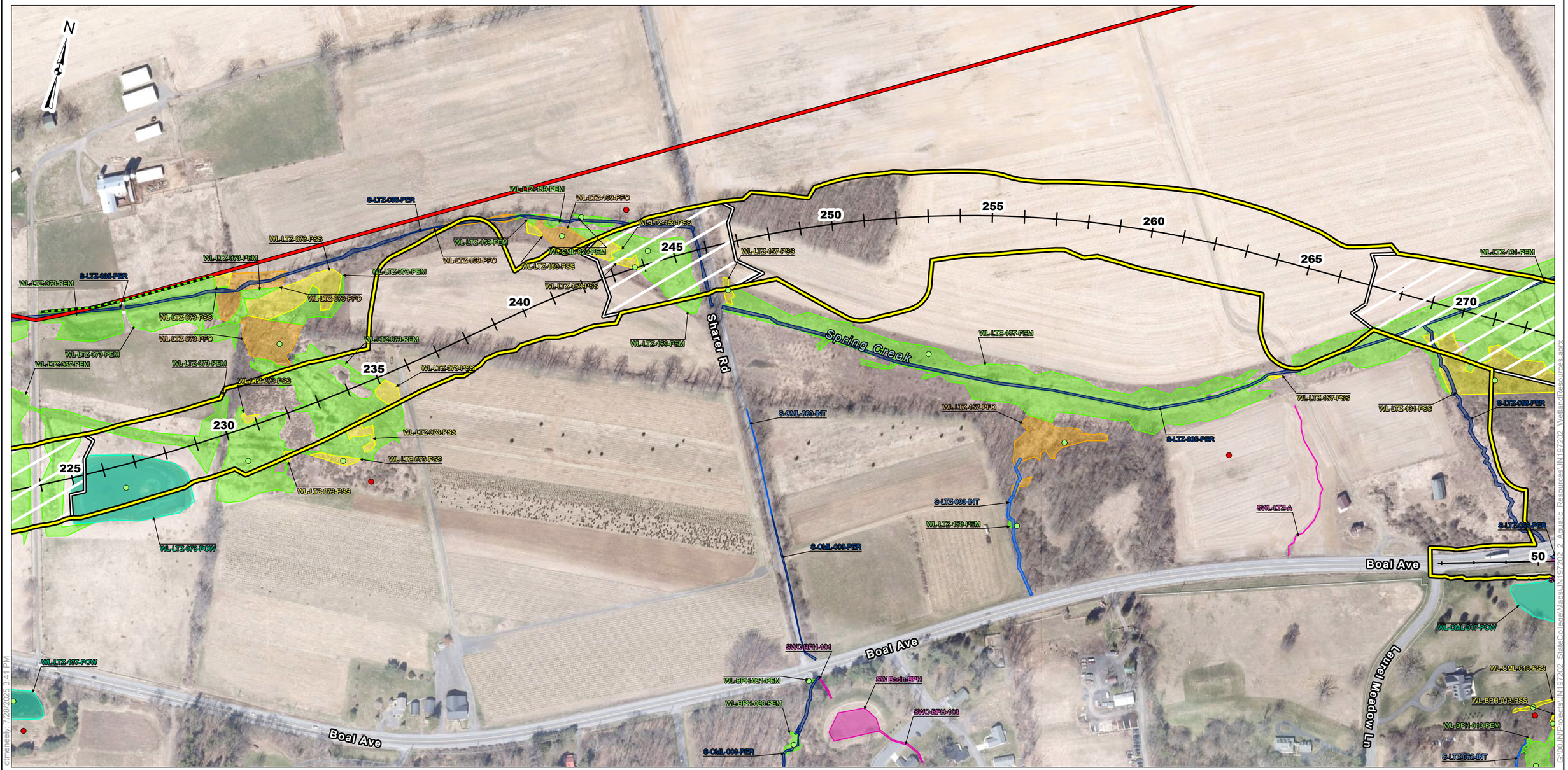
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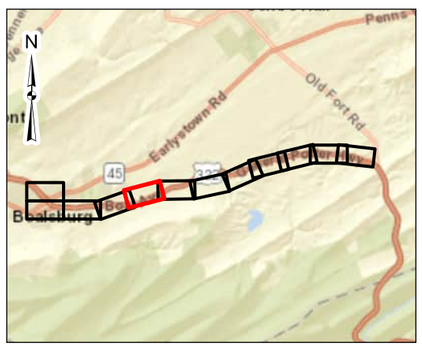
State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

Sheet 4 of 12

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Feet
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Project No.:	JN197202
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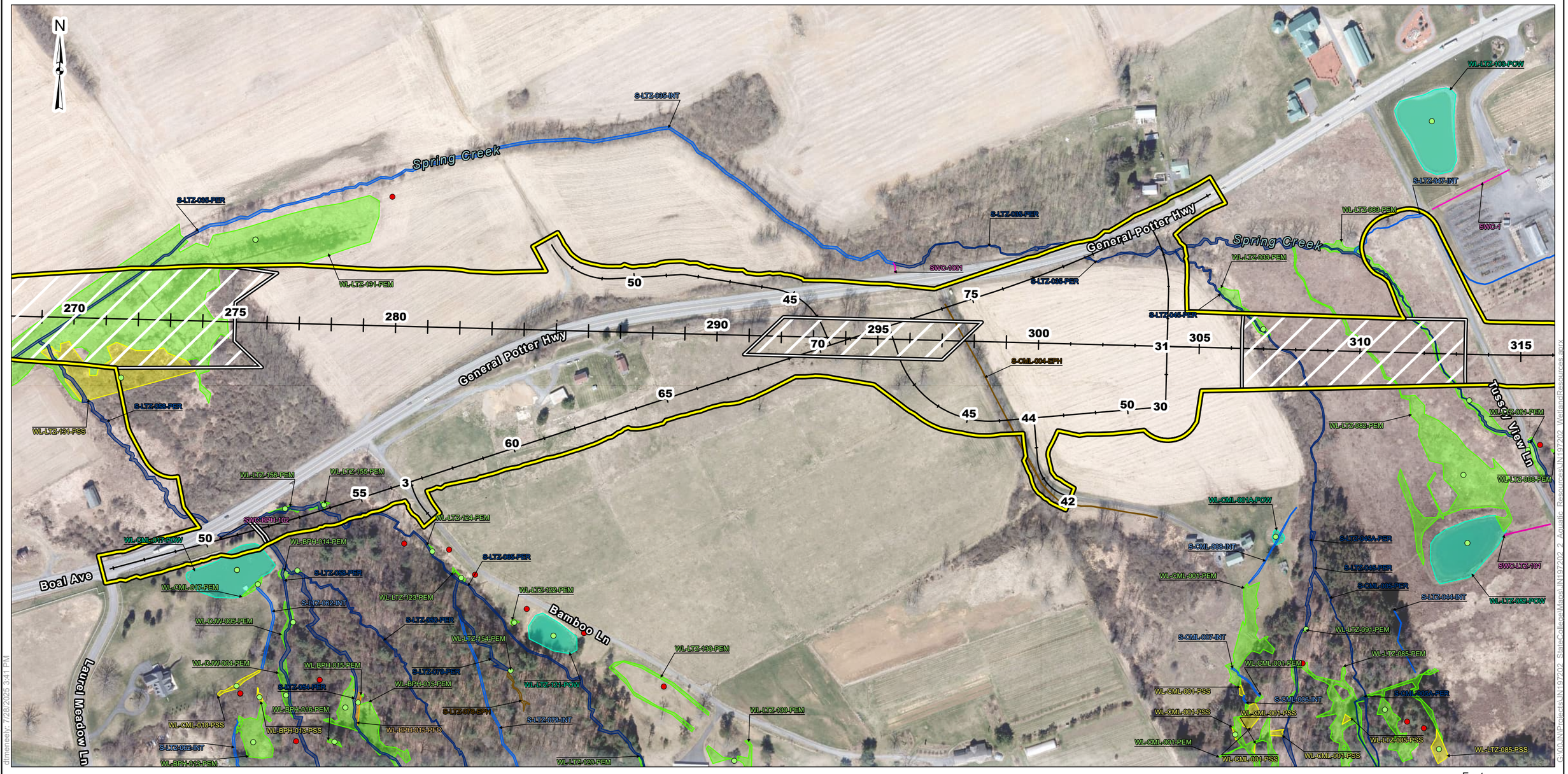
Central Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

Sheet 5 of 12

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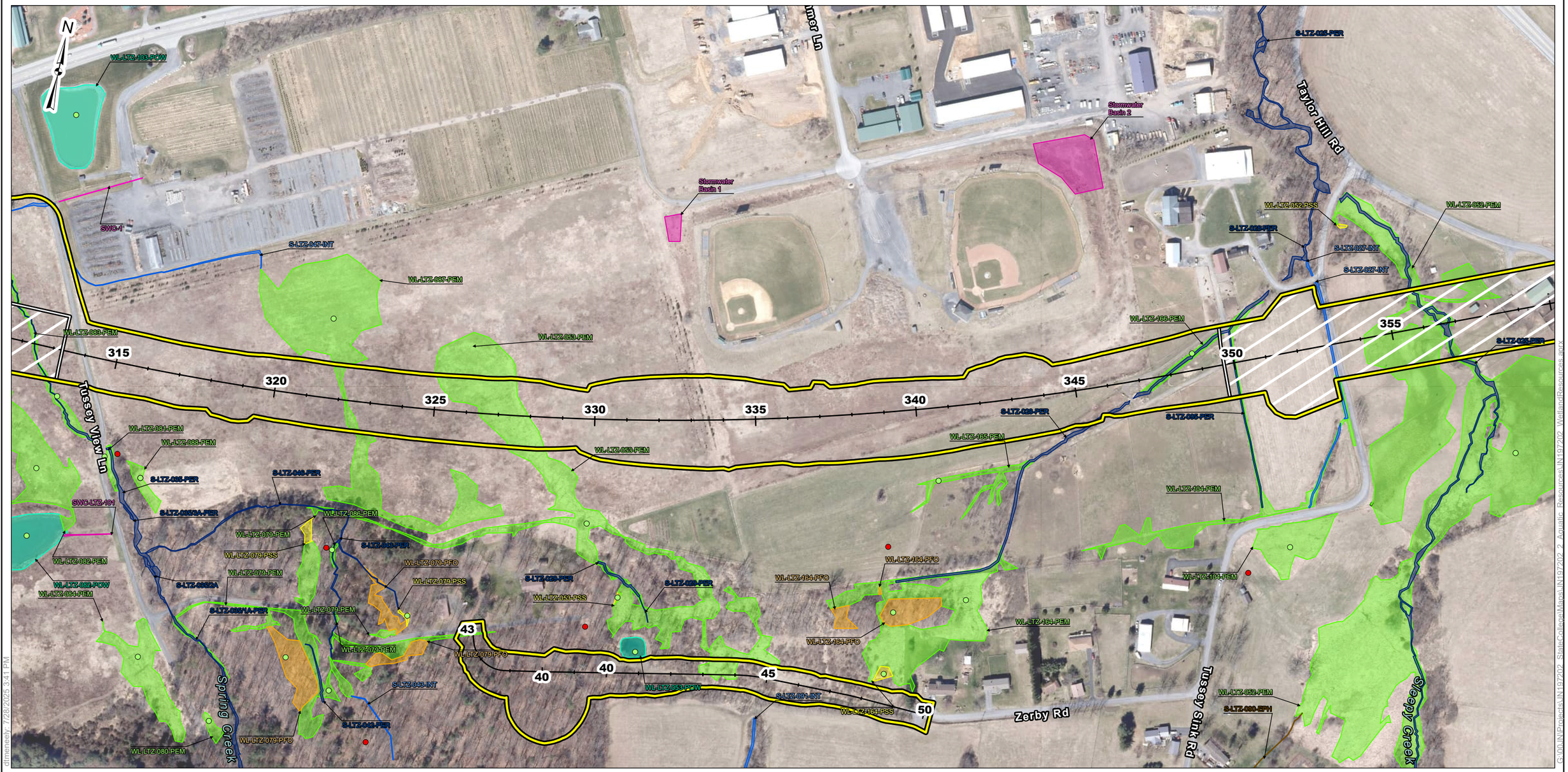
Central Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

Sheet 6 of 12

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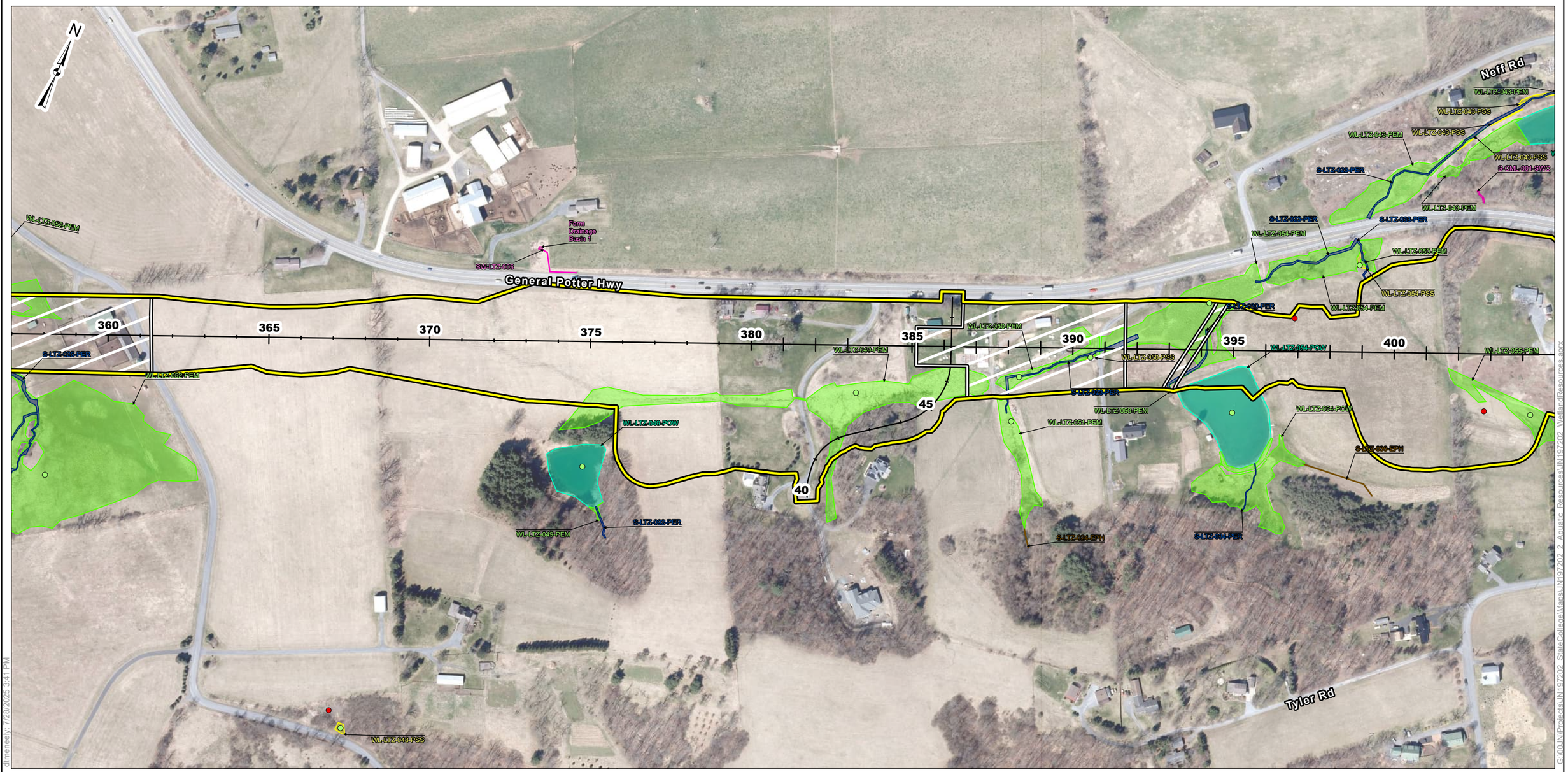
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Wetland and Watercourse Impact Map

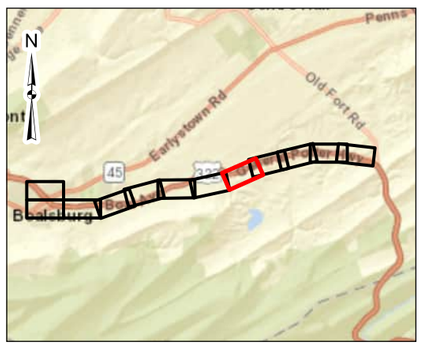
State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

Sheet 7 of 12

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Feet
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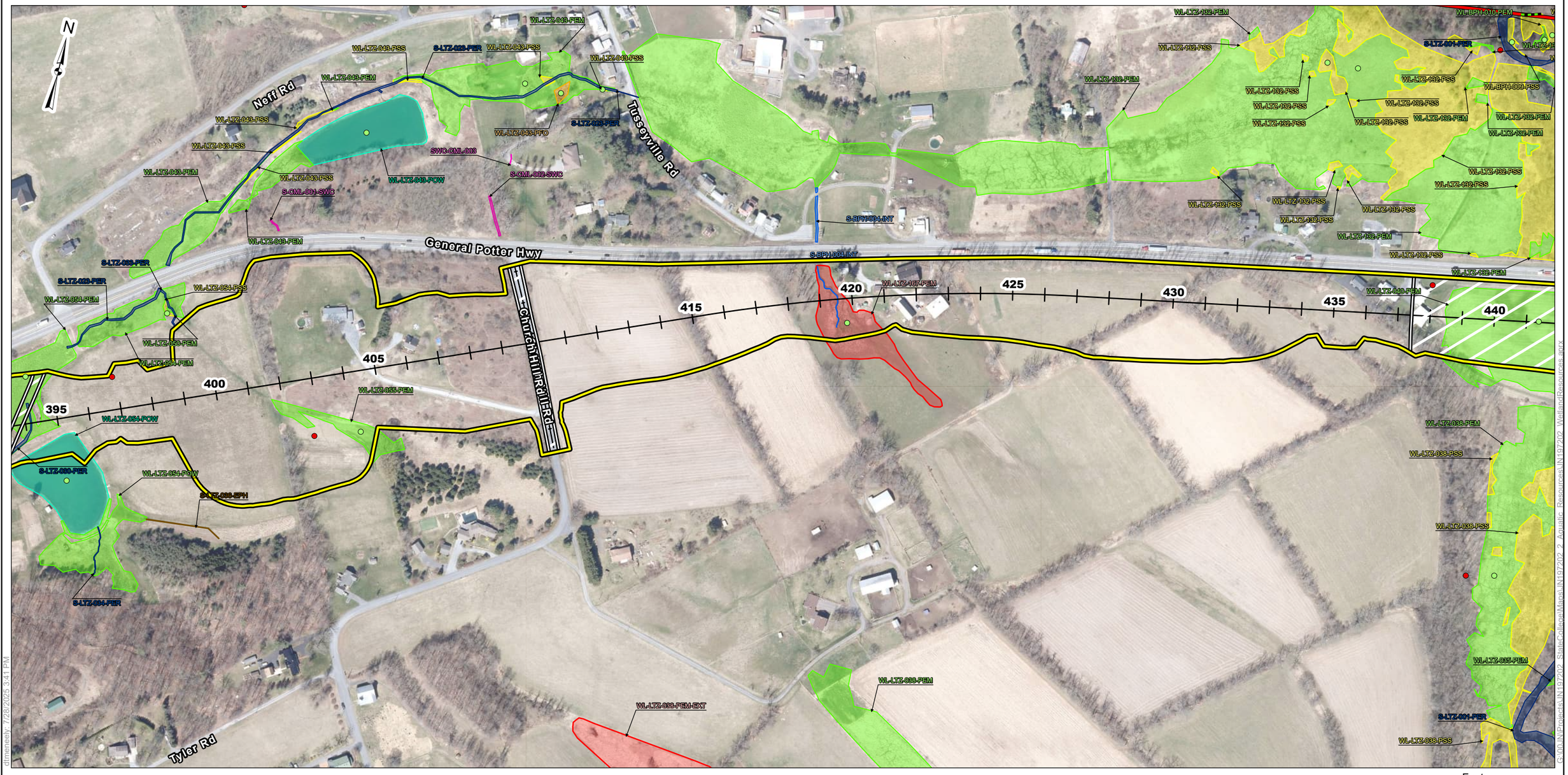
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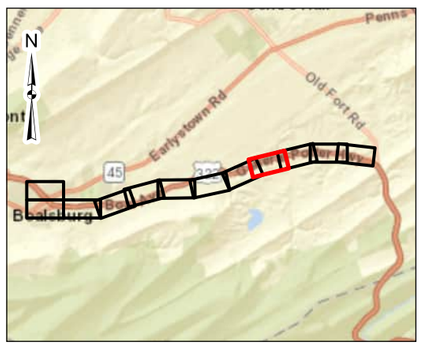
State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

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Legend

- Central Alternative
- Bridge Span Minimization Area
- Project Area
- Roadway Design
- Upland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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A Terracon Company
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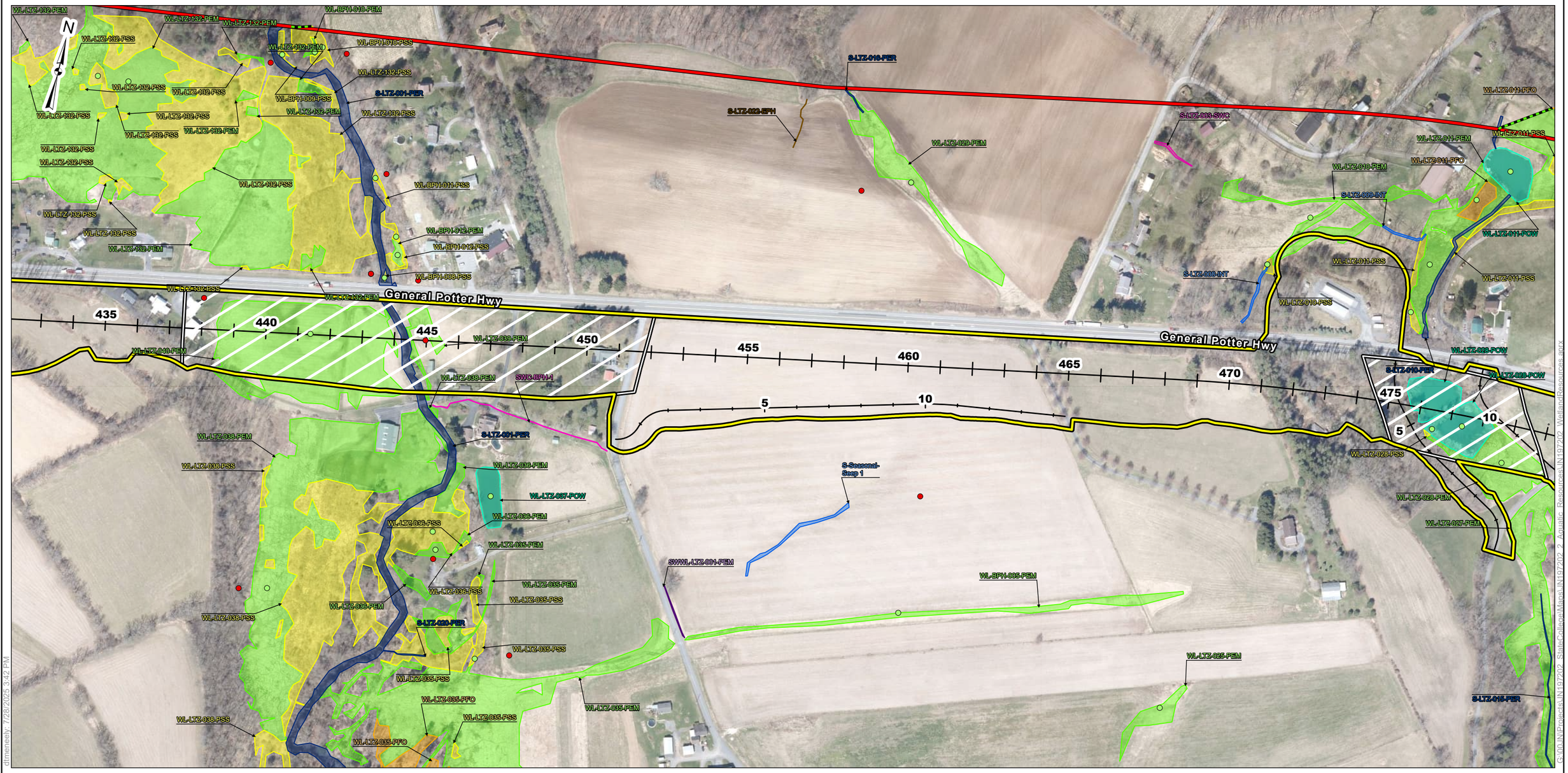
Central Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

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DATA SOURCE(S):
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Feet
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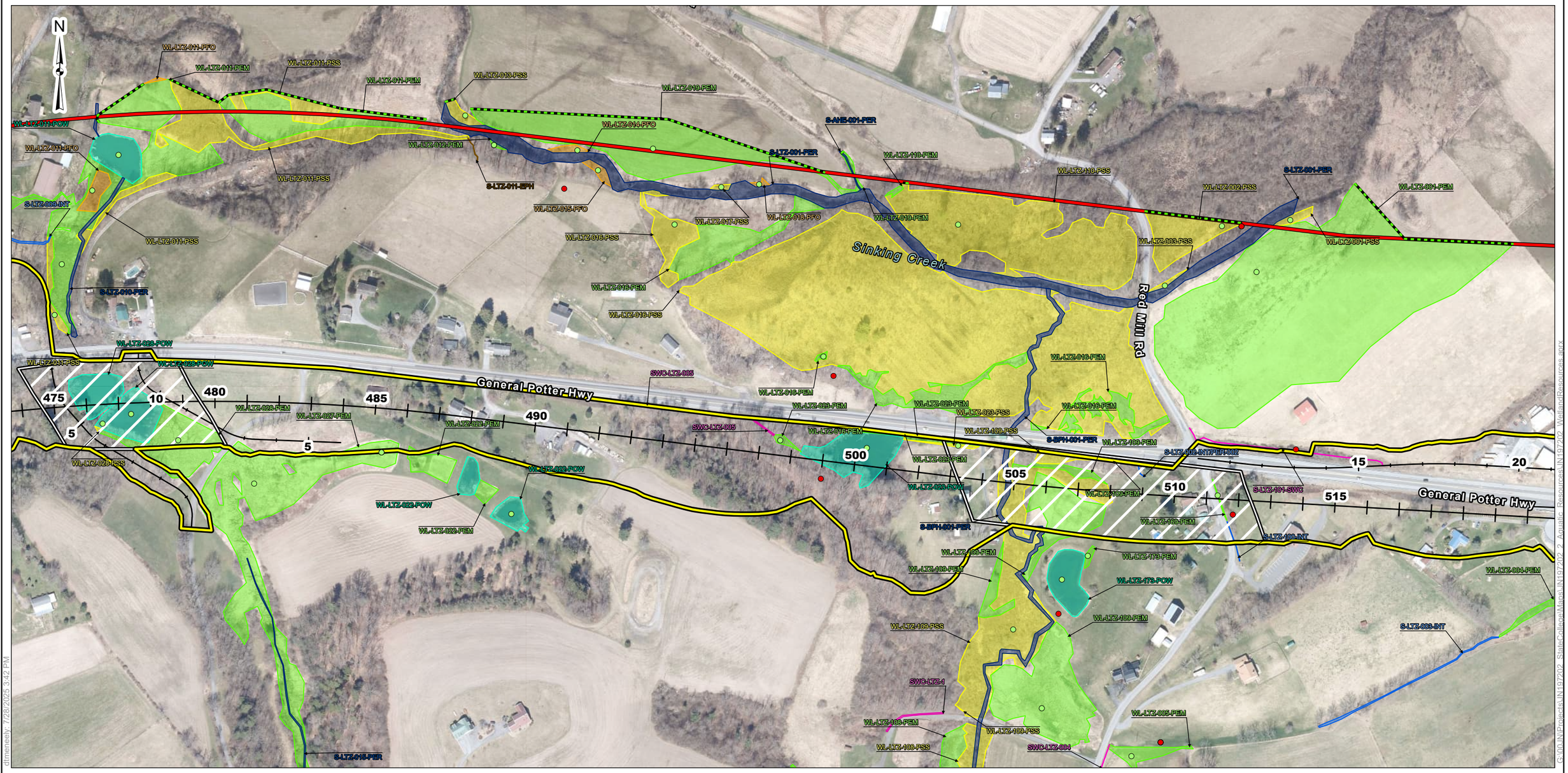
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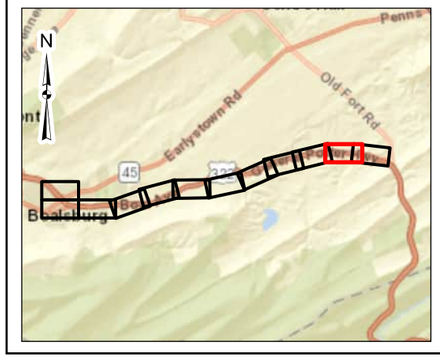
State College Area Connector Project
Centre County, Pennsylvania

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DATA SOURCE(S):
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Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
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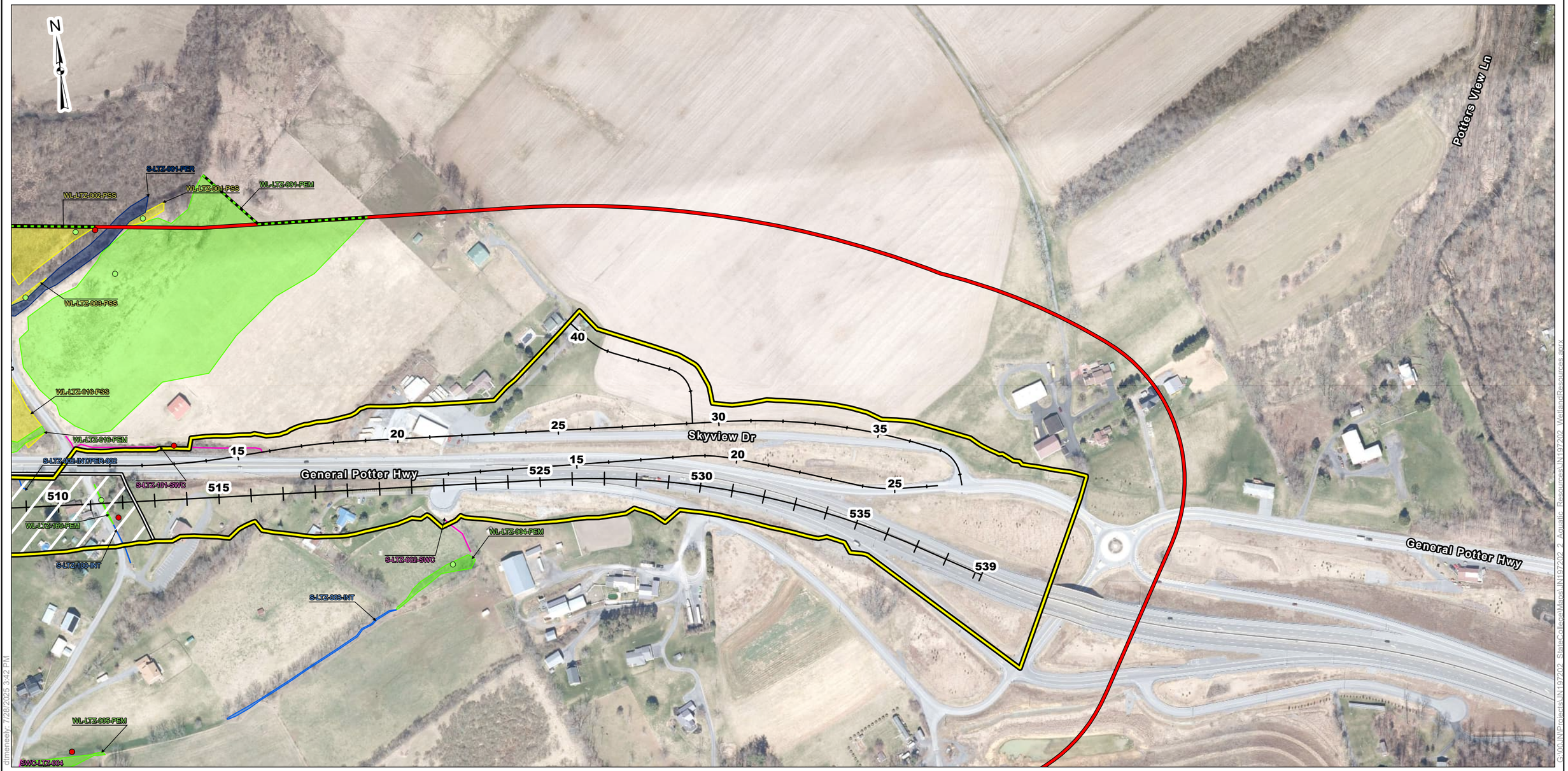
Central Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

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Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
Date:	July 2025
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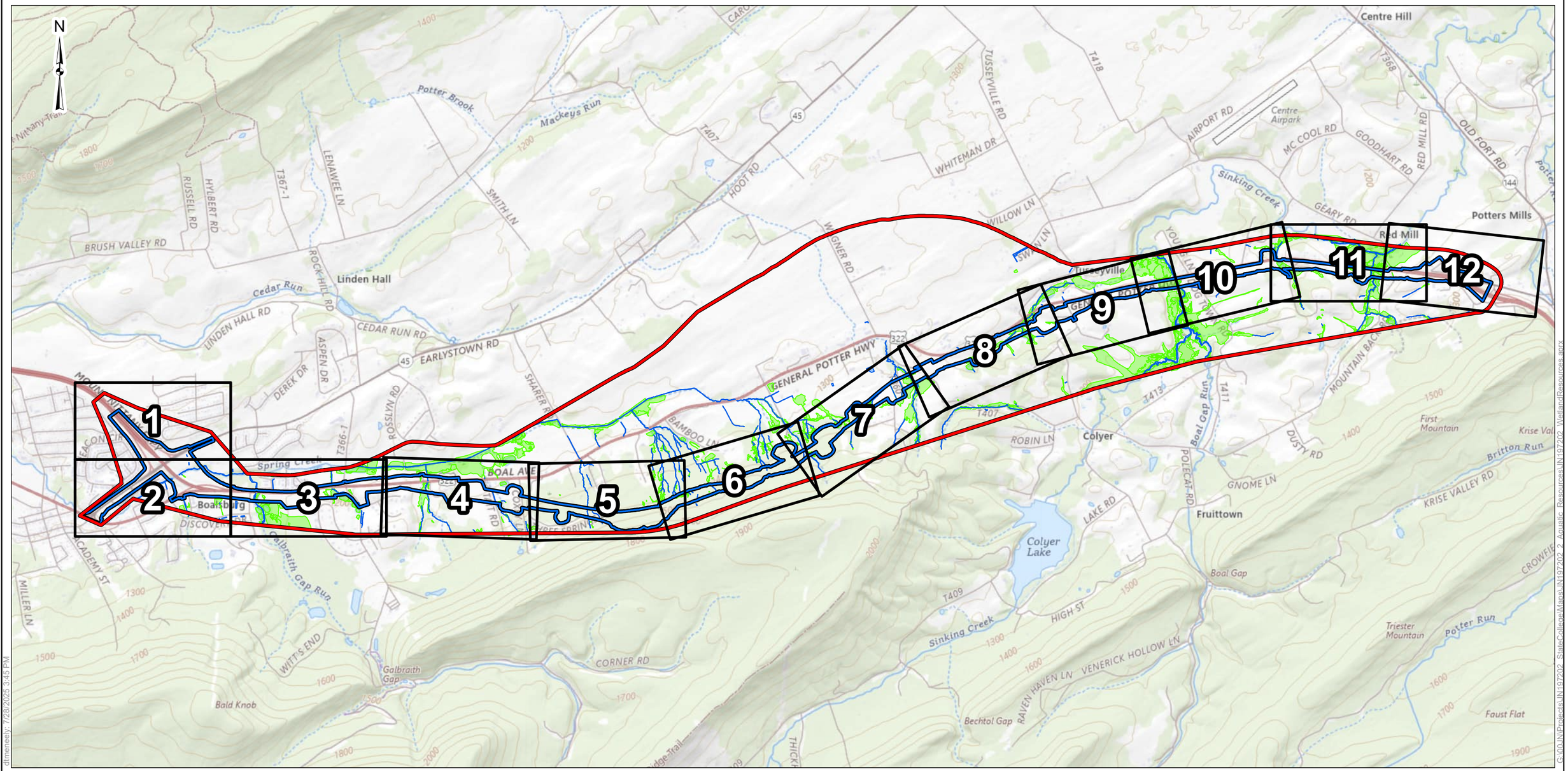
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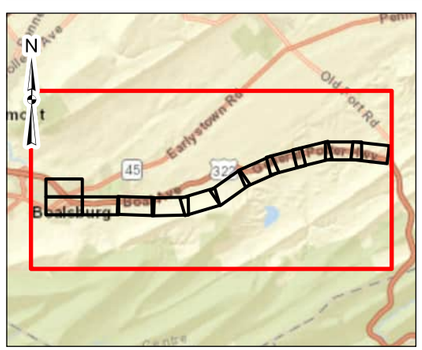
Central Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A2

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Legend

- Sheet
- Project Area
- Watercourse
- Wetland

DATA SOURCE(S):
USGS Quadrangle - Centre Hall and State College, Pennsylvania 2023
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
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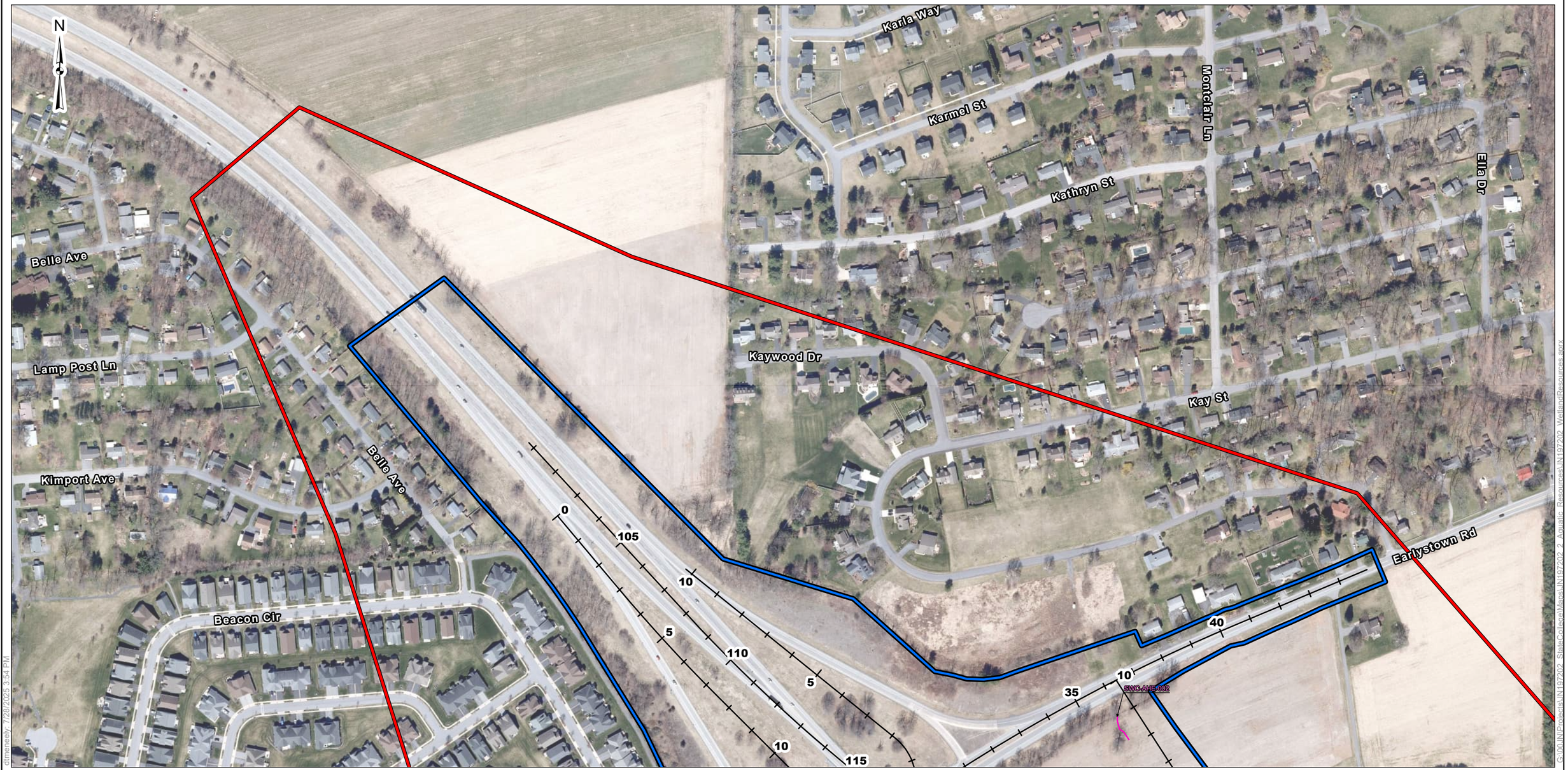
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Wetland and Watercourse Impact Map

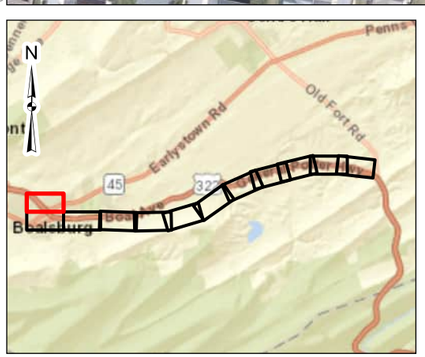
State College Area Connector Project
Centre County, Pennsylvania

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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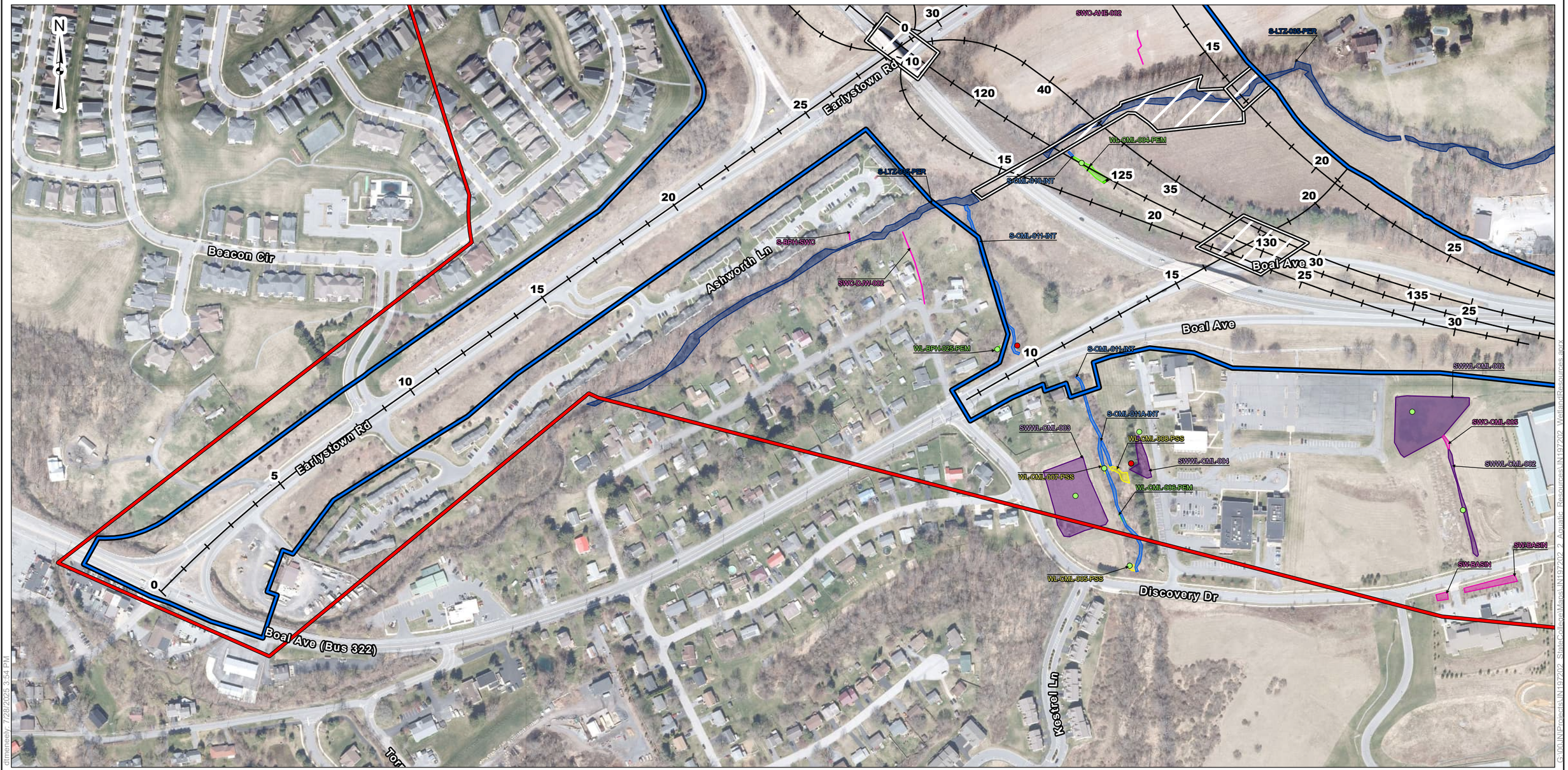
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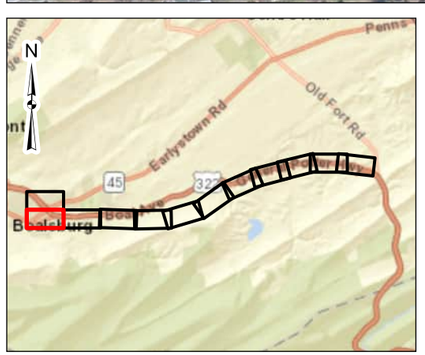
State College Area Connector Project
Centre County, Pennsylvania

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Sheet 1 of 12

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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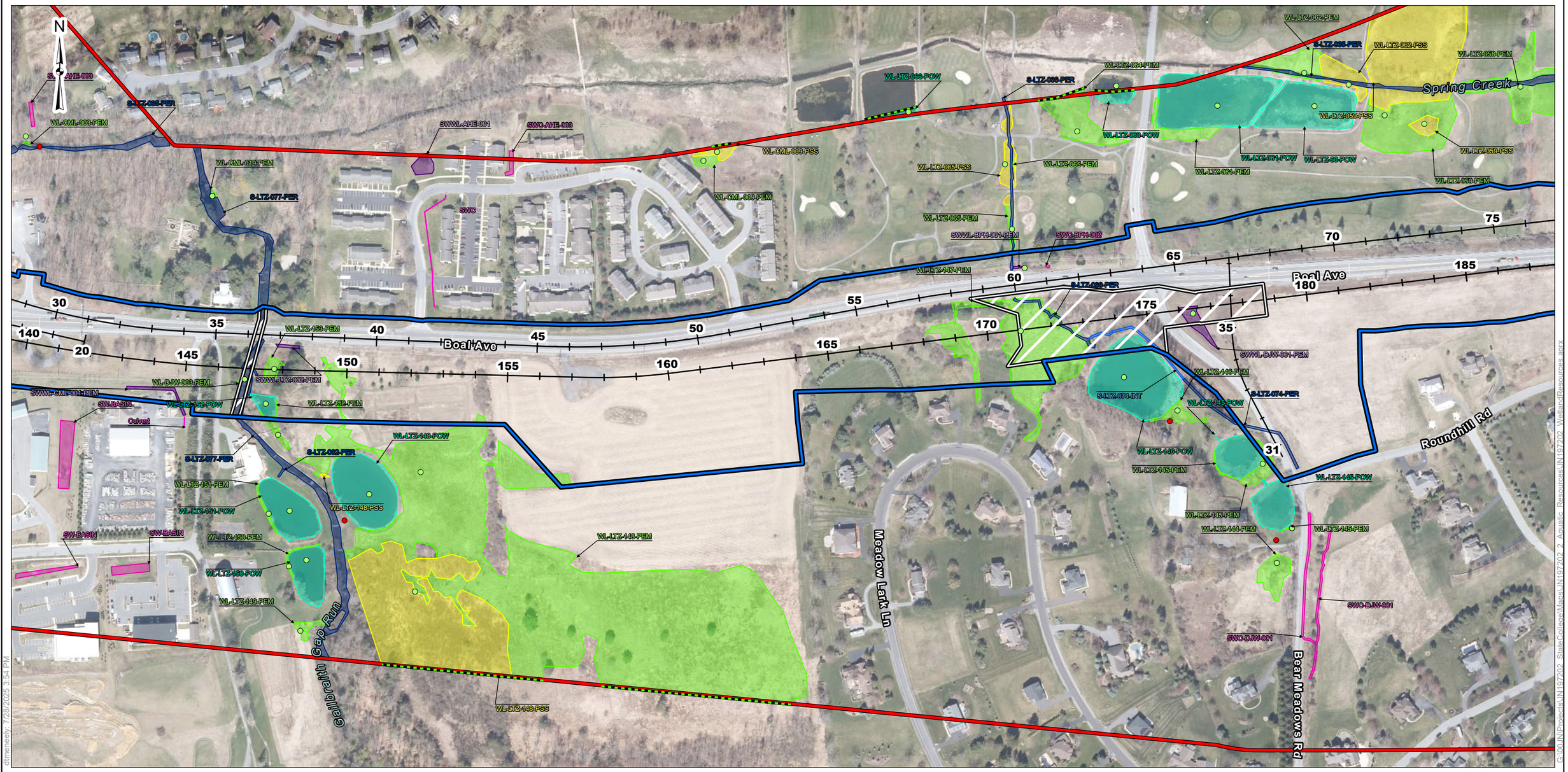
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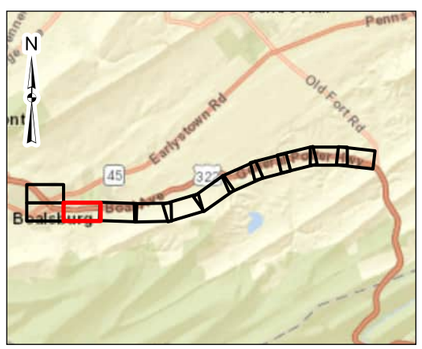
State College Area Connector Project
Centre County, Pennsylvania

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Sheet 2 of 12

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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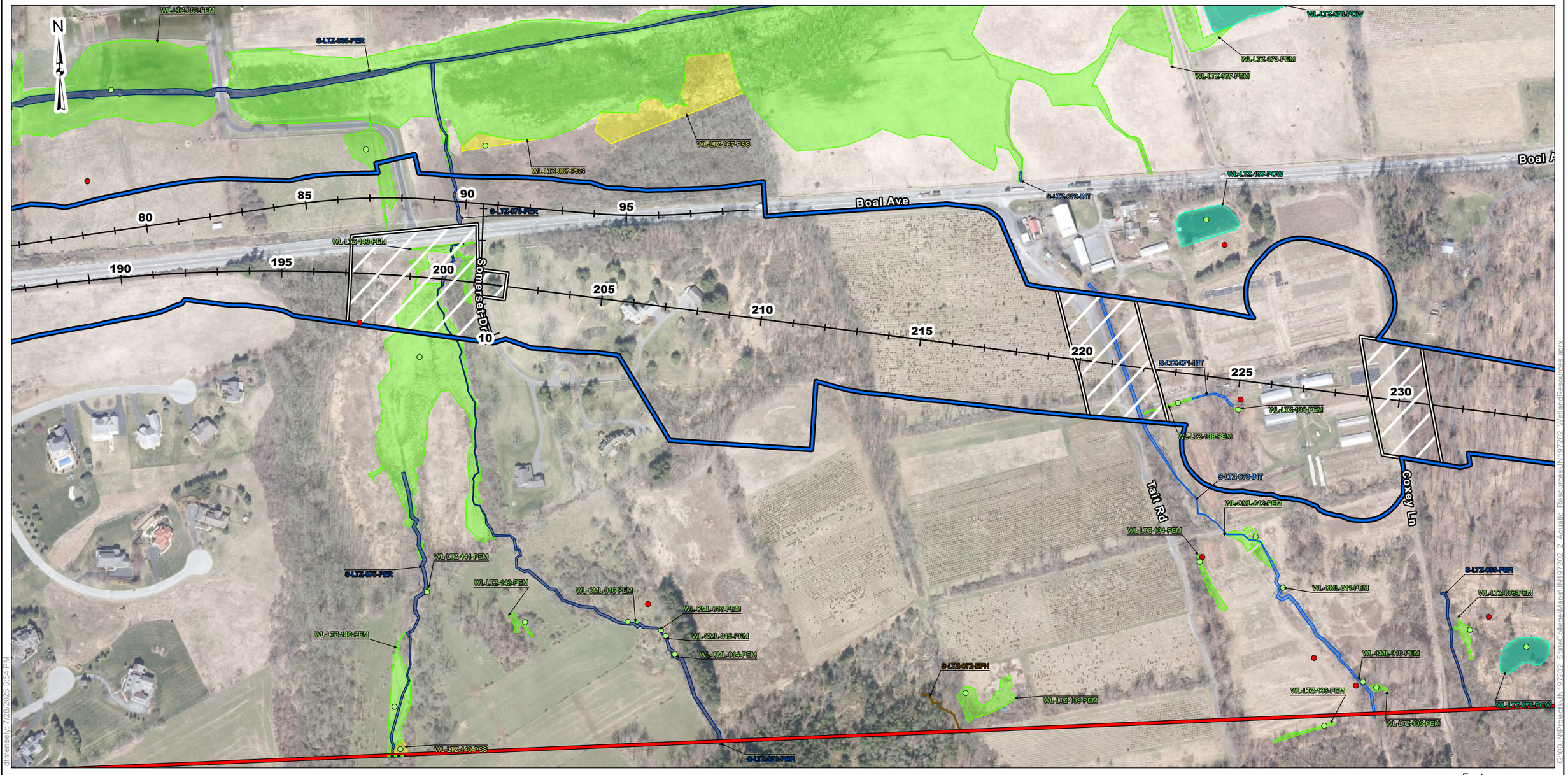
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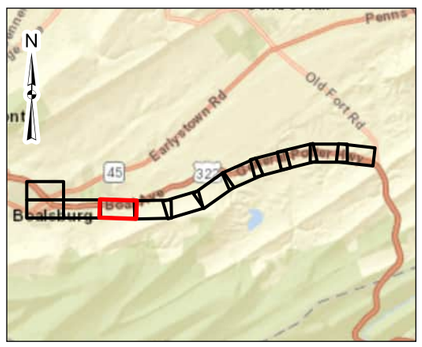
State College Area Connector Project
Centre County, Pennsylvania

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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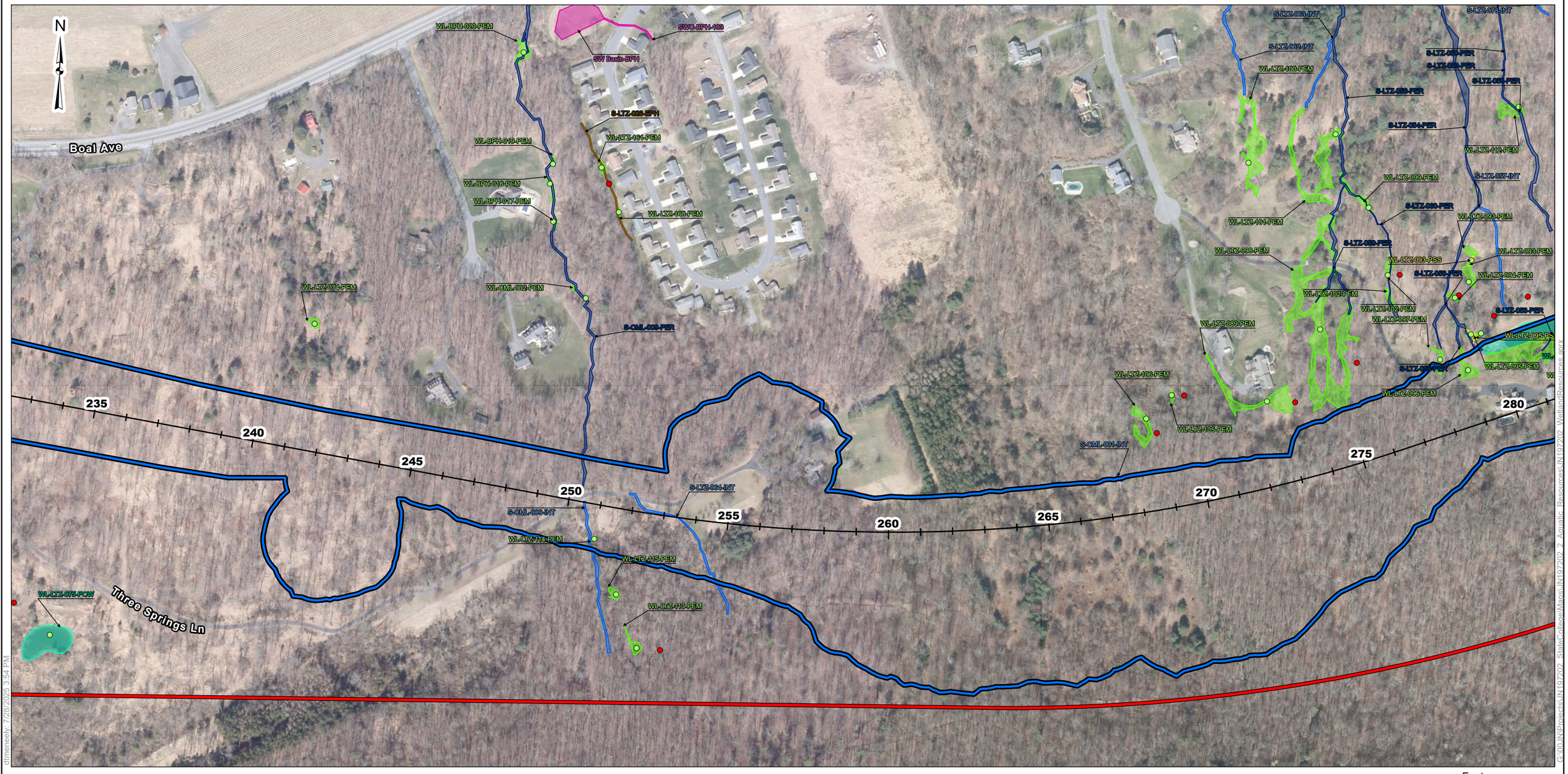
South Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

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PennDOT Drone Aerial Imagery, 2024
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Feet
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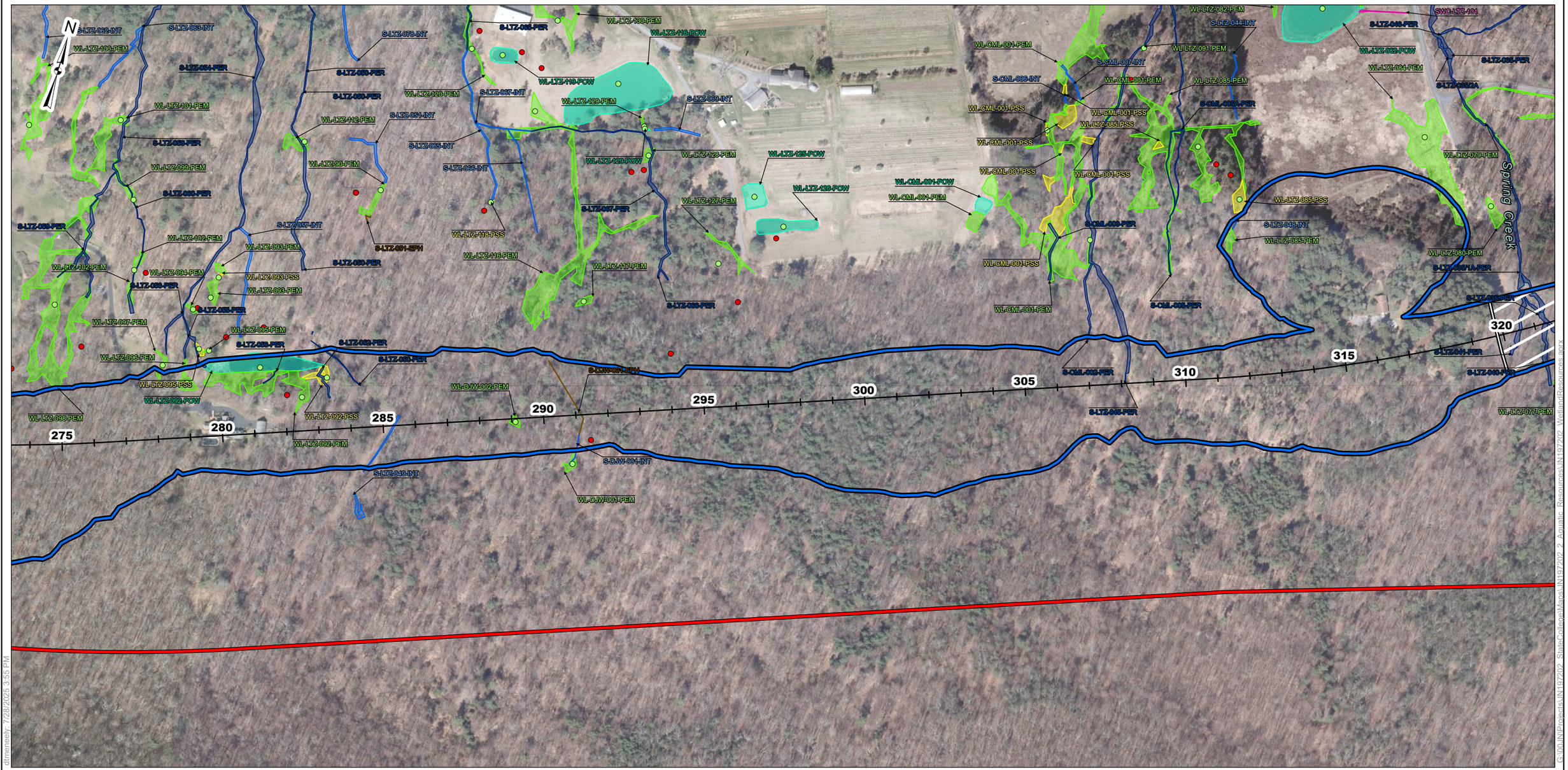
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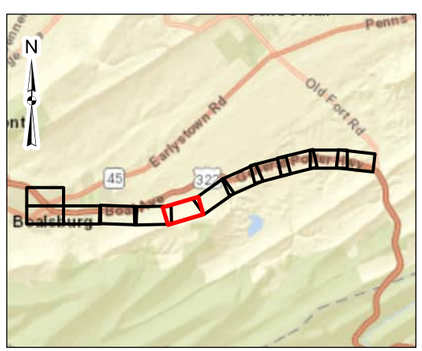
State College Area Connector Project
Centre County, Pennsylvania

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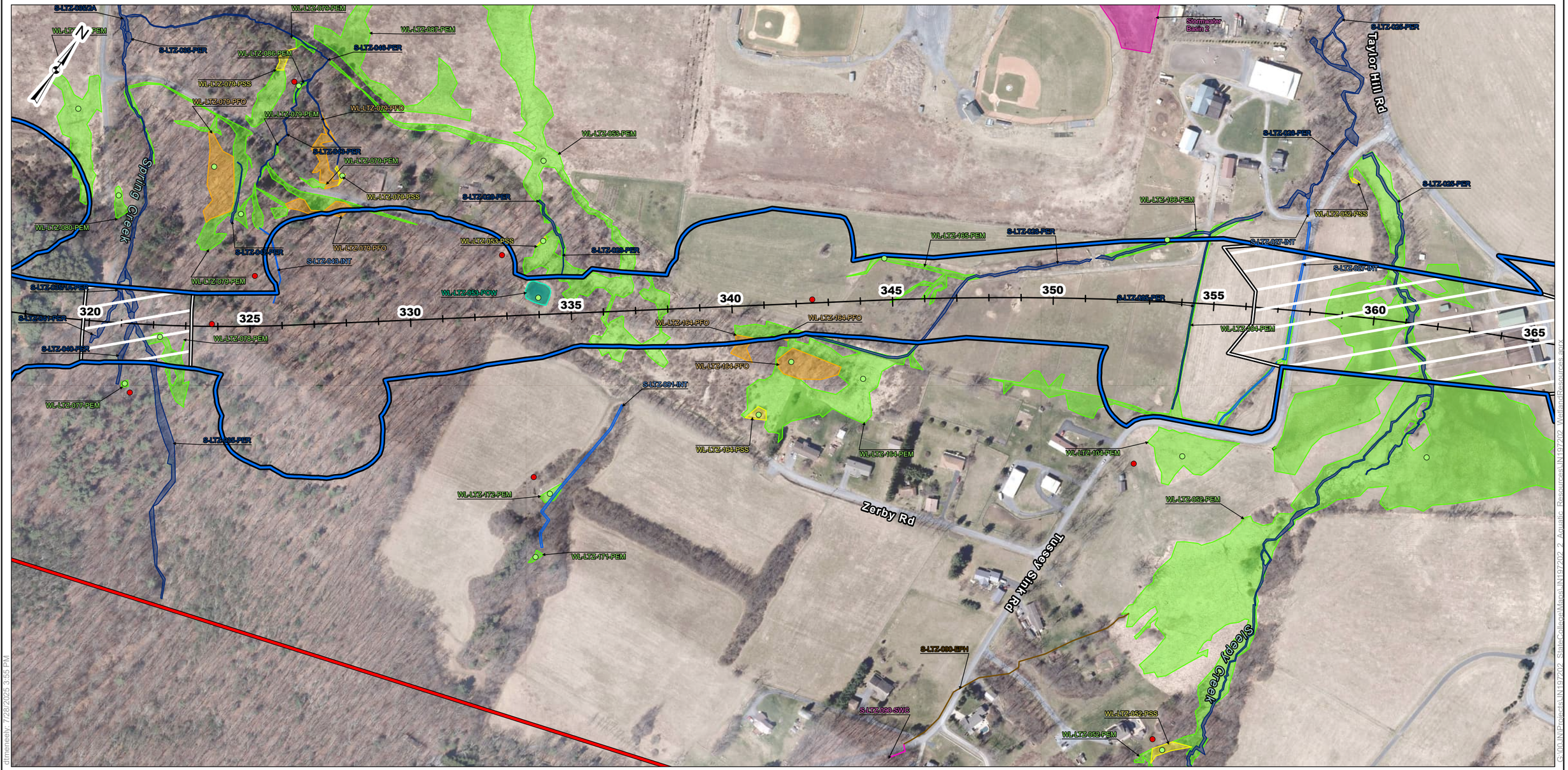
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Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A-3

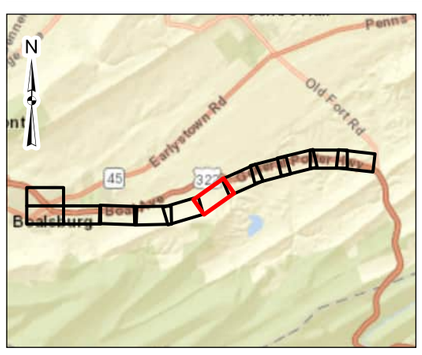
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Project No.:	JN197202
Date:	July 2025
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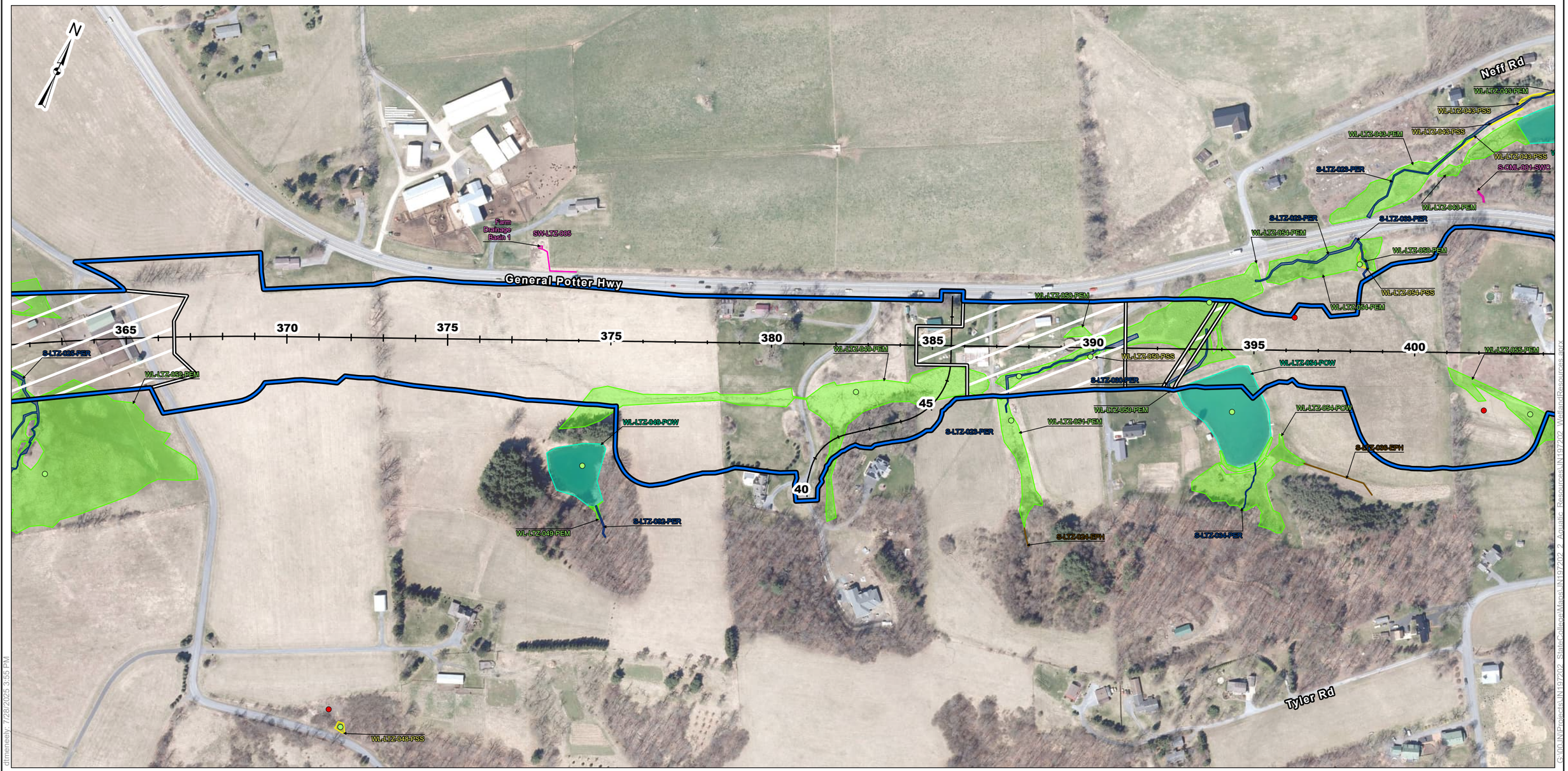
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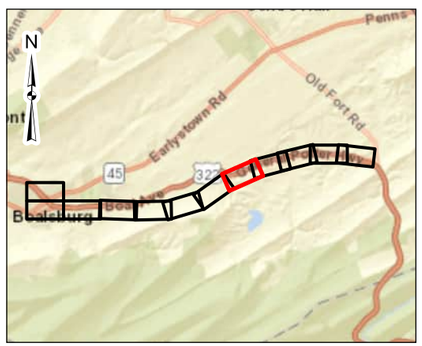
South Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
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Appendix A-3

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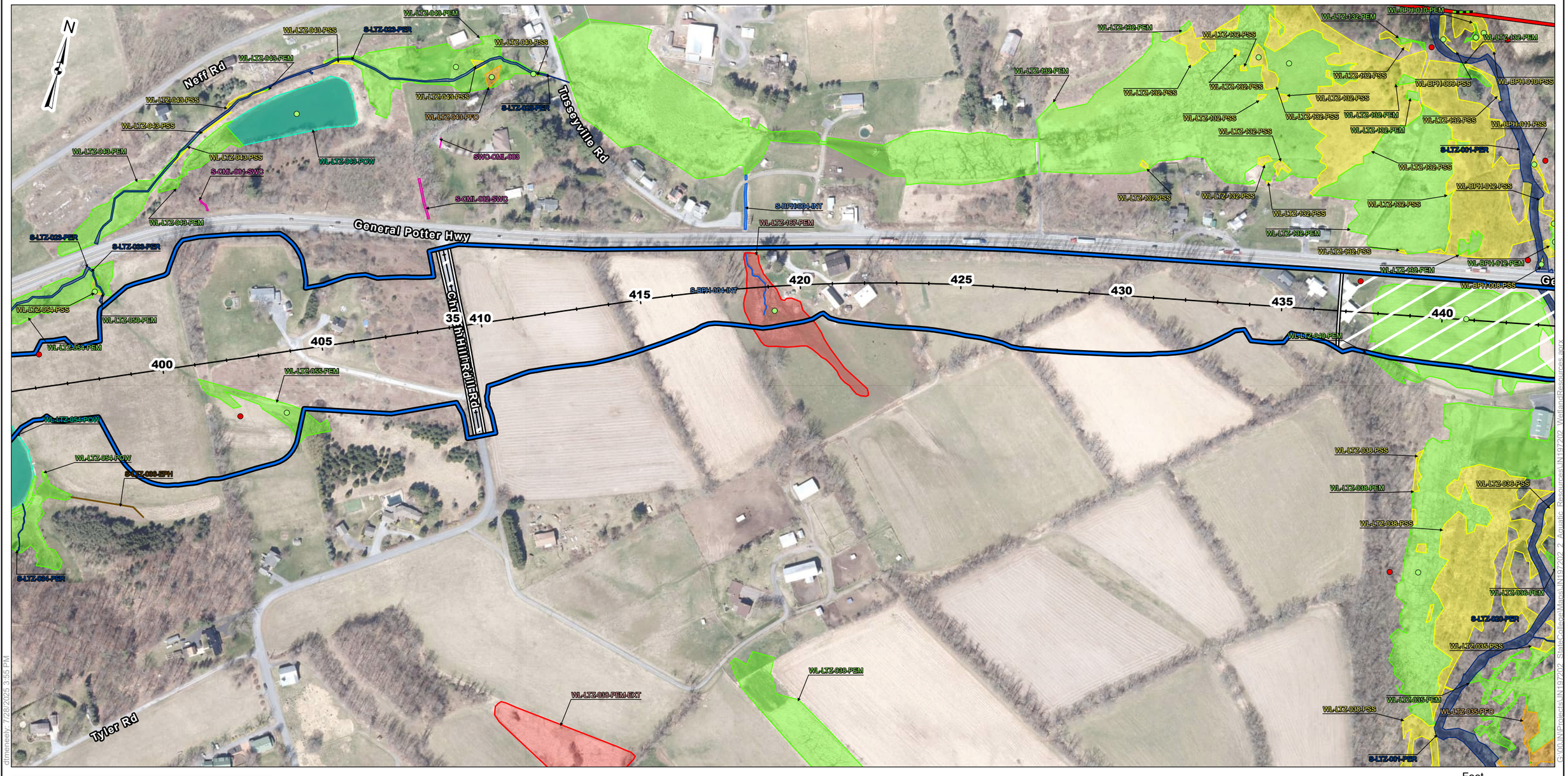
South Alternative
Wetland and Watercourse Impact Map

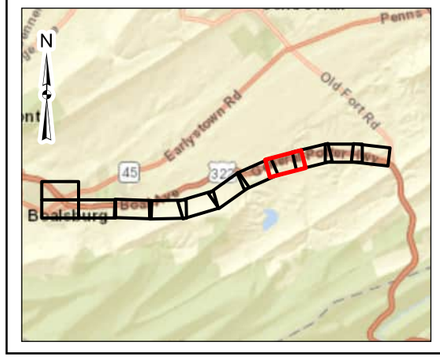
State College Area Connector Project
Centre County, Pennsylvania

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Legend

- South Alternative
- Bridge Span Minimization Area
- Project Area
- Roadway Design
- Upland Soil Pit
- Wetland Soil Pit
- Wetland OE
- Ephemeral (EPH)
- Intermittent (INT)
- Perennial (PER)
- Stormwater Conveyance (SWC)
- Assumed (A)
- Palustrine Emergent (PEM)
- Palustrine Forested (PFO)
- Palustrine Open-water (POW)
- Palustrine Scrub-shrub (PSS)
- Stormwater Wetland (SWWL)

DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

SKELLY AND LOY
A Terracon Company
449 Eisenhower Blvd #300 Harrisburg, PA 17111
PH. (717) 232-0593 terracon.com

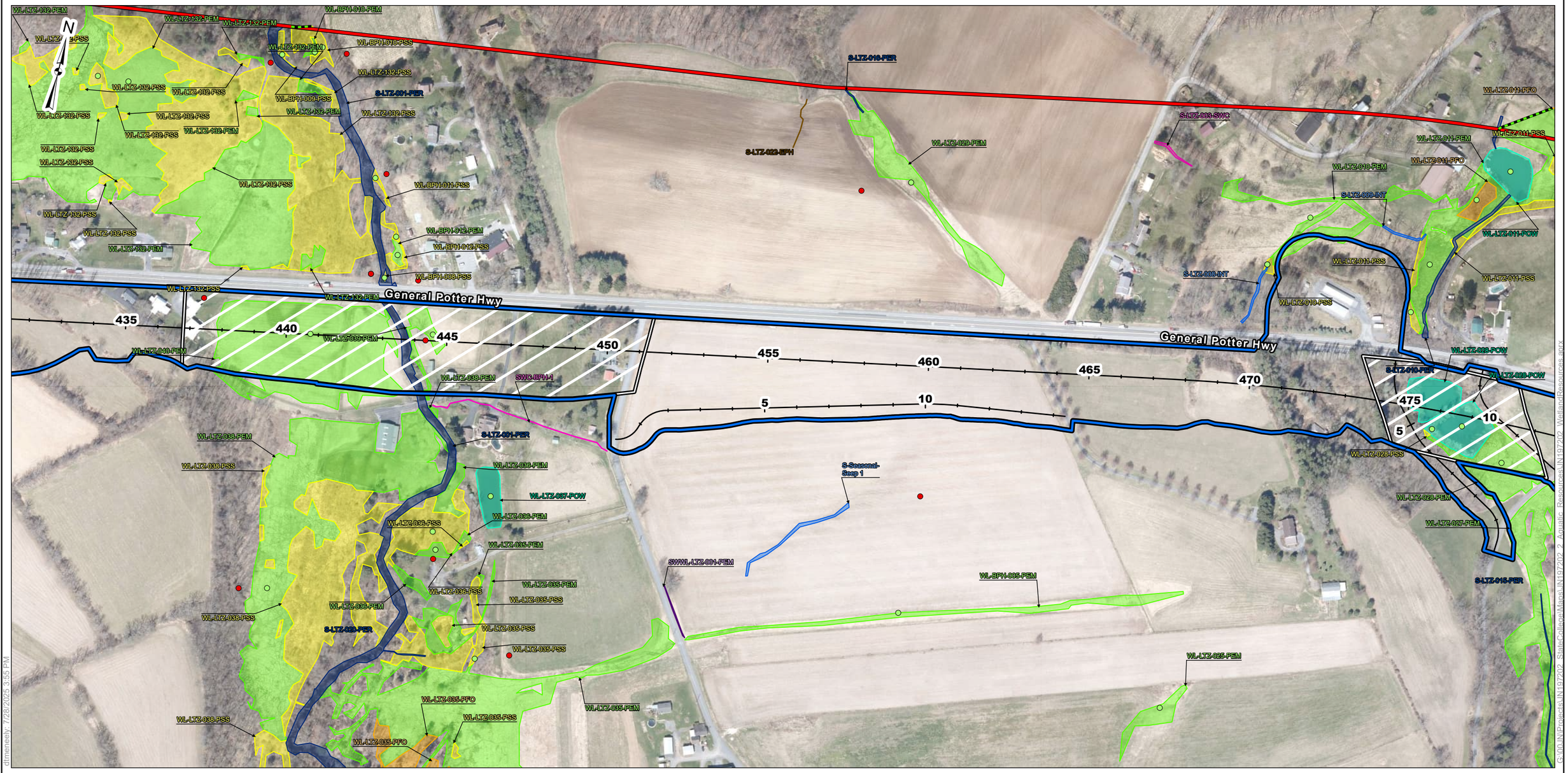
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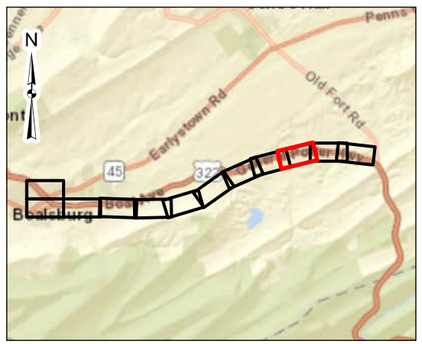
State College Area Connector Project
Centre County, Pennsylvania

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Legend

- South Alternative
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- Palustrine Scrub-shrub (PSS)
- Stormwater Wetland (SWWL)

DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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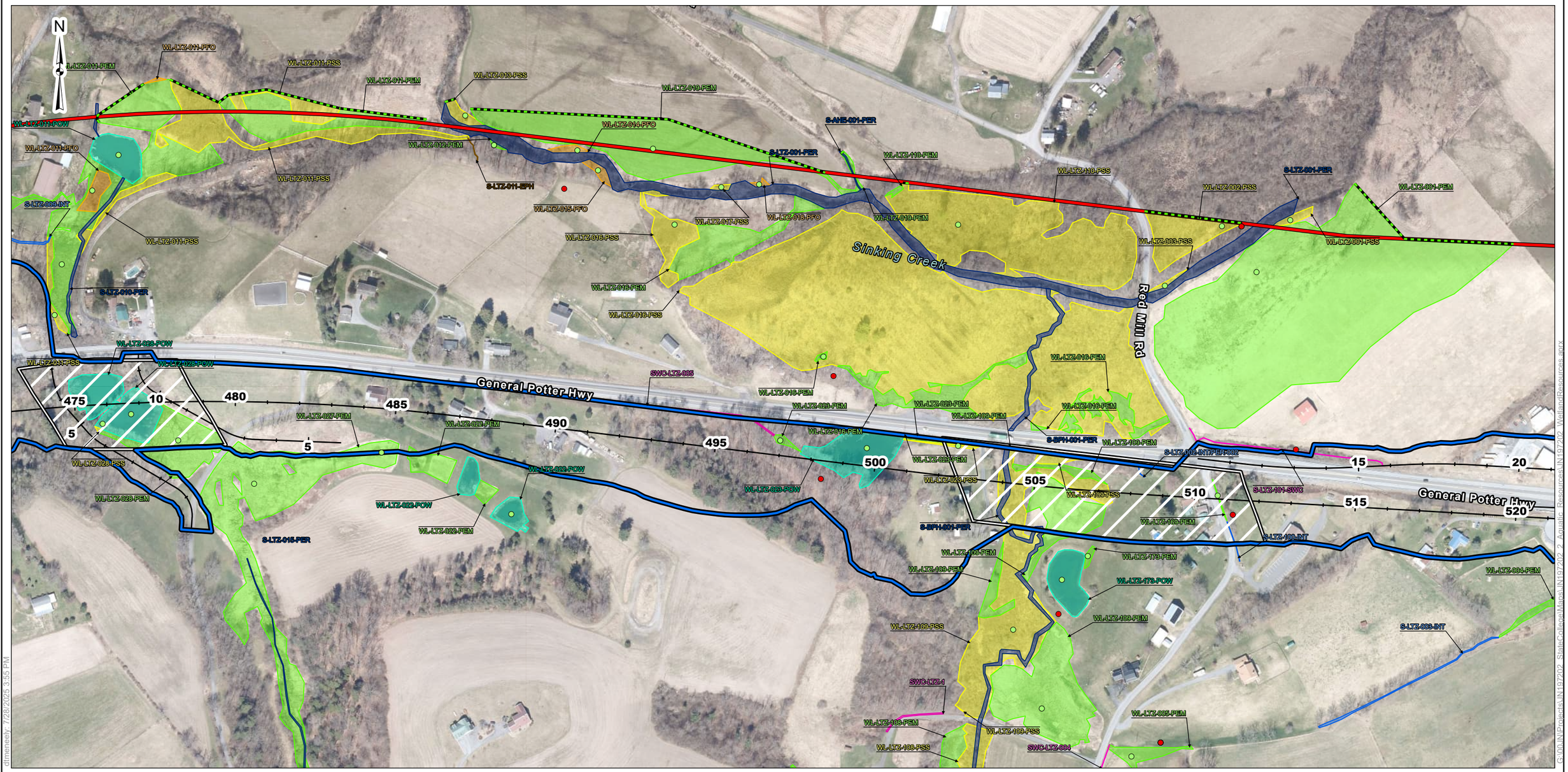
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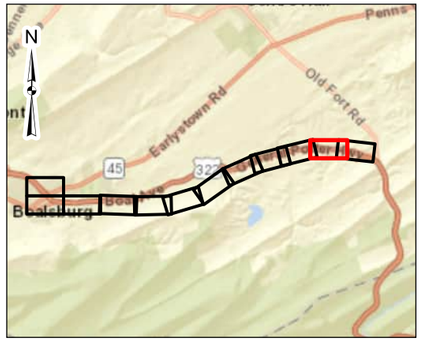
State College Area Connector Project
Centre County, Pennsylvania

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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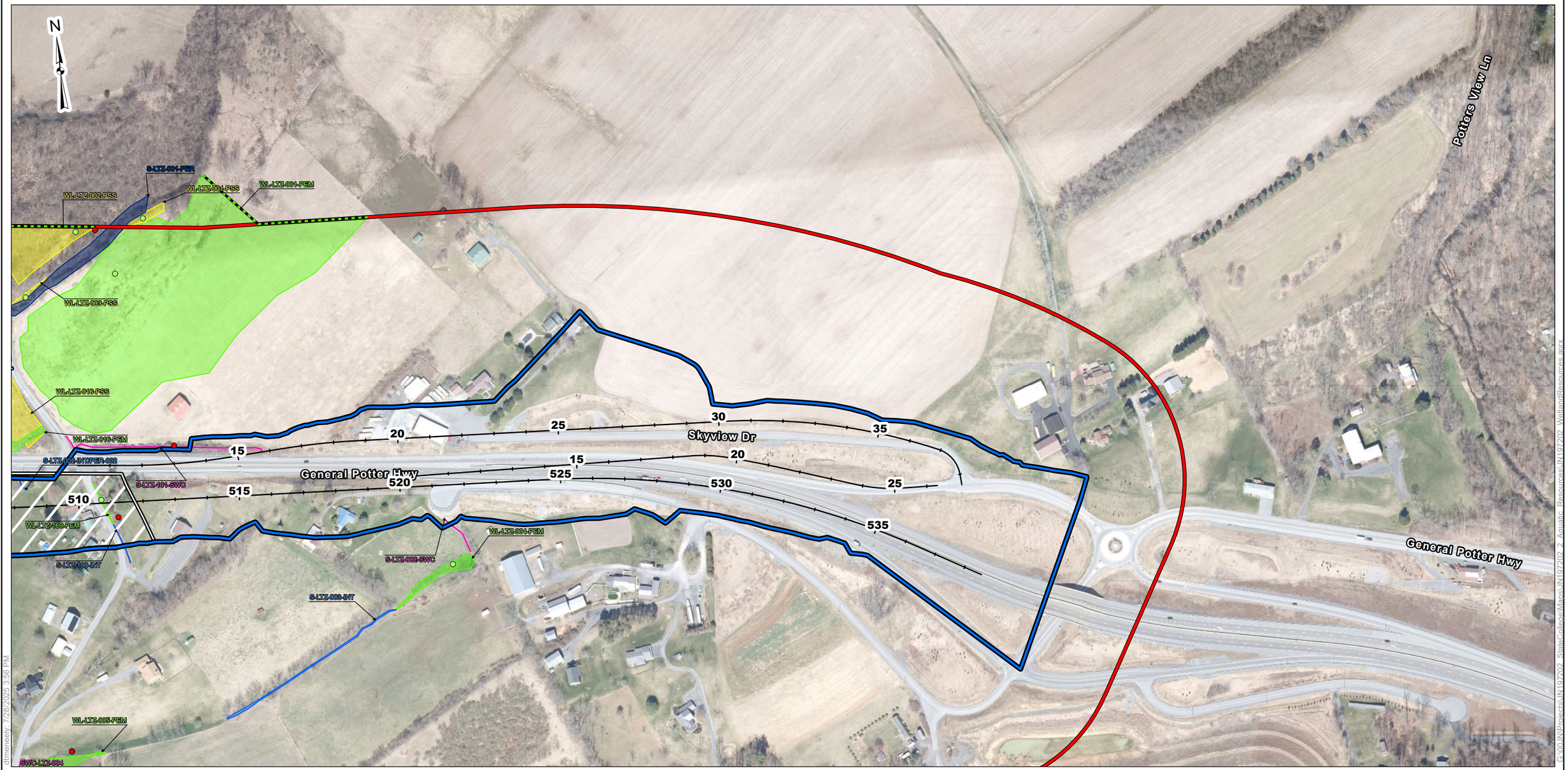
South Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

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Legend

- South Alternative
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

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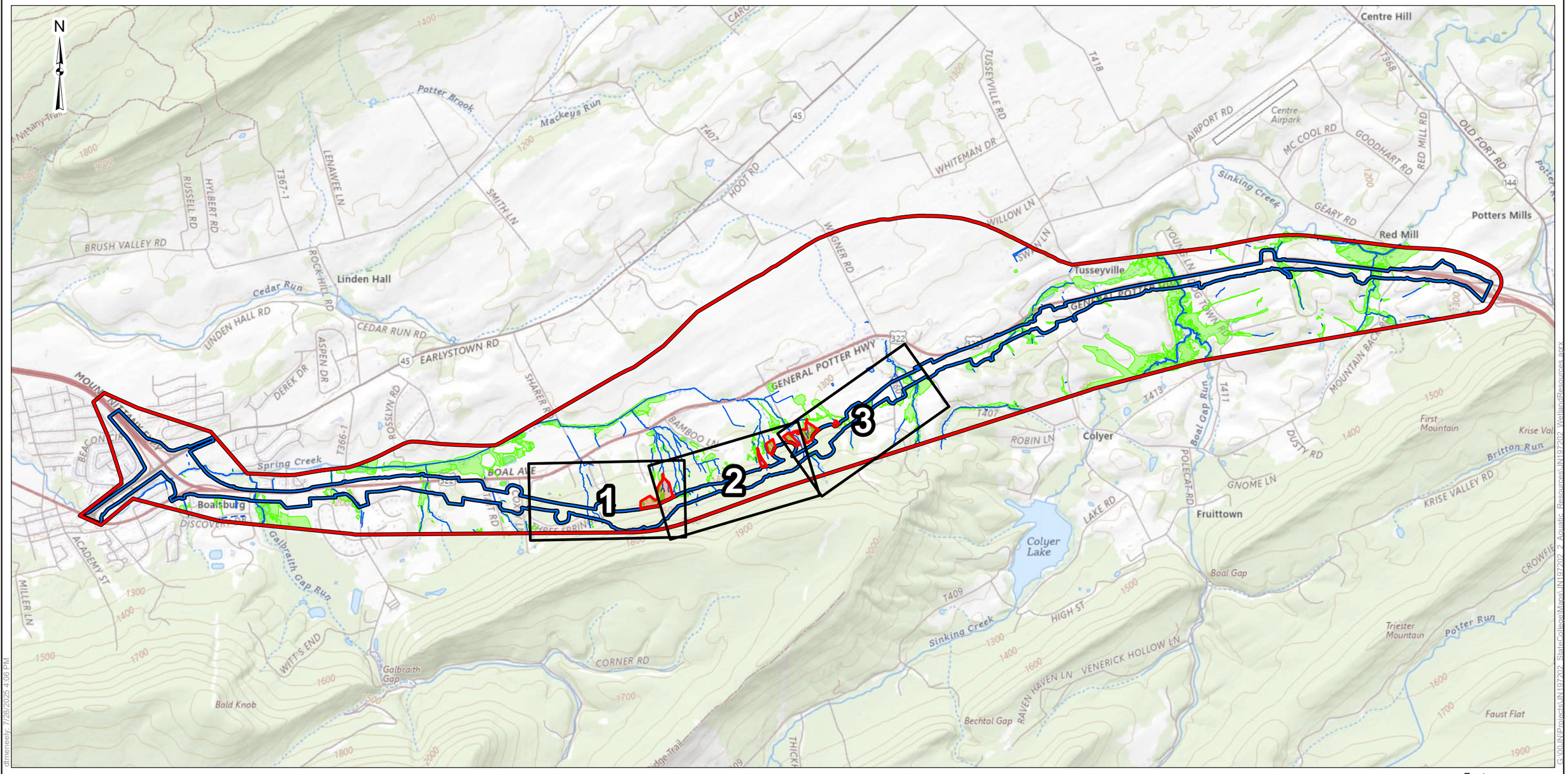
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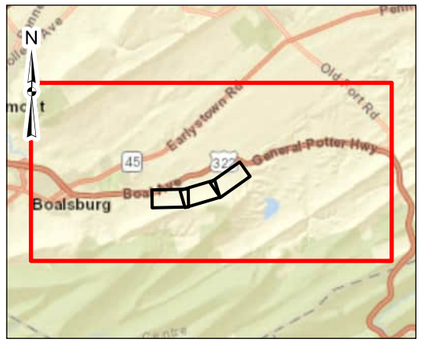
South Alternative
Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

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Legend

- Sheet
- Indirect South Alternative
- South Alternative
- Project Area
- Watercourse
- Wetland

DATA SOURCE(S):
USGS Quadrangle - Centre Hall and State College, Pennsylvania 2023
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
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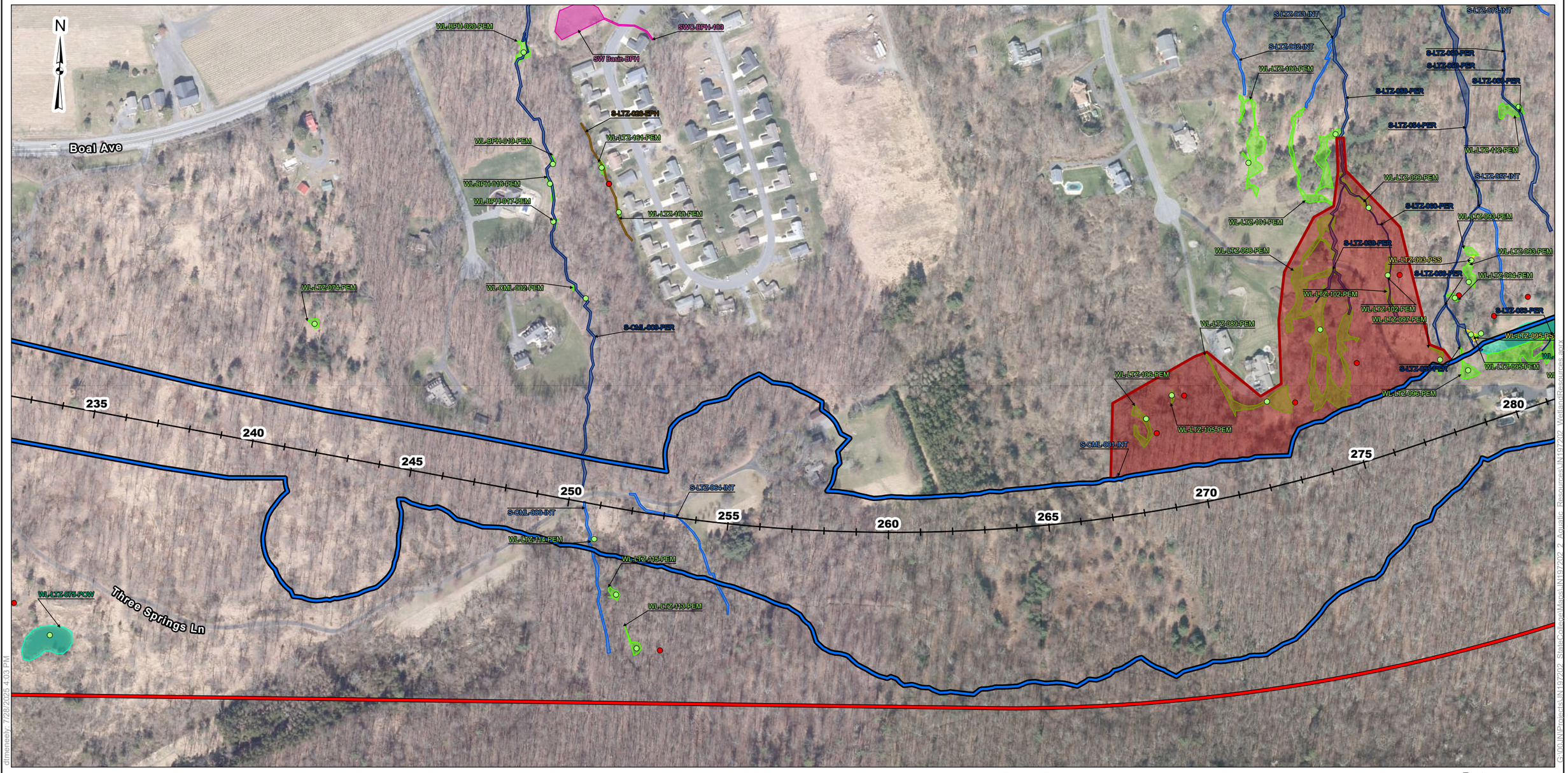
South Alternative Indirect Wetland and Watercourse Impact Map

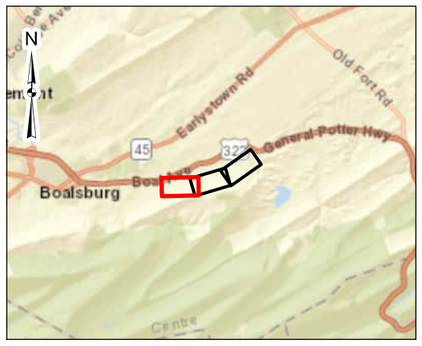
State College Area Connector Project
Centre County, Pennsylvania

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Legend

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- Palustrine Scrub-shrub (PSS)
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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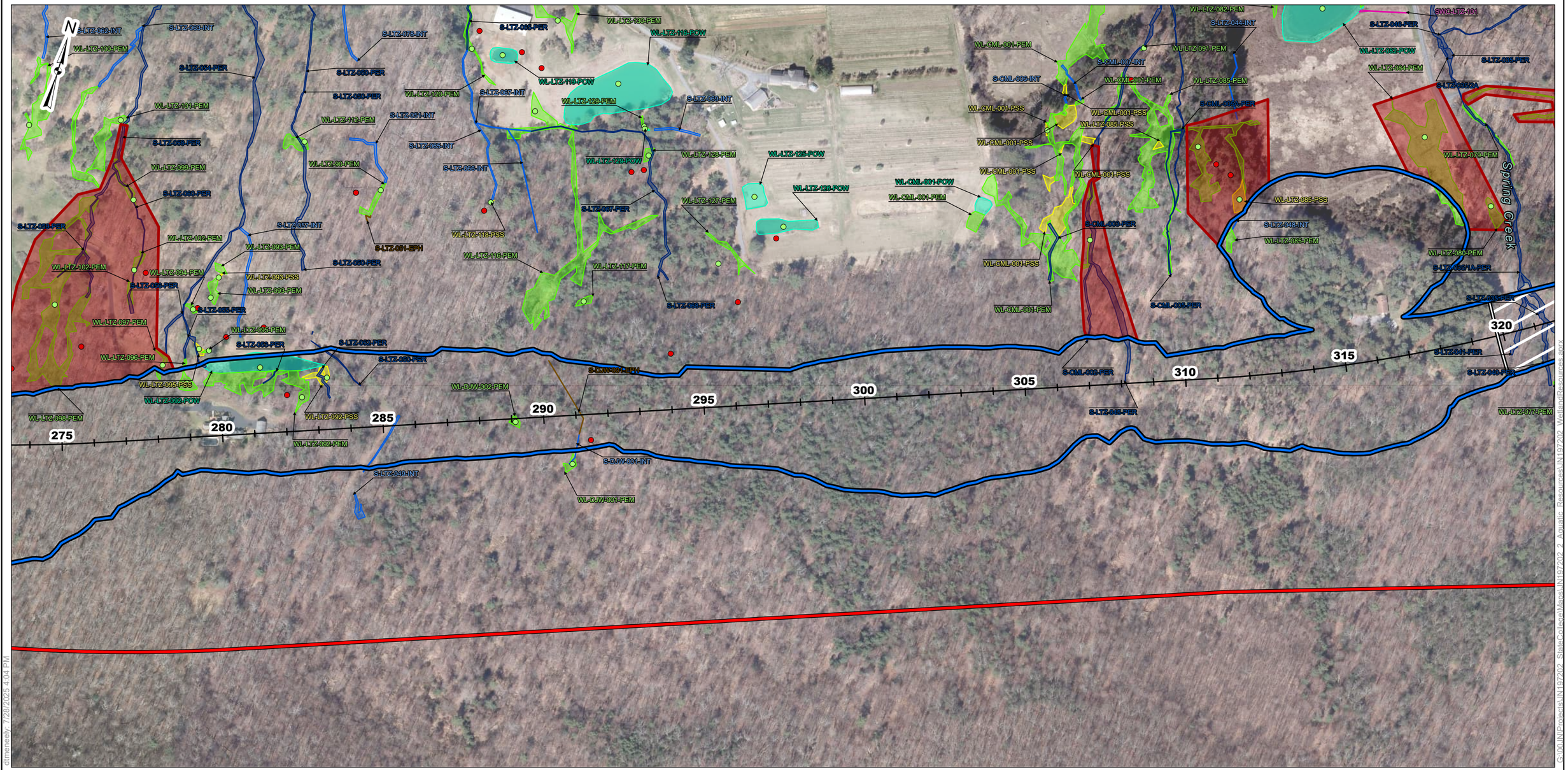
South Alternative Indirect Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

Appendix A-4

Sheet 1 of 3

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Legend

- South Alternative
- Indirect South Alternative
- Bridge Span Minimization Area
- Project Area
- Roadway Design
- Upland Soil Pit
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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
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Project No.:	JN197202
Date:	July 2025
Drawn By:	DTM
Reviewed By:	LTZ

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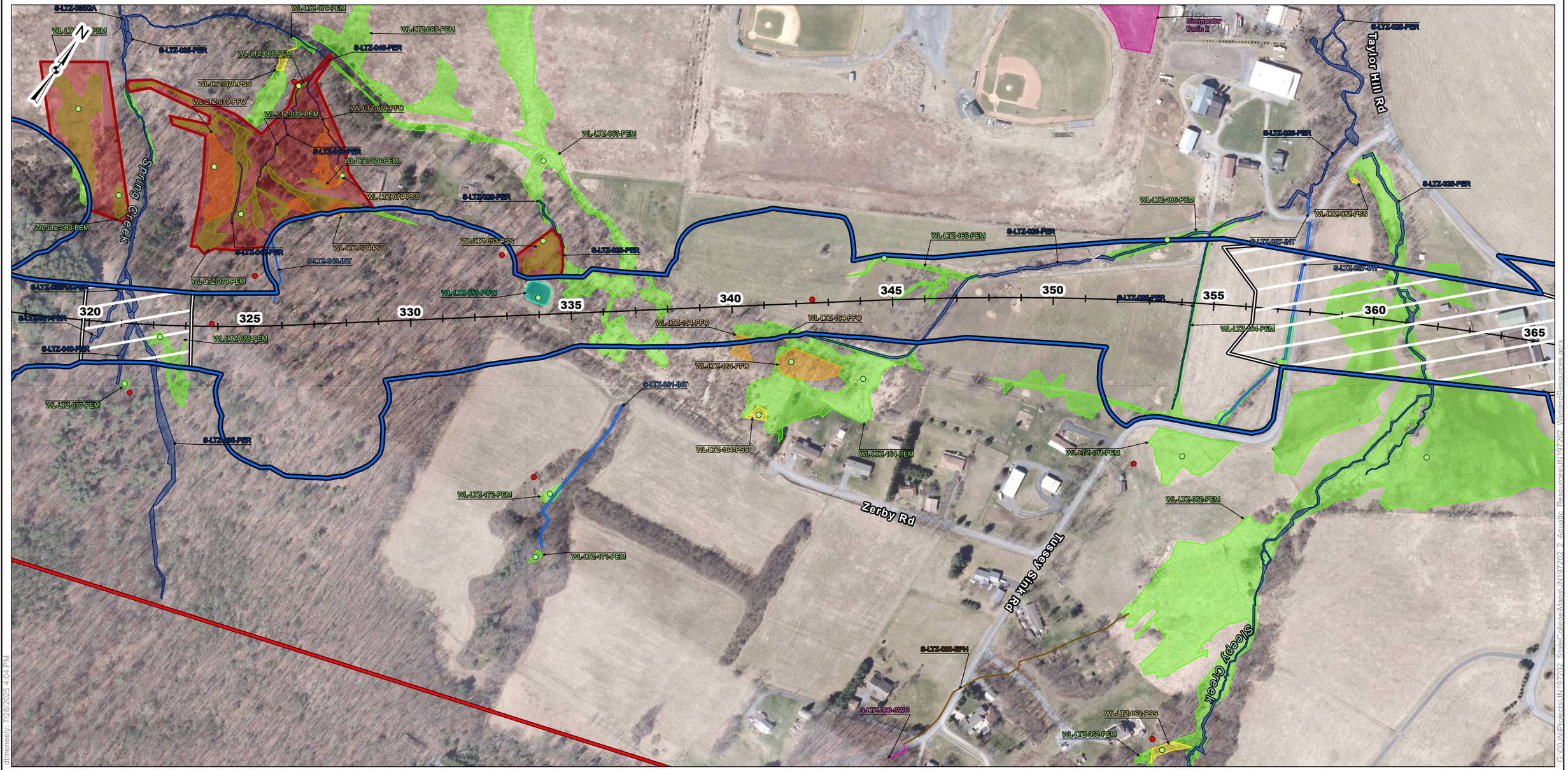
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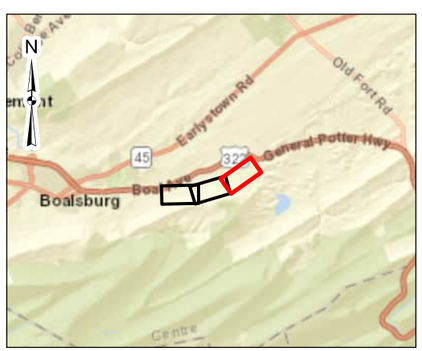
State College Area Connector Project
Centre County, Pennsylvania

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Sheet 2 of 3

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Legend

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DATA SOURCE(S):
PennDOT Drone Aerial Imagery, 2024
Skelly and Loy Inc. Delineation Teams, 2025

Feet
0 150 300 600

Project No.:	JN197202
Date:	July 2025
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Reviewed By:	LTZ

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South Alternative Indirect Wetland and Watercourse Impact Map

State College Area Connector Project
Centre County, Pennsylvania

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Sheet 3 of 3

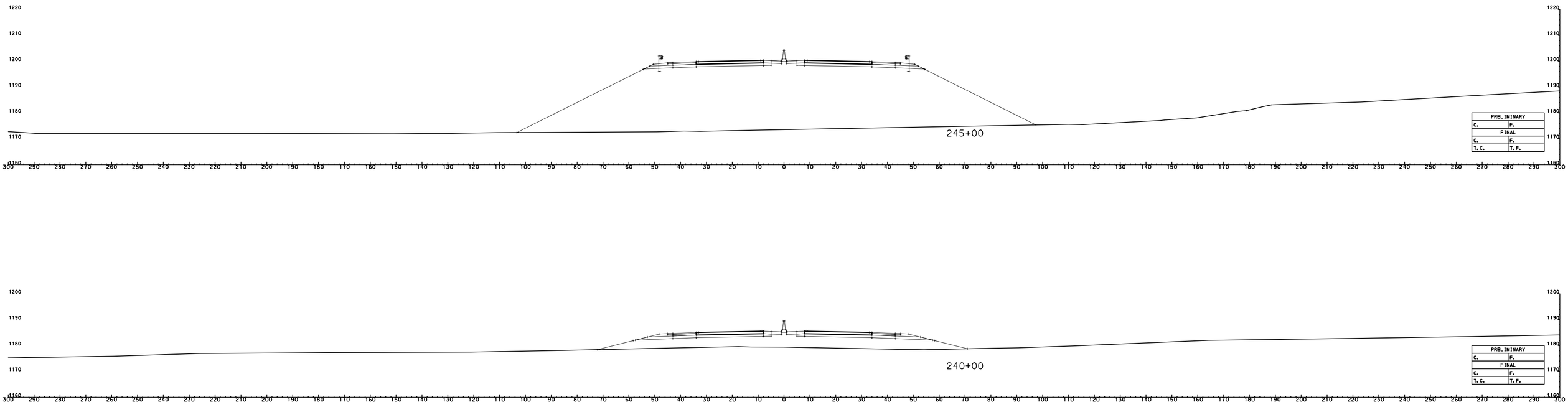
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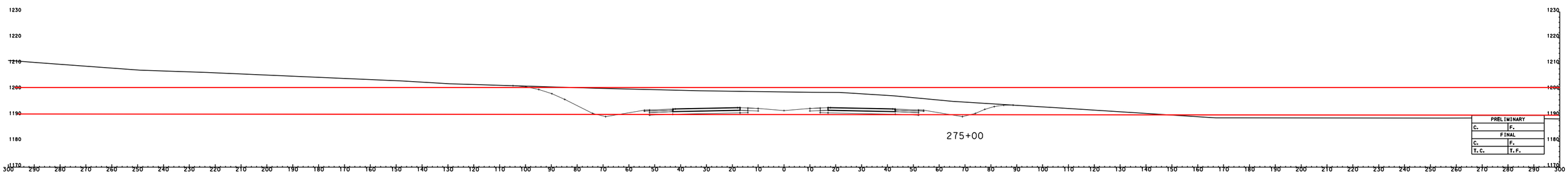
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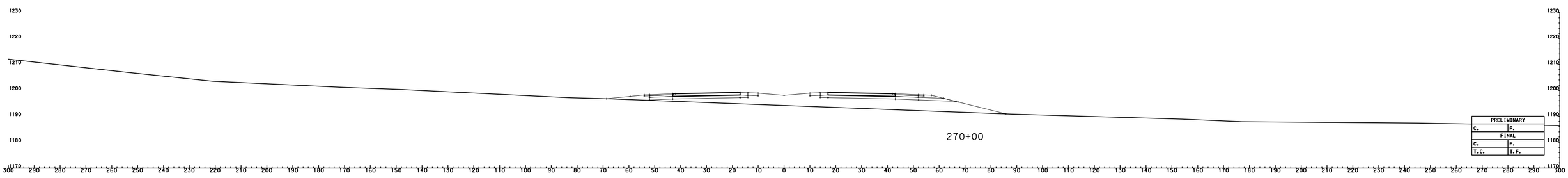
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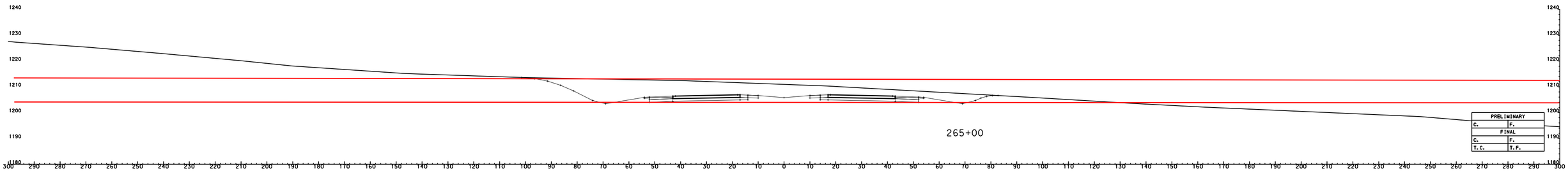
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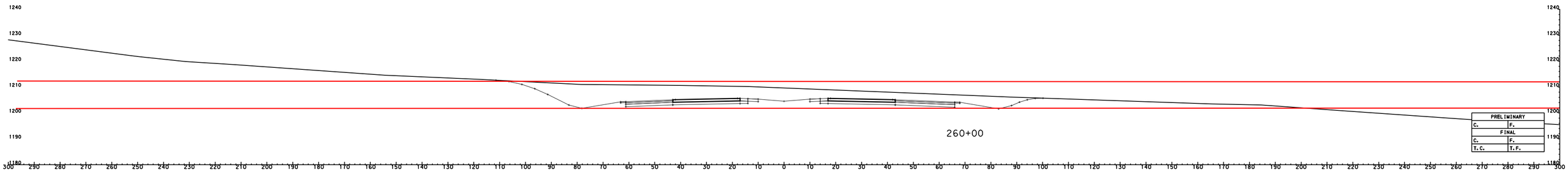
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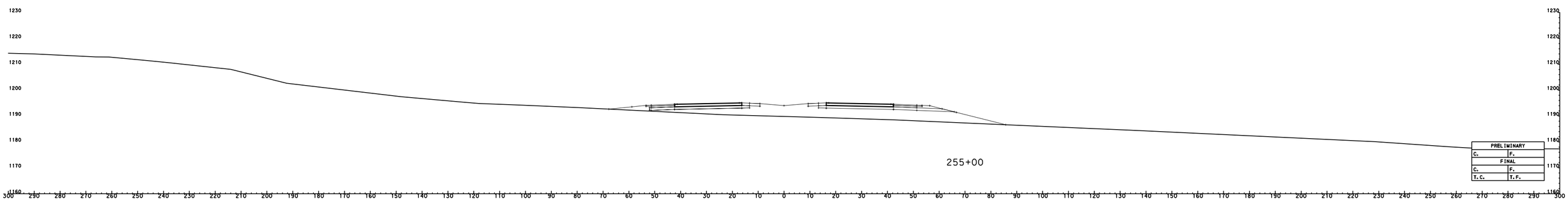


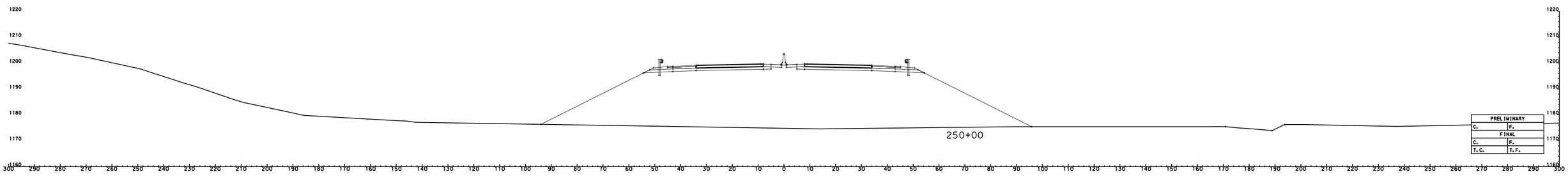

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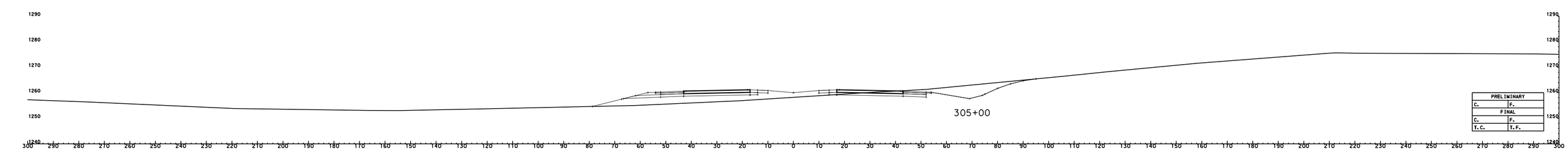

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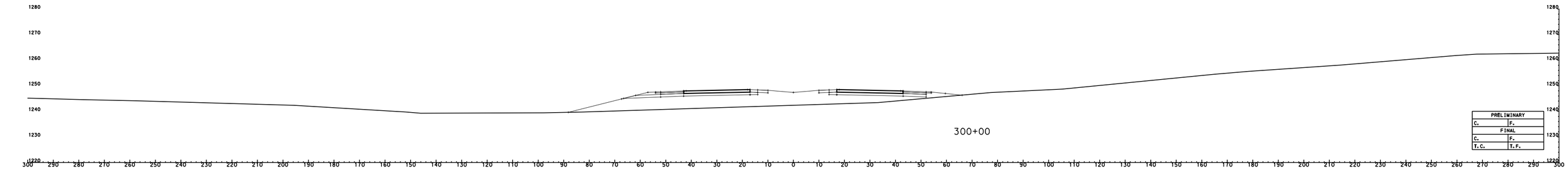

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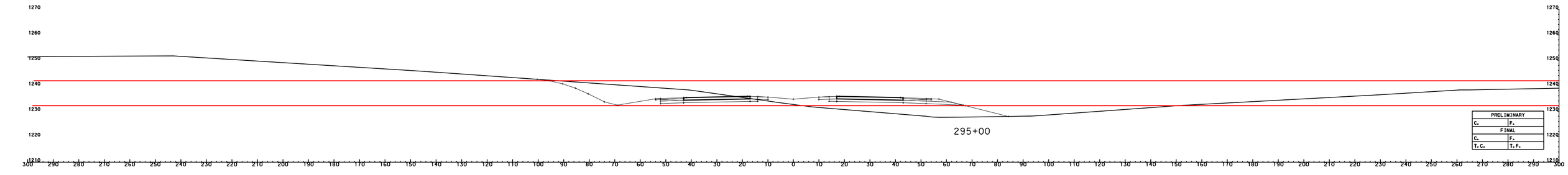

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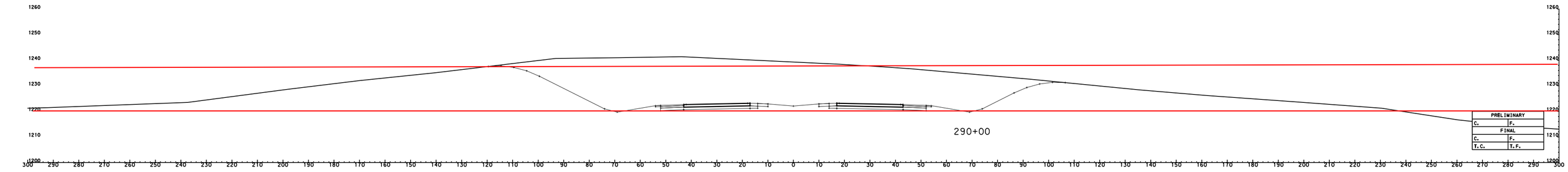

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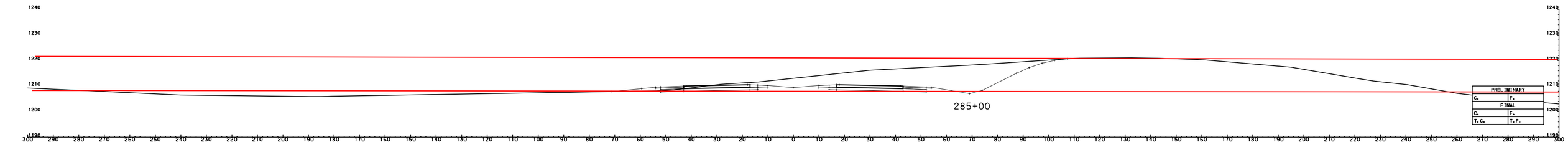

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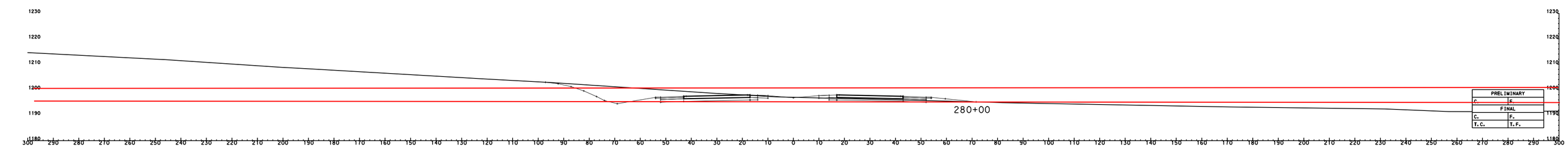

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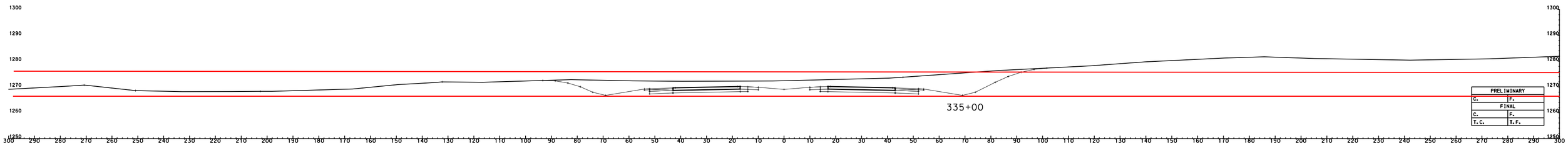

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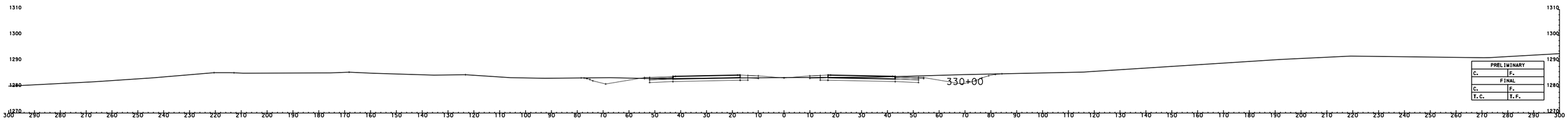

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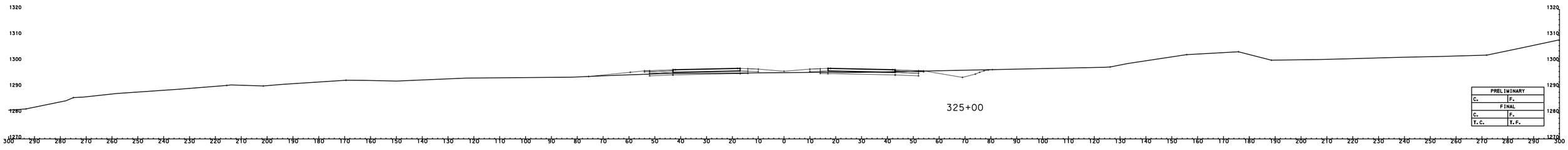

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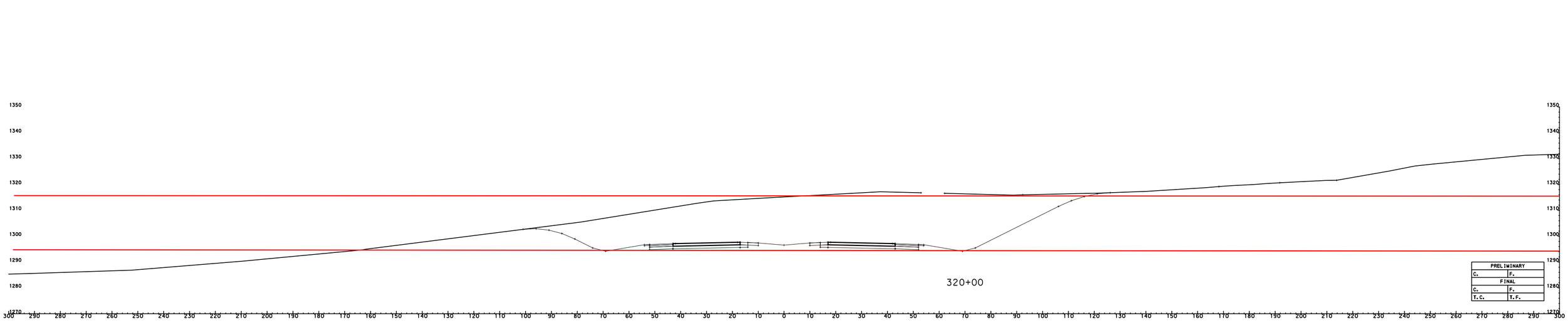

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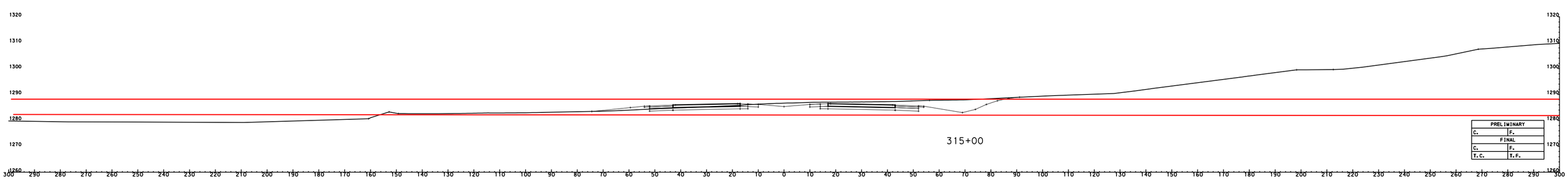

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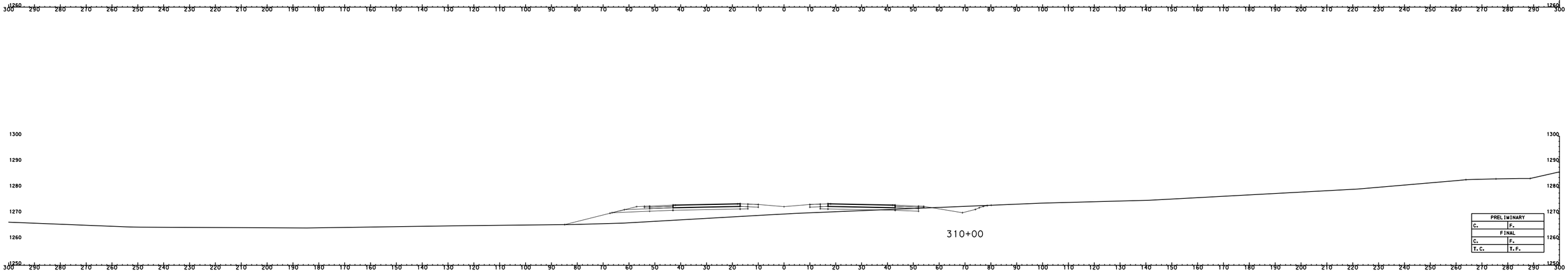

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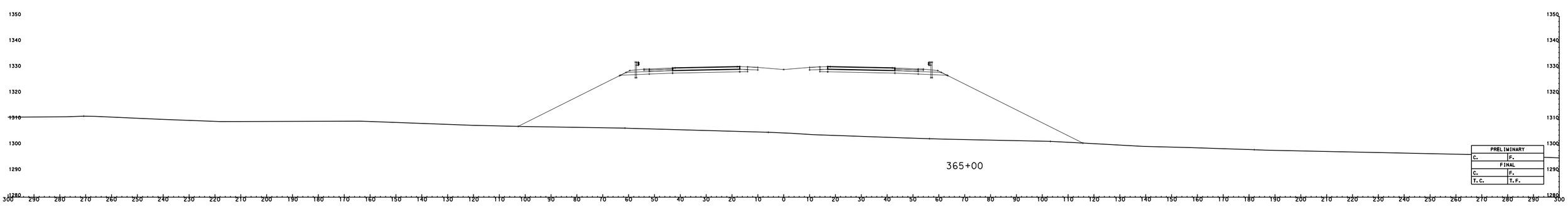

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C. F.
T.C. T.F.

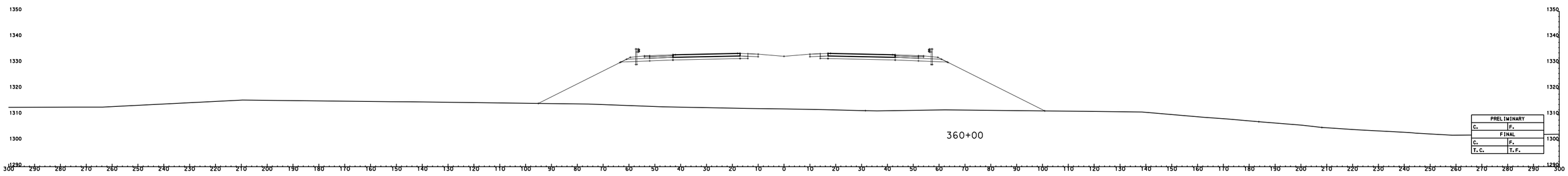

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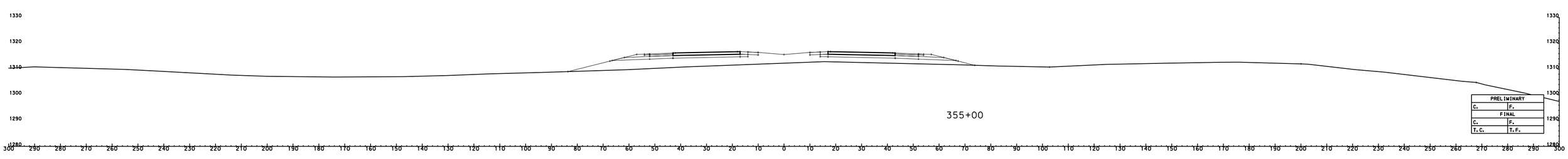

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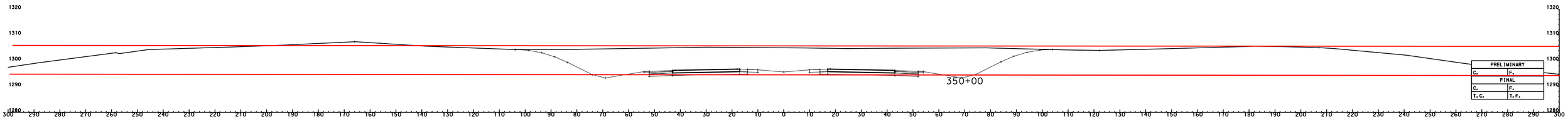

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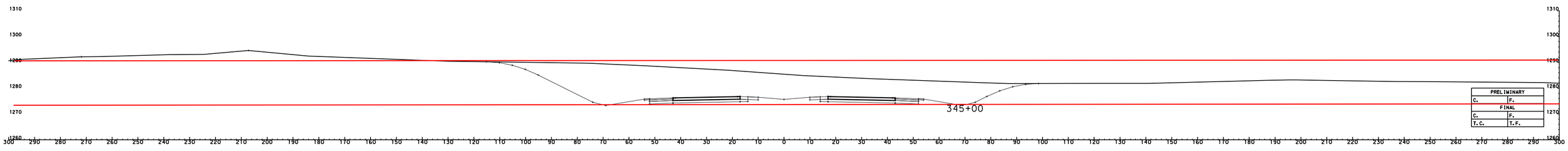

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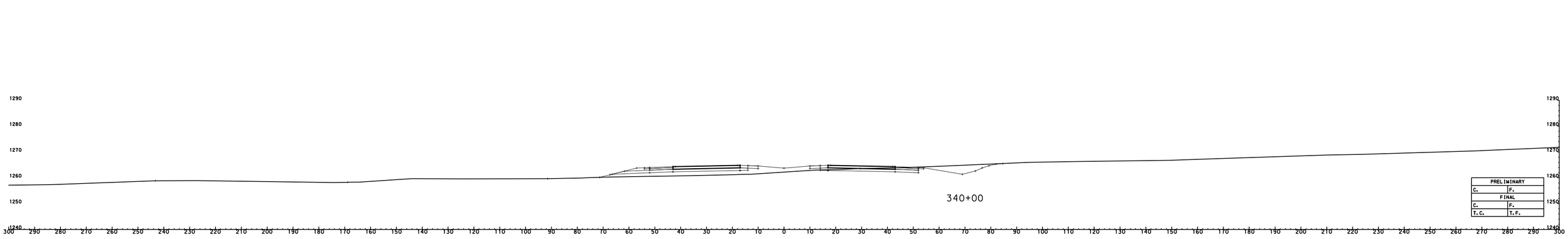

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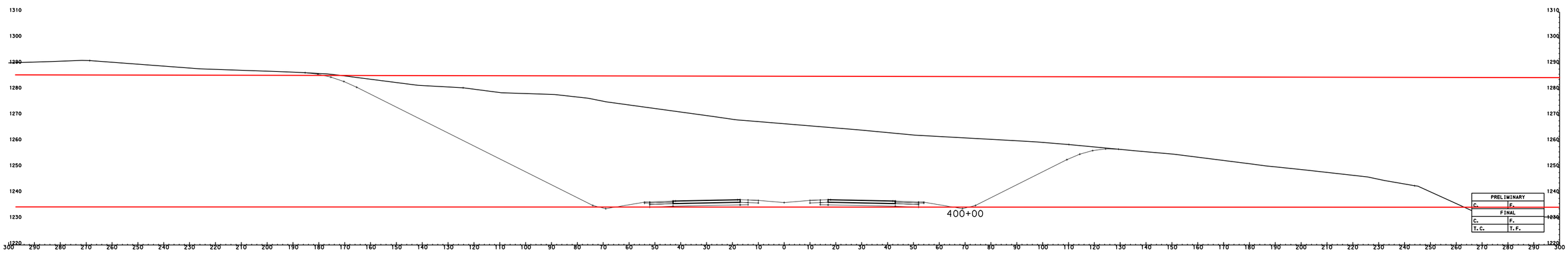

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FINAL
C. F.
T.C. T.F.


355+00
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C. F.
FINAL
C. F.
T.C. T.F.


350+00
PRELIMINARY
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T.C. T.F.


345+00
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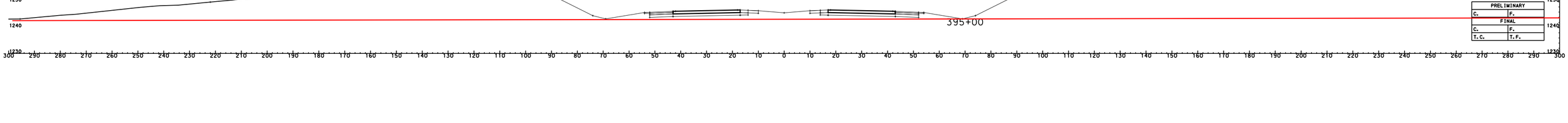

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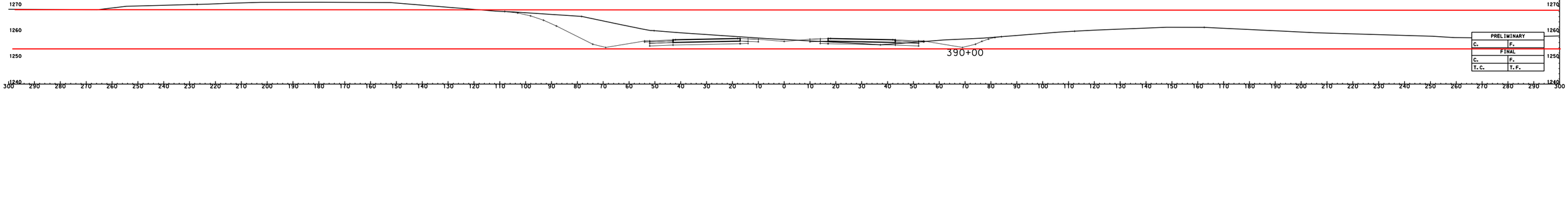

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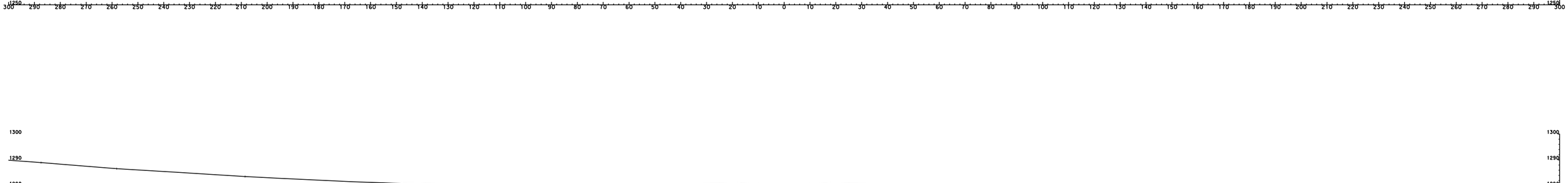
395+00
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FINAL
C. F.
T.C. T.F.

390+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


385+00
PRELIMINARY
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FINAL
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T.C. T.F.


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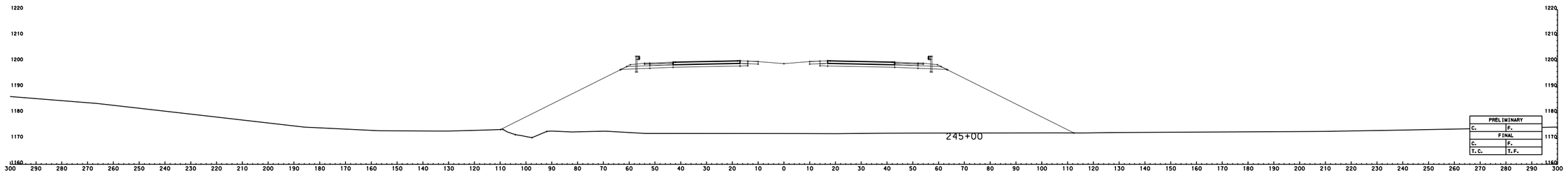

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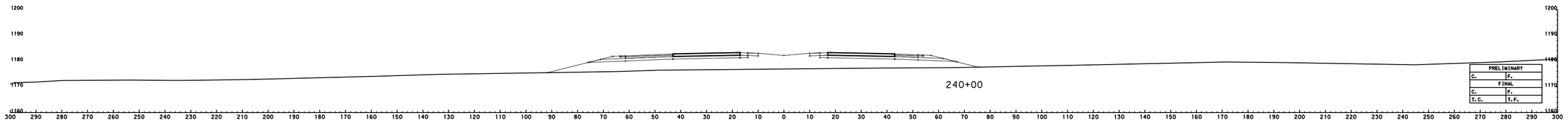

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T.C. T.F.

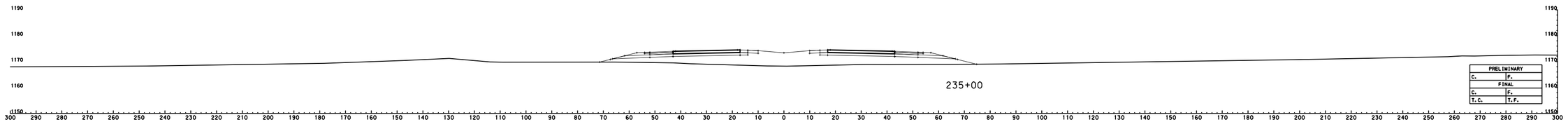
State College Area Connector - Central Alternative

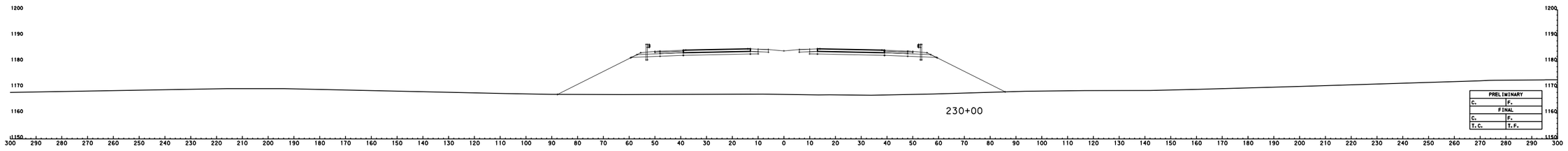
Evaluation of Indirect Impacts to downstream waters

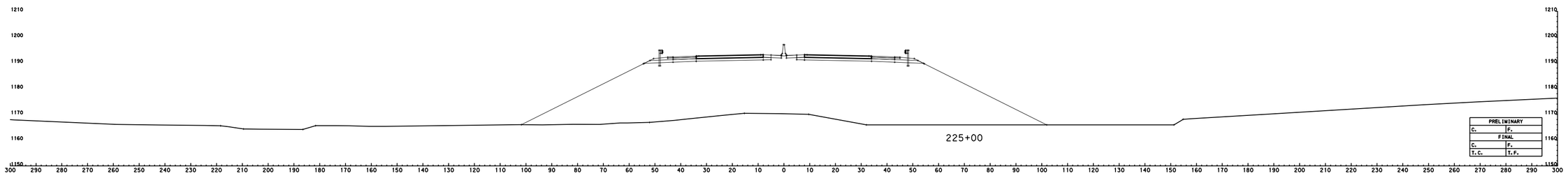
11-19-24

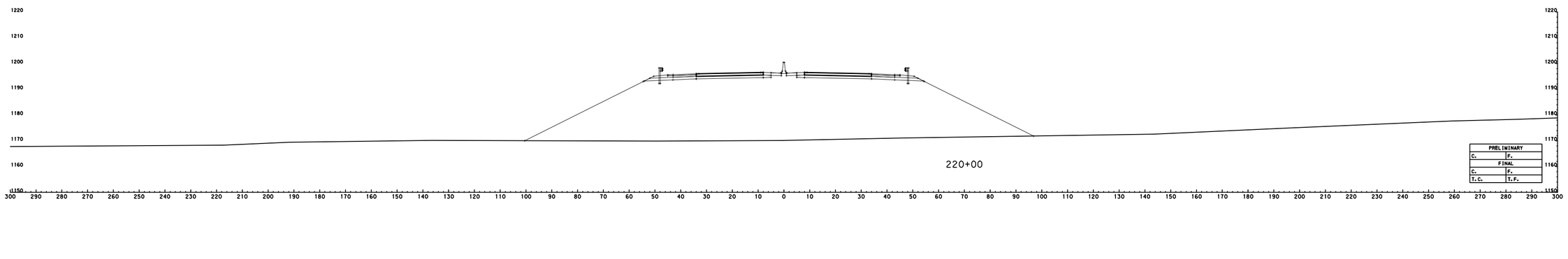


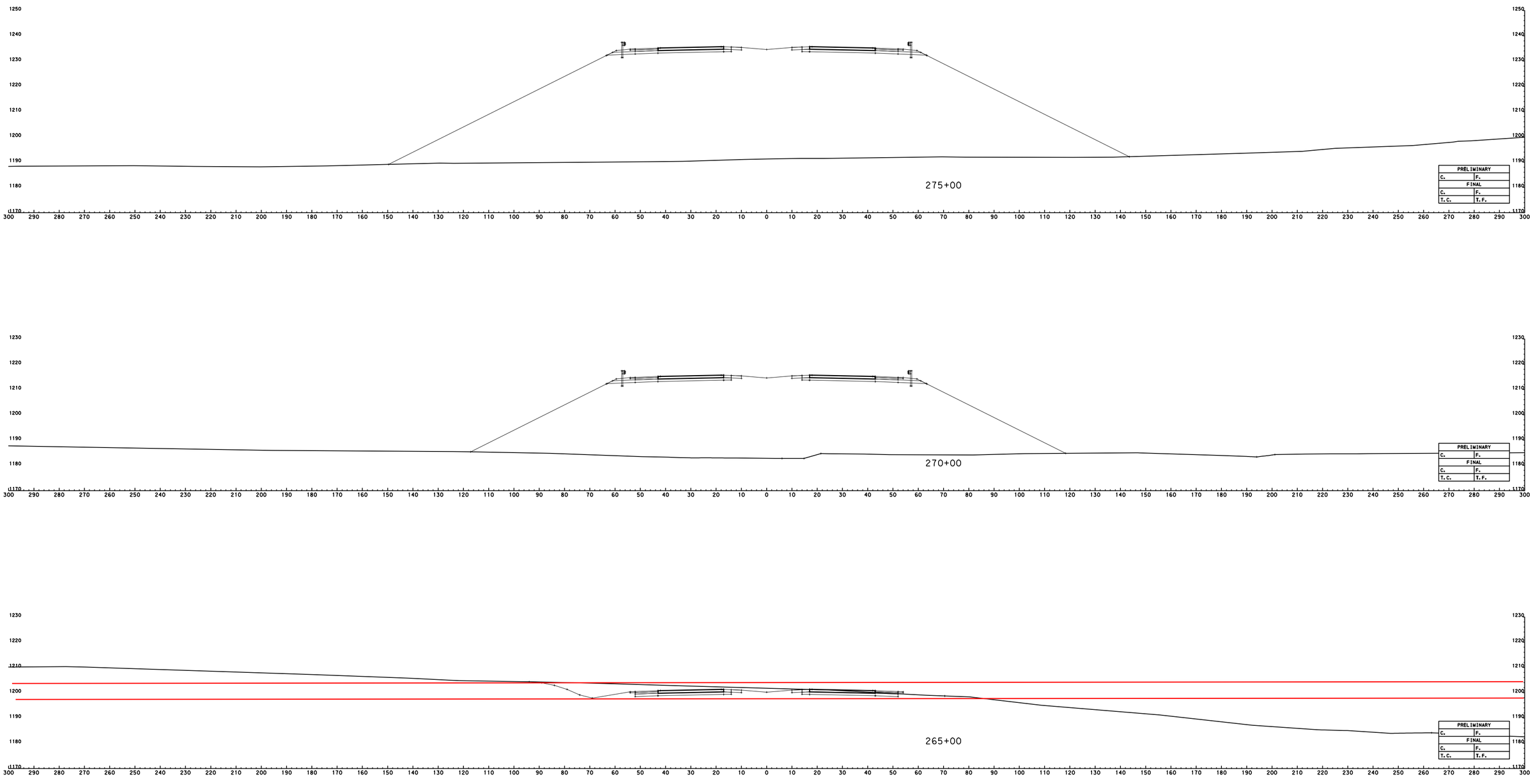


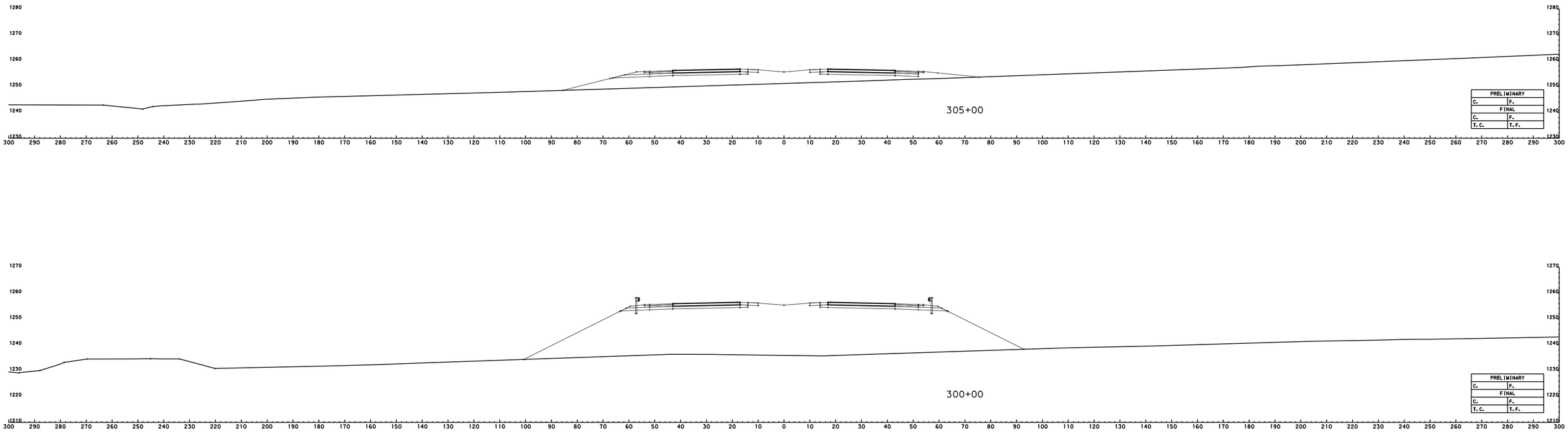


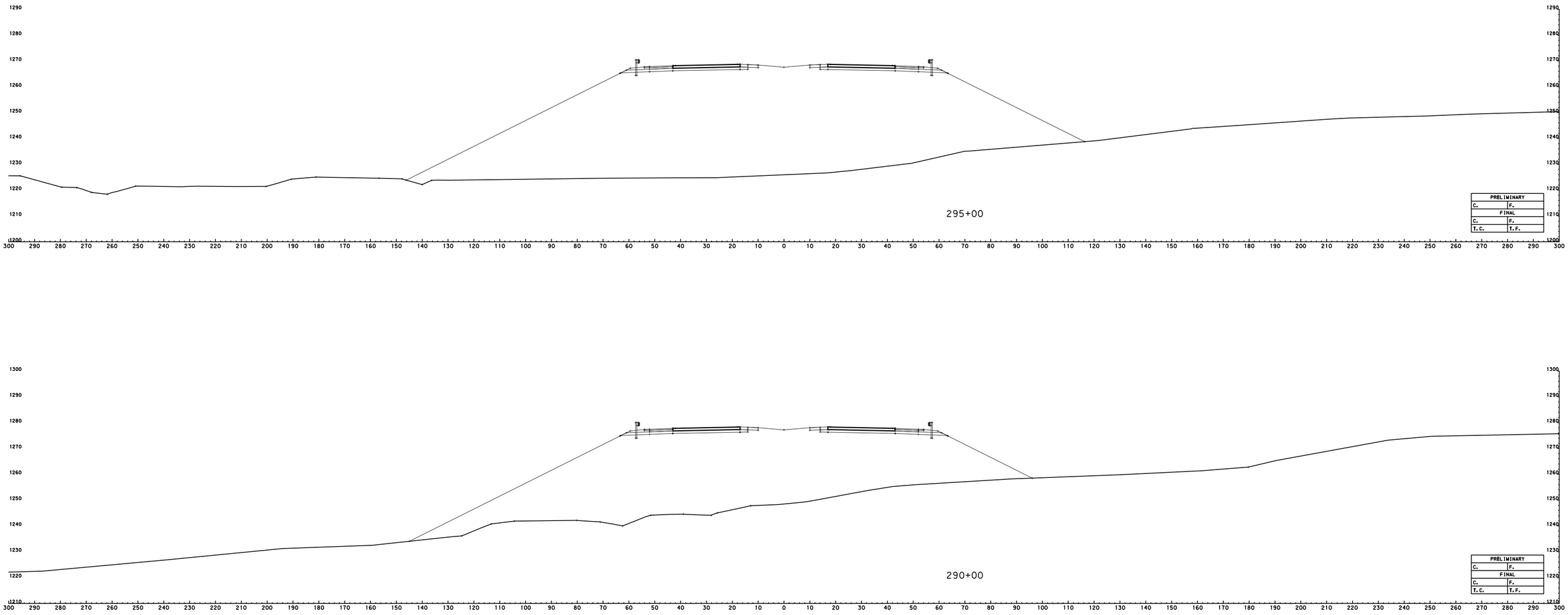


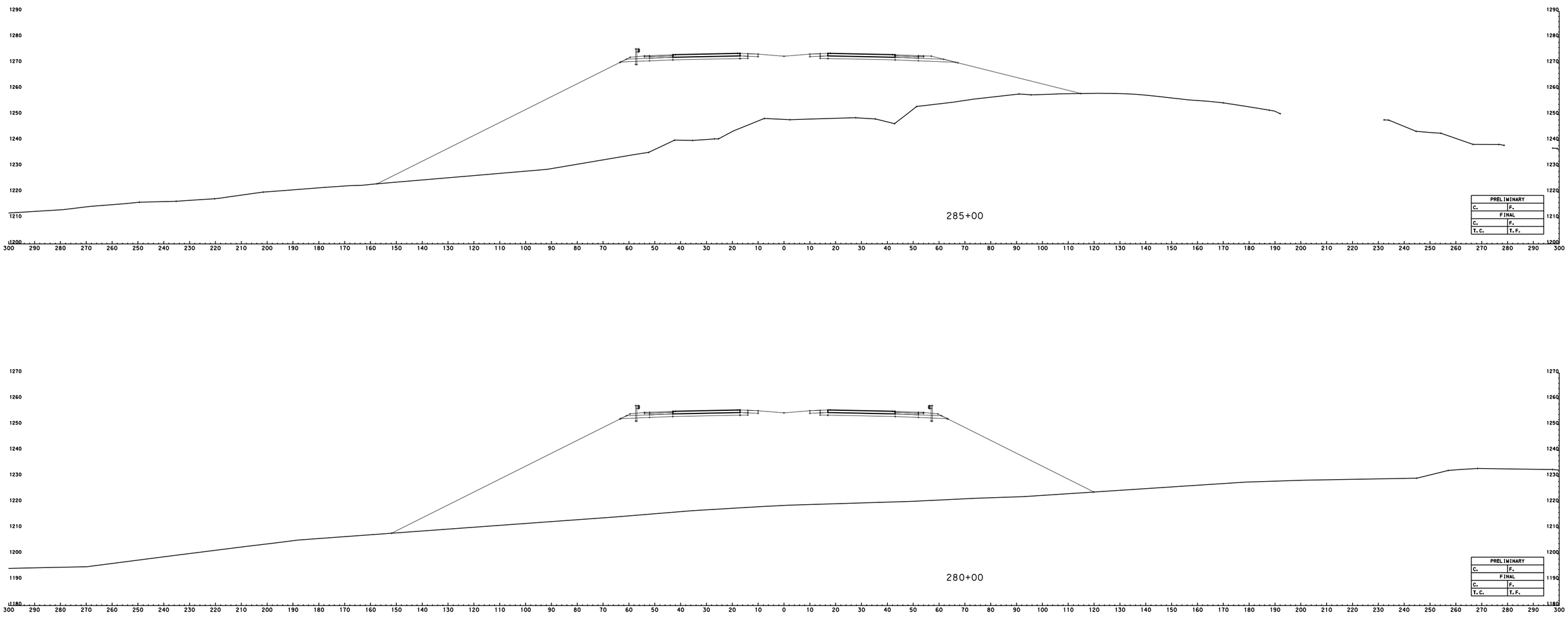


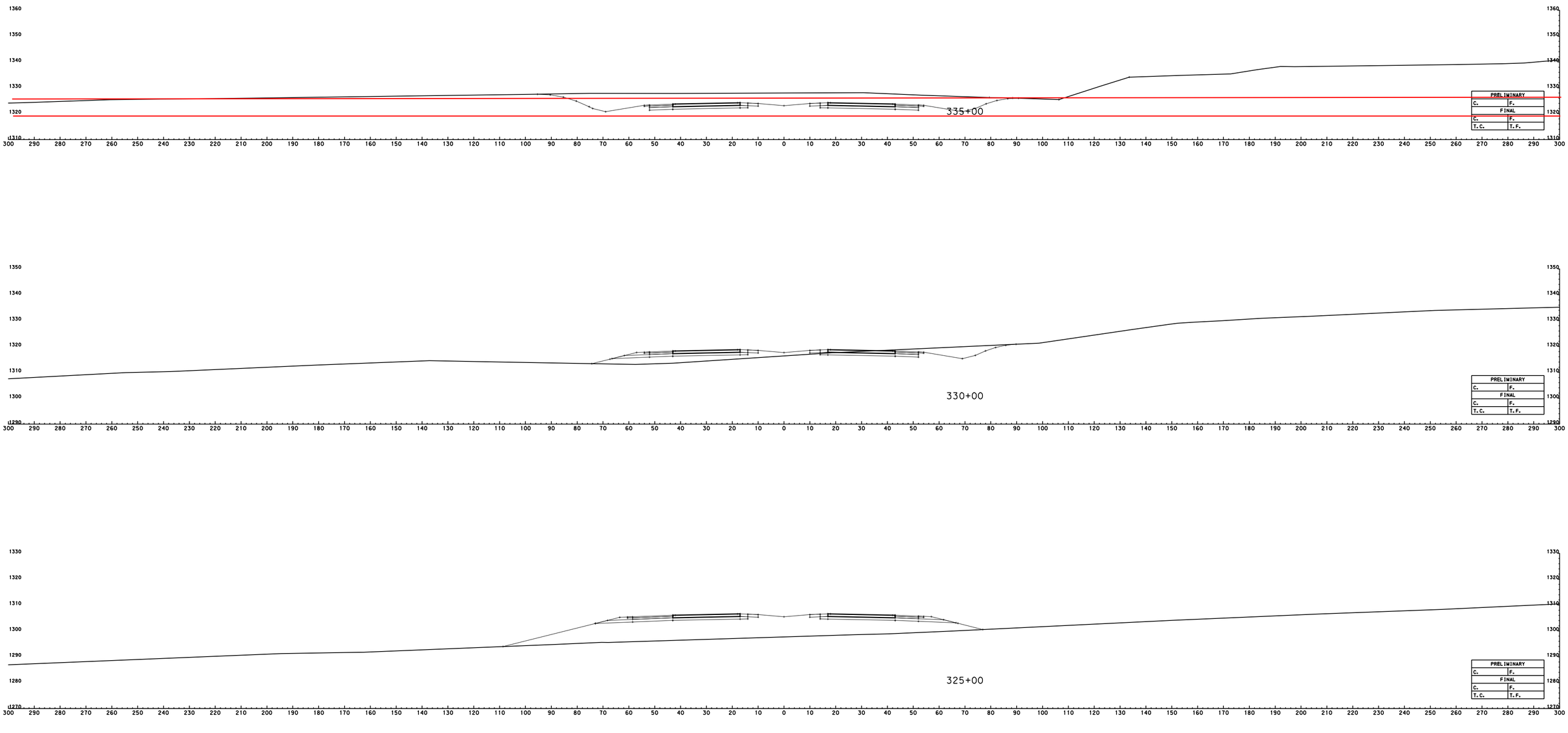



275+00
270+00
265+00
260+00
255+00
250+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


305+00
300+00
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FINAL
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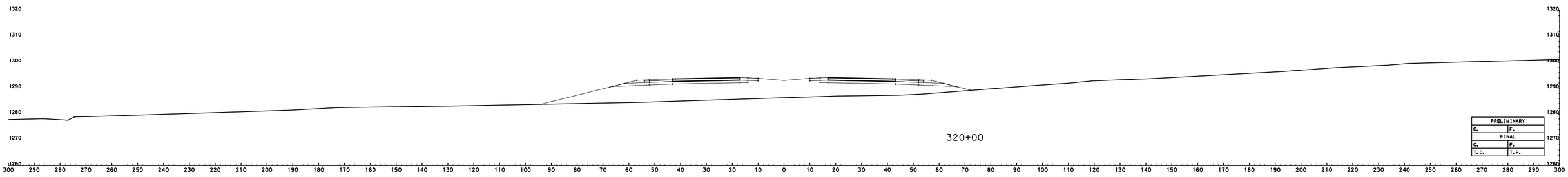

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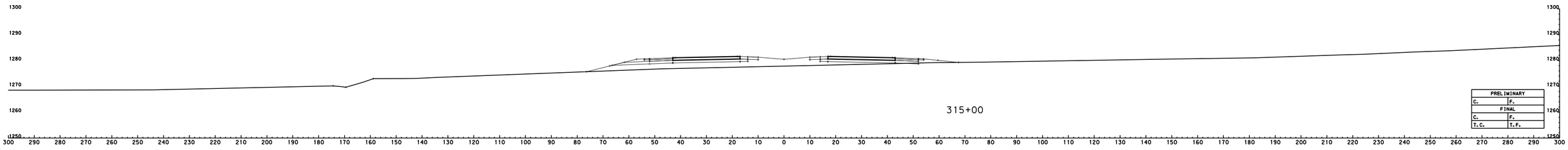

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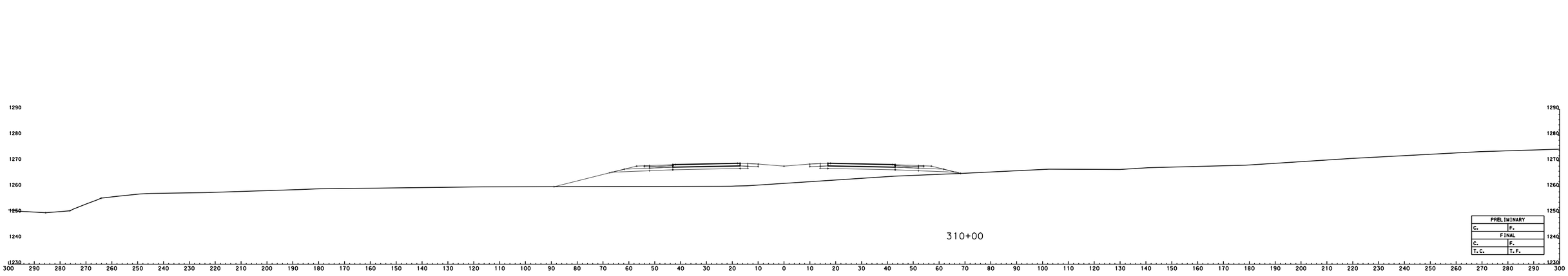

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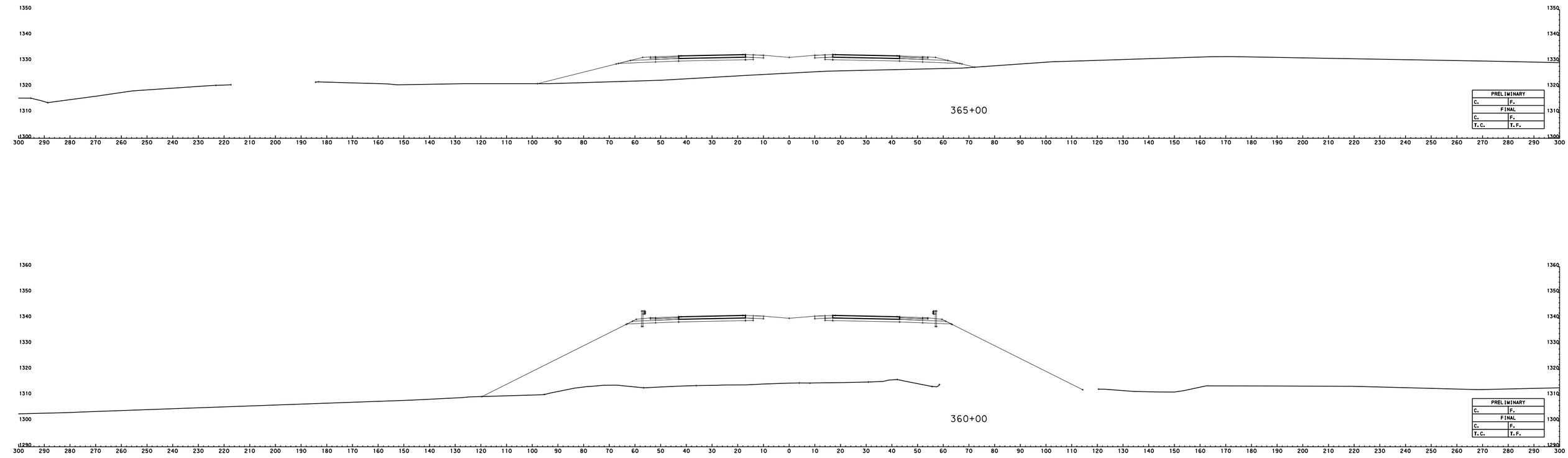
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325+00
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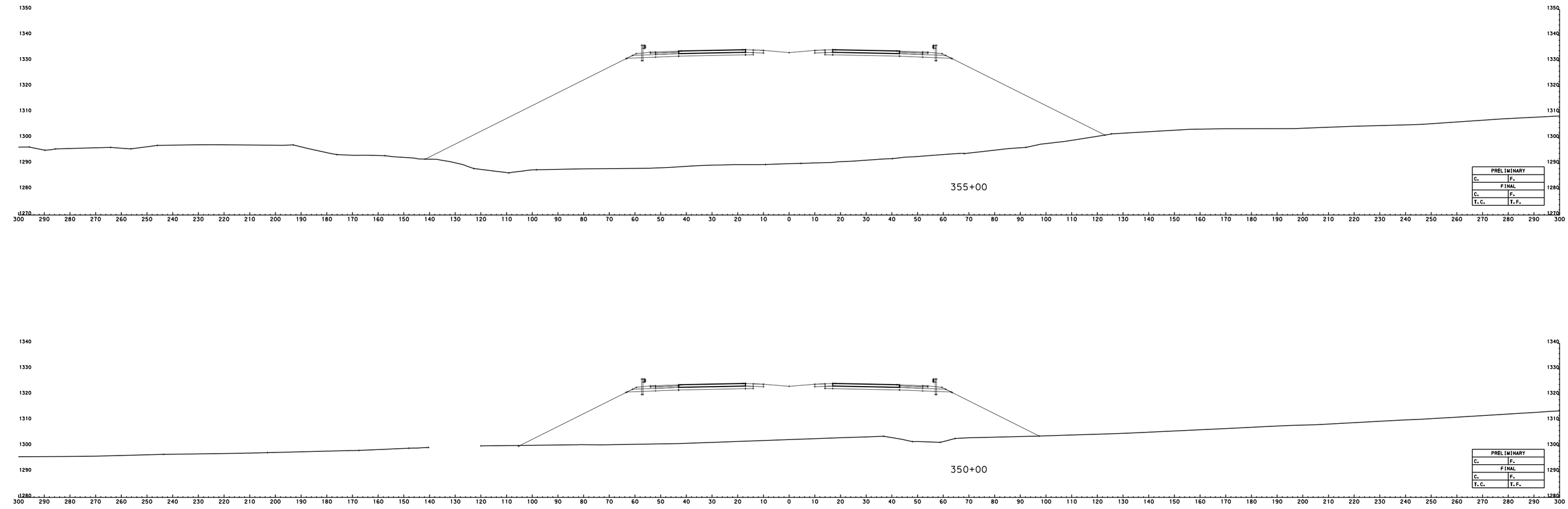

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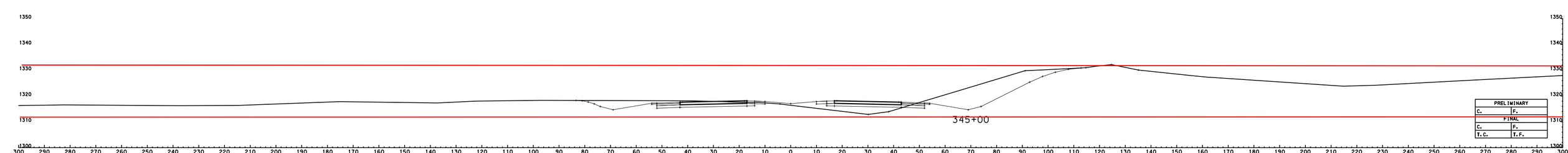

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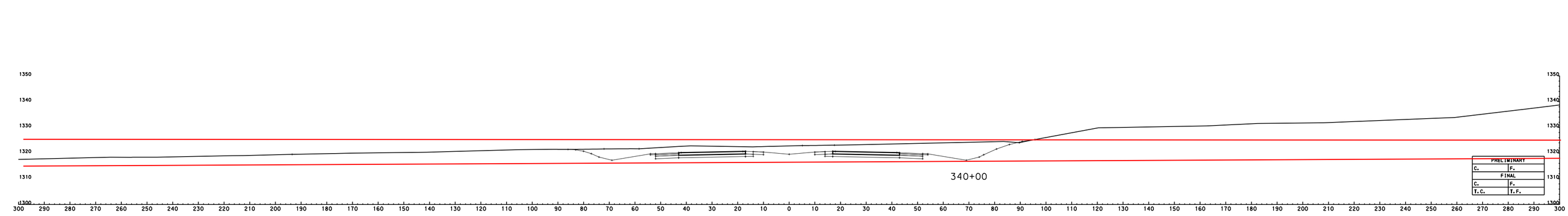

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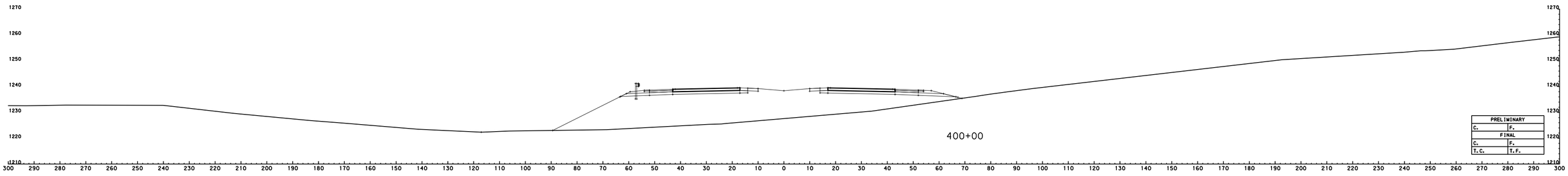
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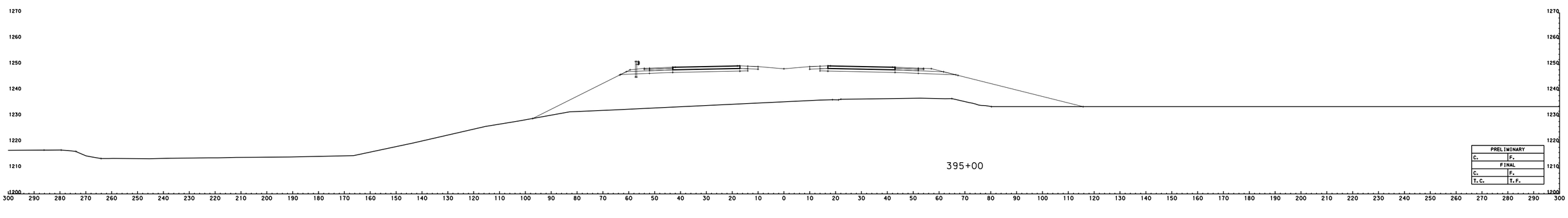

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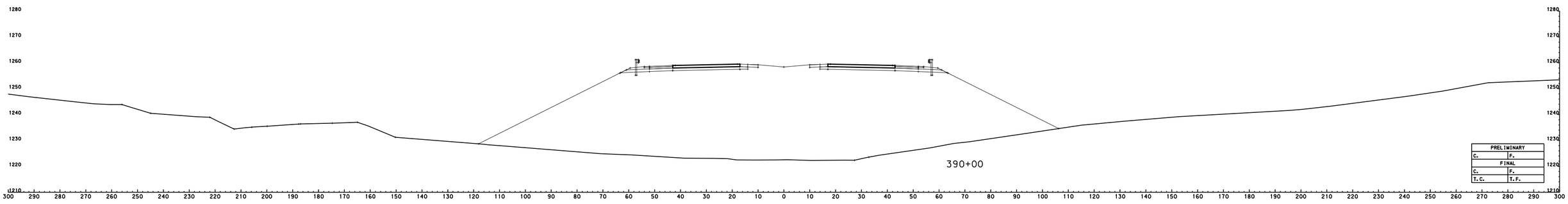
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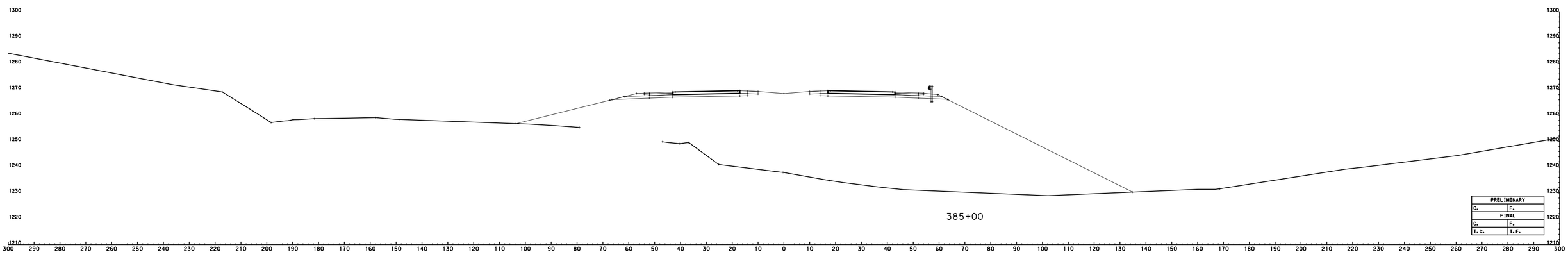

345+00
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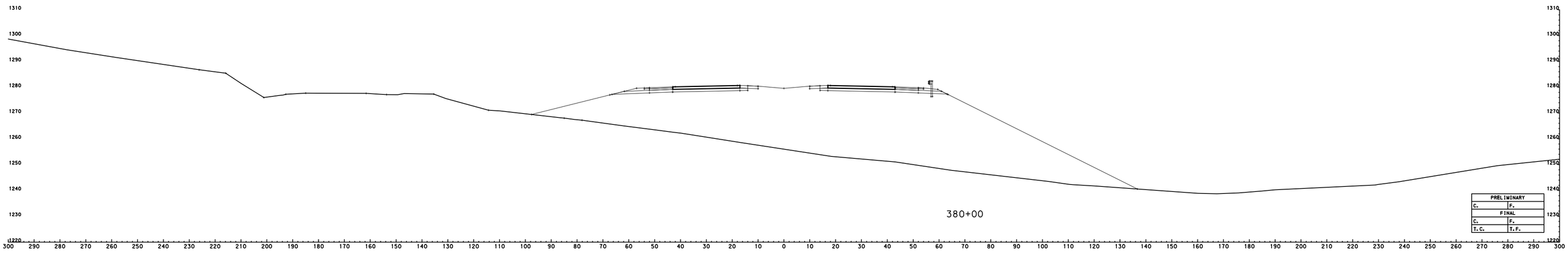

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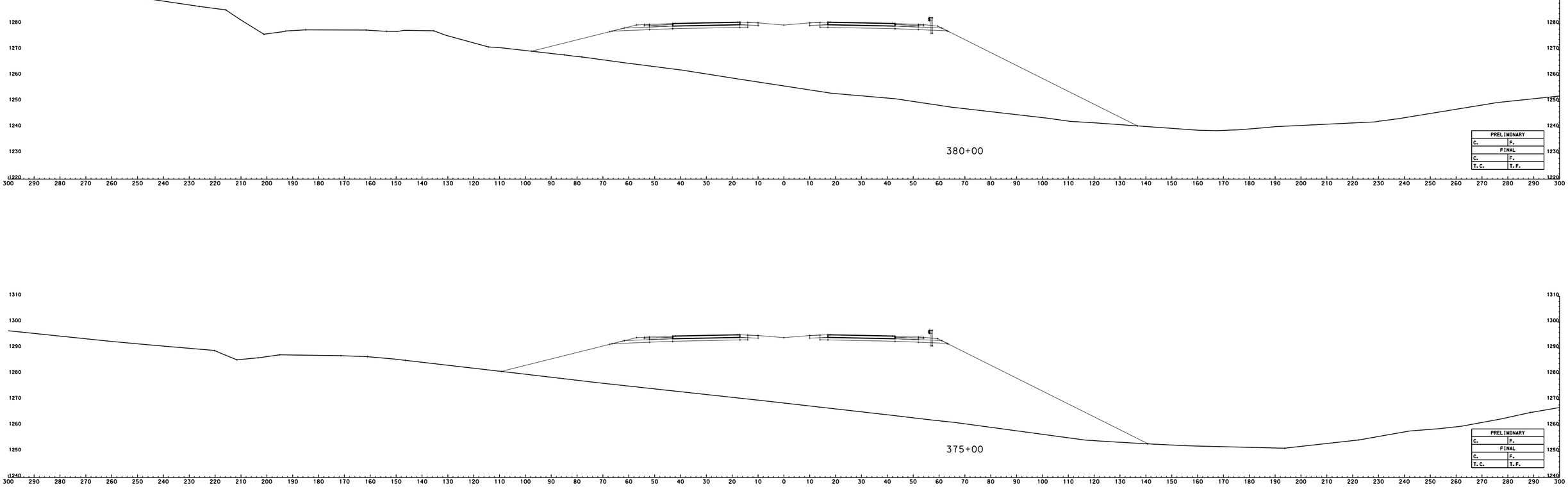

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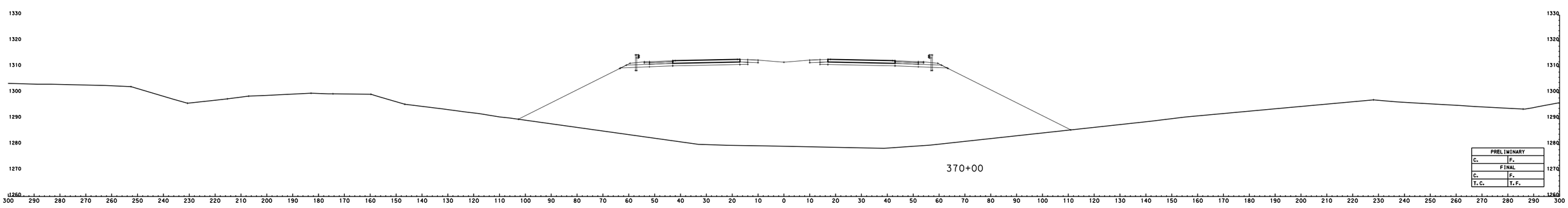

395+00
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T.C. T.F.


390+00
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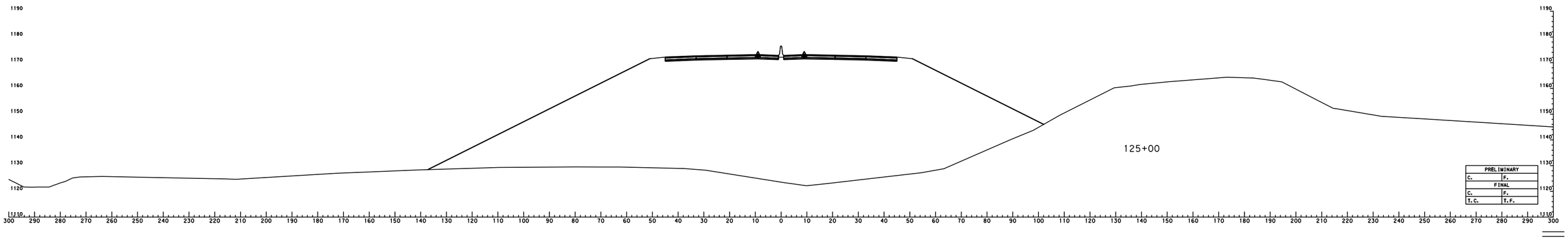

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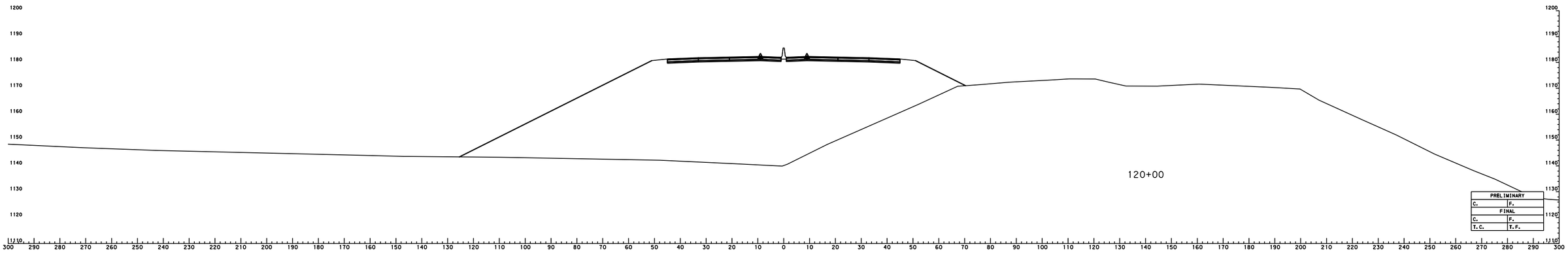

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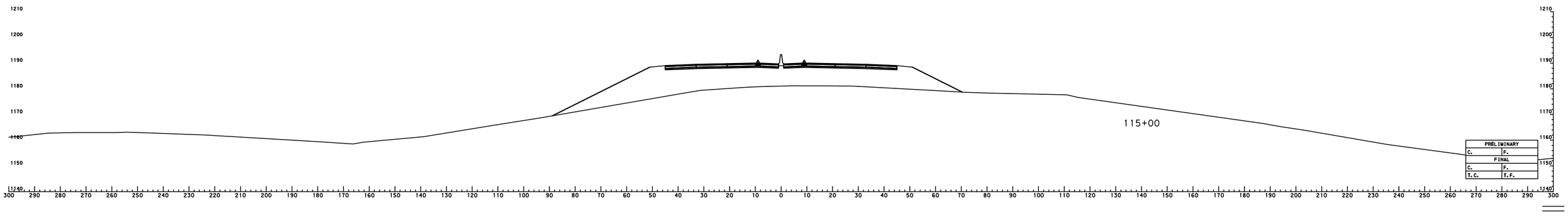

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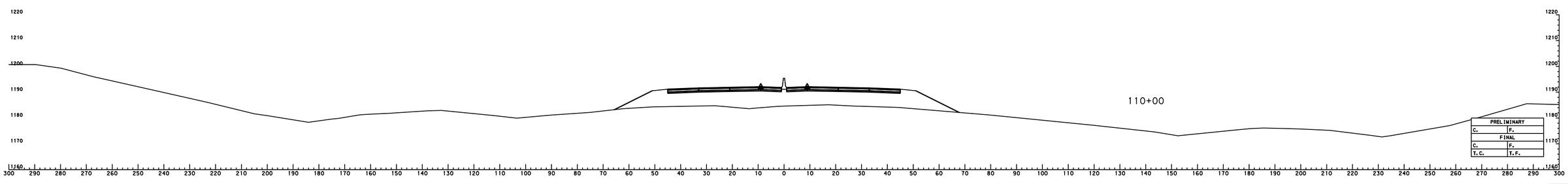

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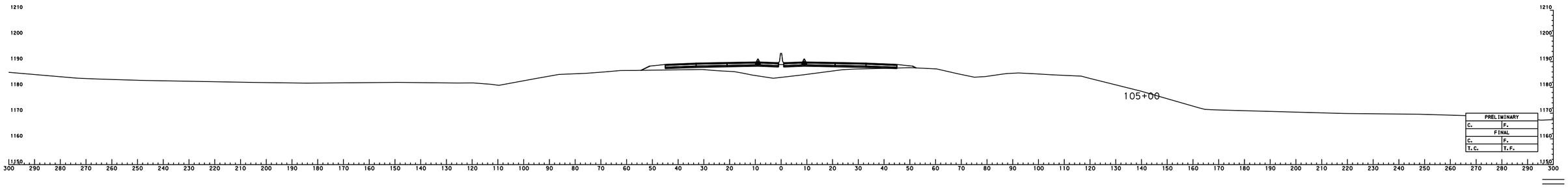
South Alternative Cross Sections

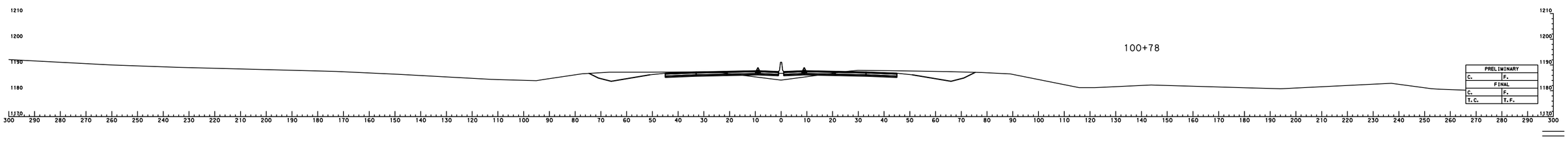


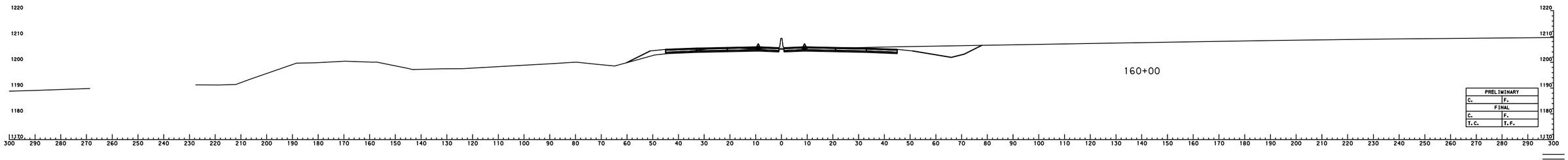


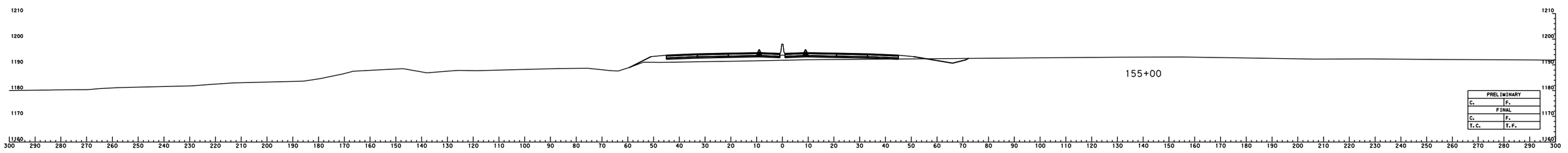


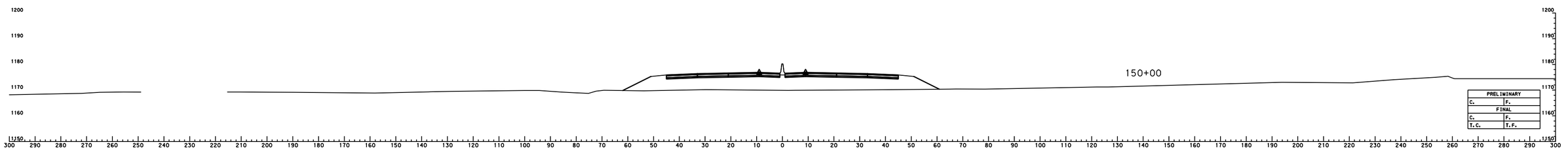


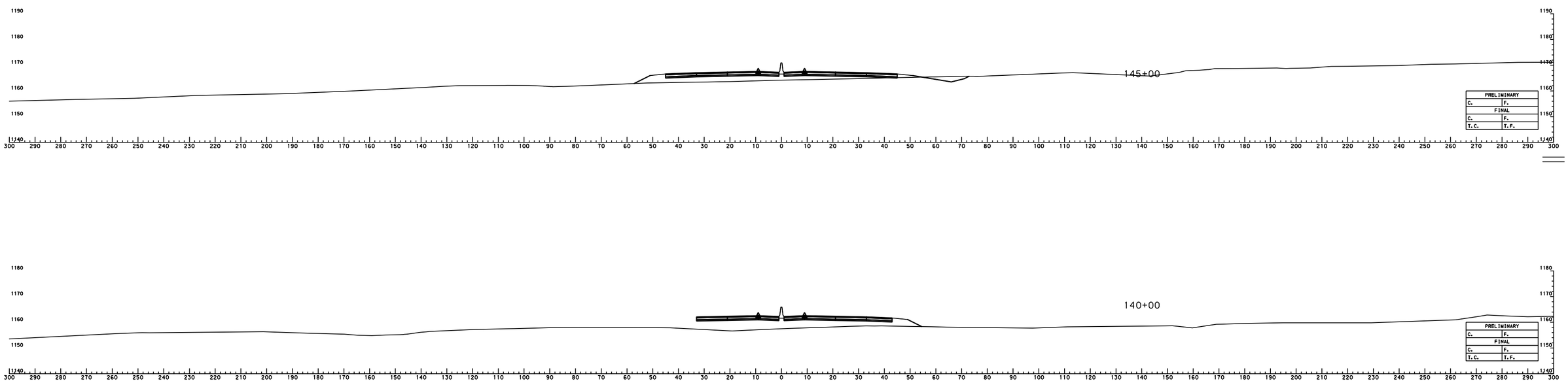




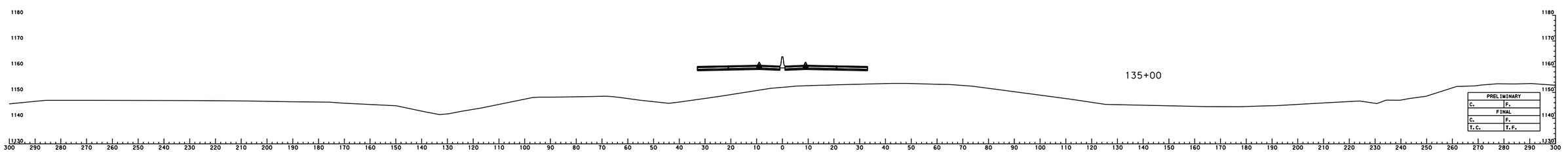

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FINAL
C. F.
T.C. T.F.

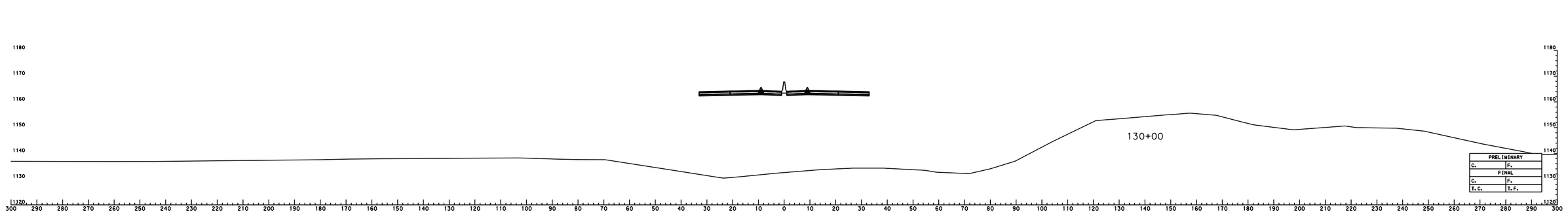

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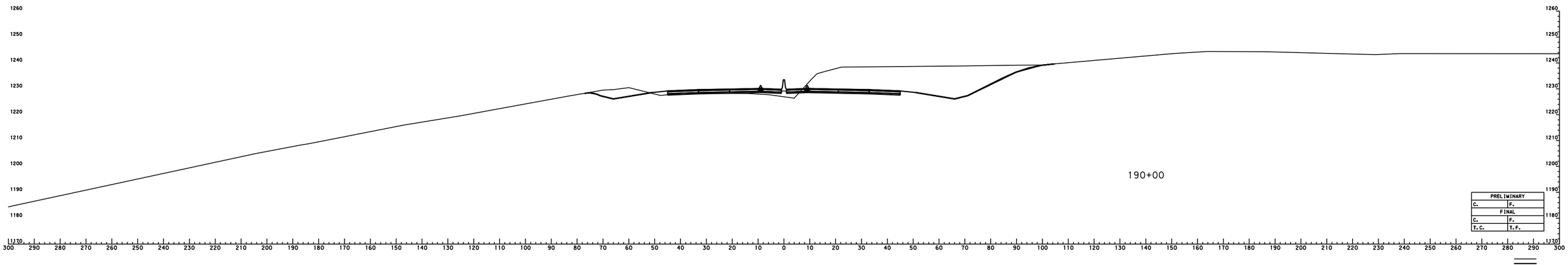

150+00
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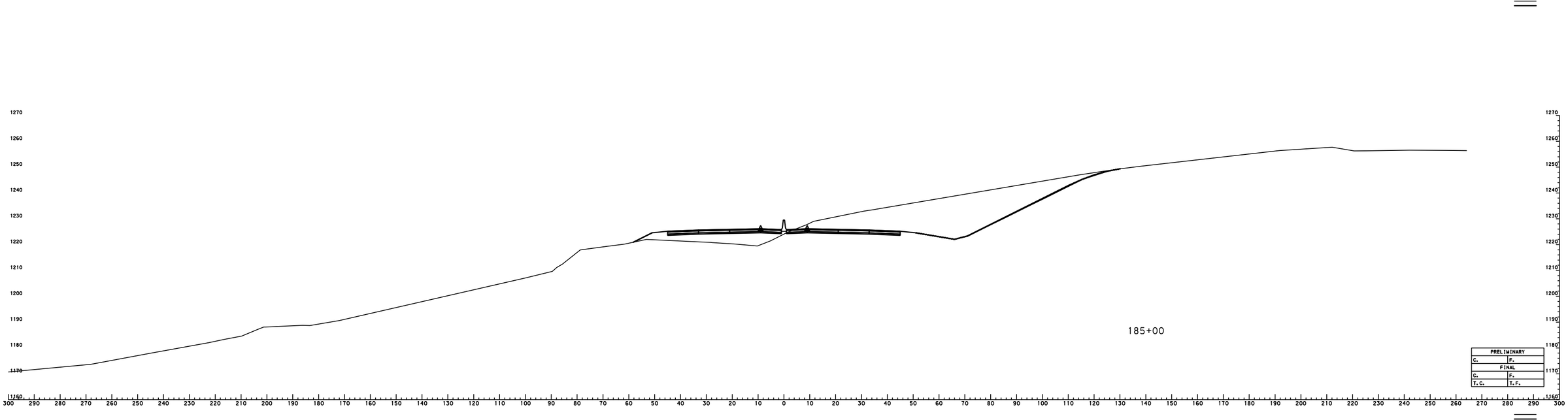

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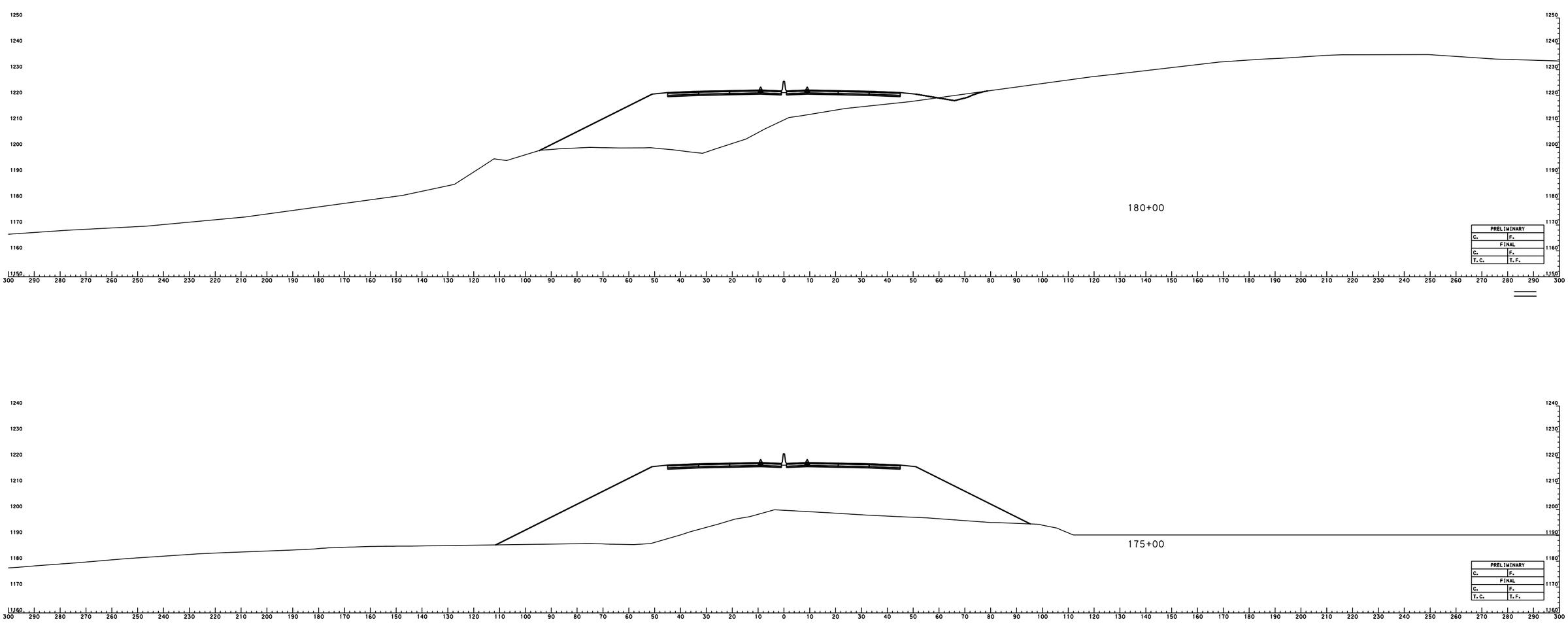
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135+00
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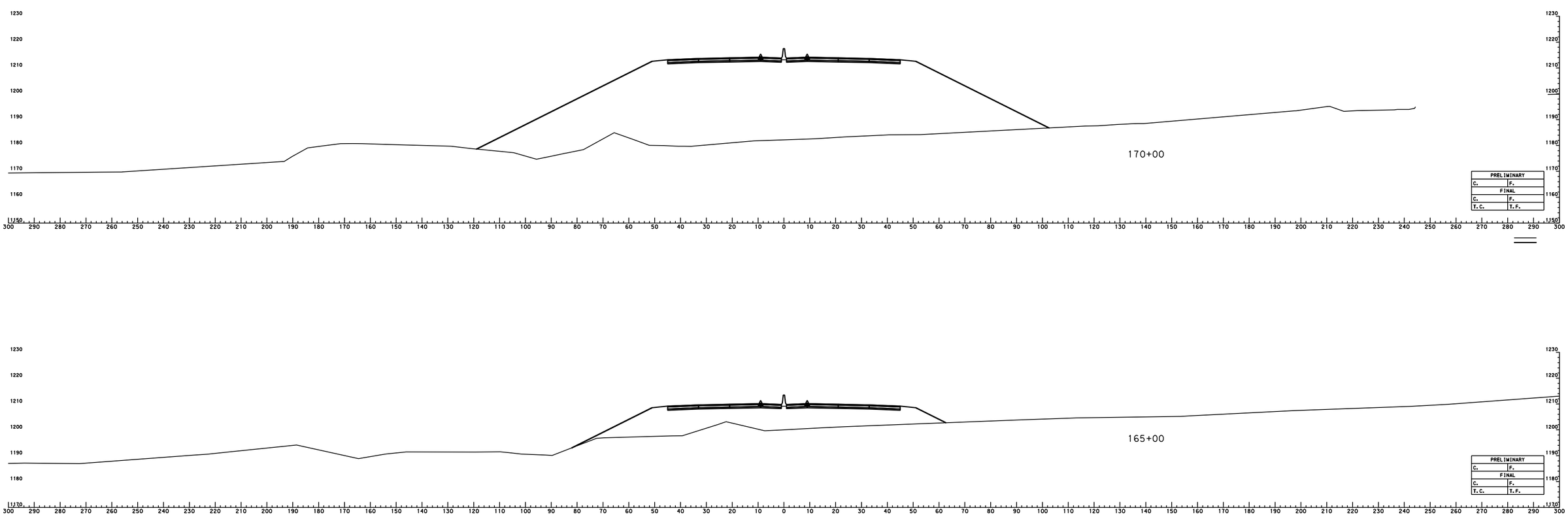

130+00
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190+00
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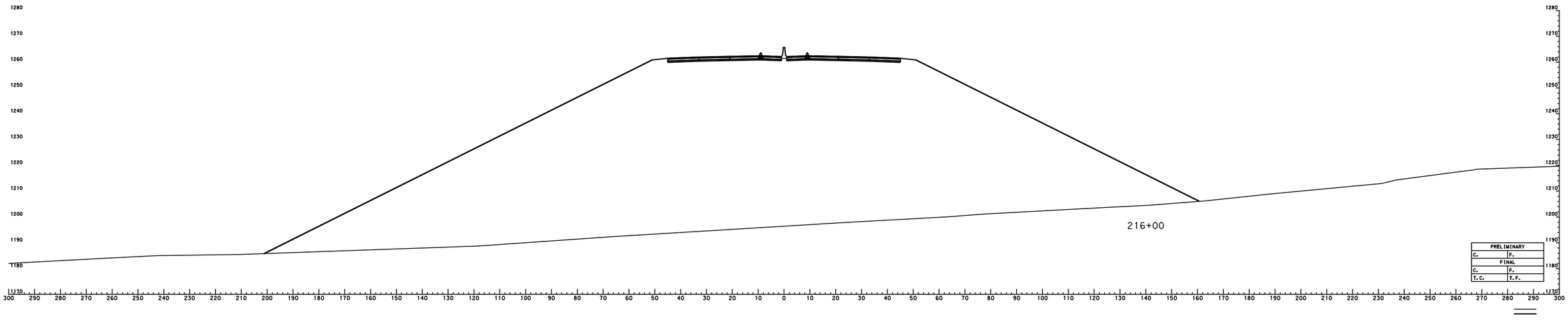

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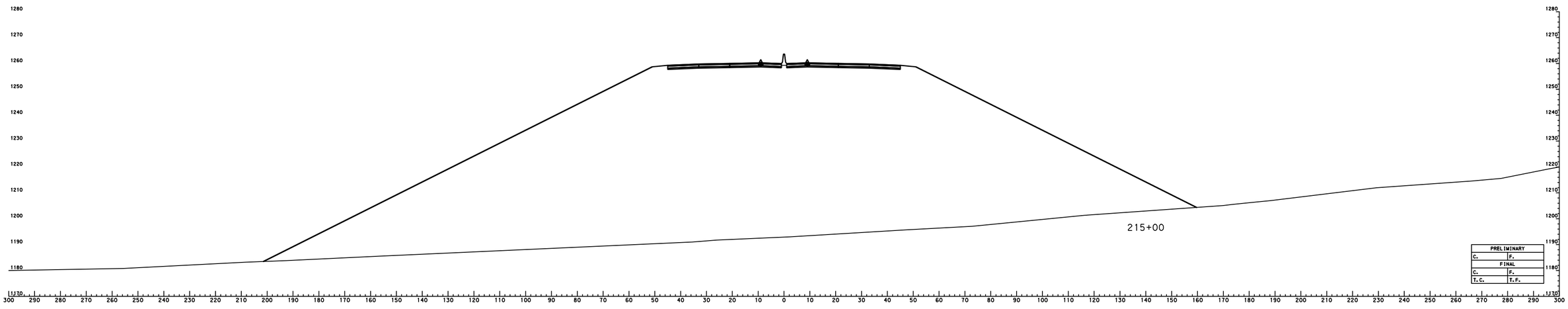

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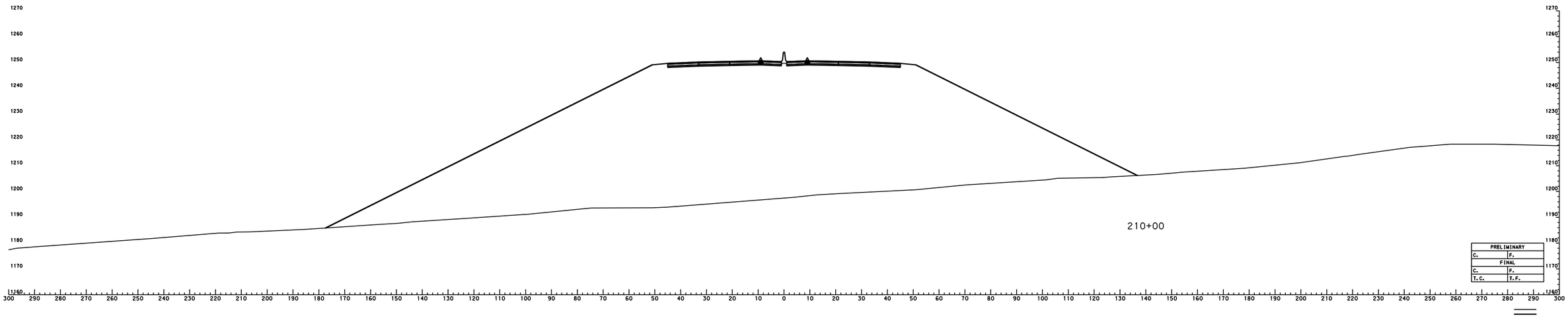
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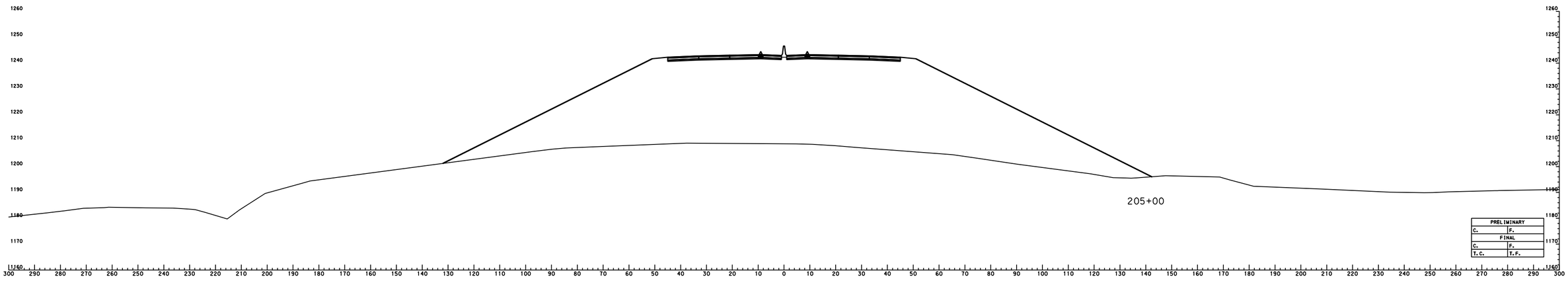

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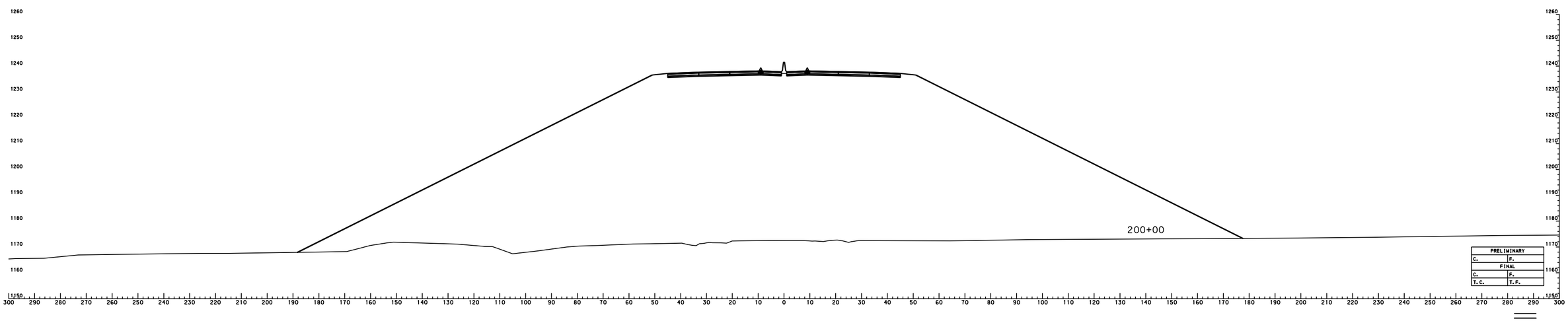
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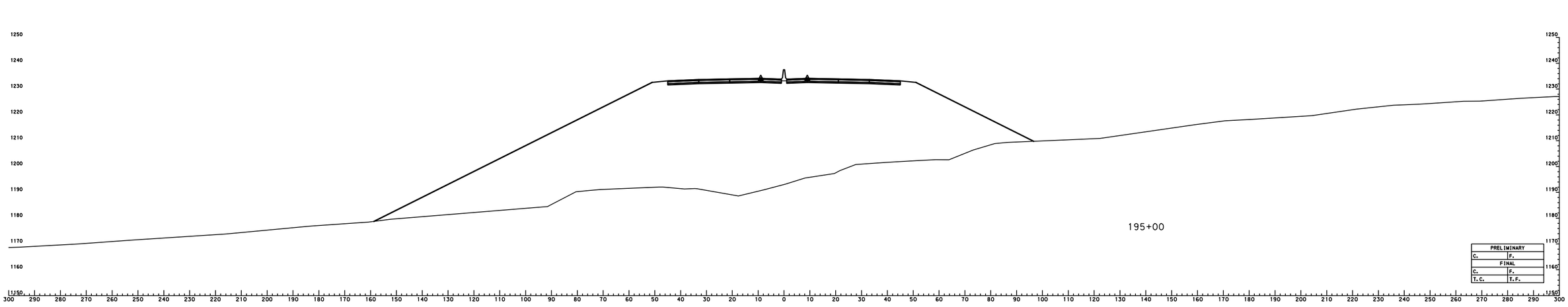

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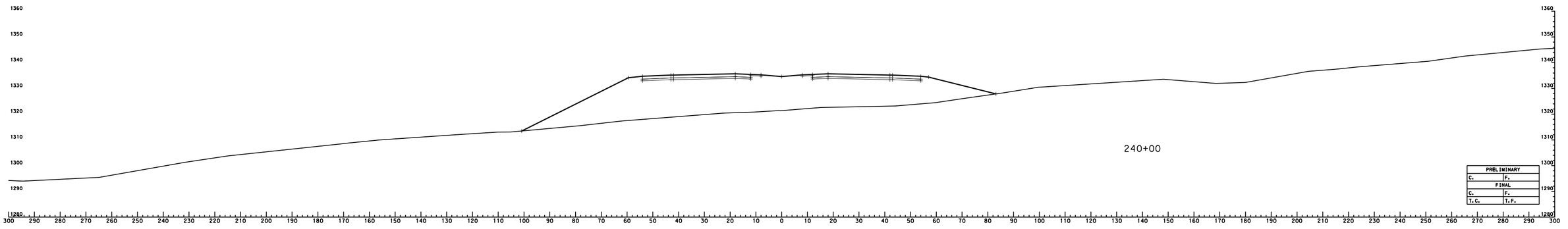

215+00
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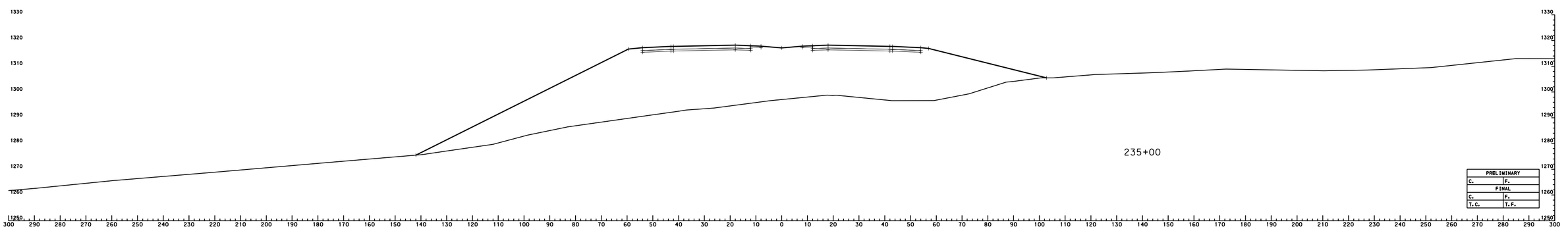

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FINAL
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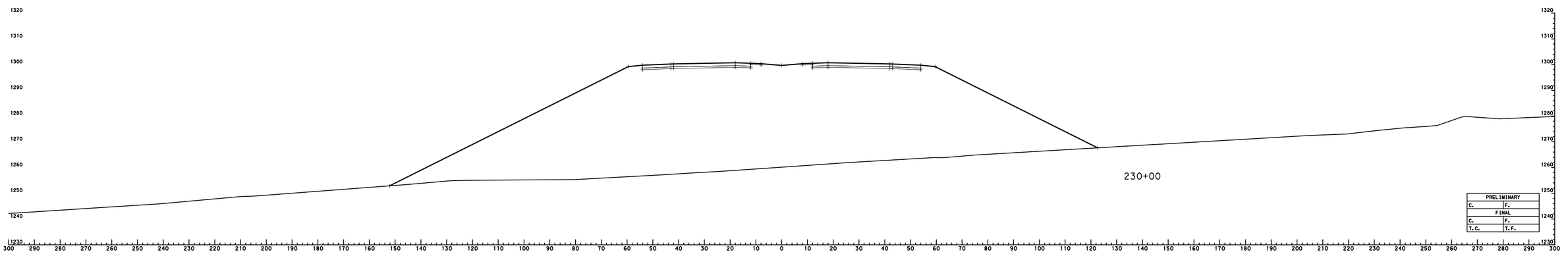

205+00
PRELIMINARY
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FINAL
C. F.
T.C. T.F.

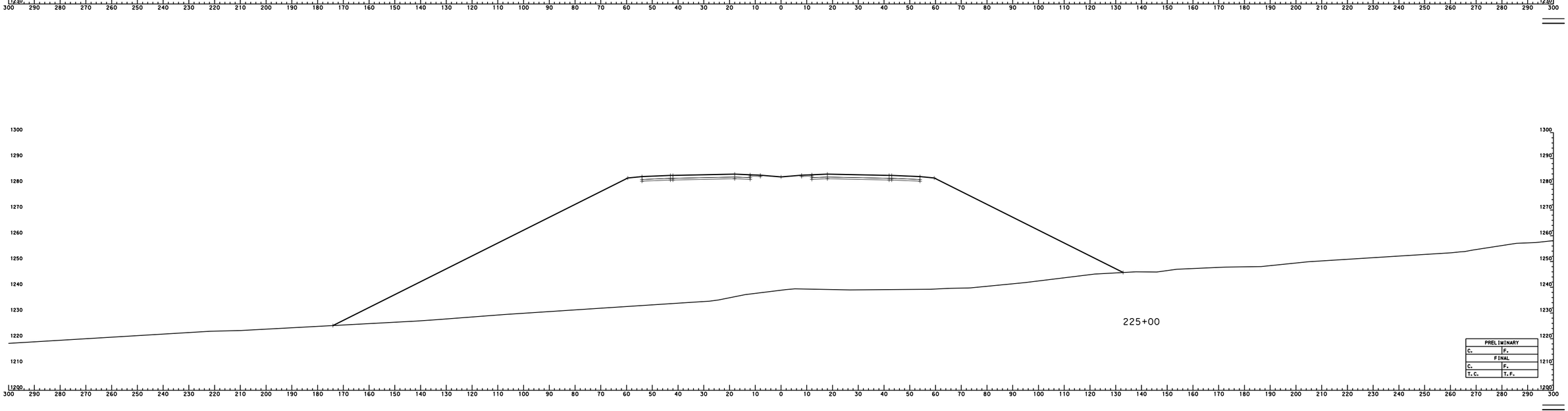

200+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.

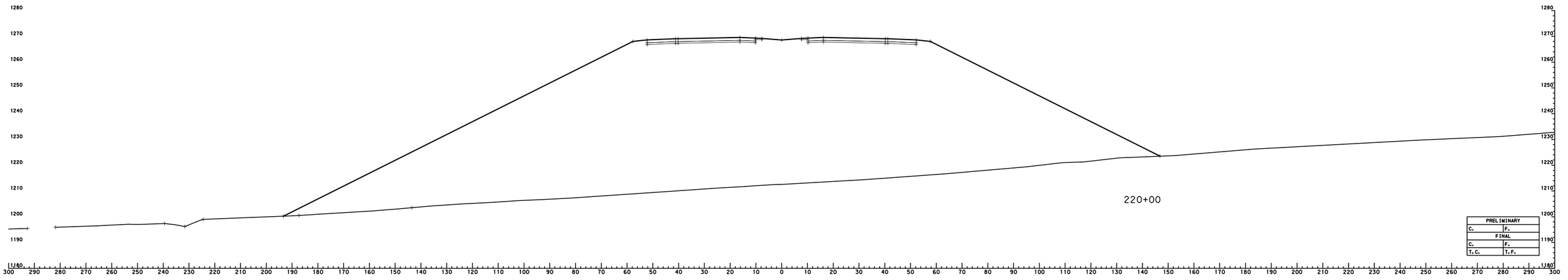

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FINAL
C. F.
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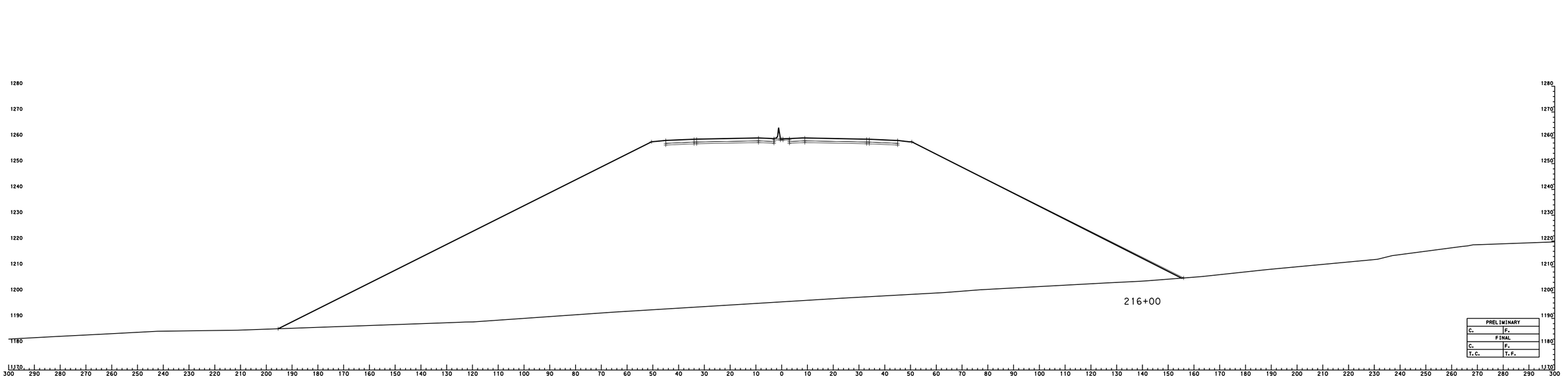

240+00
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C. F.
FINAL
C. F.
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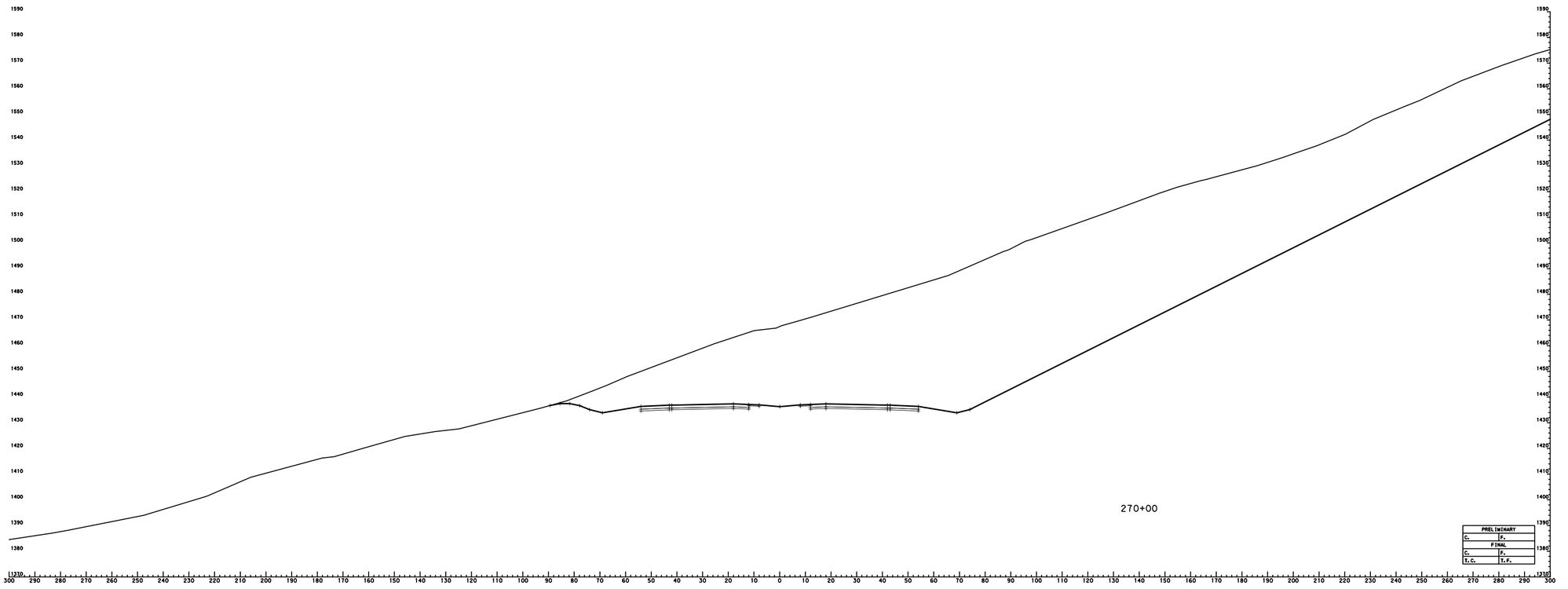

235+00
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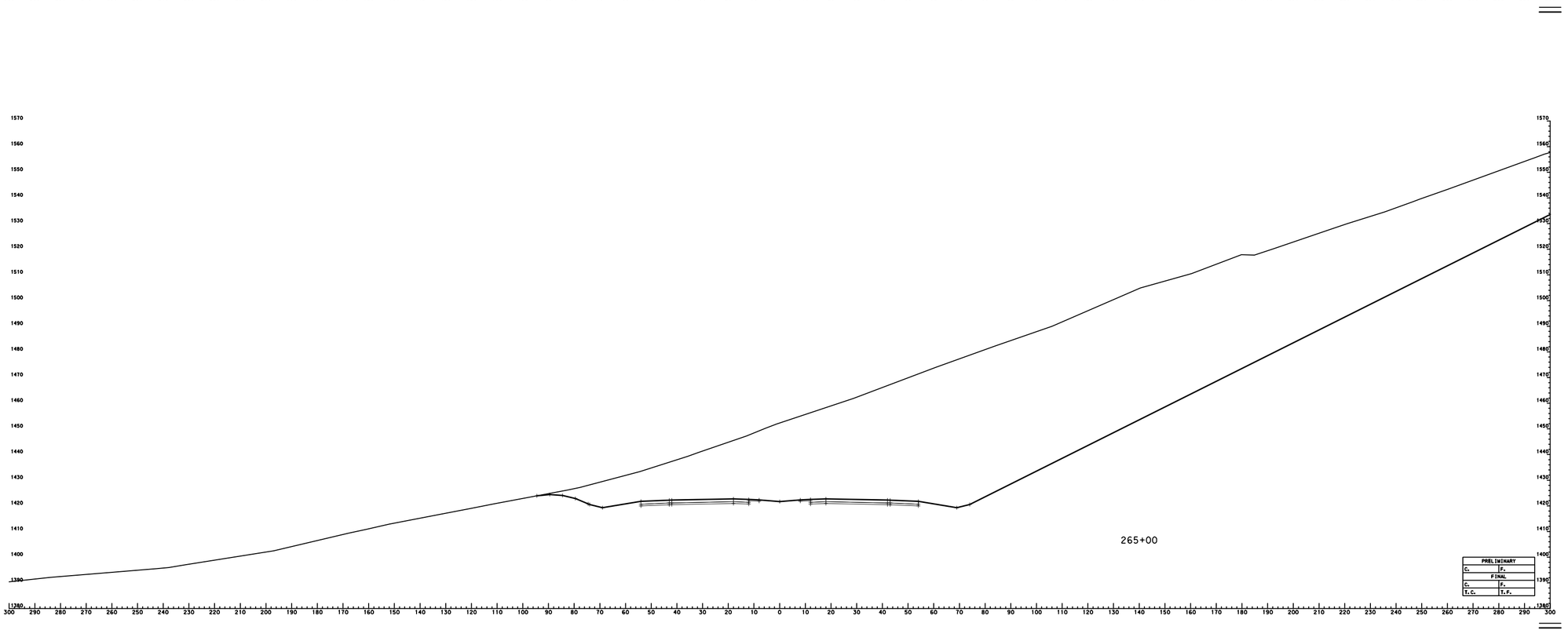

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T.C. T.F.

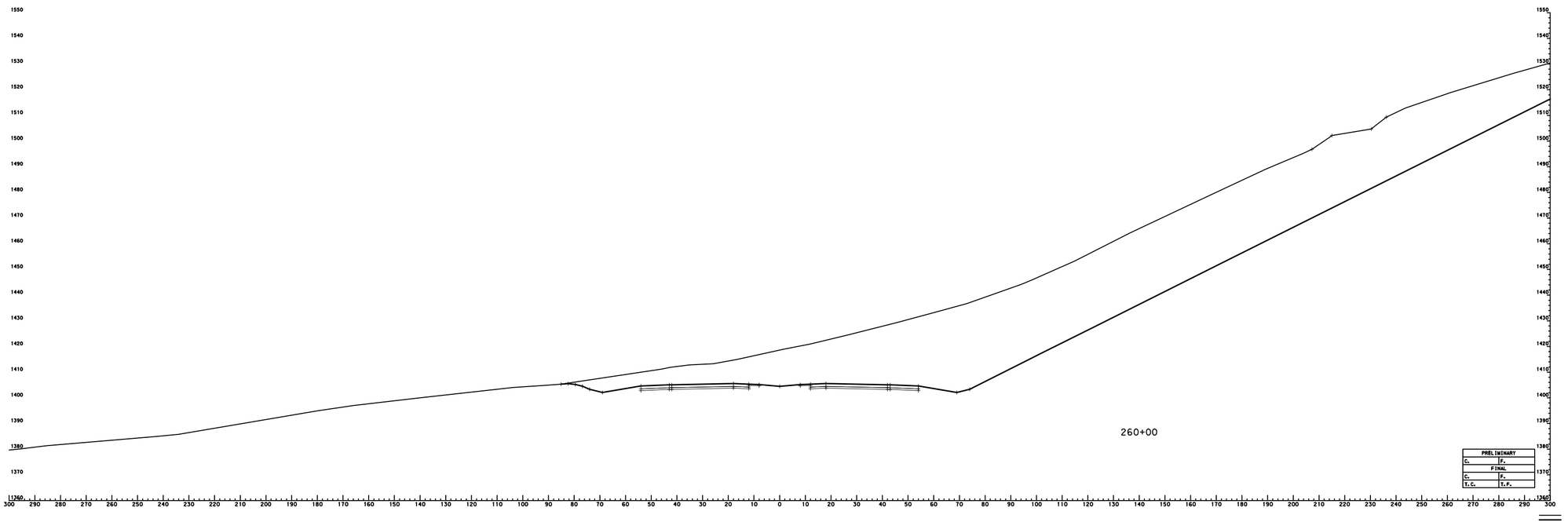

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C. F.
T.C. T.F.

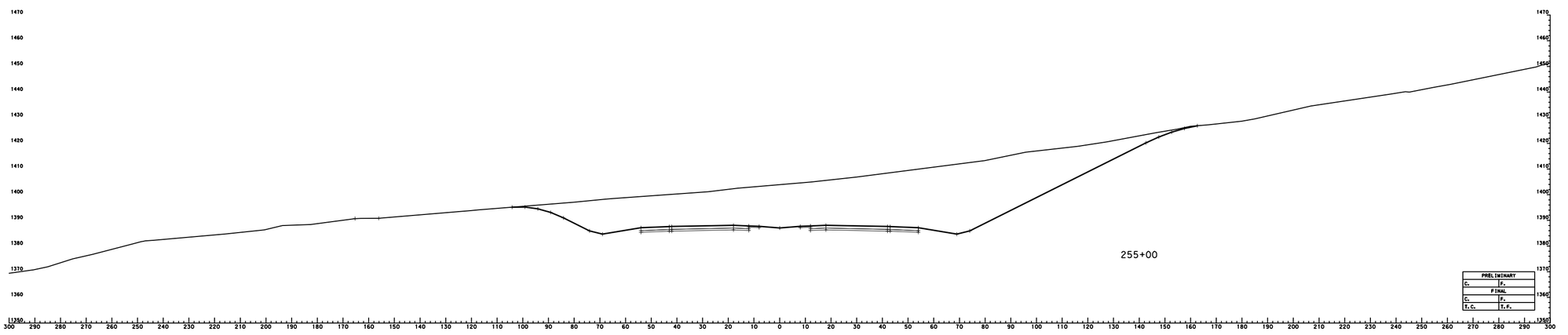

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T.C. T.F.

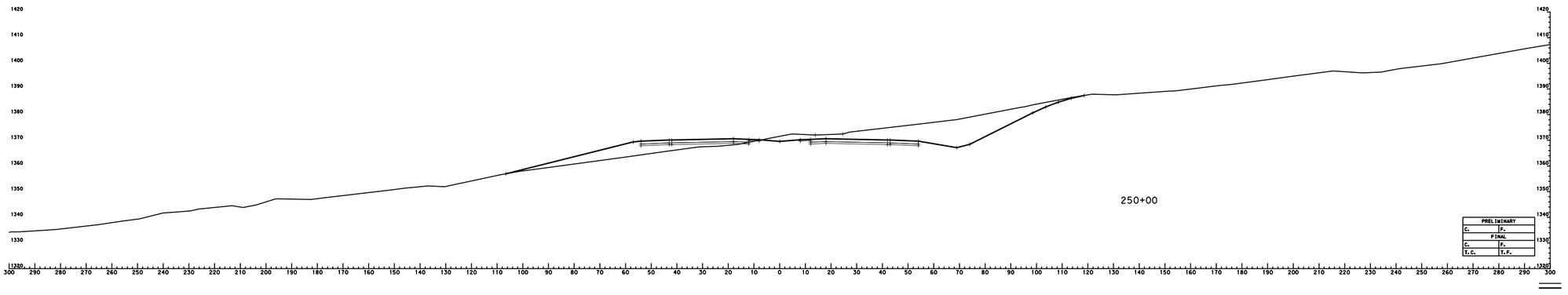

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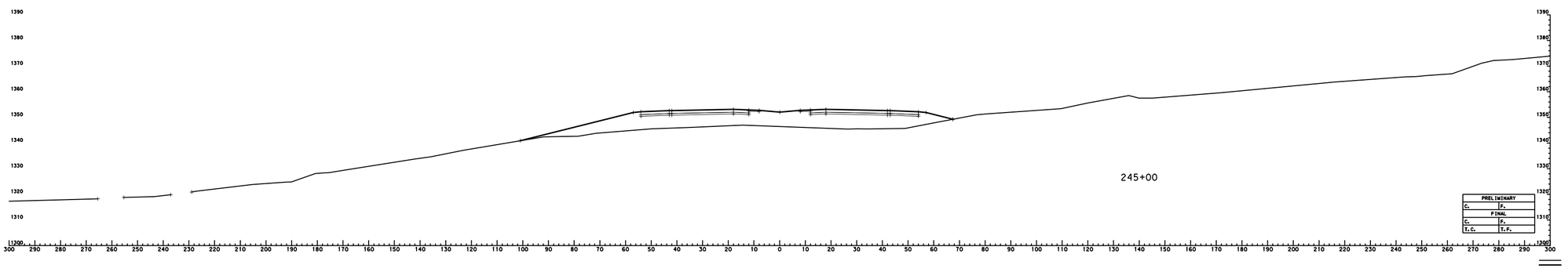

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T.C. T.F.

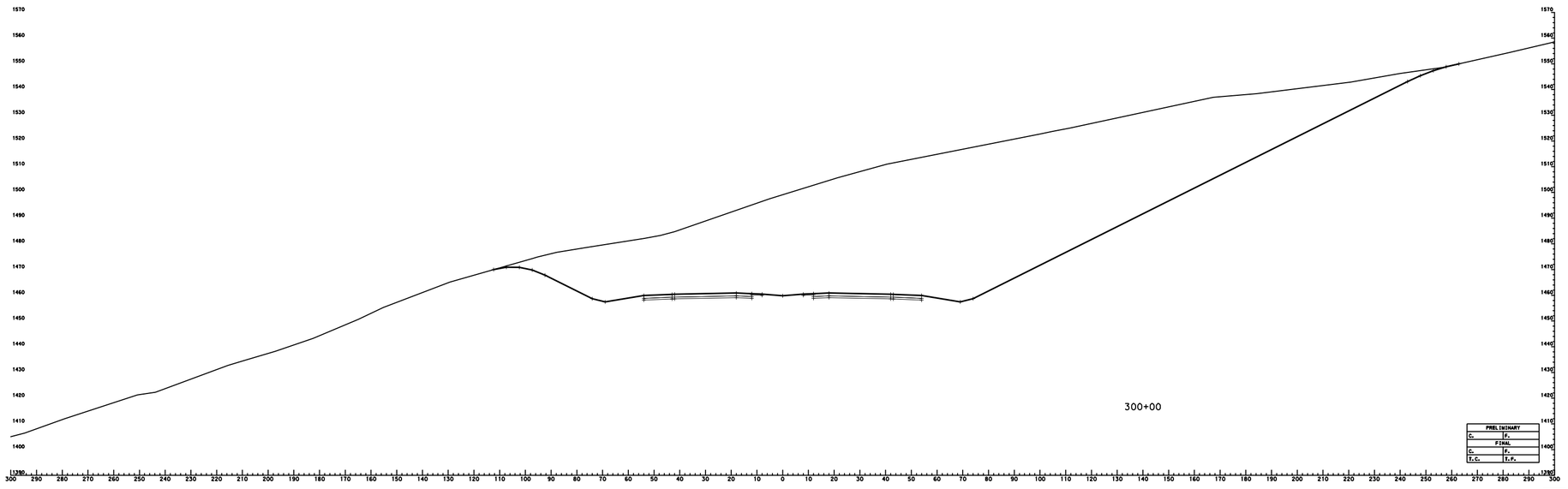

265+00
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FINAL
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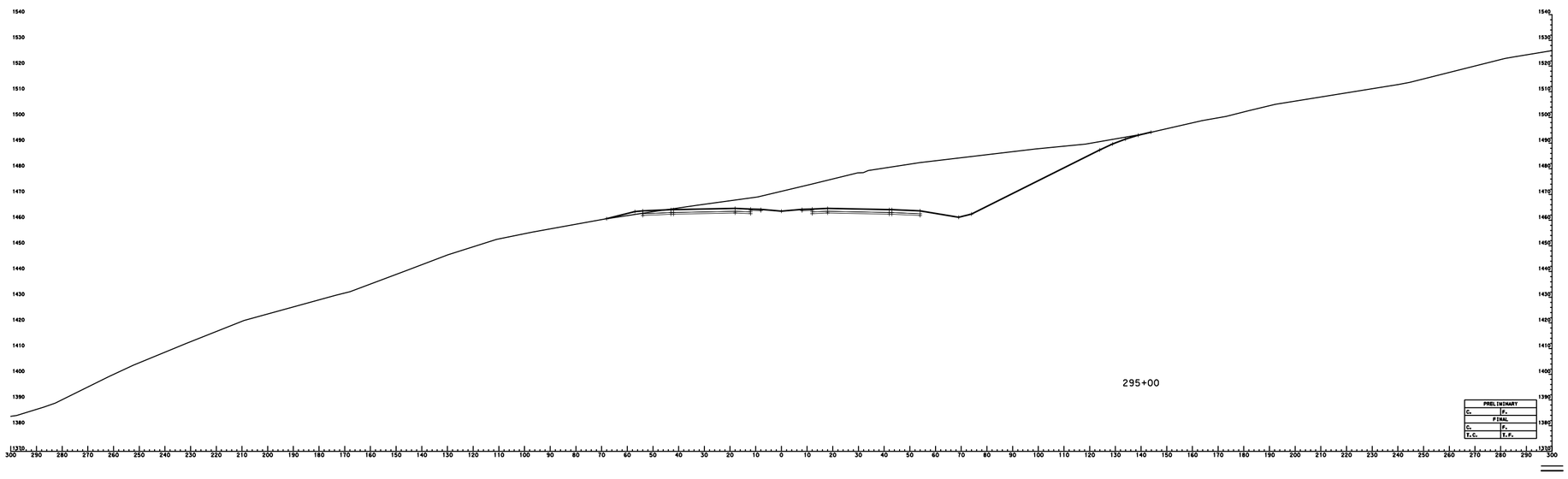

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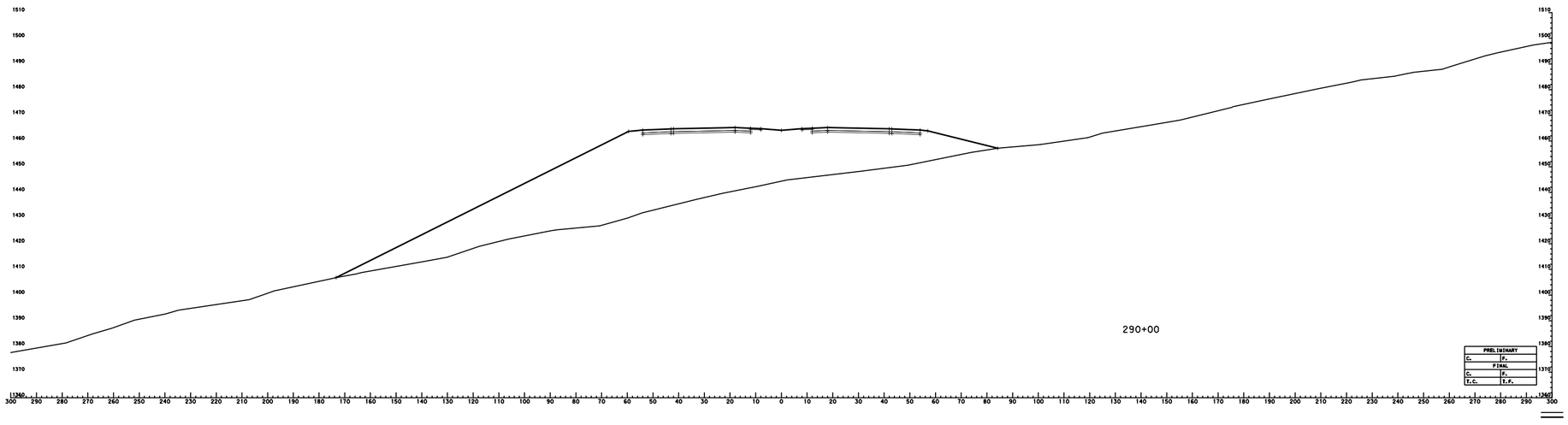

255+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


250+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.

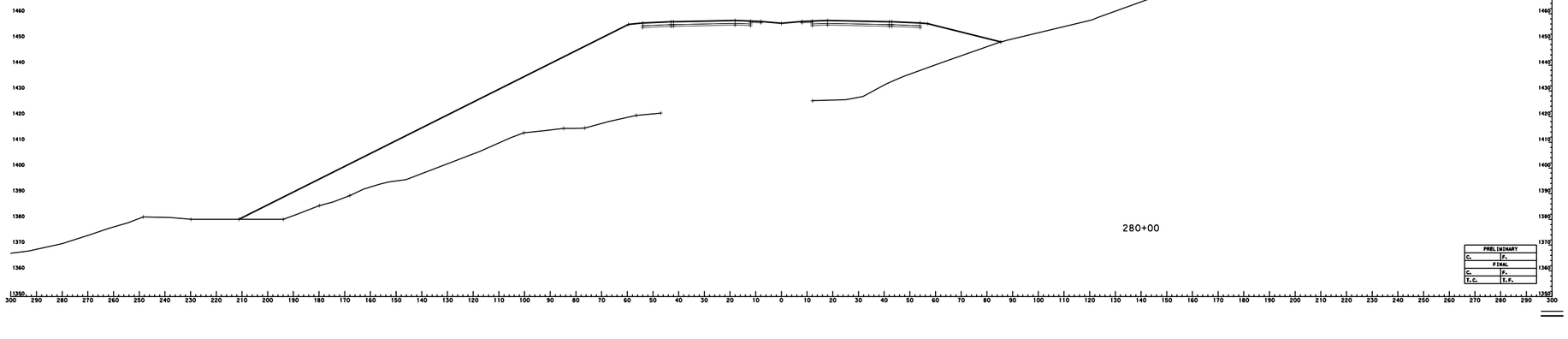

245+00
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FINAL
C. F.
T.C. T.F.

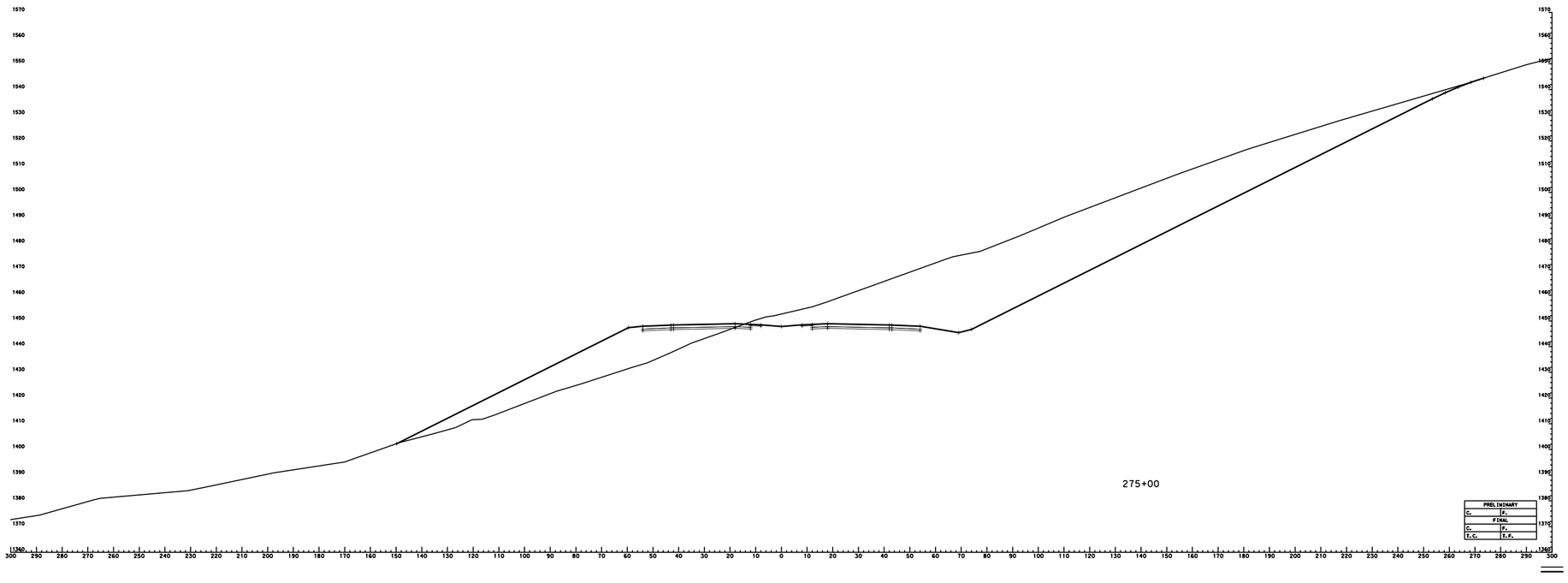

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FINAL
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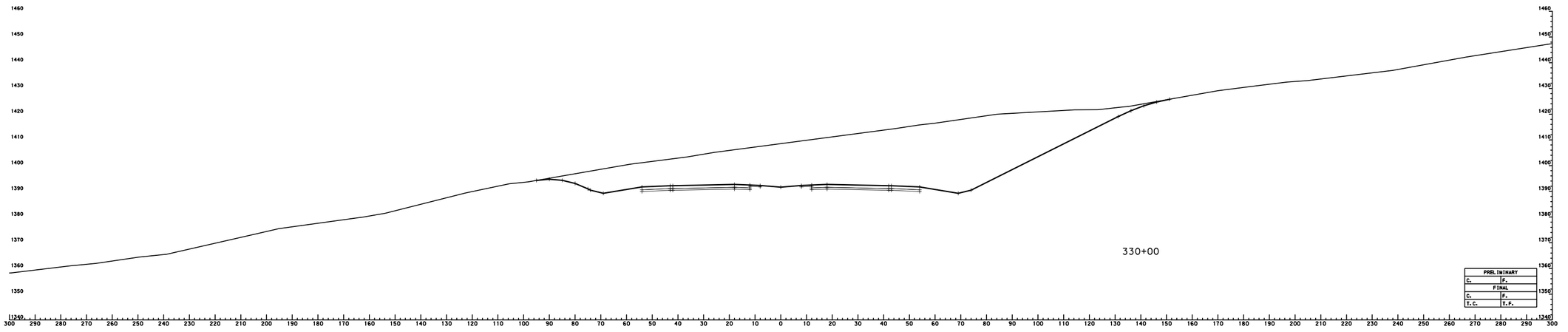

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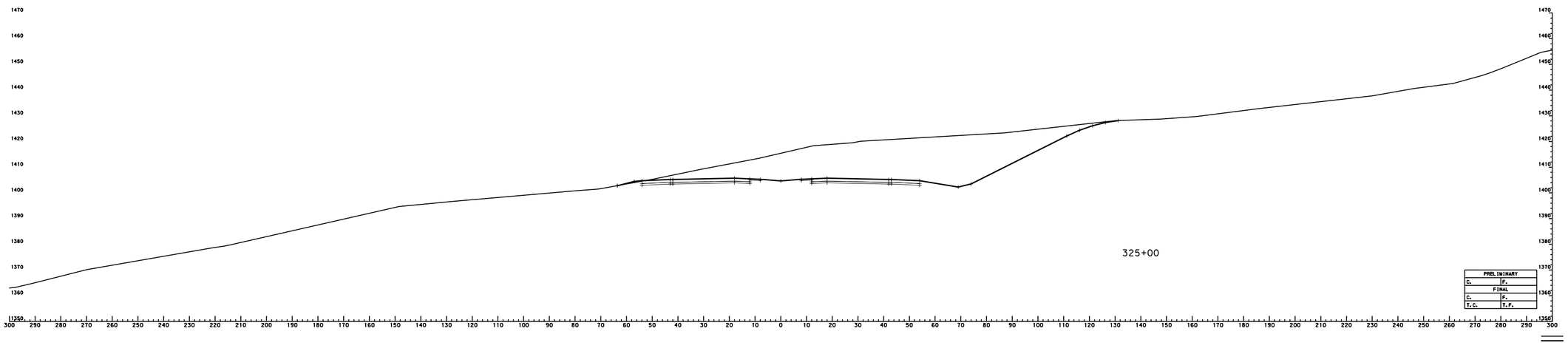

290+00
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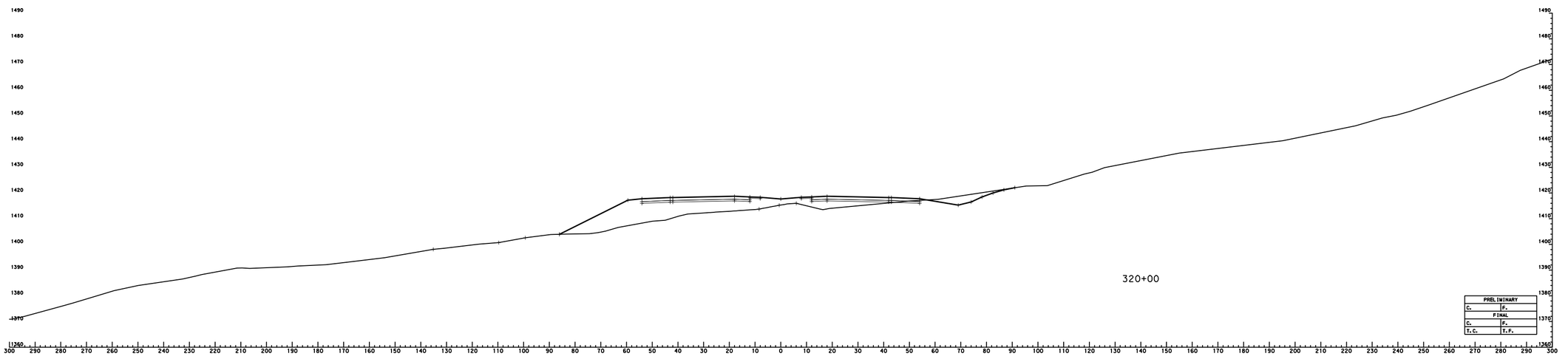
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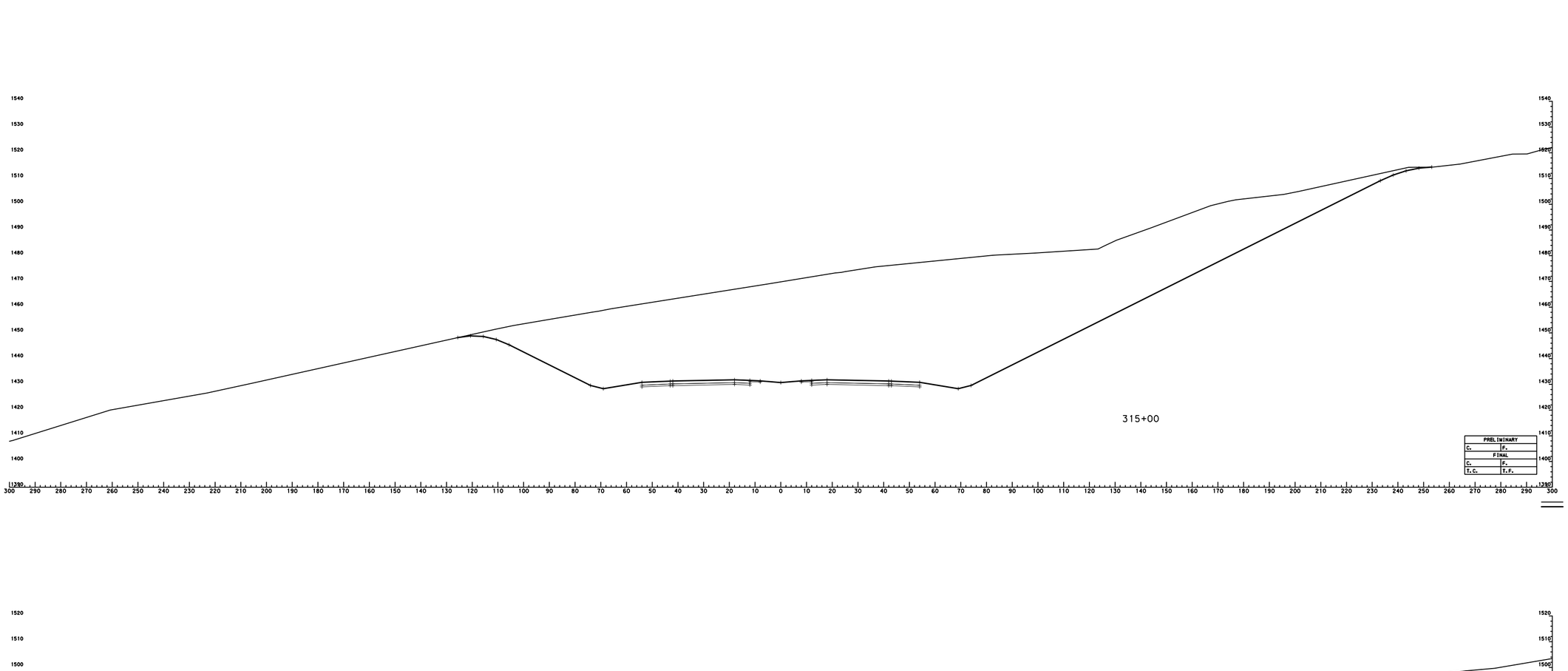

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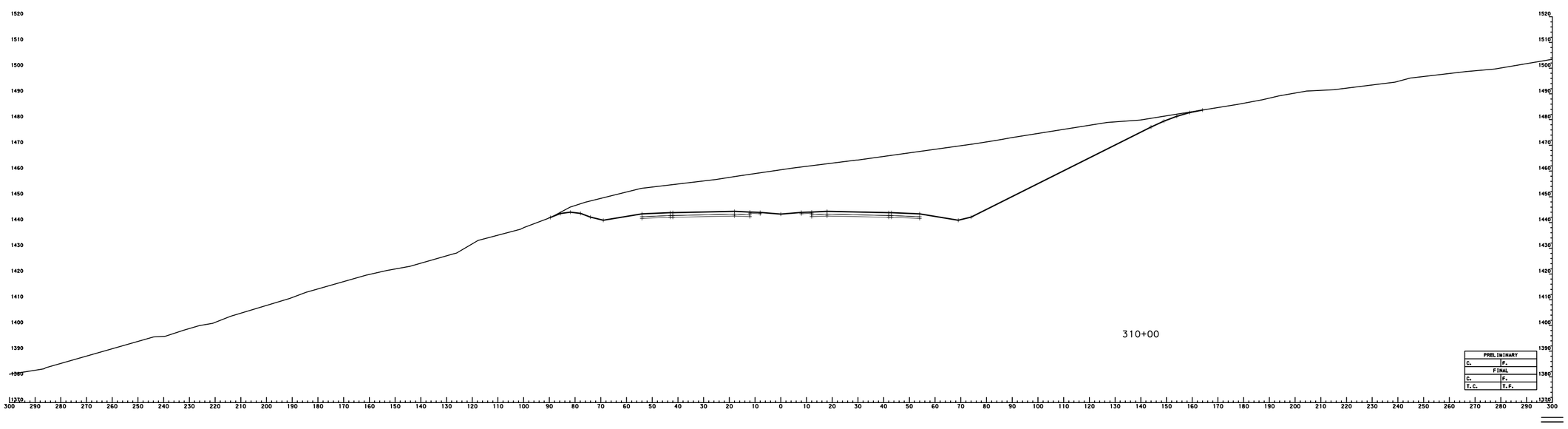

275+00
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T.C. T.F.

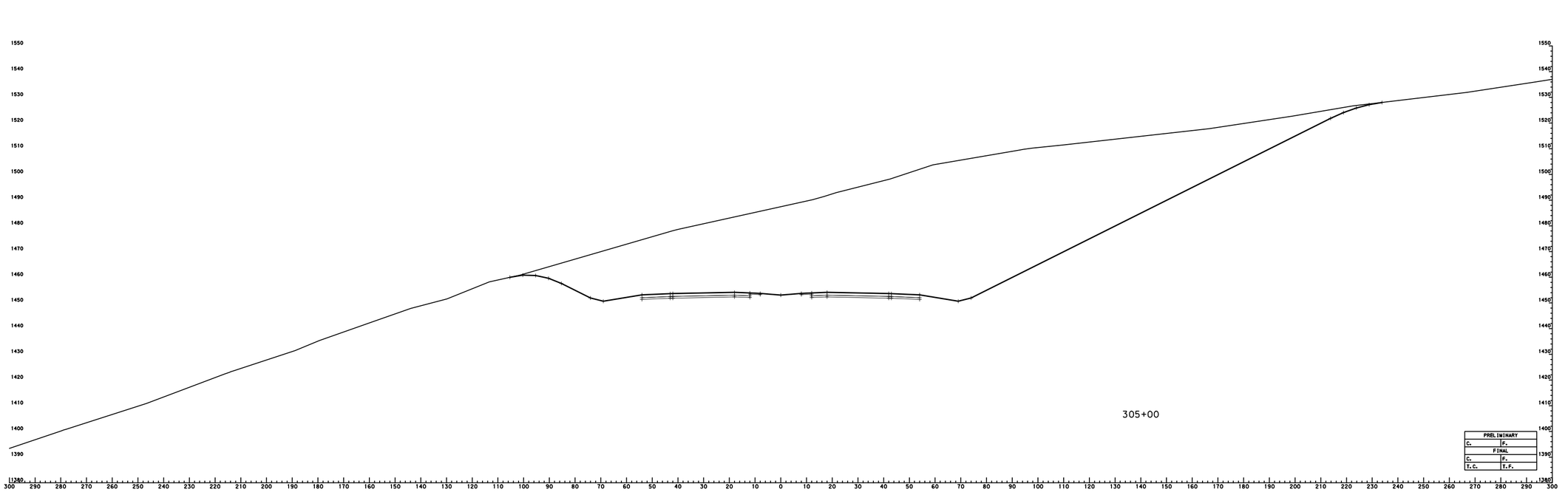

330+00
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C. F.
FINAL
C. F.
T.C. T.F.

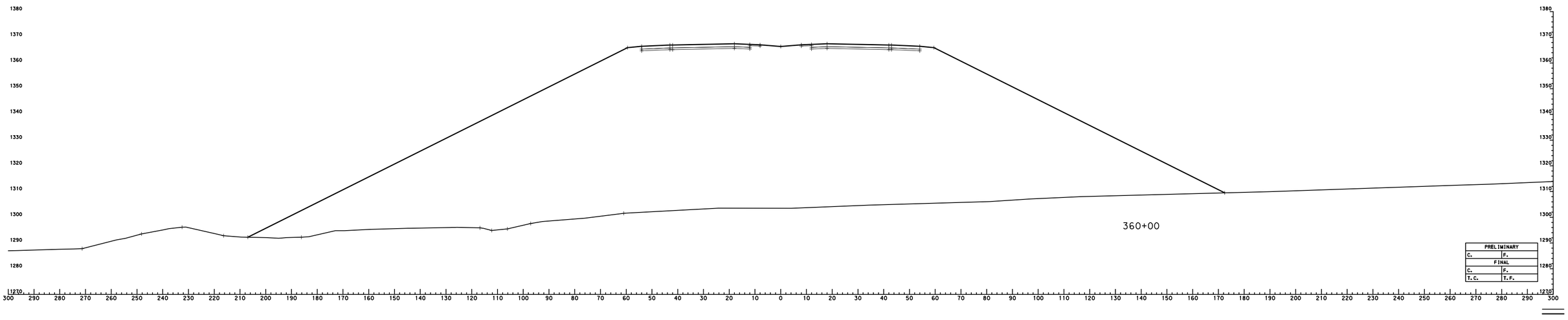

325+00
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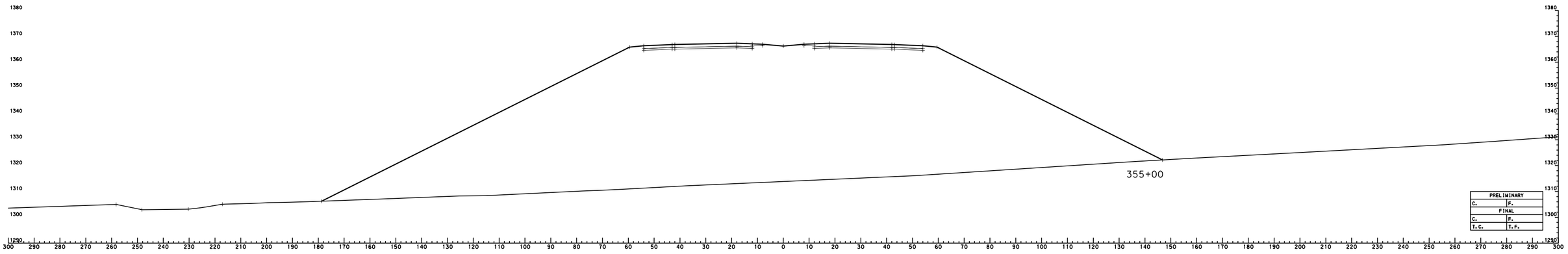

320+00
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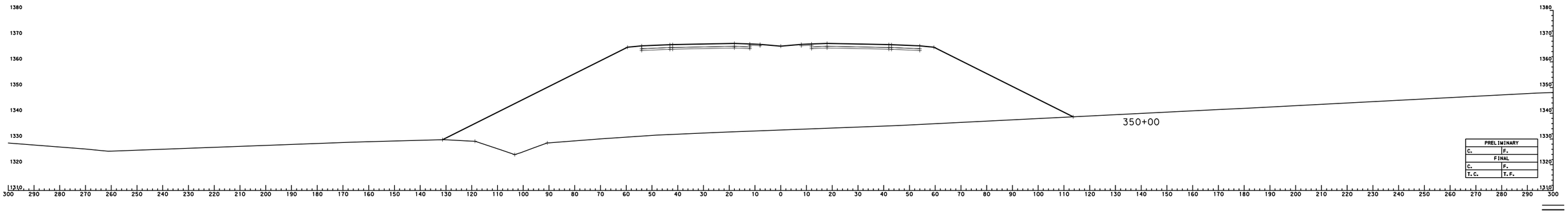

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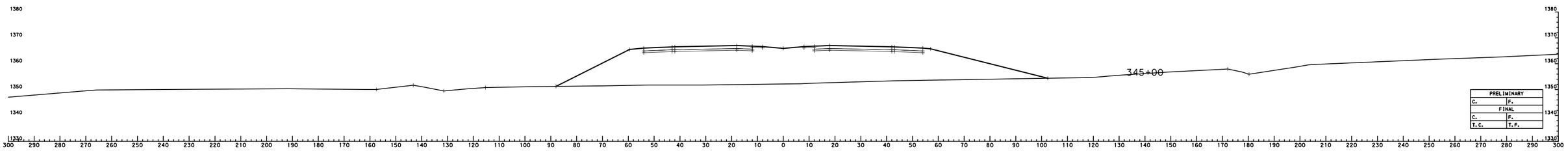

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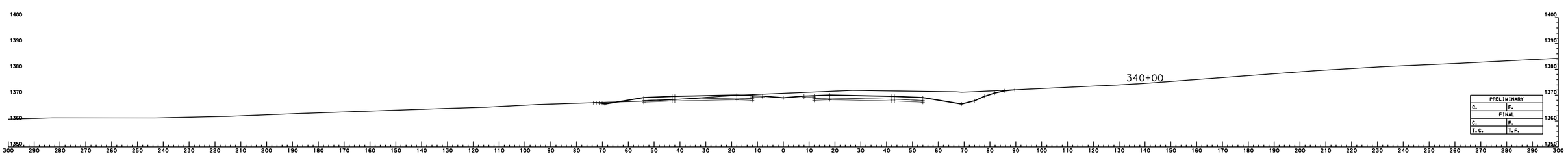

305+00
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FINAL
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T.C. T.F.

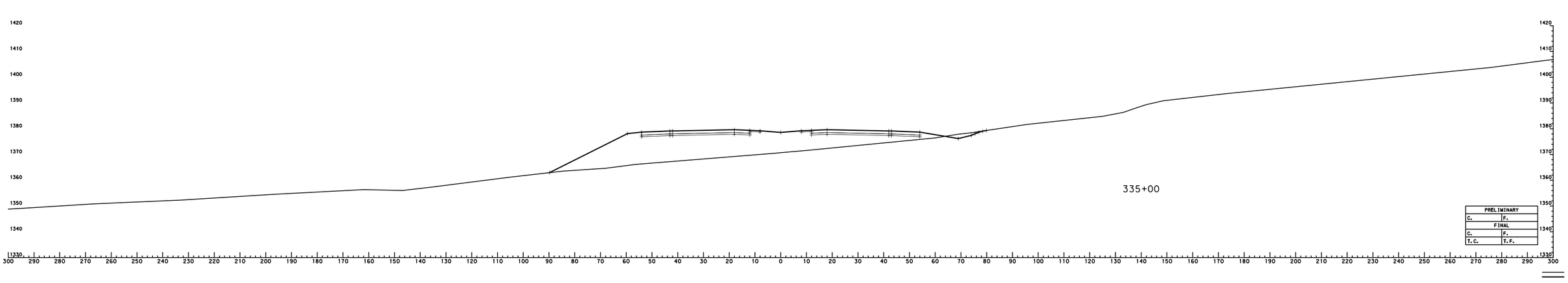

360+00
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T.C. T.F.

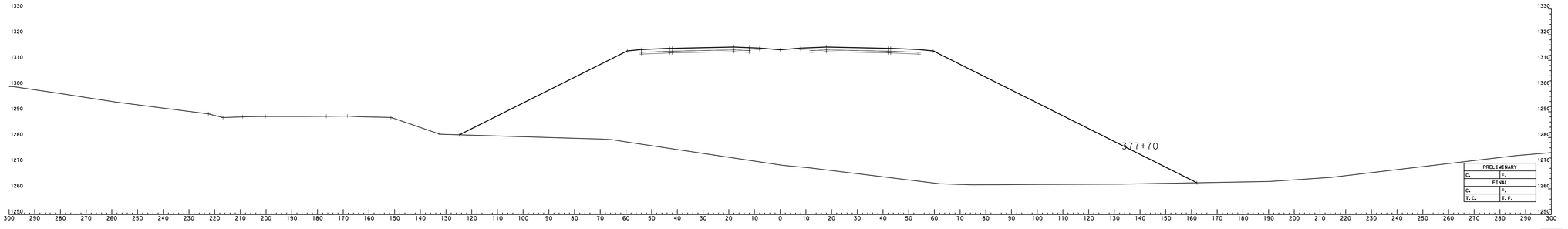

355+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.

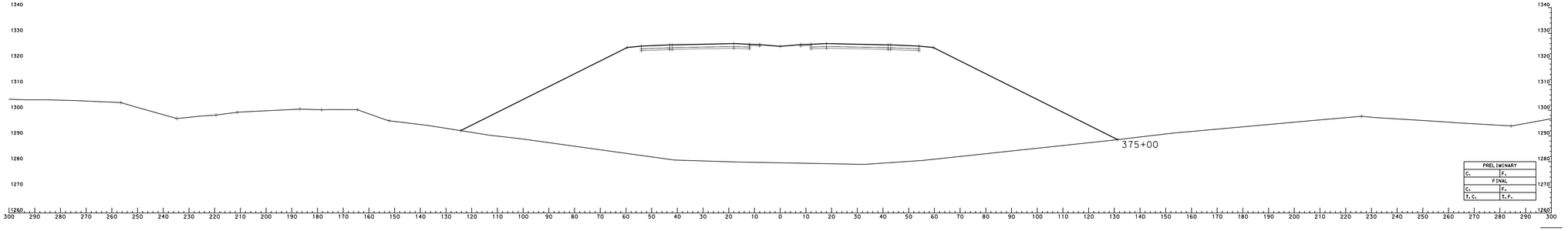

350+00
PRELIMINARY
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FINAL
C. F.
T.C. T.F.

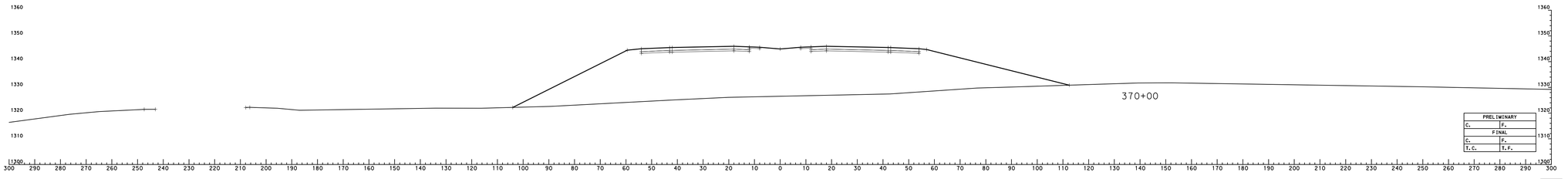

345+00
PRELIMINARY
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FINAL
C. F.
T.C. T.F.

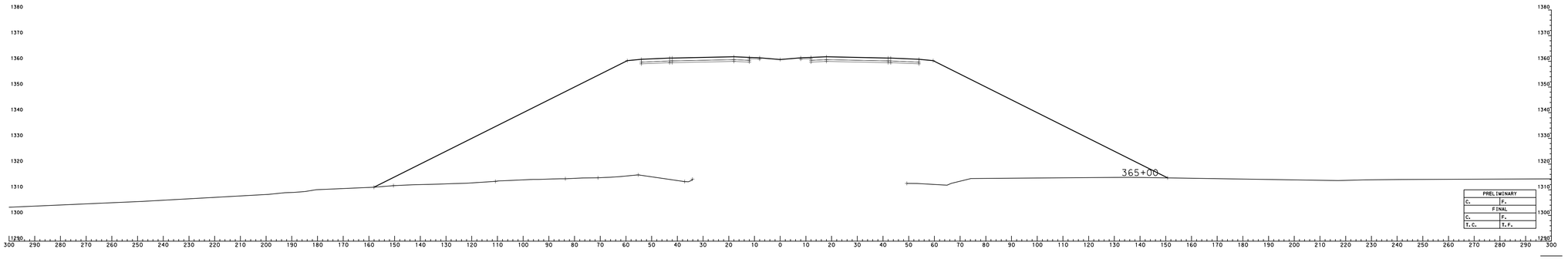

340+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


335+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


377+70
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


375+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


370+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.


365+00
PRELIMINARY
C. F.
FINAL
C. F.
T.C. T.F.

APPENDIX C – DETAILED WETLAND AND WATER-COURSE IMPACT TABLES

SCAC - Wetland Impacts

August 22, 2025

North Alternative

Direct Impacts

Wetland Name	Wetland Type	Impact Area (acres)
WL-CML-004-PEM	PEM	0.04157
WL-DJW-003-PEM	PEM	0.00676
WL-LTZ-010-PEM	PEM	0.08603
WL-LTZ-022-PEM	PEM	0.00864
WL-LTZ-023-PEM	PEM	0.03088
WL-LTZ-023-PEM	PEM	0.07391
WL-LTZ-023-PEM	PEM	0.02069
WL-LTZ-027-PEM	PEM	0.16096
WL-LTZ-028-PEM	PEM	0.50775
WL-LTZ-039-PEM	PEM	0.20349
WL-LTZ-040-PEM	PEM	2.89499
WL-LTZ-043-PEM	PEM	0.16823
WL-LTZ-043-PEM	PEM	0.00764
WL-LTZ-043-PEM	PEM	0.03095
WL-LTZ-043-PEM	PEM	0.00140
WL-LTZ-054-PEM	PEM	0.01412
WL-LTZ-054-PEM	PEM	0.13443
WL-LTZ-067-PEM	PEM	4.73475
WL-LTZ-073-PEM	PEM	1.83852
WL-LTZ-073-PEM	PEM	0.88798
WL-LTZ-109-PEM	PEM	0.01838
WL-LTZ-109-PEM	PEM	0.11083
WL-LTZ-109-PEM	PEM	0.61330
WL-LTZ-131-PEM	PEM	0.04114
WL-LTZ-132-PEM	PEM	4.20264
WL-LTZ-143-PEM	PEM	0.18043
WL-LTZ-145-PEM	PEM	0.03573
WL-LTZ-147-PEM	PEM	1.31503
WL-LTZ-148-PEM	PEM	0.20016
WL-LTZ-152-PEM	PEM	0.01435
WL-LTZ-153-PEM	PEM	0.06975
WL-LTZ-157-PEM	PEM	0.88761
WL-LTZ-159-PEM	PEM	0.11102
WL-LTZ-169-PEM	PEM	0.00821
WL-LTZ-043-PFO	PFO	0.000009
WL-LTZ-023-POW	POW	0.68965
WL-LTZ-028-POW	POW	0.49540

WL-LTZ-028-POW	POW	0.38695
WL-LTZ-043-POW	POW	1.09883
WL-LTZ-073-POW	POW	1.17107
WL-LTZ-145-POW	POW	0.00015
WL-LTZ-145-POW	POW	0.000017
WL-LTZ-146-POW	POW	0.09964
WL-LTZ-152-POW	POW	0.09056
WL-LTZ-011-PEM/PSS	PSS	0.00019
WL-LTZ-023-PSS	PSS	0.02517
WL-LTZ-043-PEM	PSS	0.02104
WL-LTZ-043-PSS	PSS	0.00116
WL-LTZ-043-PSS	PSS	0.00446
WL-LTZ-067-PSS	PSS	0.50453
WL-LTZ-067-PSS	PSS	0.08050
WL-LTZ-073-PSS	PSS	0.07533
WL-LTZ-073-PSS	PSS	0.09035
WL-LTZ-073-PSS	PSS	0.00917
WL-LTZ-073-PSS	PSS	0.02121
WL-LTZ-073-PSS	PSS	0.01615
WL-LTZ-109-PSS	PSS	0.56637
WL-LTZ-109-PSS	PSS	0.09305
WL-LTZ-157-PSS	PSS	0.03951
WL-LTZ-28-PSS	PSS	0.00441
SWWL-BPH-001-PEM	SWWL	0.00357
SWWL-CML-001-PEM	SWWL	0.03589
SWWL-DJW-001-PEM	SWWL	0.09989
SWWL-LTZ-002-PEM	SWWL	0.01350
Total Direct Impacts		25.4

Indirect Impacts = 0

Bridge Span Avoidance

Wetland Name	**Wetland Type**	Bridge Span Area (acres)
WL-DJW-003-PEM	PEM	0.003
WL-LTZ-023-PEM	PEM	0.039
WL-LTZ-028-PEM	PEM	0.483
WL-LTZ-039-PEM	PEM	0.205
WL-LTZ-040-PEM	PEM	2.914
WL-LTZ-043-PEM	PEM	0.159
WL-LTZ-043-PEM	PEM	0.008
WL-LTZ-043-PEM	PEM	0.001
WL-LTZ-067-PEM	PEM	1.490
WL-LTZ-073-PEM	PEM	0.432

WL-LTZ-109-PEM	PEM	0.048
WL-LTZ-109-PEM	PEM	0.111
WL-LTZ-109-PEM	PEM	0.614
WL-LTZ-143-PEM	PEM	0.147
WL-LTZ-147-PEM	PEM	0.729
WL-LTZ-157-PEM	PEM	0.454
WL-LTZ-159-PEM	PEM	0.111
WL-LTZ-169-PEM	PEM	0.008
WL-LTZ-028-POW	POW	0.495
WL-LTZ-028-POW	POW	0.387
WL-LTZ-043-POW	POW	1.099
WL-LTZ-073-POW	POW	0.064
WL-LTZ-146-POW	POW	0.1
WL-LTZ-023-PSS	PSS	0.016
WL-LTZ-043-PEM	PSS	0.021
WL-LTZ-043-PSS	PSS	0.005
WL-LTZ-109-PSS	PSS	0.565
WL-LTZ-109-PSS	PSS	0.097
WL-LTZ-157-PSS	PSS	0.034
WL-LTZ-28-PSS	PSS	0.004
Bridge Span Avoided Impacts		10.9 acres

North Alternative Wetland Impact Summary	
Direct Impacts (acres)	**25.4**
Indirect Impacts (acres)	**0**
Bridge Span Avoidance (acres)	**10.9**
North Alternative Net Wetland Impacts (acres)	**14.5**

Central Alternative

Direct Impacts

Wetland Name	Wetland Type	Impact Area (acres)
WL-LTZ-167-PEM	PEM	0.557
WL-CML-004-PEM	PEM	0.042
WL-CML-020-PEM	PEM	0
WL-DJW-003-PEM	PEM	0.007
WL-LTZ-010-PEM	PEM	0.086
WL-LTZ-022-PEM	PEM	0.009
WL-LTZ-023-PEM	PEM	0.031
WL-LTZ-023-PEM	PEM	0.074

WL-LTZ-023-PEM	PEM	0.126
WL-LTZ-027-PEM	PEM	0.161
WL-LTZ-028-PEM	PEM	0.508
WL-LTZ-033-PEM	PEM	0.034
WL-LTZ-039-PEM	PEM	0.203
WL-LTZ-040-PEM	PEM	2.924
WL-LTZ-049-PEM	PEM	1.763
WL-LTZ-050-PEM	PEM	0.226
WL-LTZ-050-PEM	PEM	0
WL-LTZ-051-PEM	PEM	0
WL-LTZ-052-PEM	PEM	1.008
WL-LTZ-053-PEM	PEM	0.986
WL-LTZ-054-PEM	PEM	0.992
WL-LTZ-055-PEM	PEM	0.314
WL-LTZ-067-PEM	PEM	4.736
WL-LTZ-073-PEM	PEM	1.647
WL-LTZ-073-PEM	PEM	0.914
WL-LTZ-079-PEM	PEM	0.011
WL-LTZ-082-PEM	PEM	0.04
WL-LTZ-083-PEM	PEM	0.1
WL-LTZ-087-PEM	PEM	0.089
WL-LTZ-104-PEM	PEM	0.036
WL-LTZ-109-PEM	PEM	0.018
WL-LTZ-109-PEM	PEM	0.111
WL-LTZ-109-PEM	PEM	0.613
WL-LTZ-131-PEM	PEM	3.38
WL-LTZ-143-PEM	PEM	0.18
WL-LTZ-145-PEM	PEM	0.036
WL-LTZ-147-PEM	PEM	1.315
WL-LTZ-148-PEM	PEM	0.2
WL-LTZ-152-PEM	PEM	0.014
WL-LTZ-153-PEM	PEM	0.07
WL-LTZ-155-PEM	PEM	0.011
WL-LTZ-156-PEM	PEM	0.012
WL-LTZ-157-PEM	PEM	0.001
WL-LTZ-159-PEM	PEM	0.765
WL-LTZ-166-PEM	PEM	0.08
WL-LTZ-169-PEM	PEM	0.008
WL-LTZ-159-PFO	PFO	0.013
WL-LTZ-159-PFO	PFO	0.021
WL-CML-017-POW	POW	0.051
WL-LTZ-023-POW	POW	0.69
WL-LTZ-028-POW	POW	0.495
WL-LTZ-028-POW	POW	0.387

WL-LTZ-054-POW	POW	0.229
WL-LTZ-073-POW	POW	1.125
WL-LTZ-145-POW	POW	0
WL-LTZ-145-POW	POW	0
WL-LTZ-146-POW	POW	0.1
WL-LTZ-152-POW	POW	0.091
WL-LTZ-011-PEM/PSS	PSS	0
WL-LTZ-023-PSS	PSS	0.025
WL-LTZ-050-PSS	PSS	0.005
WL-LTZ-067-PSS	PSS	0.505
WL-LTZ-067-PSS	PSS	0.08
WL-LTZ-073-PSS	PSS	0.013
WL-LTZ-073-PSS	PSS	0.09
WL-LTZ-073-PSS	PSS	0.021
WL-LTZ-073-PSS	PSS	0.009
WL-LTZ-109-PSS	PSS	0.566
WL-LTZ-109-PSS	PSS	0.093
WL-LTZ-131-PSS	PSS	0.652
WL-LTZ-157-PSS	PSS	0.014
WL-LTZ-159-PSS	PSS	0.041
WL-LTZ-159-PSS	PSS	0.108
WL-LTZ-28-PSS	PSS	0.004
SWWL-BPH-001-PEM	SWWL	0.004
SWWL-CML-001-PEM	SWWL	0.036
SWWL-DJW-001-PEM	SWWL	0.1
SWWL-LTZ-002-PEM	SWWL	0.013
Total Direct Impacts		30.0

Indirect Impacts = 0 acres

Bridge Span Avoidance

Wetland Name	Wetland Type	Bridge Span Area (acres)
WL-CML-020-PEM	PEM	0.00001
WL-DJW-003-PEM	PEM	0.003
WL-LTZ-023-PEM	PEM	0.039
WL-LTZ-028-PEM	PEM	0.483
WL-LTZ-033-PEM	PEM	0.034
WL-LTZ-039-PEM	PEM	0.204
WL-LTZ-040-PEM	PEM	2.926
WL-LTZ-049-PEM	PEM	0.102
WL-LTZ-050-PEM	PEM	0.226
WL-LTZ-050-PEM	PEM	0.00004
WL-LTZ-051-PEM	PEM	0.00027

WL-LTZ-052-PEM	PEM	1.008
WL-LTZ-054-PEM	PEM	0.207
WL-LTZ-067-PEM	PEM	1.618
WL-LTZ-073-PEM	PEM	0.427
WL-LTZ-082-PEM	PEM	0.05
WL-LTZ-083-PEM	PEM	0.051
WL-LTZ-104-PEM	PEM	0.036
WL-LTZ-109-PEM	PEM	0.048
WL-LTZ-109-PEM	PEM	0.111
WL-LTZ-109-PEM	PEM	0.614
WL-LTZ-131-PEM	PEM	3.09
WL-LTZ-143-PEM	PEM	0.147
WL-LTZ-147-PEM	PEM	0.729
WL-LTZ-157-PEM	PEM	0.001
WL-LTZ-159-PEM	PEM	0.765
WL-LTZ-169-PEM	PEM	0.008
WL-LTZ-159-PFO	PFO	0.004
WL-LTZ-028-POW	POW	0.495
WL-LTZ-028-POW	POW	0.387
WL-LTZ-073-POW	POW	0.064
WL-LTZ-146-POW	POW	0.1
WL-LTZ-023-PSS	PSS	0.016
WL-LTZ-050-PSS	PSS	0.005
WL-LTZ-109-PSS	PSS	0.565
WL-LTZ-109-PSS	PSS	0.097
WL-LTZ-131-PSS	PSS	0.415
WL-LTZ-157-PSS	PSS	0.014
WL-LTZ-159-PSS	PSS	0.041
WL-LTZ-159-PSS	PSS	0.102
WL-LTZ-28-PSS	PSS	0.004
Bridge Span - Avoided Impacts		15.0 acres

Central Alternative Wetland Impact Summary	
Direct Impacts (acres)	**30.0**
Indirect Impacts (acres)	**0**
Bridge Span Avoidance (acres)	**15.0**
Central Alternative Net Wetland Impacts (acres)	**15.0**

South Alternative		
Direct		
Wetland Name	**Wetland Type**	**Impact Area (acres)**
WL-LTZ-167-PEM	PEM	0.557

WL-CML-004-PEM	PEM	0.042
WL-DJW-002-PEM	PEM	0.017
WL-DJW-003-PEM	PEM	0.007
WL-LTZ-010-PEM	PEM	0.086
WL-LTZ-022-PEM	PEM	0.009
WL-LTZ-023-PEM	PEM	0.031
WL-LTZ-023-PEM	PEM	0.074
WL-LTZ-023-PEM	PEM	0.021
WL-LTZ-027-PEM	PEM	0.161
WL-LTZ-028-PEM	PEM	0.508
WL-LTZ-039-PEM	PEM	0.203
WL-LTZ-040-PEM	PEM	2.926
WL-LTZ-049-PEM	PEM	1.763
WL-LTZ-050-PEM	PEM	0.226
WL-LTZ-050-PEM	PEM	0.00004
WL-LTZ-051-PEM	PEM	0.00027
WL-LTZ-052-PEM	PEM	1.550
WL-LTZ-053-PEM	PEM	0.662
WL-LTZ-054-PEM	PEM	0.992
WL-LTZ-055-PEM	PEM	0.314
WL-LTZ-067-PEM	PEM	0.141
WL-LTZ-078-PEM	PEM	0.113
WL-LTZ-079-PEM	PEM	0.022
WL-LTZ-084-PEM	PEM	0.072
WL-LTZ-085-PEM	PEM	0.026
WL-LTZ-092-PEM	PEM	0.318
WL-LTZ-096-PEM	PEM	0.044
WL-LTZ-097-PEM	PEM	0.005
WL-LTZ-098-PEM	PEM	0.00027
WL-LTZ-104-PEM	PEM	0.227
WL-LTZ-109-PEM	PEM	0.018
WL-LTZ-109-PEM	PEM	0.111
WL-LTZ-109-PEM	PEM	0.613
WL-LTZ-114-PEM	PEM	0.003
WL-LTZ-136-PEM	PEM	0.004
WL-LTZ-138-PEM	PEM	0.011
WL-LTZ-143-PEM	PEM	0.681
WL-LTZ-145-PEM	PEM	0.036
WL-LTZ-147-PEM	PEM	1.315
WL-LTZ-148-PEM	PEM	0.200
WL-LTZ-152-PEM	PEM	0.014
WL-LTZ-153-PEM	PEM	0.070
WL-LTZ-164-PEM	PEM	0.157
WL-LTZ-165-PEM	PEM	0.179

WL-LTZ-166-PEM	PEM	0.061
WL-LTZ-169-PEM	PEM	0.008
WL-LTZ-079-PFO	PFO	0.019
WL-LTZ-164-PFO	PFO	0.020
WL-LTZ-164-PFO	PFO	0.001
WL-LTZ-023-POW	POW	0.690
WL-LTZ-028-POW	POW	0.495
WL-LTZ-028-POW	POW	0.387
WL-LTZ-053-POW	POW	0.101
WL-LTZ-054-POW	POW	0.229
WL-LTZ-092-POW	POW	0.331
WL-LTZ-145-POW	POW	0.00015
WL-LTZ-145-POW	POW	0.00002
WL-LTZ-146-POW	POW	0.100
WL-LTZ-152-POW	POW	0.091
WL-LTZ-011-PEM/PSS	PSS	0.00019
WL-LTZ-023-PSS	PSS	0.025
WL-LTZ-050-PSS	PSS	0.005
WL-LTZ-085-PSS	PSS	0.0001
WL-LTZ-092-PSS	PSS	0.039
WL-LTZ-109-PSS	PSS	0.566
WL-LTZ-109-PSS	PSS	0.093
WL-LTZ-28-PSS	PSS	0.004
SWWL-BPH-001-PEM	SWWL	0.004
SWWL-CML-001-PEM	SWWL	0.036
SWWL-DJW-001-PEM	SWWL	0.100
SWWL-LTZ-002-PEM	SWWL	0.013
Total Direct Impacts		18.00
Indirect		
Wetland Name	**Wetland Type**	**Impact Area (acres)**
WL-CML-001-PEM	PEM	0.029
WL-LTZ-053-PEM	PEM	0.223
WL-LTZ-079-PEM	PEM	0.709
WL-LTZ-079-PEM	PEM	0.004
WL-LTZ-079-PEM	PEM	0.026
WL-LTZ-080-PEM	PEM	0.055
WL-LTZ-084-PEM	PEM	0.590
WL-LTZ-085-PEM	PEM	0.265
WL-LTZ-086-PEM	PEM	0.015
WL-LTZ-089-PEM	PEM	0.166
WL-LTZ-097-PEM	PEM	0.012
WL-LTZ-098-PEM	PEM	0.737

WL-LTZ-099-PEM	PEM	0.027
WL-LTZ-102-PEM	PEM	0.022
WL-LTZ-102-PEM	PEM	0.013
WL-LTZ-105-PEM	PEM	0.007
WL-LTZ-106-PEM	PEM	0.067
WL-LTZ-079-PFO	PFO	0.390
WL-LTZ-079-PFO	PFO	0.101
WL-LTZ-079-PFO	PFO	0.155
WL-CML-001-PSS	PSS	0.0000004
WL-LTZ-053-PSS	PSS	0.007
WL-LTZ-079-PSS	PSS	0.011
WL-LTZ-085-PSS	PSS	0.062
	Indirect Impacts	3.7
Bridge Span Avoidance		
Wetland Name	**Wetland Type**	**Bridge Span Area (acres)**
WL-DJW-003-PEM	PEM	0.003
WL-LTZ-023-PEM	PEM	0.039
WL-LTZ-028-PEM	PEM	0.483
WL-LTZ-039-PEM	PEM	0.203
WL-LTZ-040-PEM	PEM	2.926
WL-LTZ-049-PEM	PEM	0.102
WL-LTZ-050-PEM	PEM	0.226
WL-LTZ-050-PEM	PEM	0.00004
WL-LTZ-051-PEM	PEM	0.0003
WL-LTZ-052-PEM	PEM	1.55
WL-LTZ-054-PEM	PEM	0.207
WL-LTZ-078-PEM	PEM	0.113
WL-LTZ-104-PEM	PEM	0.029
WL-LTZ-109-PEM	PEM	0.048
WL-LTZ-109-PEM	PEM	0.111
WL-LTZ-109-PEM	PEM	0.614
WL-LTZ-138-PEM	PEM	0.003
WL-LTZ-143-PEM	PEM	0.681
WL-LTZ-147-PEM	PEM	0.729
WL-LTZ-169-PEM	PEM	0.008
WL-LTZ-028-POW	POW	0.495
WL-LTZ-028-POW	POW	0.387
WL-LTZ-146-POW	POW	0.1
WL-LTZ-023-PSS	PSS	0.016
WL-LTZ-050-PSS	PSS	0.005
WL-LTZ-109-PSS	PSS	0.565
WL-LTZ-109-PSS	PSS	0.097

WL-LTZ-28-PSS	PSS	0.004
Bridge Span Avoided Impacts		9.7
South Alternative Wetland Impact Summary		
Direct Impacts (acres)		**18.0**
Indirect Impacts (acres)		**3.7**
Bridge Span Avoidance (acres)		**9.7**
South Alternative Net Wetland Impacts (acres)		**12.0**

SCAC - Watercourse Impacts

22-Aug-25

North Alternative

Stream Name	Stream Type	Impact Length	Drainage Basin
S-BPH-004-INT	INT	169.61	Sinking
S-CML-011-INT	INT	57.60	Spring
S-CML-011-INT	INT	384.82	Spring
S-CML-101-INT	INT	19.90	Spring
S-LTZ-074-INT	INT	264.11	Spring
S-LTZ-100-INT	INT	70.94	Sinking
S-LTZ-002-INT/PER-002	INT/PER	50.44	sinking
S-BPH-001-PER	PER	295.64	Sinking
S-LTZ-001-PER	PER	317.24	Sinking
S-LTZ-023-PER	PER	71.00	Sinking
S-LTZ-023-PER	PER	111.46	Sinking
S-LTZ-023-PER	PER	473.93	Sinking
S-LTZ-033-PER	PER	30.07	Sinking
S-LTZ-035-PER	PER	127.62	Spring
S-LTZ-035-PER	PER	372.05	Spring
S-LTZ-035-PER	PER	772.90	Spring
S-LTZ-035-PER	PER	113.94	Spring
S-LTZ-038-PER	PER	55.15	Spring
S-LTZ-038-PER	PER	334.72	Spring
S-LTZ-073-PER	PER	178.92	Spring
S-LTZ-073-PER	PER	251.17	Spring
S-LTZ-074-PER	PER	247.93	Spring
S-LTZ-077-PER	PER	36.62	Spring
S-LTZ-077-PER	PER	259.99	Spring
S-LTZ-077-PER	PER	55.94	Spring

	Total	5123.69	
	Per	4106.29	
N	Int	1017.41	L F
O	Sinking		I E
R	Per	1299.34	N E
T	Int	290.99	E T
H	Spring		A
	Per	2806.95	R
	Int	726.43	

Central Alternative

Name	Type	Shape_Length	Drainage Basin
S-BPH-004-INT	INT	227.16	Spring Creek
S-CML-011-INT	INT	57.60	Sinking Creek
S-CML-011-INT	INT	384.82	Spring Creek
S-CML-101-INT	INT	19.90	Spring Creek
S-LTZ-027-INT	INT	232.38	Spring Creek
S-LTZ-027-INT	INT	0	Cedar Run
S-LTZ-047-INT	INT	421.19	Cedar Run
S-LTZ-074-INT	INT	264.11	Spring Creek
S-LTZ-100-INT	INT	70.94	Spring Creek
S-LTZ-002-INT/PER-002	INT/PER	50.44	Sinking Creek
S-BPH-001-PER	PER	295.64	Sinking Creek
S-LTZ-001-PER	PER	318.59	Sinking Creek
S-LTZ-023-PER	PER	497.48	Sinking Creek
S-LTZ-025-PER	PER	287.51	Sinking Creek
S-LTZ-025-PER	PER	121.13	Cedar Run
S-LTZ-028-PER	PER	540.17	Cedar Run
S-LTZ-028-PER	PER	0	Cedar Run
S-LTZ-030-PER	PER	252.22	Cedar Run
S-LTZ-035-PER	PER	127.62	Sinking Creek
S-LTZ-035-PER	PER	507.85	Spring Creek
S-LTZ-035-PER	PER	5.34	Spring Creek
S-LTZ-035-PER	PER	772.90	Spring Creek
S-LTZ-035-PER	PER	484.53	Spring Creek
S-LTZ-035-PER-CL	PER	879.39	Spring Creek
S-LTZ-038-PER	PER	55.15	Spring Creek
S-LTZ-038-PER	PER	334.72	Spring Creek
S-LTZ-045-PER	PER	374.59	Spring Creek
S-LTZ-058-PER	PER	202.66	Spring Creek
S-LTZ-058-PER	PER	155.64	Spring Creek
S-LTZ-065-PER	PER	386.56	Spring Creek
S-LTZ-073-PER	PER	178.92	Spring Creek
S-LTZ-073-PER	PER	251.17	Spring Creek
S-LTZ-074-PER	PER	247.93	Spring Creek
S-LTZ-077-PER	PER	36.62	Spring Creek
S-LTZ-077-PER	PER	259.99	Spring Creek
S-LTZ-077-PER	PER	55.94	Spring Creek
S-LTZ-095-PER	PER	206.86	Spring Creek

	Total	9565.63	
C	Per	7887.53	L F
E	Int	1678.10	I E
N	Sinking		N E
T	Per	1577.28	E T
R	Int	57.60	A
A	Spring		R
L	Per	5396.73	
	Int	1199.31	
	Sleepy		
	Per	913.52	
	Int	421.19	

South Alternative			
Name	**Type**	**Shape_Length**	**Drainage Basin**
S-DJW-001-EPH	EPH	51.01	spring
S-DJW-001-EPH	EPH	211.65	spring
S-BPH-004-INT	INT	227.16	sinking
S-CML-001-INT	INT	18.95	spring
S-CML-009-INT	INT	155.71	spring
S-CML-011-INT	INT	57.60	spring
S-CML-011-INT	INT	384.82	spring
S-CML-101-INT	INT	19.90	spring
S-DJW-001-INT	INT	49.38	spring
S-LTZ-027-INT	INT	644.85	sleepy creek
S-LTZ-043-INT	INT	207.60	spring
S-LTZ-048-INT	INT	30.68	spring
S-LTZ-049-INT	INT	192.79	spring
S-LTZ-064-INT	INT	426.13	spring
S-LTZ-070-INT	INT	417.28	spring
S-LTZ-071-INT	INT	141.48	spring
S-LTZ-074-INT	INT	264.11	spring
S-LTZ-100-INT	INT	70.94	sinking
S-LTZ-002-INT/PER-002	INT/PER	50.44	sinking
S-BPH-001-PER	PER	295.64	sinking
S-CML-002-PER	PER	14.42	spring
S-CML-009-PER	PER	113.36	spring
S-LTZ-001-PER	PER	318.59	sinking
S-LTZ-023-PER	PER	497.48	sinking
S-LTZ-025-PER	PER	410.92	sleepy creek
S-LTZ-025-PER	PER	121.13	sleepy creek
S-LTZ-028-PER	PER	914.30	sleepy creek
S-LTZ-030-PER	PER	252.22	sinking
S-LTZ-035-PER	PER	90.96	spring
S-LTZ-035-PER	PER	127.62	spring
S-LTZ-035-PER	PER	185.62	spring
S-LTZ-035-PER	PER	772.90	spring
S-LTZ-035/1A-PER	PER	105.93	spring
S-LTZ-038-PER	PER	55.15	spring
S-LTZ-038-PER	PER	334.72	spring
S-LTZ-040-PER	PER	131.64	spring
S-LTZ-041-PER	PER	207.59	spring
S-LTZ-045-PER	PER	140.40	spring
S-LTZ-050-PER	PER	161.87	spring
S-LTZ-052-PER	PER	121.14	spring
S-LTZ-053-PER	PER	62.38	spring
S-LTZ-054-PER	PER	20.12	spring
S-LTZ-073-PER	PER	375.99	spring
S-LTZ-073-PER	PER	155.60	spring
S-LTZ-074-PER	PER	247.93	spring
S-LTZ-077-PER	PER	36.62	spring
S-LTZ-077-PER	PER	259.99	spring
S-LTZ-077-PER	PER	55.94	spring
S-LTZ-095-PER	PER	541.08	sleepy creek
S-LTZ-002-SWC	SWC	19.90	
S-LTZ-101-SWC	SWC	233.93	

SWC-AHE-002	SWC	89.48	
SWC-AHE-002	SWC	115.56	
SWC-BPH-002	SWC	11.20	
SWC-LTZ-005	SWC	501.72	
	Total	10489.03	
	Per	7129.23	
	Int	3359.80	
S	Sinking		L F
O	Per	1363.92	I E
U	Int	348.53	N E
T	Spring		E T
H	Per	3777.89	A
	Int	2366.41	R
	Sleepy		
	Per	1987.42	
	Int	644.85	

APPENDIX D - REFERENCES

REFERENCES

Centre County Open Data

- Lakes and Ponds

https://gisdatacentrecountygov.opendata.arcgis.com/datasets/CentreCountyGov::lakes-2?geometry=-77.875%2C40.756%2C-77.548%2C40.801

February 2021.

https://gisdata-centrecountygov.opendata.arcgis.com/datasets/CentreCountyGov::ponds
February 2021.

- Soils

https://gisdatacentrecountygov.opendata.arcgis.com/datasets/CentreCountyGov::ssurgo-soils-1?geometry=-80.372%2C40.607%2C-75.146%2C41.333

February 2021.

- Streams/Hydrography

https://gisdata-centrecountygov.opendata.arcgis.com/datasets/CentreCountyGov::hydrography-1

February 2021.

Data Refresh Study Documents

- *Route 322/144/45 Corridors Data Refresh Project, Centre County, Pennsylvania – 2019 Data Refresh Report* (McCormick Taylor).
- *Route 322/144/45 Corridors Data Refresh Project, Centre County, PA– Secondary Source Wetland and Stream Resource Data Collection Memo* (McCormick Taylor, June 29, 2019).
- *South Central Centre County Transportation Study (SCCCTS) - 2002 Delineation, Pre-2002 Delineation, and 2004 Streams.*

Pennsylvania Code, Title 25, Chapter 93 listing of protected water uses

https://www.pacodeandbulletin.gov/Display/pacode?file=/secure/pacode/data/025/chapter93/s93.9l.html&d=reduce
February 2021.

Pennsylvania Department of Environmental Protection (PA DEP)

- eMapPA online application

http://www.depgis.state.pa.us/emappa

February 2021.

- List of existing water uses

http://files.dep.state.pa.us/Water/Drinking%20Water%20and%20Facility%20Regulation/WaterQualityPortalFiles/Existing%20Use/EU%20table%20list.pdf

February 2021.

Pennsylvania Fish and Boat Commission (PFBC)

- Listing of Stocked Trout Waters, Wild Trout Waters (Natural Reproduction), and Class A Wild Trout Streams

https://www.fishandboat.com/Fish/PennsylvaniaFishes/Trout/Pages/TroutWaterClassifications.aspx

February 2021.

Pennsylvania Spatial Data Access (PASDA)

- Modeled Primary Wetlands

https://www.pasda.psu.edu/uci/DataSummary.aspx?dataset=3137

February 2021.

Readily available (Internet) aerial photography

https://datacommons.maps.arcgis.com/apps/View/index.html?appid=10af5f75f9f94f01866359ba398cb6a9

February 2021.

Google Earth, February 2021.

Soil Survey Geographic Database (SSUVGO)

https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_053627

February 2021.

U.S. Army Corps of Engineers (USACE*)*

Wetland Delineation Manual, Technical Report Y-87-1 (1987) and the *Regional Supplement to the USACE Wetland Delineation Manual: Eastern Mountains and Piedmont (2012).*

U.S. Department of Agriculture (USDA) - Natural Resources Conservation Service's (NRCS)

- Web Soil Survey; Centre County Soil Survey and the Pennsylvania County Listing of Hydric Soils https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm

February 2021.

U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) mapping

(https://www.fws.gov/wetlands/data/mapper.html

February 2021.

U.S. Geological Survey (USGS) mapping

- Bellefonte, Centre Hall, Mingoville, Spring Mills, and State College https://www.mytopo.com/products/quad-maps-state.cfm?state=Pennsylvania

February 2021.

GIS DATA SOURCES

Layer Name	Source	Date
Hydric Soils	SSURGO web soil survey and Centre County Open Data	3/18/2020
Delineated Watercourses	S&L	2025
Delineated Wetlands	S&L	2025
NWI Wetlands	NWI	2020
Modeled Wetlands	PASDA	2020
CH93 Designated Use	PASDA/Pennsylvania Department of Environmental Protection	2019
CH93 Existing Use	PASDA/Pennsylvania Department of Environmental Protection	2019
Stocked Trout Streams	PASDA/Pennsylvania Fish and Boat Commission	2020
Natural Reproduction Wild Trout Streams	PASDA/Pennsylvania Fish and Boat Commission	2020
Class A Trout Streams	PASDA/Pennsylvania Fish and Boat Commission	2020
Major Watersheds	Centre County Open Data	3/18/2020