WETLAND TECHNICAL REPORT

Tier 2 Environmental Impact Statement

I-69 Section 6

Martinsville to Indianapolis

November 14, 2017

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1 INTRODUCTION

1.1 Study Purpose

This Wetland Technical Report provides information regarding the identification, characterization, and evaluation of wetland resources within the I-69 Section 6 field survey study area and serves to support the Final Environmental Impact Statement (FEIS). This report identifies wetland resources identified as part of the proposed project and discusses the potential impacts to wetland resources by the Draft EIS (DEIS) alternatives (Alternatives C1, C2, C3, and C4) and the Refined Preferred Alternative (RPA).

1.2 Field Survey Study Area

The I-69 Section 6 field survey study area is the right of way footprint for all of the alternatives plus approximately 50 feet beyond them. This is the area investigated for natural resources (including wetlands and open waters) for the project.

1.2.1 General Description

The I-69 Section 6 project is approximately 26 miles long, originating south of the SR 37 and SR 39 interchange in Martinsville and continuing through Morgan, Johnson, and Marion counties to I-465 in Indianapolis.

The proposed alignment for I-69 Section 6 will upgrade SR 37 to freeway design standards from the current four-lane divided highway. Access to I-69 will be fully controlled and limited to interchanges. Each alternative has different mainline widths, interchange locations and configuration, grade separation locations, and local access roads. **Appendix A** of this report illustrates the alternatives on United States Geological Survey (USGS) topographic maps and aerial photographs.

1.2.2 Topography and Drainage

The I-69 Section 6 project is located on the Martinsville, Cope, Mooresville East, Bargersville, and Maywood USGS 7.5 minute topographic maps. The field survey study area crosses sixteen 14-digit Hydraulic Unit Code (HUC) watersheds (See **Table 1**).

Table 1: 14-Digit Hydraulic Unit Code Watersheds within the Field Survey Study Area

HUC Name	HUC Number
Indian Creek-Sand Creek	05120201170070
White River-Martinsville	05120201160060
Clear Creek-East/West/Grassy Forks	05120201140140
White River-Henderson Bridge	05120201140130
Stotts Creek-Exchange	05120201140120
White River-North Trib (Centenary Church)	05120201140060
Crooked Creek-Banta Creek	05120201140050
White River-Sinking Creek	05120201140040
White River-North Bluff/Bluff Creeks	05120201140030
Honey Creek-Turkey Pen Creek	05120201140010
Pleasant Run Creek-Buffalo Creek	05120201130110
White River-Mann Creek/Harness Ditch	05120201130100
Little Buck Creek (Southport)	05120201130090
White River-Hide Creek	05120201130080
State Ditch	05120201130070
Lick Creek-Beech Creek	05120201130080

1.2.3 General Land Use

The land use within the I-69 Section 6 project is urbanized in Martinsville and in Marion County. As the I-69 Section 6 project moves north from Martinsville, land use shifts from urban to agricultural, with limited residential and commercial development. The I-69 Section 6 project enters a more developed area in northern Johnson County, near Fairview Road. North of Fairview Road, the dominant land uses are residential, commercial, and industrial. The density of urbanization increases significantly as the I-69 Section 6 project crosses into Marion County, particularly near Southport Road. The area surrounding the I-465 interchange is dominated by industrial land use including sand and gravel mining operations.

The I-69 Section 6 project has two distinct geographic and physiographic regions. The Martinsville region is characterized by rugged terrain with sharp ridges and V-shaped valleys. As

the I-69 Section 6 project approaches Egbert Road north of Martinsville, the landscape shifts to the rolling hills and low lying areas typically associated with till plains. The I-69 Section 6 project crosses from the Southern Hills and Lowlands physiographic region (Martinsville Hills portion) into the Central Till Plain physiographic region (New Castle Till Plains and Drainageways portion) (Gray, 2000). The Central Till Plain region is characterized by till plains of low relief, crossed by many tunnel valleys (U-shaped valleys cut under glacial ice).

2 REGULATORY DEFINITIONS

2.1 Waters of the US

The U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) regulate "waters of the US" under Sections 401 and 404 of the Clean Water Act. Waters of the US include navigable waterways, tributaries to navigable waterways, and special aquatic sites. Special aquatic sites include wetlands, lakes, and ponds. A wetland is defined as:

> *Those areas inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas (33 CFR 328.3).*

2.2 Waters of the State and State Isolated Wetlands

Waters of the state include those water resources within the state of Indiana; including those that fall under the jurisdiction of USACE as "waters of the US". Waters of the state are defined as:

> *Accumulations of water, surface and underground, natural and artificial, public and private or a part of the accumulations of water that are wholly or partially within, flow through, or border upon Indiana (IDEM 2008).*

State isolated wetlands do not have a direct connection to a navigable waterway and therefore do not fall under the jurisdiction of USACE. Isolated wetlands fall under Indiana Department of Environmental Management's (IDEM) jurisdiction through the Isolated Wetlands Regulatory Program. The program divides wetlands into three classes based upon wetland quality (IC 13-18-22).

- **Class I wetlands** are those in which human activities have altered at least 50 percent of the wetland and it supports minimal aquatic and biotic function.
- **Class II wetlands** are those that are not considered part of Class I or Class III.
- **Class III wetlands** are minimally disturbed by human activities and represent one of the 18 rare and ecologically important wetland types.

2.3 Wetlands

Wetlands are a unique type of ecosystem that fall into four broad categories – marshes, swamps, bogs, and fens (USEPA, 2004). Methodologies used to identify and delineate wetlands are outlined in the *Corps of Engineers Wetland Delineation Manual* (USACE, 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region* (USACE, 2010).

The USACE Manual and Regional Supplement documents require a three parameter approach when delineating wetland boundaries. The three main considerations in identifying a wetland are: hydrophytic vegetation, hydric soils, and wetland hydrology. Three positive indicators, one for each of the three considerations, must be present for an area to be considered a wetland.

2.3.1 Hydrophytic Vegetation

Plants that are adapted to grow in wet conditions are considered hydrophytic. Plants commonly found in the Midwest region are assigned an indicator status based on the probability that they will be found in a wetland. The five indicator status levels are defined as:

- **Obligate (OBL)** – Plants that almost always occur in wetland areas.
- **Facultative Wetland (FACW)** – Plants that usually occur in wetland areas but may also occur in non-wetland areas.
- **Facultative (FAC)** – Plants that are equally likely to occur in wetland or non-wetland areas.
- **Facultative Upland (FACU)** – Plants that sometimes occur in wetland areas but more often occur in non-wetland areas.
- **Upland (UPL)** – Plants that occur almost always in upland areas.

The hydrophytic vegetation requirement is met if the site passes the rapid test, the dominance test, or the prevalence index. The rapid test is passed if all dominant species across all strata are rated as OBL, FACW, or a combination of both based on visual assessment. The dominance test is met if more than 50 percent of the dominant plant species across all strata are rated as OBL, FACW, or FAC. A prevalence index of 3.0 or less indicates hydrophytic vegetation, providing both hydric soils and wetland hydrology are also present.

2.3.2 Hydric Soils

Hydric soils are characterized by the presence of anaerobic conditions. Repeated and prolonged saturation or flooding creates anaerobic conditions, which can permanently alter the soil color and chemistry. These soil characteristics are used to determine the presence of hydric soils. Field indicators of hydric soils include gleyed matrix, depleted matrix, redox dark surfaces, redox

depressions, or depleted dark surfaces. The observation of one of these characteristics can indicate the presence of hydric soils.

2.3.3 Wetland Hydrology

Determination of whether a site meets the criteria for wetland hydrology is based on observations of primary and/or secondary hydrologic indicators. Common primary wetland hydrology indicators include inundation, saturation, watermarks, sediment deposits, sparse vegetation, and inundation visible on aerial photography. Secondary indicators include crayfish burrows, stunted or stressed plants, surface soil cracks, etc. Areas with wetland hydrology characteristics are those where the presence of water has an overriding effect on the occurrence of hydric soils and hydrophytic vegetation due to anaerobic conditions.

2.4 Wetland Types

Wetland types are based upon the classification systems outlined in *Classification of Wetlands and Deepwater Habitats of the United States (*Cowardin, et al., 1979). This text established a classification system to effectively describe the ecological taxa and habitat of wetlands through a series of systems and subsystems. Of the five major systems, only two are found in the field survey study area: palustrine and lacustrine. The four palustrine classes are emergent, scrub-shrub, forested, and unconsolidated bottom. The lacustrine system includes permanently flooded lakes and reservoirs, and intermittent lakes. No natural lakes are present within the field survey study area and those lacustrine features identified are associated with quarries. The following subsections describe the palustrine wetland types found in the field survey study area.

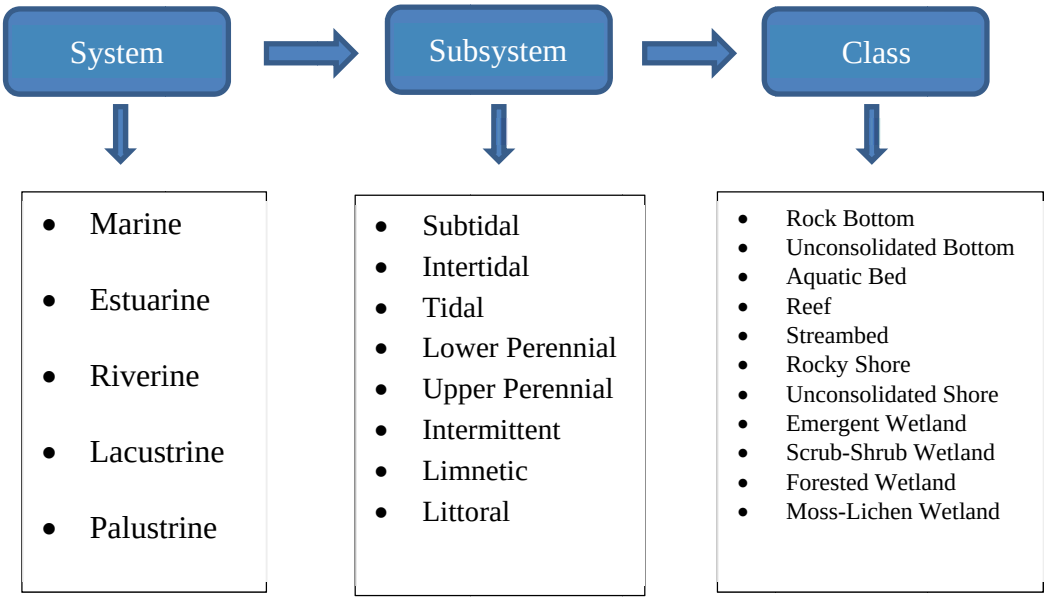
2.4.1 Palustrine Emergent (PEM)

Palustrine emergent wetlands are dominated by rooted and erect herbaceous species that are present for a majority of the growing season and maintain the same appearance year to year, barring extreme climatic conditions such as drought. Commonly known emergent wetland communities include marsh, wet meadow, wet prairie, and fen. Species of plants that are characteristic to emergent wetlands include cattails (*Typha* sp.), sedges (*Carex* sp.), rushes (Family Juncaceae), rice cut grass (*Leersia oryzoides*), and reed canary grass (*Phalaris arundinacea*) (Cowardin, et al., 1979). Emergent wetlands, within the I-69 Section 6 field survey study area, commonly develop along existing roads, in open fields and residential yards, and to a lesser extent in active farmlands.

2.4.2 Palustrine Scrub-Shrub (PSS)

Palustrine scrub-shrub wetlands are the mid-successional wetland community between emergent and forested, although in some instances the scrub-shrub community may represent the persistent mature community type. Vegetation is dominated by shrubs, young trees, and woody species that may have become stunted due to adverse environmental settings. Species composition within shrub-scrub wetlands is dependent on the length of inundation. Species such as willow (*Salix* sp.) and dogwood (*Cornus* sp.) most commonly grow in wetlands that experience temporary or seasonal flooding while common buttonbush (*Cephalanthus occidentalis*) would be found in semi-permanently flooded wetlands (Cowardin, et al., 1979). Along the I-69 Section 6 field survey study area, scrub-shrub wetlands are found bordering emergent wetlands, lakes, and reservoirs.

Figure 1: Cowardin Classification System



2.4.3 Palustrine Forested (PFO)

Palustrine forested wetlands are dominated by trees over 19 feet in height, with additional understory layers of shrub and herbaceous vegetation. Common trees found in the canopy layer are silver maple (*Acer saccharinum*), boxelder (*Acer negundo*) eastern cottonwood (*Populus deltoides*), American elm (*Ulmus americana*), green ash (*Fraxinus pennsylvanica*) and American sycamore (*Platanus occidentalis*). Forested wetlands generally have a high wildlife habitat rating and are commonly found in the floodplain (Cowardin, et al., 1979). Along the I-69 Section 6 field survey study area, forested wetlands are found in the floodplains of rivers and streams.

2.4.4 Palustrine Unconsolidated Bottom (PUB)

Palustrine unconsolidated bottom wetlands have a substrate with 25 percent or more of their particles smaller than stones and with less than 30 percent vegetation cover. The small substrate size generally limits the ability for plants and animals to become established (Cowardin, et al., 1979). Within the I-69 Section 6 field survey study area, this type of wetland is commonly associated with storm water detention ponds, open waters used for fisheries and quarries, and recreational ponds.

2.5 Indiana Wetland Rapid Assessment Protocol (InWRAP)

The Indiana Wetland Rapid Assessment Protocol (InWRAP) was developed and published by Taylor University Environmental Research Group (TERG) in 2005 in response to a need to have a fast and accurate method of depicting wetland quality. During the February 22, 2005, Interagency Water Resource Meeting, the InWRAP method was chosen to assess the quality of the wetlands impacted by the alternatives considered during I-69 Tier 2 studies. Use of the InWRAP to assess wetland quality was viewed favorably by the agencies in attendance.

3 METHODOLOGY

Methodology for the identification and delineation of wetland resources is outlined in the *Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineatoin Manual: Midwest Region (Version 2.0)* (USACE 2010). Preliminary field investigations also followed the InWRAP protocol. InWRAP methodologies were used to describe the quality of wetlands found within the field survey study area. Wetland resources were first identified through initial office review and confirmed by field reconnaissance.

3.1 Office Review

Prior to field reconnaissance, an office review of available resources was conducted to identify areas within the field survey study area where wetlands were likely to occur. Resources reviewed include USGS 7.5 minute topographic maps, aerial photography, state hydrography, United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data, state hydric soils data, and previous field work. Field maps were generated and potential wetland areas were identified. Field crews used these maps to guide field reconnaissance activities.

The USFWS initially prepared the NWI using topographic mapping and aerial photography and rarely field verified the information. Wetlands may be incorrectly identified, incorrectly classified, or not identified. In addition, the criteria used to identify NWI wetlands are not those currently used by the USACE. This inaccuracy requires field verification of all NWI wetlands.

3.2 Field Reconnaissance

The initial field work occurred in 2005 and 2006 and was reinitiated in 2014. Field studies referenced in this report were completed in 2016. Field crews investigated the entire field survey study area with the focus being on previously identified wetland areas and on areas identified as having a high potential for wetlands based on the presence of USDA identified hydric soils, NWI wetlands, and/or indicators of hydrology.

3.2.1 I-69 Section 6 Field Survey Study Area

Previous sections of the I-69 Evansville to Indianapolis project conducted field activities within the entire corridor approved in the Tier 1 Record of Decision (ROD). This corridor generally is 2,000 feet wide, though narrower or wider in some places. However, the I-69 Section 6 project passes through the largest portion of urban and developed land. The field survey study area was restricted within the corridor to include the right of way footprint of the build alternatives plus a 50-foot buffer.

3.2.2 Wetland Determination

Methodology for the delineation of a potential wetland followed USACE guidance outlined in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region*. The current Nationwide Plant List (2016) became effective May 1, 2016, and delineations performed prior to that date may use 2014 list. Since the majority of field work was completed in 2015, the plant identification and wetland indicator status used in this report reference the 2014 Midwest Region Plant List. Soil color observations were determined using the Munsell Soil Color Book. Full delineation methodology was not used during the preliminary analysis of alternatives in the DEIS but field scientists followed the general practices outlined in the manual. Field scientists flagged the approximate boundaries of wetlands and captured the boundary points with a GPS unit. GPS points were transferred from the GPS unit to ArcMap and closed area polygons were created by connecting points.

3.2.3 InWRAP Wetland Quality Assessment

During field investigations, field crews conducted InWRAP assessments in order to determine the quality of each wetland. InWRAP is performed on a single polygon or a complex of adjoining wetland polygons, based on their connectivity. It is a worksheet based on three tiers of assessment.

- **Tier 1**: An overview that includes site identification, map data, site conditions, and landscape setting
- **Tier 2**: A preliminary overall assessment of wetland hydrology, community type, degree of disturbance, and any “red flag” indicators

- **Tier 3**: An assessment of the quality of the wetland based on hydrologic features, wetland plant community health, and wildlife potential

InWRAP methodology directly correlates quality scores to the wetland community. InWRAP uses 13 wetland communities commonly found in Indiana. Using these unique community types provides a balance in the identification of common wetland communities and ecologically rare types (Taylor University Environmental Research Group, 2005).

3.2.3.1 InWRAP Wetland Communities

InWRAP community types are adapted from Eggers and Reed (1997) and the *Indiana State Wetland Community Abstracts* developed by the IDNR Division of Nature Preserves as found in the InWRAP Manual (Taylor University Enivronmental Research Group, 2005). Community types are broken down by dominant successional stage. Of the 13 wetland communities, eight were identified in the field survey study area. These are:

Floodplain Forest (FF): These communities are found on alluvial soils along riverine systems. Dominant trees often include silver maple (*Acer saccharinum*), Eastern cottonwood (*Populus deltoides*), American sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), white ash (*Fraxinus americana*), and American elm (*Ulmus americana*). An herbaceous layer is often present and the dominant species often include spotted touch-me-not (*Impatiens capensis*), wingstem (*Verbesina alternifolia*), Canadian wood nettle (*Laportea canadensis*), and Canadian clearweed (*Pilea pumila*).

Shrub-carr (SC): These communities are found on neutral to alkaline poorly-drained soils, these sites are dominated by common buttonbush (*Cephalanthus occidentalis*), willow (*Salix* sp.), dogwood species including red osier and silky (*Cornus sericea* and *Cornus amomum*), and red maple (*Acer rubrum*). Herbaceous species include trumpetweed (*Eutrochium maculatum*), yellow marsh marigold (*Caltha palustris*), and skunk cabbage (*Symplocarpus foetidus*).

Deep Marsh (DM)/Shallow Open Water (SOW): These sites have water deeper than six inches throughout most of the growing season. Commonly found species include hard-stem club-rush (*Schoenoplectus acutus*) and cattail (*Typha* sp.).

Shallow Marsh (SHM): The soils found within this wetland community are usually deep, black, and rich in organic matter. Water is more or less permanent, up to six inches in depth. Dominant species include cattails (*Typha* sp.), bulrushes (*Scirpus* sp.), manna grass species (*Glyceria* sp.), and knotweeds (*Polygonum* sp.).

Sedge Meadow (SM): Sedge meadows have saturated soils with six inches of water. Dominant species are sedge species (*Carex* sp.). Other common species include rice cut grass (*Leersia oryzoides*), rushes (Family Juncaceae), and beggar ticks (*Bidens* sp.). This community is similar to wet prairie.

Wet Prairie (WP): This community is a swale characterized by spring ponding. Soils range from black and mineral rich to muck. They are dominated by a mixture of grass species including freshwater cordgrass (*Spartina pectinata*), big bluestem (*Andropogon gerardii),* and yellow Indian grass (*Sorghastrum nutans*). Other commonly found species include blazing stars (*Liatris* sp.), goldenrods (*Solidago* sp.), fall sneezeweed (*Helenium autumnale*), and Virginia mountain mint (*Pycnanthemum virginianum*).

Wet Meadow (WM): This is usually a young community that is dominated by grasses. They often have signs of recent disturbances including drainage, siltation, cultivation, and/or flooding. Soils are saturated for part of the growing season. Common grass species include reed canary grass (*Phalaris arundinacea*), Kentucky bluegrass (*Poa pratensis*), sedges (*Carex* sp.), and dark-green bulrush (*Scirpus atrovirens*). Other species associated within the community include milkweed (*Asclepias* sp.), touch-me-nots (*Impatiens* sp.), stinging nettle (*Urtica dioica*), common boneset (*Eupatorium perfoliatum*), and white panicled American-aster (*Symphyotrichum lanceolatum*).

Seasonally Flooded Basin (SFB): This community is found on poorly drained depressions, often associated with floodplains. Water stands for a few weeks each year but depressions are dry most of the growing season. They are found near cultivation and are colonized by annuals such as knotweeds (*Polygonum* sp.), large barnyard grass (*Echinochloa crus-galli*), nut sedges (*Cyperus* sp.), rice cut grass (*Leersia oryzoides*), and meadow foxtails (*Alopecurus* sp.).

3.2.4 Wetland Delineations

All wetlands entirely or partially within the proposed right of way for the RPA were delineated using global positioning system (GPS) devices to establish the boundaries of each wetland polygon. USACE wetland determination data forms (Midwest Version 2.0) were used to document wetland and non-wetland conditions on both sides of the delineation line and are provided in the **Appendix E**. Delineations were conducted during various time periods in 2015 through 2017.

4 RESULTS AND DISCUSSION

4.1 Field Survey Study Area Wetlands

Wetlands and open water features are present along the entire length of the I-69 Section 6 field survey study area and are found in a variety of settings. Those identified within the I-69 Section 6 field survey study area were classified using the Cowardin classification system. Classifications include palustrine emergent (PEM), palustrine scrub-shrub (PSS), palustrine forested (PFO), palustrine unconsolidated bottom (PUB), and lacustrine limnetic unconsolidated bottom (L1UB), with the majority falling within the palustrine system.

Due to the lack of field verification of NWI wetlands, field reconnaissance was required. The I-69 Section 6 Tier 2 study identified wetland resources within the field survey study area. **Table 2** provides a comparison of NWI wetlands anticipated to be found in the study area versus those wetlands identified during field investigations. The figures in **Appendix A** of this report display NWI wetlands in comparison to the field identified wetlands.

Not all of the wetlands identified in the field will be impacted by the build alternatives. Of the 91 field identified features, 82 wetlands and open waters are found within the right of way of the build alternatives. **Section 4.2** provides a description of wetlands that have the potential to be impacted by any of the build alternatives.

Table 2: Wetlands in I-69 Section 6 Field Survey Study Area

Wetland Type	Number of NWI Wetlands[1]	NWI Wetland Acreage[1]	Number of Field Identified Wetlands	Field Identified Acreage
Palustrine Emergent (PEM)	9	14.95	41	19.95
Palustrine Scrub-Shrub (PSS)	-	-	7	1.12
Palustrine Forested (PFO)	12	125.51	14	3.48
Palustrine Unconsolidated Bottom (PUB)	36	125.94	33	100.16
Lacustrine Limnetic Unconsolidated Bottom (L1UB)	3	189.47	2	66.60
Riverine Lower Perennial Unconsolidated Shore (R2US)	3	3.05	-	-
TOTAL	**63**	**458.92**	**97**	**191.31**

[1]*Information obtained from USFWS NWI mapping dated 10/20/2014*

4.2 Wetland Analysis

For the purposes of this report the term "wetland" refers to an area that meets the USACE criteria and comprises a single wetland type. The term "wetland complex" consists of two or more adjoining wetland community types. Each community type within a complex is represented as an individual polygon. All wetlands and open waters follow the same naming convention of S6W###. To identify separate wetlands within a complex, a modifier is added to the name such as A, B, C, or D, depending upon the number of individual polygons within a complex. For example, S6W002 is a wetland complex comprised of two individual wetlands with names of S6W002A and S6W002B. Wetland complexes consisting of a single polygon community type are assigned "A" as a suffix by default.

[1] *Information obtained from USFWS NWI mapping dated 10/20/2014*

Reference information is available in the appendices of this report:

- **Appendix B** – Wetland Site Forms and InWRAP Field Data Sheets
  - Wetland site forms provide an overall description of each wetland complex and include site specific mapping and photographs for all wetlands identified in the field survey study area.
  - The InWRAP field data sheets document the base data collected for each complex, including major plant communities, hydrology, topography, and values of the resources for all wetlands identified in the field survey study area.
- **Appendix C** – I-69 Wetland Quality Assessment Profile Sheets
  - The Quality Assessment sheets generate a rating for three wetland functions: animal habitat, botanical, and hydrologic measures. This is based on the InWRAP summaries for all wetlands identified in the field survey study area.
- **Appendix D** – Wetland Matrix for I-69 Alternatives
  - The wetland matrix summarizes the assessment results for those wetlands identified as potentially impacted by the build alternatives.
- **Appendix E** – USACE Wetland Determination Data Forms
  - The data forms provide the documentation for each of the wetlands (excluding ponds) that substantiate that the wetland meets the USACE wetland criteria.

This section describes potential wetland features identified within the right of way of at least one alternative. The majority of the wetlands and open waters within the right of way of an I-69 Section 6 alternative are preliminarily identified as "Waters of the US" and would fall under USACE and IDEM jurisdiction.[2] The USACE will make the final determination regarding the jurisdictional status of wetlands during permitting. USEPA will review the final decision on the federal jurisdictional determinations made by the USACE as part of its responsibility in jointly administering Section 404 of the Clean Water Act (CWA) and has the ability to overturn the USACE determination.

Quality scores were assigned to each wetland feature for animal habitat, botanical, and hydrology measures. These measures are based on the InWRAP summaries for the sites.

[2] *Waters of the US" are within the jurisdiction of USACE under the CWA. The term includes waters that are used or could be used for interstate commerce. This includes wetlands, ponds, lakes, territorial seas, rivers, and tributary streams including any definable intermittent waterways, and some ditches below the "ordinary high water mark" (OHWM). Also included are manmade water bodies such as quarries and ponds, which are no longer actively being mined or constructed and are connected to other "waters." A specific, detailed definition of "waters of the US" can be found in the Federal Register (33 §CFR 328.3). In Indiana, "waters of the US" are also subject to regulation by IDEM, which maintains jurisdiction over the state's water quality issues.*

"Waters of the state" are within the jurisdiction of IDEM. They are generally defined as surface and underground water bodies that extend through or exist wholly in the state. They include, but are not limited to streams and both isolated and non-isolated wetlands. Private ponds, or any pond, reservoir, or facility built for reduction of pollutants prior to discharge are not included in this definition. In addition to "waters of the US," IDEM regulates and issues permits for isolated wetland impacts.

Wetland classifications discussed are based on the Cowardin classification and Indiana Community Types.

Wetlands within the field survey study area which are not impacted by any of the alternatives and therefore are not included in the following descriptions include: S6W006, S6W010, S6W011, S6W012, S6W013, S6W014, S6W015, S6W010, S6W016, S6W017, S6W018, S6W019, S6W022, S6W023, S6W024, S6W029, S6W030, S6W031, S6W032, S6W036, S6W038, S6W043, S6W044, S6W045, S6W049, S6W060, S6W061, S6W073, S6W074, S6W075, S6W076, S6W078, S6W079, S6W081, S6W086, S6W092, S6W093, S6W096, S6W098, S6W102, S6W106, S6W107, S6W114, S6W115, S6W124, S6W125.

S6W001

S6W001 is classified as a PEM, seasonally flooded basin Indiana community type, with an area of 0.31 acre. The wetland has 0-25 percent herbaceous coverage within a depression surrounded by floodplain forest habitat. It is that is dominated by white panicled American-aster (*Symphyotrichum lanceolatum*), devil's-pitchfork (*Bidens frondosa*), and dotted smartweed (*Persicaria punctata*). Animal habitat, botanical measures, and hydrology each have a rating of fair. Hydrology for the wetland is from retention of Indian Creek floodwaters within the topographic depression in the woods. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W002

S6W002 is a wetland complex that consists of two wetland polygons totaling 0.21 acre. S6W002A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.17 acre. S6W002A has 75-100 percent herbaceous and woody plant coverage dominated by *Carex* sp. and sweet wood reed (*Cinna arundinacea*). The dominant tree species are silver maple (*Acer saccharinum*) and green ash (*Fraxinus pennsylvanica*). Animal habitat, botanical measures, and hydrology each have a rating of fair.

S6W002B is classified as PEM, a seasonally flooded basin Indiana community type, with an area of 0.04 acre. S6W002B has 75-100 percent herbaceous cover that is dominated by white panicled American-aster. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively.

Hydrology for the wetland complex is from roadway and surrounding field runoff into the topographic depression. This complex falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W003

S6W003A is classified as PEM, a seasonally flooded basin Indiana community type, with an area of 0.14 acre. The wetland has 75-100 percent herbaceous coverage and is dominated by white panicled American-aster and sedge species (*Carex* sp.). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology for the wetland is from

roadway runoff into a topographic depression. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W004

S6W004A is classified as PEM, a seasonally flooded basin Indiana community type, with an area of 0.35 acre. The wetland has 75-100 percent herbaceous coverage and is dominated by green bulrush (*Scripus atrovirens*), common fox sedge (*Carex vulpinoidea*), and creeping-jenny (*Lysimachia nummularia*). Animal habitat, botanical measures, and hydrology are rated as poor, poor, and fair, respectively. Hydrology for the wetland is from roadway runoff into the topographic depression. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W005

S6W005A is classified as PEM, a deep marsh Indiana community type, with an area of 0.11 acre. The herbaceous coverage for the wetland is less than 25 percent. The dominant species for the wetland are reed canary grass (*Phalaris arundinacea*) and narrow-leaf cattail (*Typha angustifolia*). Animal habitat, botanical measures, and hydrology each have a rating of poor. Hydrology is due to local runoff from the roadway and surrounding land into a topographic depression with poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W007

S6W007A is classified as a PFO, a floodplain forest Indiana community type, with an area of 0.17 acre. The wetland has less than 25 percent herbaceous plant cover and 100-75 percent woody plant coverage, and is dominated by box elder (*Acer negundo*), silver maple, and green ash. Animal habitat, botanical measures, and hydrology each have a rating of fair. Hydrology is due to local runoff connectivity to adjacent wetlands. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W008

S6W008 is a wetland complex that consists of three wetland polygons totaling 8.43 acres. S6W008A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.18 acre. S6W008A has 25-50 percent herbaceous cover and is dominated by giant goldenrod (*Solidago gigantea*), Canadian wood-nettle (*Laportea canadensis*), and reed canary grass. Woody cover is 75-100 percent and dominated by silver maple and eastern cottonwood (*Populus deltoides*). Animal habitat, botanical measures, and hydrology ratings are fair, fair, and good, respectively. Hydrology for the wetland is from local runoff and connectivity to the larger adjacent S6W008B open water feature.

S6W008B is classified as PUB, is a shallow open water Indiana community types, with an area of 7.65 acres. The polygon has less than 25 percent herbaceous and woody plant coverage and is dominated by sandbar willow (*Salix interior*). Animal habitat, botanical measures, and hydrology ratings are fair, poor, and good, respectively.

S6W008C is classified as PFO, a floodplain forest Indiana community type, with an area of 0.31 acre. The polygon has 25-50 percent herbaceous and 50-75 percent woody plant coverage dominated by American water-willow (*Justicia americana*), black willow (*Salix nigra*), and silver maple. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and good, respectively. Hydrology for the wetland is due to inundation and saturation from the adjacent S6W008B wetland polygon.

This complex falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W009

S6W009A is classified as a PEM, a seasonally flooded basin Indiana community type, with an area of 0.03 acre. The wetland has 75-100 percent herbaceous cover and less than 25 percent woody plant cover and is dominated by northern frogfruit (*Phyla lanceolata*), cottongrass bulrush (*Scirpus cyperinus*), and sandbar willow. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and good, respectively. Hydrology for the wetland is due to local runoff into a topographic depression. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W020

S6W020A is classified as PEM, a shallow marsh Indiana community type, with an area of 0.09 acre. The wetland has 75-100 percent herbaceous cover and less than 25 percent woody plant cover and is dominated by narrow-leaf cattail, spike rush (*Eleocharis* sp.), and Bebb's sedge (*Carex bebbii*). Animal habitat, botanical measures, and hydrology each have a rating of fair. Hydrology is due to local runoff. This wetland discharges water into a local storm water sewer system and therefore likely falls solely under the jurisdiction of IDEM.

S6W021

S6W021A is classified as PSS, a shrub-carr Indiana community type, with an area of 0.21 acre. The wetland has 75-100 percent herbaceous and woody plant cover dominated by sandbar willow (*Salix interior*), broad-leaf cattail (*Typha latifolia*), and white panicled American-aster. Animal habitat, botanical measures, and hydrology ratings are poor, fair, and fair, respectively. Hydrology is due to local runoff from surrounding developed properties and human disturbances to drainage. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Sartor Ditch.

S6W025

S6W025 is a complex that is composed of two wetland polygons totaling 0.39 acre. S6W025A is classified as PSS, a shrub-carr Indiana community type, with an area of 0.07 acre. The wetland has 50-75 percent herbaceous cover and 75-100 percent woody plant cover dominated by sandbar willow, blunt broom sedge (*Carex tribuloides*), and tall goldenrod (*Solidago altissima*). Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively.

S6W025B is classified as PUB, a shallow open water Indiana community type, with an area of 0.38 acre. The wetland has less than 25 percent herbaceous and woody plant cover dominated by broad-leaf cattail. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and poor, respectively.

Hydrology is due to local runoff, human alterations to drainage, and poorly drained soils. This wetland falls under the jurisdiction of USACE and IDEM due to hydrologic connectivity to Sartor Ditch.

S6W026

S6W026A is classified as a PEM, a shallow marsh Indiana community type, with an area of 1.97 acres. The wetland has 75-100 percent herbaceous cover and 50-75 percent woody plant cover dominated by sandbar willow, narrow-leaf cattail, spikerush, and white panicled American-aster. Animal habitat, botanical measures, and hydrology each have a rating of fair. Hydrology for the wetland is due to local runoff into a topographic depression. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Indian Creek.

S6W027

S6W027A is classified as PUB pond with an area of 1.21 acres. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W028

S6W028A is classified as a PEM, a seasonally flooded basin Indiana community type, with an area of 0.04 acre. The wetland has 50-75 percent herbaceous cover dominated by mild water-pepper (*Persicaria hydropiper*) and watercress (*Nasturtium officinale*). Animal habitat, botanical measures, and hydrology each have a rating of poor. Hydrology for the wetland is due to local roadway and residential pond runoff into the roadside ditch feature. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Sartor Ditch and Indian Creek.

S6W034

S6W034A is classified as PEM, a wet prairie Indiana community type, with an area of 0.15 acre. The wetland has 75-100 percent herbaceous cover and less than 25 percent woody plant cover dominated by rice cut grass (*Leersia oryzoides*), white horehound (*Marrubium vulgare*), and field horsetail (*Equisetum arvense*). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and good respectively. Hydrology is due to local field runoff onto poorly drained

soil. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W035

S6W035A is classified as PSS, a shrub-carr Indiana community type, with an area of 0.02 acre. The wetland has less than 25 percent herbaceous cover and 50-75 percent woody plant cover dominated by red maple (*Acer rubrum*) with common pawpaw (*Asimina triloba*). Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair respectively. Hydrology is due to runoff from surrounding land uses and frequent flooding into a topographic depression. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W037

S6W037A is classified as PEM, a wet meadow based on the Indiana community types, with an area of 0.02 acre. The wetland has herbaceous cover of 50-75 percent and woody plant cover of less than 25 percent dominated by smartweed (*Persicaria* sp.), broad-leaf cattail, tall scouring rush *(Equisetum hyemale*), and sandbar willow. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair respectively. Hydrology is due to runoff from the roadways and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W039

S6W039A is classified as PEM, a shallow marsh Indiana community type, with an area of 0.61 acre. The site has 50-75 percent herbaceous coverage and 25-50 percent woody plant cover dominated by spotted touch-me-not (*Impatiens capensis*), rice cut grass, and black willow. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair respectively. Hydrology is due to flooding on poorly drained soils in a topographic depression. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W040

S6W040A is classified as PEM, a wet meadow Indiana community type, with an area of 0.04 acre. The wetland has 75-100 percent herbaceous and less than 25 percent woody plant cover dominated by spotted touch-me-not, rice cut grass, and sandbar willow. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair respectively. Hydrology is due to local runoff and human disturbances to drainage. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W041

S6W041A is classified as PEM, a sedge meadow Indiana community type, with an area of 0.14 acre. The wetland has 75-100 percent herbaceous cover dominated by chufa (*Cyperus esculentus*) and blue grass species *(Poa* sp.). Animal habitat, botanical measures, and hydrology

ratings are poor, poor, and fair respectively. Hydrology is due to local runoff and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W046

S6W046A is classified as PEM, a wet prairie Indiana community type, with an area of 0.06 acre. The wetland has 75-100 percent herbaceous coverage dominated by goldenrod (*Solidago* sp.*)* and reed canary grass. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair respectively. Hydrology is due to local runoff and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W047

S6W047A is classified as PEM, a wet meadow Indiana community type, with an area of 0.03 acre. The wetland has 75-100 percent herbaceous cover dominated by rice cut grass and broad-leaf cattail. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair respectively. Hydrology is due to local runoff into a topographic depression with poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek.

S6W048

S6W048 is a wetland complex that consists of four wetland polygons totaling 1.04 acres. S6W048A is classified as PEM, a seasonally flooded basin Indiana community type, with an area of 0.11 acre. The wetland has 75-100 percent herbaceous cover and is dominated by broad-leaf cattail, spotted touch-me-not, and rice cutgrass Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology for the wetland is from local runoff and connectivity to the larger adjacent S6W048C open water feature.

S6W048B is classified as PFO, a swamp forest Indiana community type, with an area of 0.75 acre. The wetland has 75-100 percent herbaceous and 50-75 percent woody plant coverage dominated by green ash, sycamore, spicebush (*Lindera benzoin*), rice cutgrass, and spotted touch-me-not. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively. Hydrology for the wetland is due to hillside runoff and overflow from a constructed upgradient pond.

S6W048C is classified as PUB, a deep marsh/shallow open water Indiana community type, with an area of 0.06 acre. Dominant vegetation includes common duckweed (*Lemna minor*). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and good, respectively. Hydrology for the wetland is due to runoff from the adjacent landscape and overflow from a constructed upgradient pond.

S6W048D is classified as PEM, a seasonally flooded basin Indiana community type, with an area of 0.13 acre. The wetland has 75-100 percent herbaceous coverage dominated by rice cutgrass and broadleaf cattails. Animal habitat, botanical measures, and hydrology ratings are poor, poor,

and good, respectively. Hydrology for the wetland is due to runoff from SR37 and discharge from polygons S6W048A, B and C. This wetland represents a roadside ditch along the west side of SR37.

This wetland complex falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to West Fork Clear Creek

S6W050

S6W050a is classified as PUB with an area of 0.48 acre. It is one of three hatchery ponds at Ozark Fisheries along the east side of SR37. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W051

S6W051A is classified as PUB with an area of 0.39 acre. It is one of three hatchery ponds at Ozark Fisheries along the east side of SR37. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W052

S6W052A is classified as PUB with an area of 0.35 acre. It is one of three hatchery ponds at Ozark Fisheries along the east side of SR37. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W053

S6W053A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.40 acre. The wetland has 75-100 percent herbaceous and 50-25 percent woody plant cover dominated by knotweed (*Polygonum* sp.), green ash, and box elder. Animal habitat, botanical measures, and hydrology ratings are good, poor, and fair, respectively. Hydrology is due to runoff from the roadway, Clear Creek flooding, and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Clear Creek.

S6W054

S6W054A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.49 acre. The wetland has 75-100 percent herbaceous and 50-25 percent woody plant cover dominated by duck-potato (*Sagittaria latifolia*), *Carex* sp., and green ash. Animal habitat, botanical measures, and hydrology ratings are good, poor, and fair, respectively. Hydrology is due to runoff from the roadway, Clear Creek flooding, and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Clear Creek.

S6W055

S6W055A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.21 acre. The wetland has 50-75 percent herbaceous cover and 75-100 percent woody plant cover dominated by spotted touch-me-not, common pawpaw, and sugar maple. Animal habitat, botanical measures, and hydrology ratings are fair, fair, and good, respectively. Hydrology is due to runoff from the roadway, Clear Creek flooding, and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Clear Creek.

S6W056

S6W056A is classified as PFO, a swamp forest Indiana community type, with an area of 0.16 acre. The site has 75-100 percent woody plant cover and less than 25 percent herbaceous cover dominated by American sycamore and box elder. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and good, respectively. Hydrology is due to runoff from the roadway, frequent flooding, and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Clear Creek.

S6W057

S6W057 is a wetland complex that consists of four wetland polygons totaling 1.36 acres. S6W057A is classified as PEM, a wet prairie Indiana community type, with an area of 0.19 acre. This wetland has 50-75 percent herbaceous and 25-50 percent woody plant cover dominated by white panicled American- aster, silver maple, and American sycamore. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively.

S6W057B is classified as PEM, a wet prairie Indiana community type, with an area of 0.22 acre. This wetland has 75-100 percent herbaceous cover dominated by reed canary grass and smartweed. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively.

S6W057C is classified as PEM, a wet meadow Indiana community type, with an area of 0.71 acre. The wetland has 25-50 percent herbaceous cover and 75-100 percent woody plant cover dominated by reed canary grass, eastern cottonwood, and sandbar willow. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively.

S6W057D is classified as PEM, a wet prairie Indiana community type, with an area of 0.24 acre. This wetland has 75-100 percent herbaceous cover dominated by reed canary grass. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively.

Hydrology for this complex is due to local runoff and White River flooding on poorly drained soils. This wetland complex falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Clear Creek and the White River.

S6W058

S6W058 is a complex that is composed of two wetland polygons totaling 3.27 acres. S6W058A is classified as PUB, a shallow open water Indiana community type, with an area of 3.06 acres. The wetland has less than 25 percent herbaceous and woody plant cover. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively.

S6W058B is classified as PEM, a shallow marsh Indiana community type, with an area of 0.21 acre. The wetland has 75-100 percent herbaceous cover dominated by sandbar willow and reed canary grass. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively.

Hydrology for this complex is due to local runoff, discharge from a culvert under SR 37, and White River flooding on poorly drained soils. This wetland complex falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Clear Creek and the White River.

S6W059

S6W059 is a complex composed of two wetland polygons totaling 12.58 acres. S6W059A is classified as PEM, a wet meadow Indiana community type, with an area of 12.24 acres. The wetland has 75-100 percent herbaceous cover dominated by rice cut grass. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively.

S6W059B is classified as PFO, a floodplain forest Indiana community type with an area of 0.34 acre. The wetland has 50-75 percent woody plant cover and less than 25 percent herbaceous cover dominated by sandbar willow, box elder, eastern cottonwood, and American sycamore. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively.

Hydrology for this complex is due to local runoff and White River flooding on poorly drained soils. This wetland complex falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Clear Creek and the White River.

S6W062

S6W062A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.03 acre. The wetland has 50-75 percent herbaceous and 50-75 percent woody plant cover dominated by eastern poison ivy (*Toxicodendron radicans*), box elder, American sycamore, and eastern cottonwood. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to seasonal flooding and local runoff. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to White River.

S6W063

S6W063A is classified as PEM, a wet meadow Indiana community type, with an area of 0.05 acres. The wetland has 75-100 percent herbaceous cover dominated by cress-leaf groundsel (*Packera glabella*), wand panic grass (*Panicum virgatum*), goldenrod (*Solidago* sp.), rice cut grass, and rough-fruit amaranth (*Amaranthus tuberculatus*). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to local runoff on

poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to White River.

S6W064

S6W064A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.02 acre. The wetland has 75-100 percent herbaceous and 25-50 percent woody plant cover dominated by stinging nettle, riverbank wild rye (*Elymus riparius*), American sycamore, and box elder. Animal habitat, botanical measures, and hydrology ratings are good, poor, and fair, respectively. Hydrology is due to local runoff via a small unnamed stream channel. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to White River floodplain.

S6W065

S6W065A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.01 acre in size. The wetland has less than 25 percent herbaceous and 75-100 percent woody plant cover dominated by Canadian clearweed (*Pilea pumila*), knotweed (*Polygonum* sp.), and silver maple. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and good, respectively. Hydrology is due to the local runoff on poorly drained soils within a narrow valley. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to the White River floodplain.

S6W066

S6W066A is classified as PEM, a wet meadow Indiana community type, with an area of 0.41 acre. The wetland has 75-100 percent herbaceous coverage and less than 25 percent woody cover dominated by spotted touch-me-not, reed canary grass, and sandbar willow. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively. Hydrology is due to the local runoff on poorly drained soils within a narrow valley. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to the White River.

S6W067

S6W067A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.05 acre. The site has 50-75 percent herbaceous and 25-50 percent woody plant cover dominated by spotted touch-me-not, goldenrod (*Solidago* sp.), multiflora rose (*Rosa multiflora*), black willow, and sugar maple. Animal habitat, botanical measures, and hydrology ratings are good, poor, and fair, respectively. Hydrology is due to local run off and poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to the White River.

S6W068

S6W068A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.35 acre. The wetland has 50-75 percent herbaceous and 25-50 percent woody cover dominated by Canadian clearweed, knotweed, American sycamore, and silver maple. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and good, respectively. Hydrology is due to White River flooding and local runoff from the roadway. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to the White River.

S6W069

S6W069A is classified as PFO, a floodplain forest Indiana community type, with an area of 0.33 acre. The wetland has 50-75 percent herbaceous and 25-50 percent woody cover dominated by knotweed, Missouri ironweed (*Vernonia missurica*), and common hackberry (*Celtis occidentalis*). Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively. Hydrology is due to local runoff and Stotts Creek flooding. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Stotts Creek.

S6W070

S6W070A is classified as PEM, a wet meadow Indiana community type, with an area of 0.10 acre. The site has 75-100 percent herbaceous and 25-50 percent woody plant cover dominated by reed canary grass, spotted touch-ne-not, and common boneset (*Eupatorium perfoliatum*). Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively. Hydrology is due to a natural spring and local runoff. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to White River.

S6W071

S6W071A is classified as PEM, a wet meadow Indiana community type, with an area of 0.17 acre. The wetland has 75-100 percent herbaceous cover dominated by reed canary grass. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and poor, respectively. Hydrology is due to roadway runoff from the roadway and roadside embankment. This feature is a roadside ditch wetland along the east side of SR37. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to White River.

S6W077

S6W077A is classified as PSS, a shrub-carr Indiana community type, with an area of 0.03 acre. The wetland has 50-75 percent herbaceous and 25-50 percent woody plant cover dominated by rice cut grass, hybrid bush honeysuckle (*Lonicera X bella*), and American sycamore. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively. Hydrology is due to roadway and surrounding landscape runoff onto poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to unnamed tributaries of the White River.

S6W080

S6W080A is classified as PSS, a shrub-carr Indiana community type, with an area of 0.20 acre. The wetland has 50-75 percent herbaceous and 25-50 percent woody cover dominated by spotted touch-me-not, rice cut grass, hybrid bush honeysuckle, silky dogwood (*Cornus amomum*), and common hackberry. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively. Hydrology is due to local runoff and overflow drainage from a residential pond. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to unnamed tributaries of the White River.

S6W082

S6W082A is classified as PEM, a wet meadow Indiana community type and has an area of 0.02 acre. The wetland has 75-100 percent herbaceous cover dominated by reed canary grass. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to drainage from roadway and local surrounding landscape runoff, and a

residential sump pump. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to unnamed tributaries of the White River.

S6W083

S6W083A is classified as PUB with an area of 1.18 acre. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W085

S6W085A is classified as a PEM, wet meadow Indiana community type, with an area of 0.05 acre. The wetland has 50-75 percent herbaceous cover dominated by chufa (*Cyperus esculentus*) within an active farm site where it appears the farmer avoids planting. Animal habitat, botanical measures, and hydrology each have a rating of poor. Hydrology is due to local runoff onto poorly drained soils. This wetland appears to be isolated and therefore likely falls solely under the jurisdiction of IDEM.

S6W087

S6W087A is classified as PUB, a deep marsh/shallow open water Indiana community type, witth an area of 0.09 acre. The wetland is on a golf course and has 25-50 percent herbaceous cover dominated by broad-leaf cattail, curly pondweed (*Potamogeton crispus*), and duckweed (*Lemna* sp.). Animal habitat, botanical measures, and hydrology ratings are poor, fair, and poor, respectively. Hydrology is due to local runoff and human disturbance to drainage. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Travis Creek.

S6W088

S6W088A is classified as PUB with an area of 0.13 acre. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W089

S6W089 is complex is composed of two individual wetland polygons for a total area of 0.84 acres. S6W089 is classified as PEM, a wet meadow Indiana community type, with an area of 0.17 acre. The wetland has 75-100 percent herbaceous and less than 25 percent woody plant cover dominated by broad-leaf cattail, reed canary grass, and silver maple. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively.

S6W089B is classified as PSS, a scrub-carr Indiana community type, with an area of 0.07 acre. The wetland has less than 25-50 percent herbaceous and 20-75 percent woody plant cover dominated by willow (*Salix* sp.). Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair, respectively.

S6W089C is classified as PUB, a deep marsh/shallow open water Indiana community type, with and area of 0.60 acre. The wetland has less than 25 percent herbaceous and woody plant cover.

Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively for this detention pond.

Hydrology for this complex is due to roadway and local surrounding landscape runoff. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Honey Creek.

S6W090

S6W090A is classified as PUB with an area of 0.74 acre. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W091

S6W091A is classified as PEM, a seasonally flooded basin Indiana community type, with an area of 0.02 acre. The wetland has less than 25 percent herbaceous and woody plant cover dominated by reed canary grass, great ragweed (*Ambrosia trifida*), and box elder. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and poor respectively. Hydrology is due to local runoff onto poorly drained soils within a shallow swale drainage feature. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Honey Creek.

S6W094

S6W094A is classified as a PEM, wet meadow community type, with an area of 0.04 acre. The wetland has 75-100 percent herbaceous plant cover dominated by reed canary grass, garden yellow-rocket (*Barbarea vulgaris*), giant goldenrod (*Solidago gigantea*), pale dock (*Rumex altissimus*), and black willow. Animal habitat, botanical measures, and hydrology ratings are fair, poor, and fair respectively. Hydrology is due to local runoff and Pleasant Run flooding. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Pleasant Run.

S6W095

S6W095A is classified as PUB with an area of 10.91 acres. It serves as a recreational feature for a few residential properties. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W097

S6W097A is classified as PUB with an area of 2.05 acres. If functions as a detention basin for a subdivision housing area. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W099

S6W099A is classified as PUB with an area of 3.12 acres. If functions as a detention basin for a large apartment complex. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W100

S6W100A is classified as PUB with an area of 5.28 acres. If functions as a detention basin for a large apartment complex. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W101

S6W101A is classified as PUB with an area of 1.82 acres. If functions as a detention basin for a large apartment complex. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W103

S6W103A is classified as PEM, a wet meadow Indiana community, with an area of 0.04 acre. The wetland has 50-75 percent herbaceous cover dominated by reed canary grass and chufa. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair respectively. This wetland is located in the median of SR37 where hydrology is due to runoff from the roadway onto poorly drained soils. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Little Buck Creek.

S6W104

S6W104A is classified as L1UB with an area of 14.97 acres. It is a large remnant from a previous quarry operation. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W105

S6W105A is classified as L1UB with an area of 46.82 acres. It is a large remnant from a previous quarry operation. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W108

S6W108A is classified as L1UB with an area of 19.78 acres. It is a large feature of an active quarry operation. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W109

S6W109A is classified as PUB with an area of 23.00 acres. It is a large feature of an active quarry operation. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W110

S6W110A is classified as PUB with an area of 15.02 acres. It is a large feature of an active quarry operation. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W111

S6W111A is classified as PUB with an area of 0.55 acre. It is a small excavated detention feature north of I-465. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W113

S6W113A is classified as PSS, a shrub-carr Indiana community type, with an area of 0.39 acre. The wetland has 75-100 percent woody plant cover dominated by sandbar willow and silky dogwood (*Cornus amomum*). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to local runoff onto poorly drained soils. This wetland appears to be isolated and therefore falls solely under the jurisdiction of IDEM.

S6W116

S6W116A is classified as PEM, a wet meadow Indiana community, with an area of 0.04 acre. The wetland has 75-100 percent herbaceous cover dominated by meadow false rye grass (*Schedonorus pratensis*), soft-stem club rush (*Schoenoplectus tabernaemontani*), and rough barnyard grass (*Echinochloa muricata*). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to roadway runoff along the I-465 ramp. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to Lick Creek.

S6W117

S6W117A is classified as PUB with an area of 0.23 acre. It is a small pasture pond. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W118

S6W118A is classified as PUB with an area of 0.10 acre. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W119

S6W119A is classified as PUB with an area of 0.08 acre. It is a small detention basin north of I-465. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W120

S6W120A is classified as PUB with an area of 1.64 acres. It is a small borrow pit north of I-465. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W123

S6W123A is classified as PUB with an area of 0.16 acres. It is a small detention basin west of SR37. InWRAP animal habitat, botanical measure, and hydrology ratings were not generated for this wetland feature.

S6W126

S6W126A is classified as PEM, a seasonally flooded basin Indiana community, with an area of 0.12 acre. The wetland has 75-100 percent herbaceous cover dominated by broad-leaf cattail, swamp milkweed (*Asclepias incarnata*) and Indian-hemp (*Apocynum cannibinum*). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to local runoff from adjacent agricultural fields. This wetland appears to be isolated and therefore falls solely under the jurisdiction of IDEM.

S6W127

S6W127A is classified as PSS, a scrub-carr Indiana community, with an area of 0.21 acre. The wetland has 75-100 percent herbaceous cover and less than 25 percent woody plant cover dominated by sandbar willow and broad-leaf cattail. Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to roadway runoff along I-465 and the Mann Road ramp. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to State Ditch.

S6W128

S6W128A is classified as PEM, a wet meadow Indiana community, with an area of 0.18 acre. The wetland has 75-100 percent herbaceous cover and less than 25 percent woody plant cover dominated by Torrey's rush (*Juncus torreyi*). Animal habitat, botanical measures, and hydrology ratings are poor, poor, and fair, respectively. Hydrology is due to roadway runoff from the I-465 Mann Road ramp. This wetland falls under the jurisdiction of the USACE and IDEM due to hydrologic connectivity to State Ditch.

4.3 Open Water Features

InWRAP methodology does not typically apply to open water pond and lake features. However, there are some anomalous circumstances for which an InWRAP wetland quality evaluation was conducted for an open water feature. For example, occasionally the open water feature meets the criteria of "shallow open water" community type. Additionally, the open water feature may have

been included in the InWRAP evaluation of a larger wetland complex due to its association with an adjacent emergent, scrub-shrub, or forested wetland.

There are 29 open water features within the field survey study area that may be impacted by the alternatives. These features are classified as either PUB or L1UB. Six of the features were evaluated as shallow open water features in InWRAP (S6W008B, S6W025B, S6W048C, S6W058A, S6W087A, and S6W089C). The other 23 features were designated as "pond" and were not evaluated using InWRAP. **Table 3** provides a summary of the open water features not assigned wetland quality scores.

Table 3: Open Water Features Not Assigned Wetland Quality Scores

Cowardin Classification	Wetland ID
Palustrine Unconsolidated Bottom (PUB)	S6W027a, S6W050a, S6W051a, S6W052a, S6W083a, S6W088a, S6W090a, S6W095a, S6W097a, S6W099a, S6W100a, S6W101a, S6W104a, S6W109a, S6W110a, S6W111a, S6W117a, S6W118a, S6W119a, S6W120a, S6W123a
Lacustrine Limnetic Unconsolidated Bottom (L1UB)	S6W105a, S6W108a

4.4 Farmed Wetlands

According to the USDA *National Food Security Act Manual, (3rd Edition, September 2000)*, farmed wetlands are "wetlands that were drained, dredged, filled, leveled, or otherwise manipulated before December 23, 1985, for the purpose of, or to have the effect of, making the production of an agricultural commodity possible, and continue to meet specific wetland hydrology criteria." If an existing agricultural wetland is not cultivated (left fallow) for five years or more, it becomes regulated as a wetland and farming cannot be reinitiated without the proper permits. In addition, only the USDA can complete a farmed wetland determination at the request of the property owner. The USACE, the federal agency charged with regulating impacts to wetlands, does not use the term farmed wetland.

The USEPA requested an analysis of "farmed wetlands" at the beginning of I-69 Tier 2 studies. A meeting was held with IDEM and USACE on April 29, 2016, at which all parties agreed that the term "farmed wetland" will not be used in I-69 Section 6, as "farmed wetlands" are no longer regulated by the Natural Resource Conservation Service and are now regulated by the USACE as atypical wetland situations in accordance with the USACE *Wetlands Delineation Manual*. Specifically, all parties agreed that these atypical wetlands in agricultural fields encountered during the I-69 Section 6 investigation are considered emergent wetlands, assuming they otherwise meet all three wetland criteria.

4.5 Wetland Avoidance and Minimization Measures

Wetland avoidance and minimization measures were further implemented during development of the RPA to reduce impacts to emergent, scrub-shrub, forest and open water resources where

possible. For emergent wetlands, the anticipated impact is less than 0.10 acre for 17 of the 25 wetlands in the RPA right of way footprint. For scrub-shrub wetlands, the anticipated impact is less than 0.10 acre for 2 of the 4 wetlands in the RPA right of way footprint. For forest wetlands, the anticipated impact is less than 0.10 acre for 7 of the 12 wetlands in the RPA right of way footprint.

5 PROJECT IMPACTS

Each alternative would involve direct impacts to Section 404/401 jurisdictional wetlands. Collectively, there are a total of 68 wetland complexes including 87 individual wetland polygon features within the right of way of these alternatives. Of these, 58 polygons are classified as wetlands and 29 are single open water pond or lake features.

No single alternative impacts all 68 wetland complex features. The total number of wetlands and open water features potentially impacted by the alternatives are summarized in **Table 4.**

Table 4: Wetland Impacts by Wetland Type and Alternative

Wetland Type	Alt C1		Alt C2		Alt C3		Alt C4		RPA	
	# of Features	Acres	# of Features	Acres	# of Features	Acres	# of Features	Acres	# of Features	Acres
Palustrine Emergent (PEM)	22	2.38	26	7.39	27	6.45	22	1.79	25	1.90
Palustrine Scrub-Shrub (PSS)	5	0.42	5	0.37	7	0.45	6	0.46	4	0.39
Palustrine Forested (PFO)	11	2.17	13	2.00	9	1.87	12	1.82	12	1.70
Open Water (PUB/L1UB)	18	47.19	25	22.48	17	17.22	21	18.18	17	2.78
TOTALS	**56**	**52.16**	**69**	**32.24**	**60**	**25.99**	**61**	**22.25**	**58**	**6.77**

Open water features that are classified as ponds or lakes were evaluated to see if the proposed construction of the highway would result in the need to drain or fill the entire feature. The impacts discussed in **Section 5.4** reflect the entire area of those ponds where partial filling of the feature was not considered practical at this stage of the NEPA assessment process.

Table 5 through **Table 7** lists the potential impacts by wetland type for each alternative. Refer to the matrix table in **Appendix D** of this report for a summary of key characteristics, jurisdictional status, functions and values ratings, as well as the area of impact for each wetland potentially affected by the alternatives.

5.1 Potential Emergent Wetland Impacts

There are 37 PEM wetlands within the proposed right of way of the alternatives. The number of PEM wetlands occurring in the proposed right of way of each alternative is: 22 in Alternative C1, 26 in Alternative C2, 27 in Alternative C3, 22 in Alternative C4, and 25 in the Refined Preferred Alternative (**Table 5)**. **Section 4.2** describes the site, community type, quality score, and hydrologic connectivity of each wetland.

Table 5: Emergent Wetlands in Right of Way of Alternatives C1 through C4 and the RPA

Wetland ID	Alt C1		Alt C2		Alt C3		Alt C4		RPA	
	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)
S6W001A	N	-	N	-	N	-	N	-	Y	0.01
S6W002B	Y	0.03	Y	0.03	N	-	N	-	N	-
S6W003A	Y	0.07	Y	0.07	N	-	Y	0.01	Y	0.01
S6W004A	Y	0.34	Y	0.34	Y	0.03	Y	0.08	Y	0.08
S6W005A	Y	0.06	Y	0.06	Y	0.02	Y	0.06	Y	0.06
S6W009A	Y	0.03	Y	0.03	N	-	N	-	Y	0.02
S6W020A	N	-	Y	<0.01	N	-	N	-	N	-
S6W026A	N	-	N	-	N	-	N	-	Y	0.01
S6W028A	N	-	N	-	N	-	N	-	Y	<0.01
S6W034A	N	-	N	-	Y	0.15	N	-	N	-
S6W037A	Y	0.06	Y	0.05	Y	0.01	Y	0.05	Y	0.05
S6W039A	Y	0.45	N		Y	0.45	N	-	N	-
S6W040A	Y	0.04	Y	0.04	Y	0.04	Y	0.04	Y	0.04
S6W041A	Y	0.14	Y	0.14	Y	0.14	Y	0.14	Y	0.14
S6W046A	Y	0.10	Y	0.10	Y	0.10	Y	0.10	Y	0.10
S6W047A	Y	0.03	Y	0.03	Y	0.03	Y	0.03	Y	0.03
S6W048A	Y	0.11	Y	0.11	Y	0.11	Y	0.11	Y	0.11
S6W048D	Y	0.13	Y	0.13	Y	0.13	Y	0.13	Y	0.13
S6W057A	N	-	N	-	Y	0.08	N	-	N	-
S6W057B	N	-	N	-	Y	0.08	N	-	N	-
S6W057C	N	-	N	-	Y	0.67	N	-	N	-
S6W057D	N	-	N	-	Y	0.23	N	-	N	-
S6W058B	Y	0.03	Y	0.12	Y	0.09	Y	0.06	Y	0.16
S6W059A	N	-	Y	5.14	Y	3.17	N	-	N	-
S6W063A	Y	0.05	Y	0.05	Y	0.05	Y	0.05	Y	0.05
S6W066A	Y	0.41	Y	0.41	Y	0.41	Y	0.41	Y	0.41
S6W070A	Y	0.09	Y	0.09	Y	0.04	Y	0.09	Y	0.09
S6W071A	Y	0.11	Y	0.11	Y	0.11	Y	0.11	Y	0.11
S6W082A	Y	0.02	Y	0.02	Y	0.02	Y	0.02	Y	0.02

Wetland ID	Alt C1		Alt C2		Alt C3		Alt C4		RPA	
	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)
S6W085A	Y	<0.01	Y	<0.01	Y	<0.01	Y	<0.01	N	-
S6W089A	N	-	N	-	N	-	N	-	Y	<0.01
S6W089C	N	-	Y	0.02	N	-	Y	0.02	N	-
S6W094A	N	-	Y	0.04	Y	0.04	N	-	N	-
S6W103A	Y	0.04	Y	0.04	Y	0.04	Y	0.04	Y	0.04
S6W116A	Y	0.04	Y	0.04	Y	0.04	Y	0.04	Y	0.04
S6W126A	N	-	N	-	N	-	Y	0.01	Y	0.01
S6W128A	N	-	Y	0.18	Y	0.18	Y	0.18	Y	0.18
TOTALS	**22**	**2.38**	**26**	**7.39**	**27**	**6.45**	**22**	**1.79**	**25**	**1.90**

5.2 Potential Scrub-Shrub Wetland Impacts

There are seven PSS wetlands identified within the proposed right of way of the alternatives. The number of PSS wetlands occurring in the proposed right of way of each alternative is: 5 in Alternative C1, 5 in Alternative C2, 7 in Alternative C3, 6 in Alternative C4, and 4 in the Refined Preferred Alternative (**Table 6).** Descriptions of each wetland, including a general site description, community type, quality scores, and hydrologic connectivity can be found in **Section 4.2.**

Table 6: Scrub-Shrub Wetlands in Right of Way of Alternatives C1 through C4 and the RPA

Wetland ID	Alt C1		Alt C2		Alt C3		Alt C4		RPA	
	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)	Within limits?	Impact Area (acres)
S6W021A	Y	0.09	N	-	Y	0.09	Y	0.09	Y	0.10
S6W025A	Y	0.06	Y	0.06	Y	0.06	Y	0.06	N	-
S6W035A	N	-	N	-	Y	0.02	N	-	N	-
S6W077A	Y	0.03	Y	0.03	Y	<0.01	Y	0.03	Y	0.03
S6W080A	Y	0.02	Y	0.02	Y	0.02	Y	0.02	N	-
S6W113A	Y	0.22	Y	0.05	Y	0.05	Y	0.05	Y	0.05
S6W127A	N	-	Y	0.21	Y	0.21	Y	0.21	Y	0.21
TOTALS	**5**	**0.42**	**5**	**0.37**	**7**	**0.45**	**6**	**0.46**	**4**	**0.39**

5.3 Potential Forested Wetland Impacts

There are 14 PFO wetlands identified within the right of way of the alternatives. The number of PFO wetlands occurring in the proposed right of way of each alternative is: 11 in Alternative C1, 12 in Alternative C2, 9 in Alternative C3, 11 in Alternative C4, and 11 in the Refined Preferred Alternative **(Table 7).** Descriptions of the sites, including the community type, quality scores, and hydrologic connectivity can be found in **Section 4.2**.

Table 7: Forested Wetlands in Right of Way of Alternatives C1 through C4 and the RPA

Wetland ID	Alt C1		Alt C2		Alt C3		Alt C4		RPA	
	Within limits?	Impact Acreage	Within limits?	Impact Acreage	Within limits?	Impact Acreage	Within limits?	Impact Acreage	Within limits?	Impact Acreage
S6W002A	Y	0.17	Y	0.17	N	-	Y	0.09	Y	0.09
S6W007A	Y	0.06	Y	0.06	Y	0.17	Y	0.17	Y	0.17
S6W048B	Y	0.75	Y	0.75	Y	0.75	Y	0.75	Y	0.75
S6W053A	Y	0.04	Y	0.04	Y	<0.01	Y	0.04	Y	0.02
S6W054A	Y	0.28	Y	0.26	Y	0.12	Y	0.26	Y	0.19
S6W055A	Y	0.07	Y	0.07	N	-	Y	0.07	Y	0.08
S6W056A	Y	0.13	Y	0.13	N	-	Y	0.13	Y	0.11
S6W059B	N	-	Y	0.21	Y	0.34	N	-	Y	0.01
S6W062A	Y	0.03	Y	0.03	Y	0.03	Y	0.03	N	-
S6W064A	N	-	Y	<0.01	N	-	Y	<0.01	Y	<0.01
S6W065A	N	-	Y	0.01	N	-	Y	0.01	Y	0.01
S6W067A	Y	0.05	Y	0.05	Y	0.04	Y	0.05	Y	0.05
S6W068A	Y	0.27	Y	0.22	Y	0.09	Y	0.22	Y	0.22
S6W069A	Y	0.33	N	-	Y	0.33	N	-	N	-
TOTALS	**11**	**2.17**	**13**	**2.00**	**9**	**1.87**	**12**	**1.82**	**12**	**1.70**

5.4 Potential Open Waters Impacts

There are 29 open water wetlands identified within the right of way of the alternatives. The number of PUB/L1UB wetlands occurring in the right of way of each alternative is: 18 in Alternative C1, 25 in Alternative C2, 17 in Alternative C3, 21 in Alternative C4, and 17 in the Refined Preferred Alternative **(Table 8).** Wetland site evaluations were not completed for open water wetlands. For information regarding general site information see **Appendix D**.

Table 8: Open Waters in Right of Way of Alternatives C1 through C4 and the RPA

Wetland ID	Alt C1		Alt C2		Alt C3		Alt C4		RPA	
	Within limits?	Impact Acreage	Within limits?	Impact Acreage	Within limits?	Impact Acreage	Within limits?	Impact Acreage	Within limits?	Impact Acreage
S6W008B	Y	0.01	Y	0.01	N	-	N	-	N	-
S6W025B	Y	0.38	Y	0.38	Y	0.38	Y	0.38	N	-
S6W027A	N	-	Y	0.15	Y	0.09	Y	0.15	Y	0.09
S6W048C	Y	0.06	Y	0.06	Y	0.06	Y	0.06	Y	0.06
S6W050A	Y	0.11	Y	0.10	N	-	Y	0.10	Y	0.21
S6W051A	Y	0.06	Y	0.08	N	-	Y	0.08	Y	0.12
S6W052A	Y	0.08	Y	0.09	N	-	Y	0.09	Y	0.10
S6W058A	N	-	Y	<0.01	Y	0.05	Y	0.01	Y	0.10
S6W083A	N	-	N	-	N	-	N	-	Y	<0.01
S6W087A	Y	<0.01	N	-	N	-	N	-	N	-
S6W088A	N	-	Y	0.02	N	-	Y	0.02	Y	0.02
S6W089C	Y	0.22	Y	0.01	Y	0.01	Y	0.22	Y	0.58
S6W090A	N	-	Y	0.04	Y	0.03	N	-	Y	<0.01
S6W095A	N	-	Y	0.05	N	-	N	-	N	-
S6W097A	Y	0.37	Y	0.34	Y	0.48	Y	0.83	Y	0.89
S6W099A	N	-	Y	3.12	N	-	N	-	N	-
S6W100A	Y	2.78	N	-	N	-	N	-	N	-
S6W101A	N	-	Y	1.82	N	-	Y	<0.01	Y	<0.01
S6W104A	N	-	Y	1.13	Y	1.13	Y	1.13	N	-
S6W105A	Y	37.91	Y	8.68	Y	8.68	Y	8.68	Y	0.16
S6W108A	N	-	Y	0.67	Y	0.67	Y	0.67	N	-
S6W109A	Y	0.20	Y	1.64	Y	1.64	Y	1.64	N	-
S6W110A	Y	4.22	Y	3.51	Y	3.51	Y	3.51	N	-
S6W111A	Y	0.27	Y	0.10	Y	0.10	Y	0.10	Y	0.10
S6W117A	Y	0.10	Y	0.10	N	-	Y	0.12	N	-
S6W118A	Y	0.10	Y	0.10	Y	0.10	Y	0.10	Y	0.10
S6W119A	Y	0.08	Y	0.03	Y	0.03	Y	0.03	Y	<0.01
S6W120A	Y	0.26	Y	0.26	Y	0.26	Y	0.26	Y	0.26
S6W123A	N	-	N	-	Y	0.03	N	-	N	-
TOTALS	**18**	**47.19**	**25**	**22.48**	**17**	**17.22**	**21**	**18.18**	**17**	**2.78**

5.5 InWRAP Evaluation

There are a total of 76 wetland and open water complexes potentially impacted by the alternatives. Of these, 53 are wetland complexes and 23 are single open water pond features. The 53 wetland complexes are comprised of 67 individual community type polygons.

Although InWRAP evaluations were not conducted for complexes comprised solely of an open water pond or lake (PUB or L1UB Cowardin classification), an evaluation was performed for such features in cases where open water was part of a larger complex that included non-open water wetland features. In these cases, quality scores were given to both the wetland and open water feature.

InWRAP evaluations of each wetland complex potentially impacted by the project included a description of the resource and yielded quality ratings for animal habitat, botanical measures and hydrology. Each individual wetland polygon was assigned a rating of poor, fair, or good. As a result, InWRAP quality scores were generated for the 67 polygons comprising the 53 wetland complexes (excluding single feature ponds). The majority of the wetlands scored as poor for both animal habitat and botanical measures. The hydrology measure score was generally fair. **Table 9** provides a summary of the ratings for each of the three measures by alternative.

Table 9 : InWRAP Evaluation Ratings

InWRAP Evaluation Criteria	Alternative	Poor		Fair		Good	
		# of polygons	total acres impacted	# of polygons	total acres impacted	# of polygons	total acres impacted
Animal Habitat	Alt 1C	23	2.20	17	3.08	3	0.37
	Alt 2C	26	7.33	19	2.53	4	0.35
	Alt 3C	26	5.25	18	3.86	3	0.16
	Alt 4C	24	2.07	16	2.32	4	0.35
	RPA	24	2.27	16	2.20	4	0.26
Botanical	Alt 1C	37	4.88	6	0.77	0	0.00
	Alt 2C	45	9.54	4	0.68	0	0.00
	Alt 3C	44	8.62	3	0.65	0	0.00
	Alt 4C	39	3.94	5	0.81	0	0.00
	RPA	38	4.27	6	0.46	0	0.00
Hydrology	Alt 1C	6	0.35	31	4.77	6	0.54
	Alt 2C	7	0.37	35	9.35	7	0.50
	Alt 3C	5	0.30	39	8.69	3	0.27
	Alt 4C	6	0.36	33	3.92	5	0.46
	RPA	5	0.34	34	3.95	5	0.44

6 SUMMARY

The I-69 Section 6 Tier 2 study identified 97 wetland and open water features within the field survey study area. Of these, 87 wetland and open water polygons are within the right of way of

the alternatives considered. Each feature was classified according to the Cowardin classification system and also assigned an Indiana wetland community type.

Of the 87 features, field study results identify 29 features as either PUB or L1UB open waters, based on the Cowardin classification system. For the purposes of InWRAP evaluations, six were identified as shallow open water Indiana community type and assessed for quality. The remaining 23 features are identified as ponds and no quality analysis was performed.

Within the right of way of the alternatives, 58 wetland features were identified. These included 37 PEM classified wetlands, seven PSS classified wetlands, and 14 PFO classified wetlands. These wetlands represent a variety of Indiana wetland community types, the most common being floodplain forest, shrub-carr, wet meadow, wet prairie, and seasonally flooded basins.

The majority of the wetlands and open waters discussed above are preliminarily identified as “Waters of the US” and fall under USACE and IDEM jurisdiction.

References

Cowardin, L. M., Carter, V., Golet, F. C., & LaRoe, E. T. (1979). *Classification of Wetlands and Deepwater Habitats of the United States.* U.S. Fish and Wildlife Service. FWS/OBS-79/31.

Gray, H. H. (2000). *Physiographic Divisions of Indiana: Indiana Geological Survey Special Report 61.* Bloomington, Indiana: Indiana University.

IDEM, I. a. (2008, September). *Indiana Department of Environmental Management.* Retrieved May 2016, from Indiana.Gov: http://www.in.gov/idem/wetlands/files/waterways_permitting_handbook.pdf

Taylor University Enivronmental Research Group. (2005). *Indiana Wetland Rapid Assessment Protocol, User Guideance and Associated Documents, Version 2.51.* Upland, Indiana: Taylor University Environmental Research Group.

United States Army Corps of Engineers. (1987). *Corps of Engineers Wetland Delineation Manual Technical Report Y-87-1.* Vicksburg, Mississippi: U.S. Army Engineer Waterway Experiment Station.

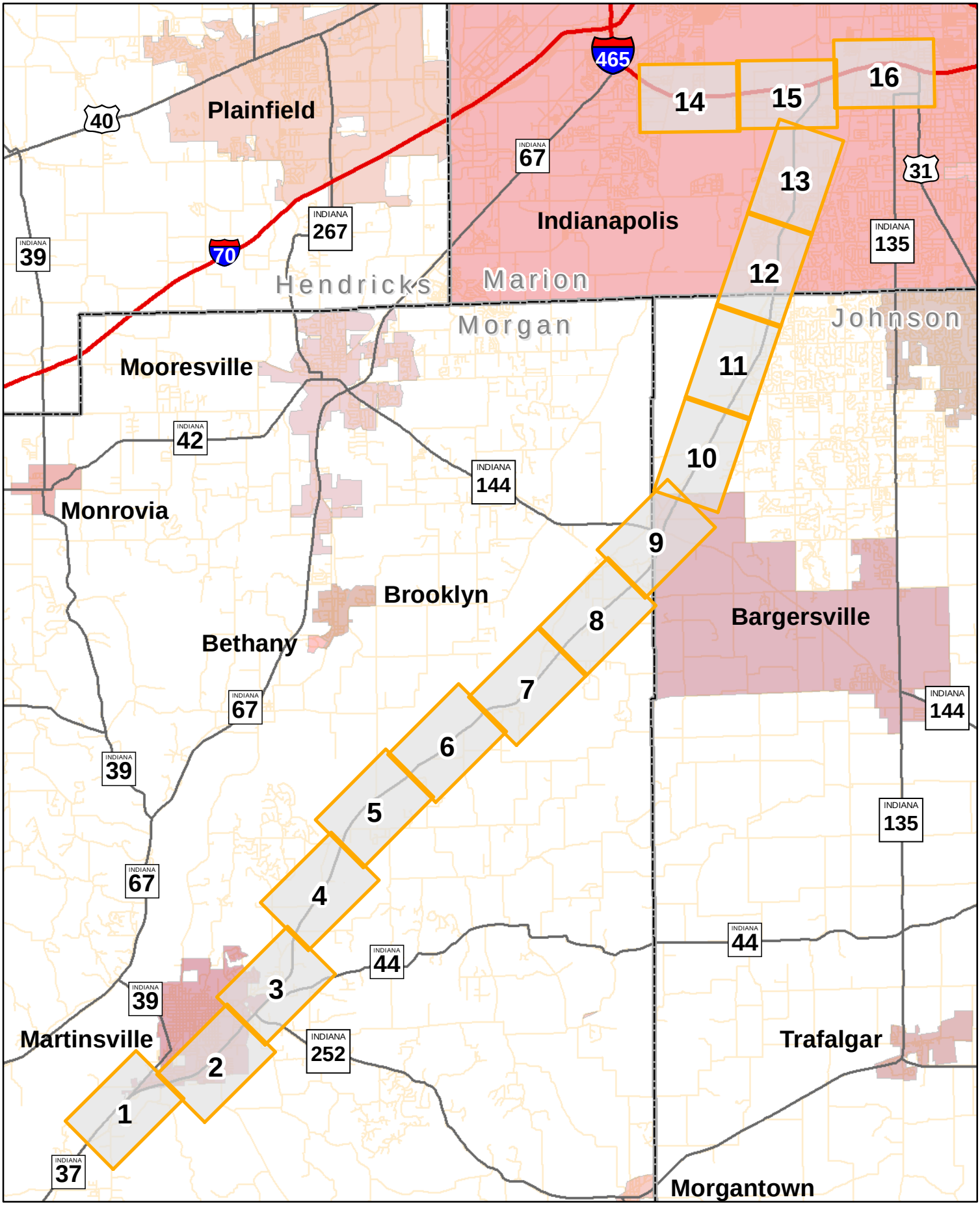
United States Army Corps of Engineers. (2010). *Regional Supplement to the Corps of Engineers Wetland Delineatoin Manual: Midwest Region (Version 2.0).* Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

USEPA. (2004, December). *Wetlands Factsheet Series.* Retrieved May 2016, from U.S. EPA Web site: https://nepis.epa.gov/Exe/ZyPDF.cgi/500025PY.PDF?Dockey=500025PY.PDF

APPENDIX A

Figures

USGS Topographic Maps and Aerial Photograph Maps



Legend

Interstate Highways

State and US Highways

Local Roads

County Line

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WATER RESOURCES

1 In = 3 Miles

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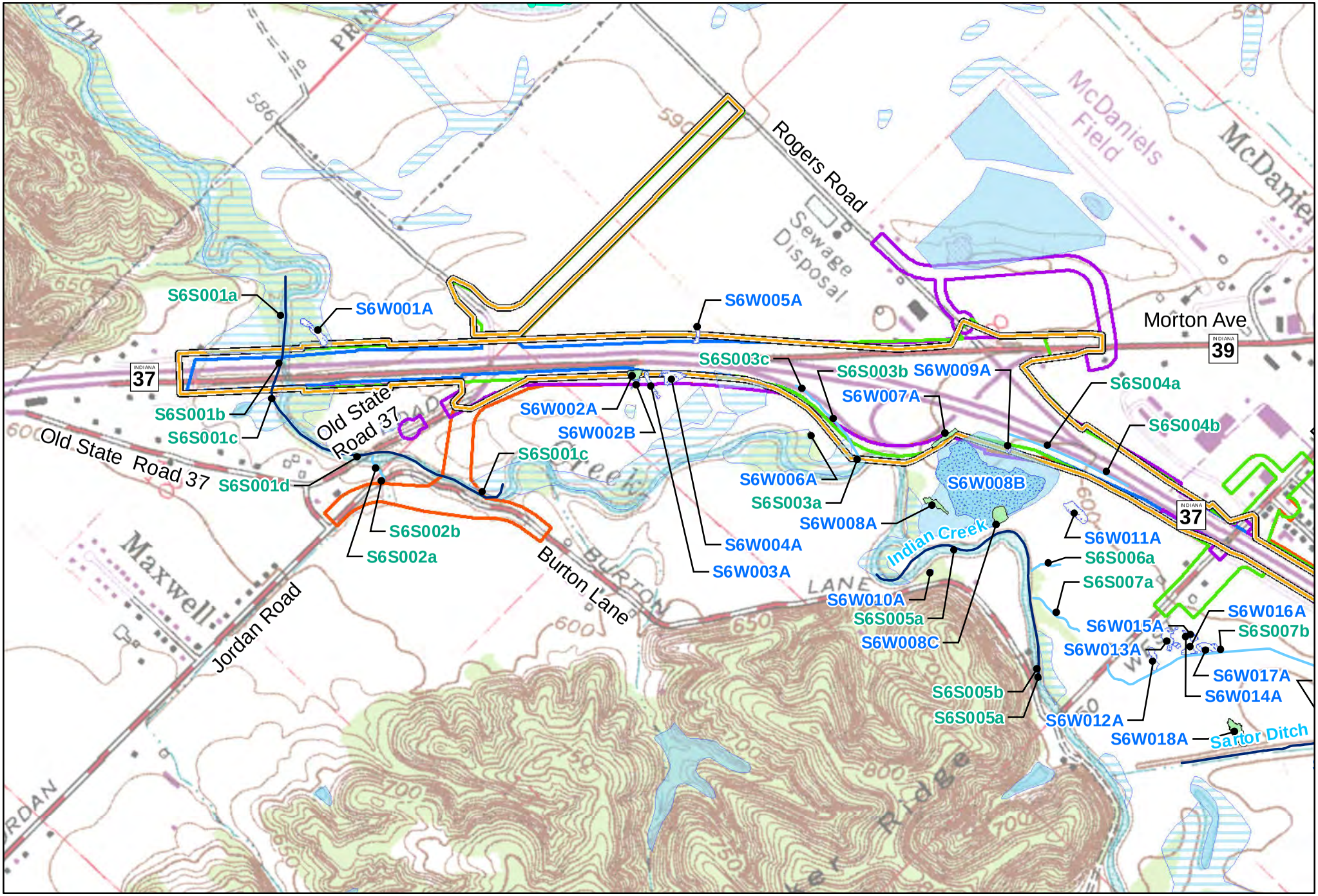
Miles



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- Alternative C1 Right of Way
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WATER RESOURCES

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- NWI Wetlands
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1 inch = 1,000 feet

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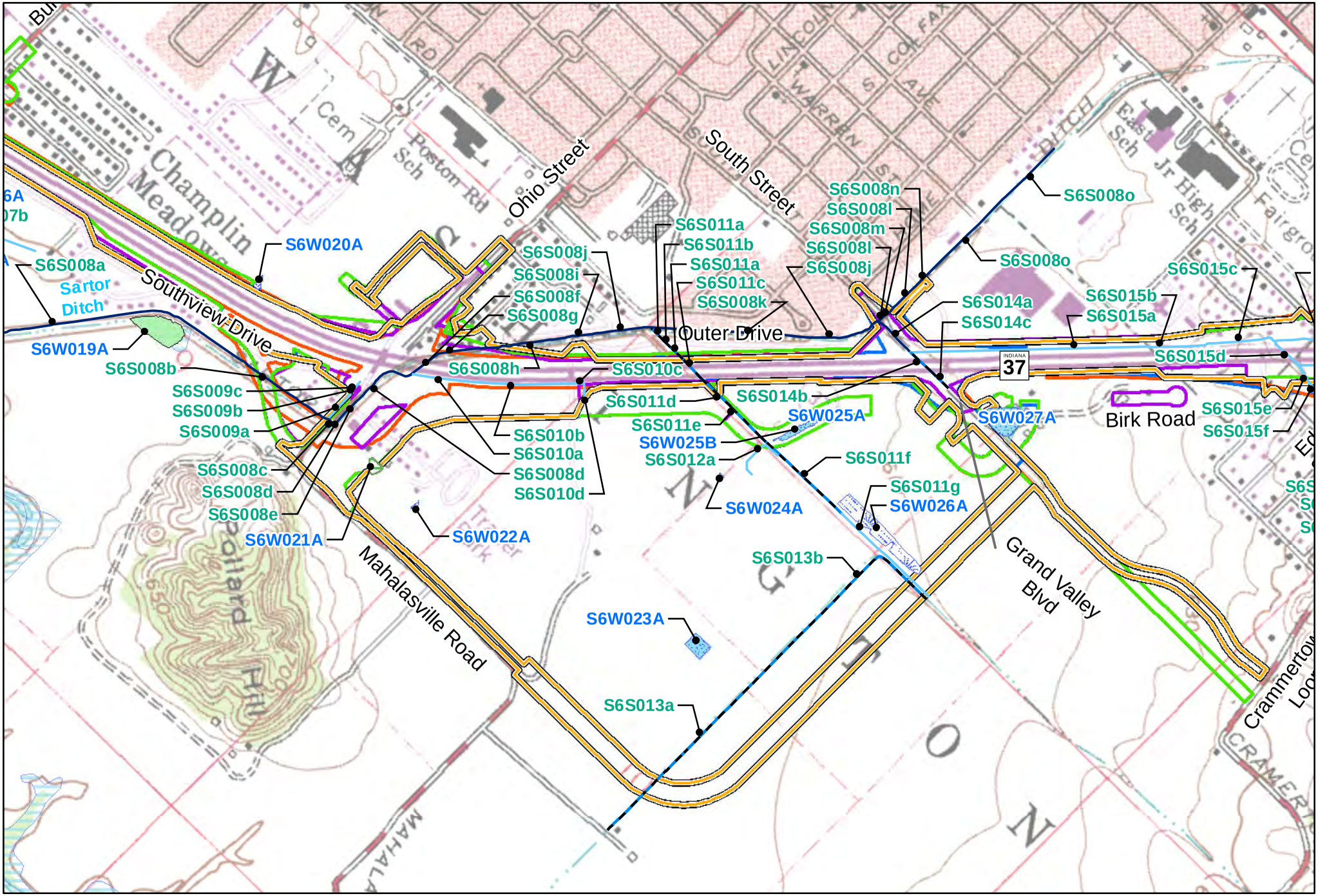

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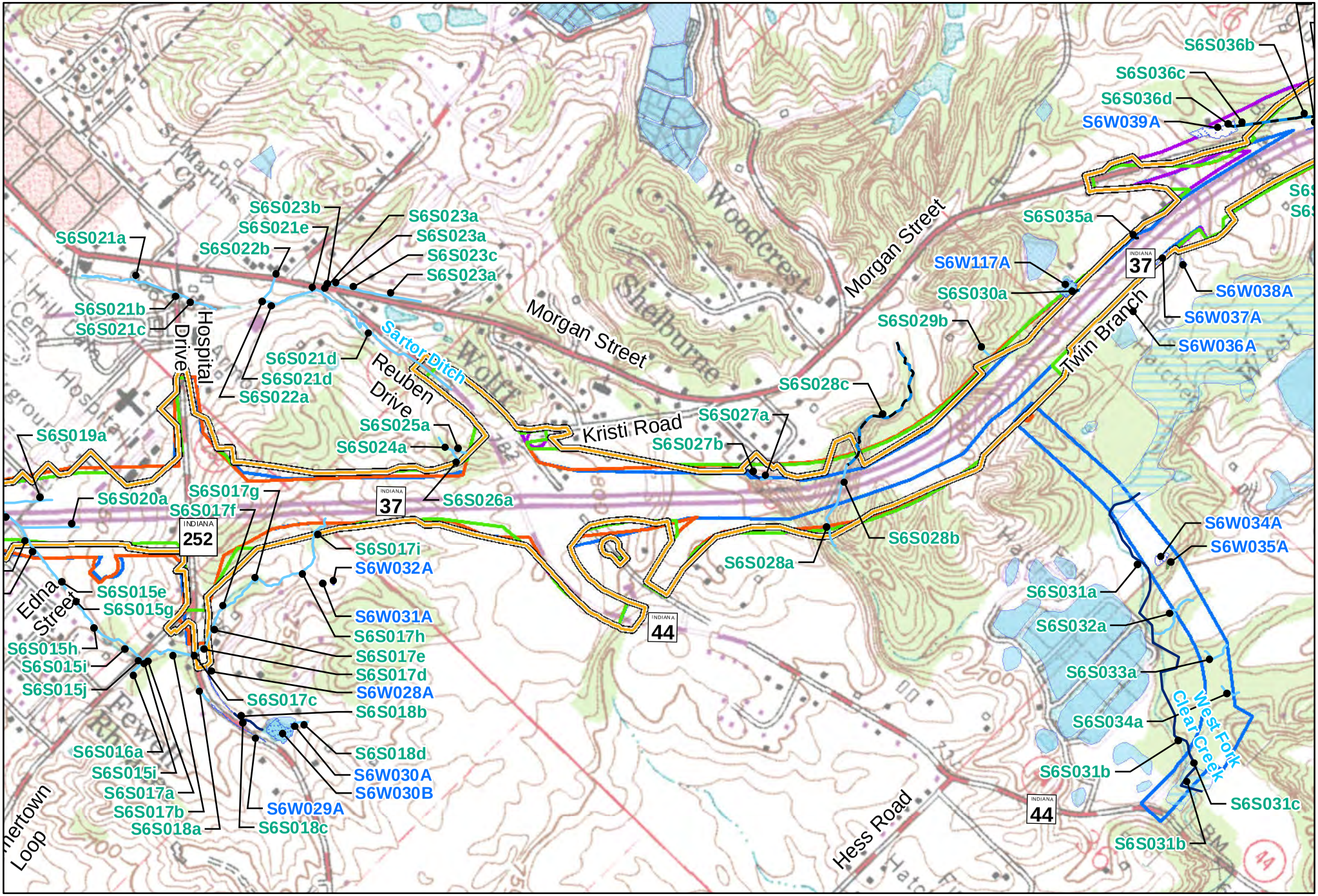

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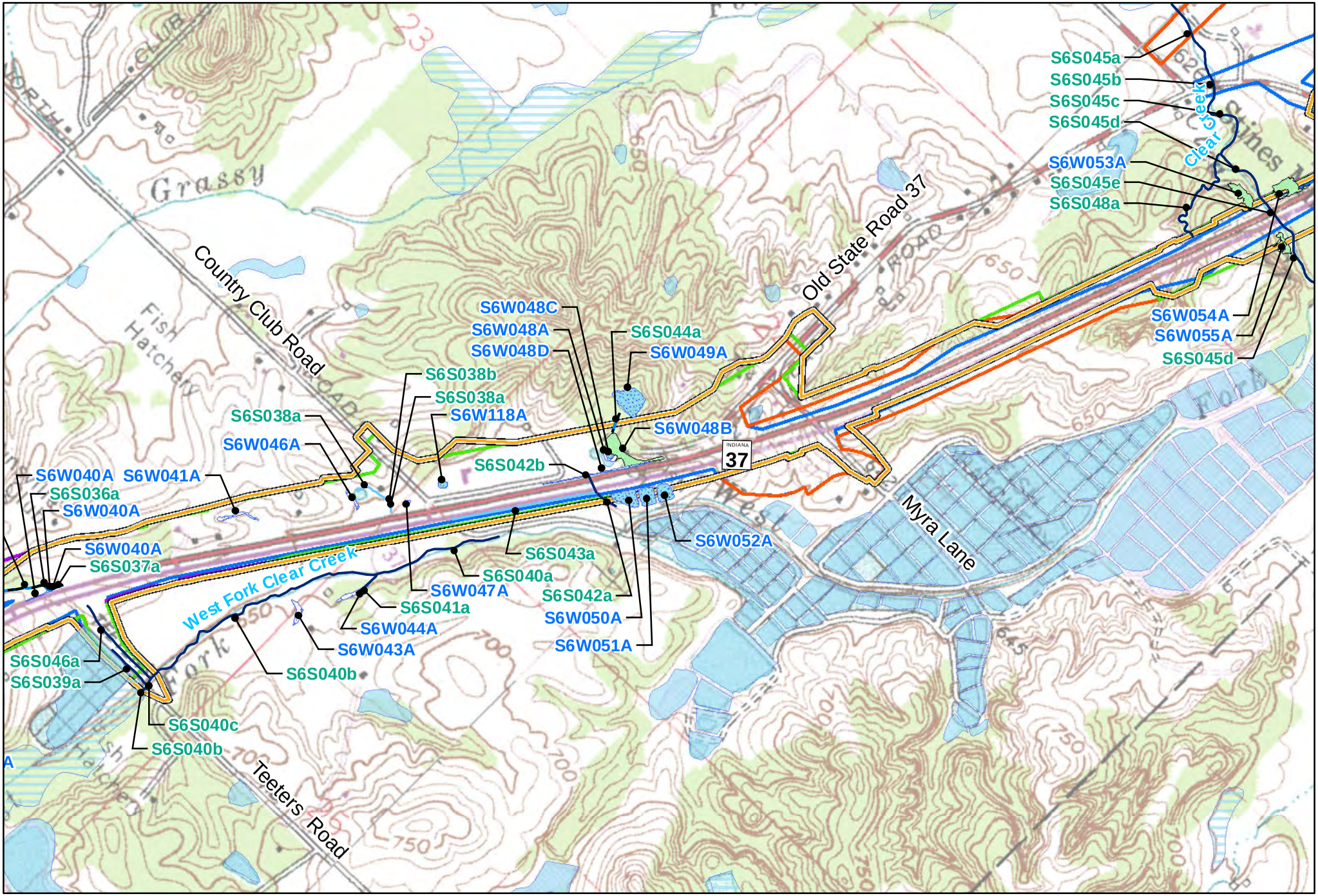

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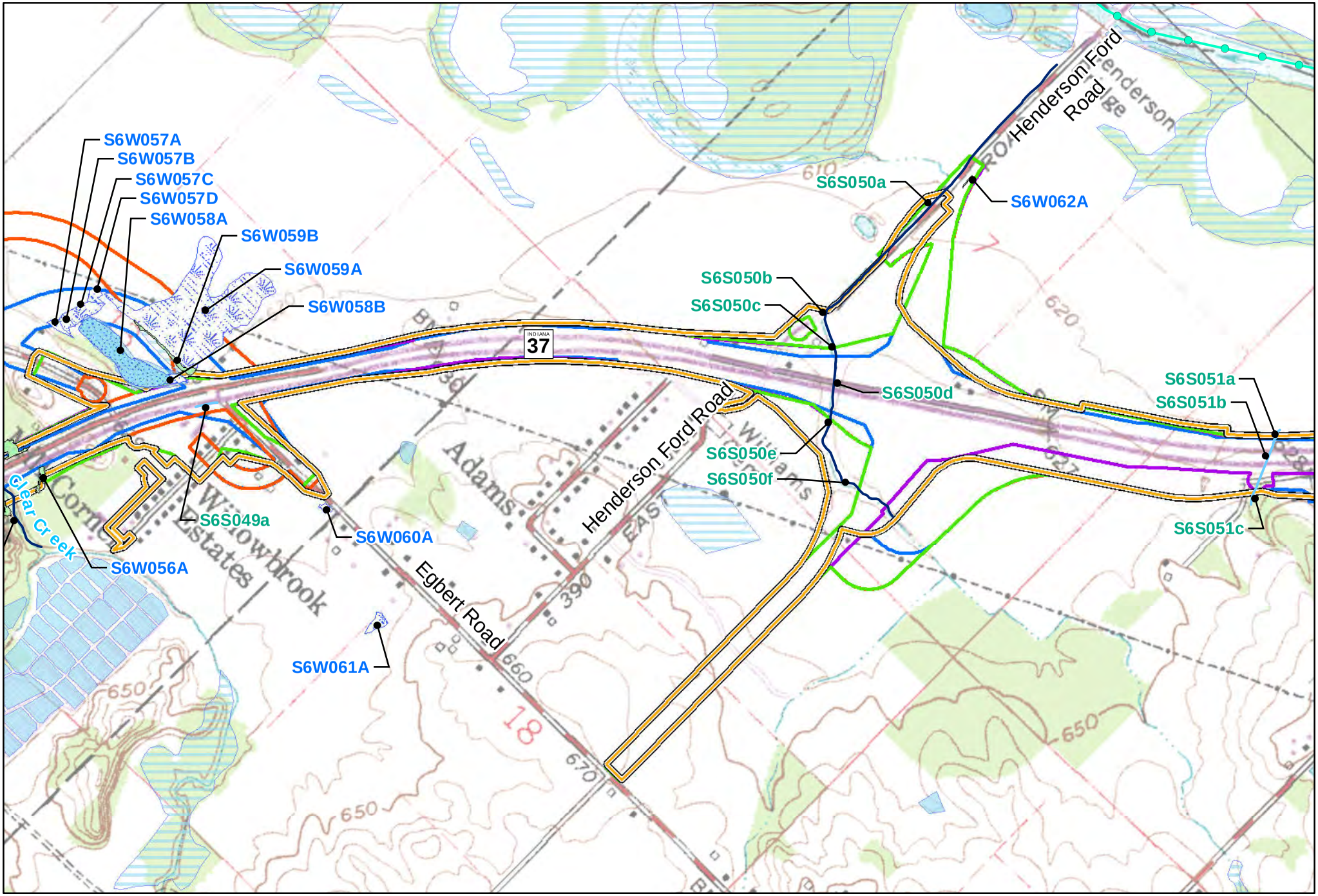

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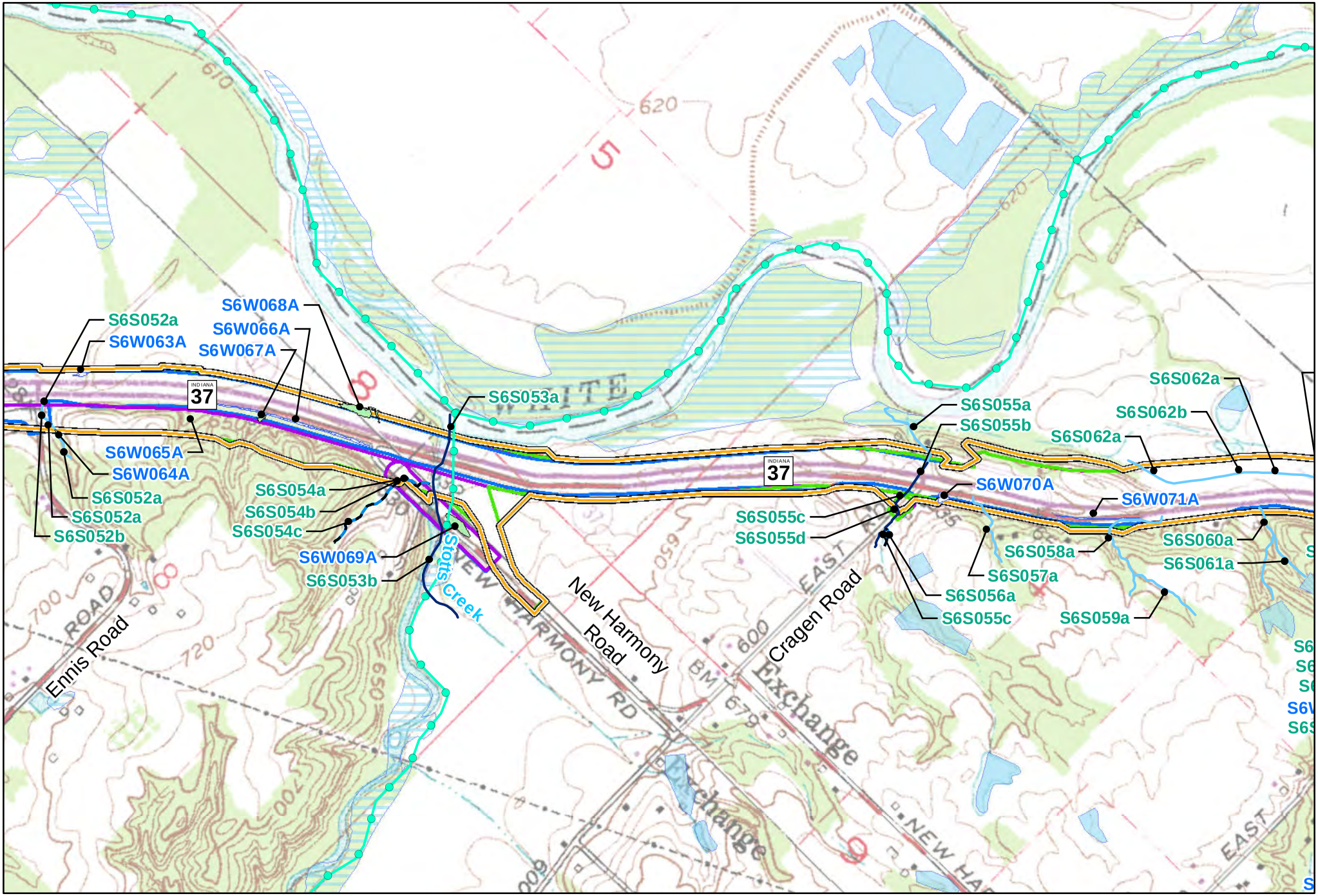

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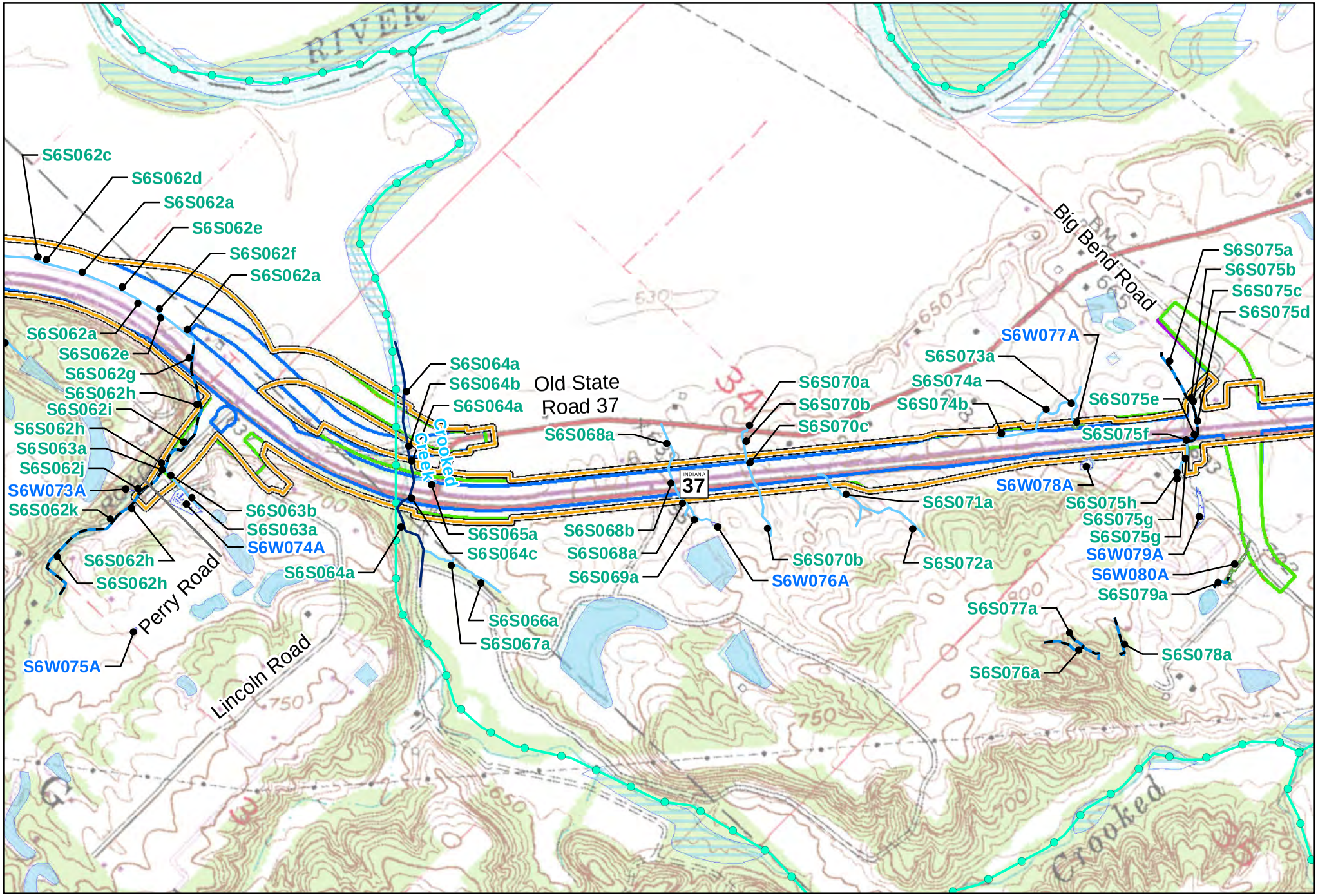

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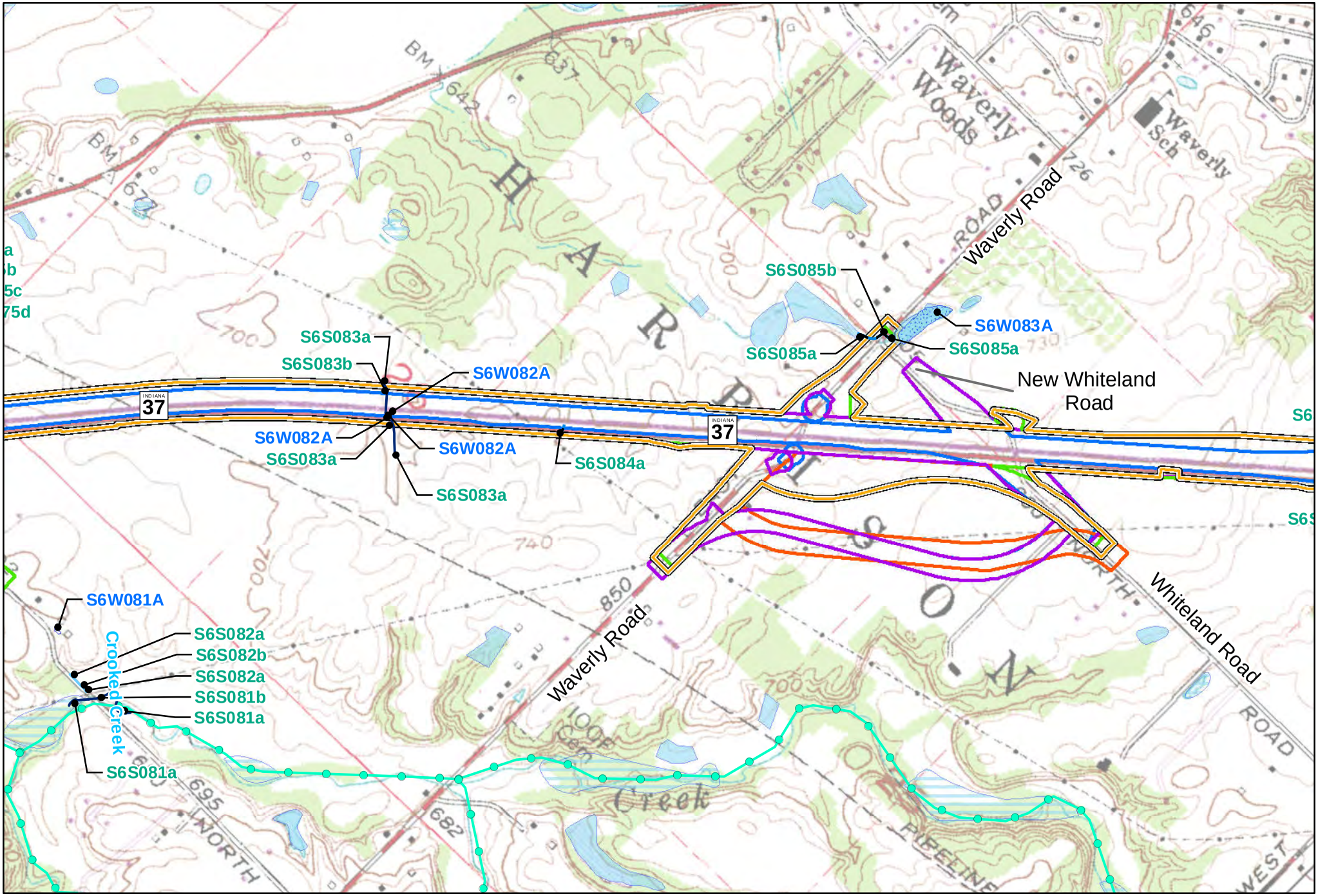

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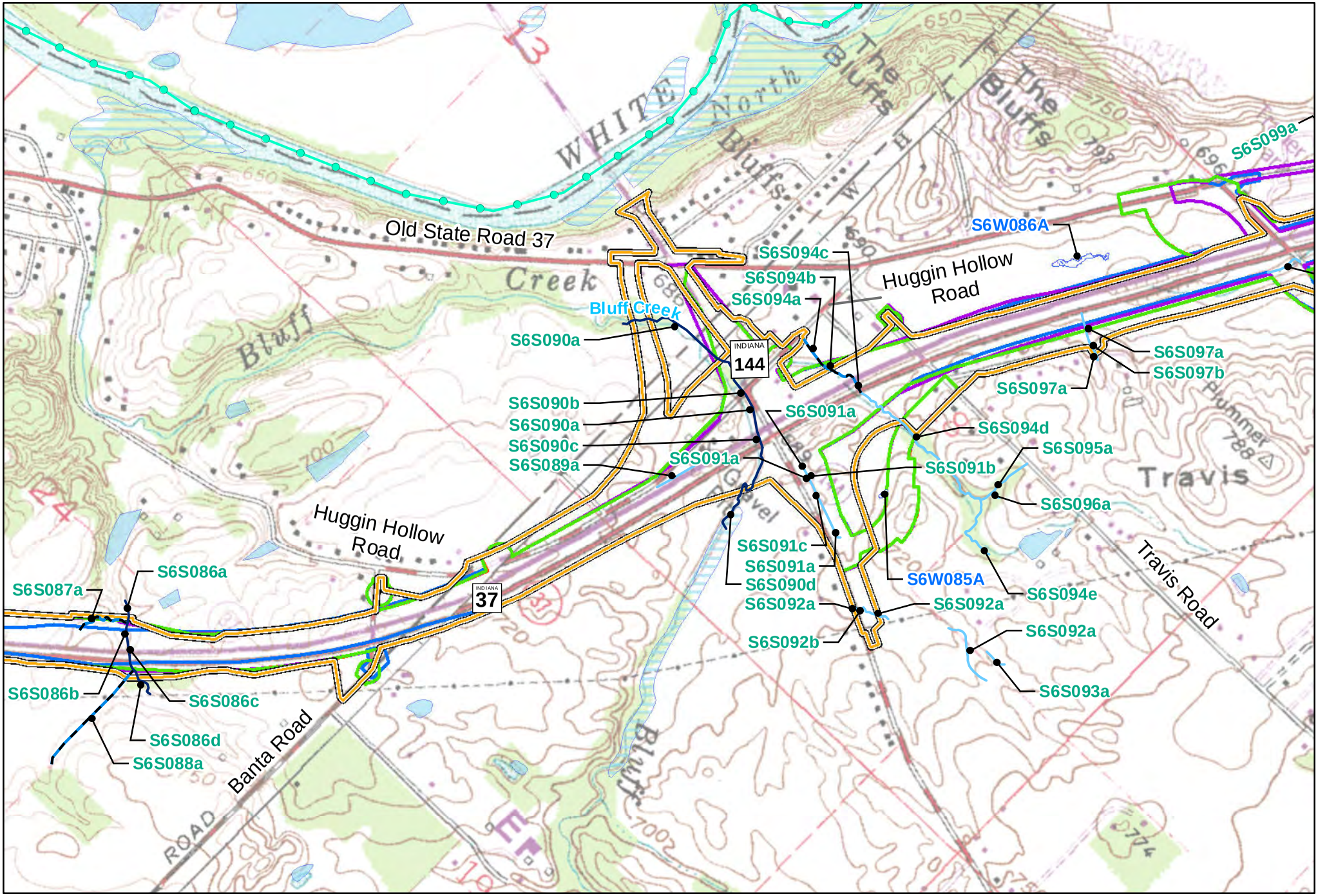

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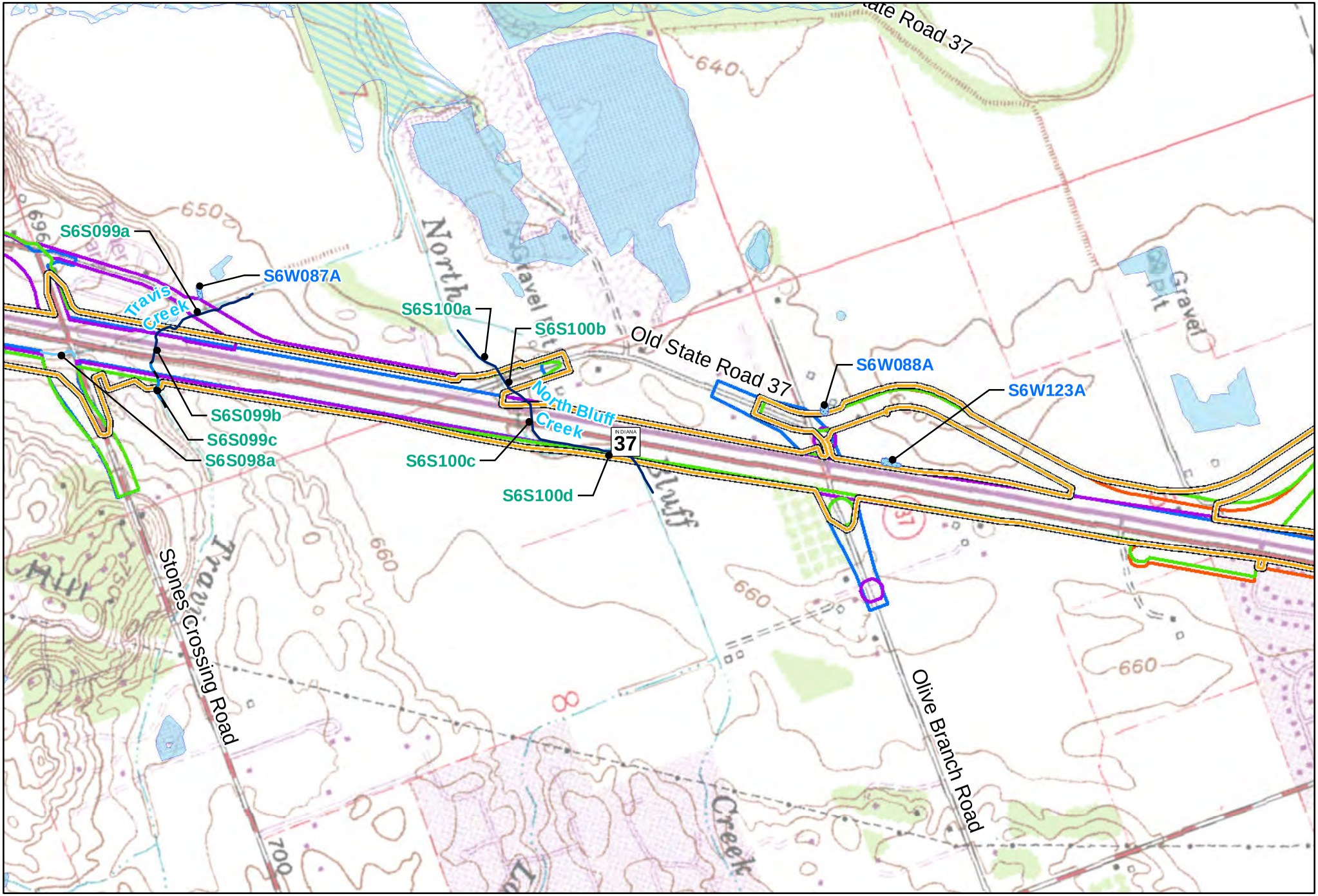

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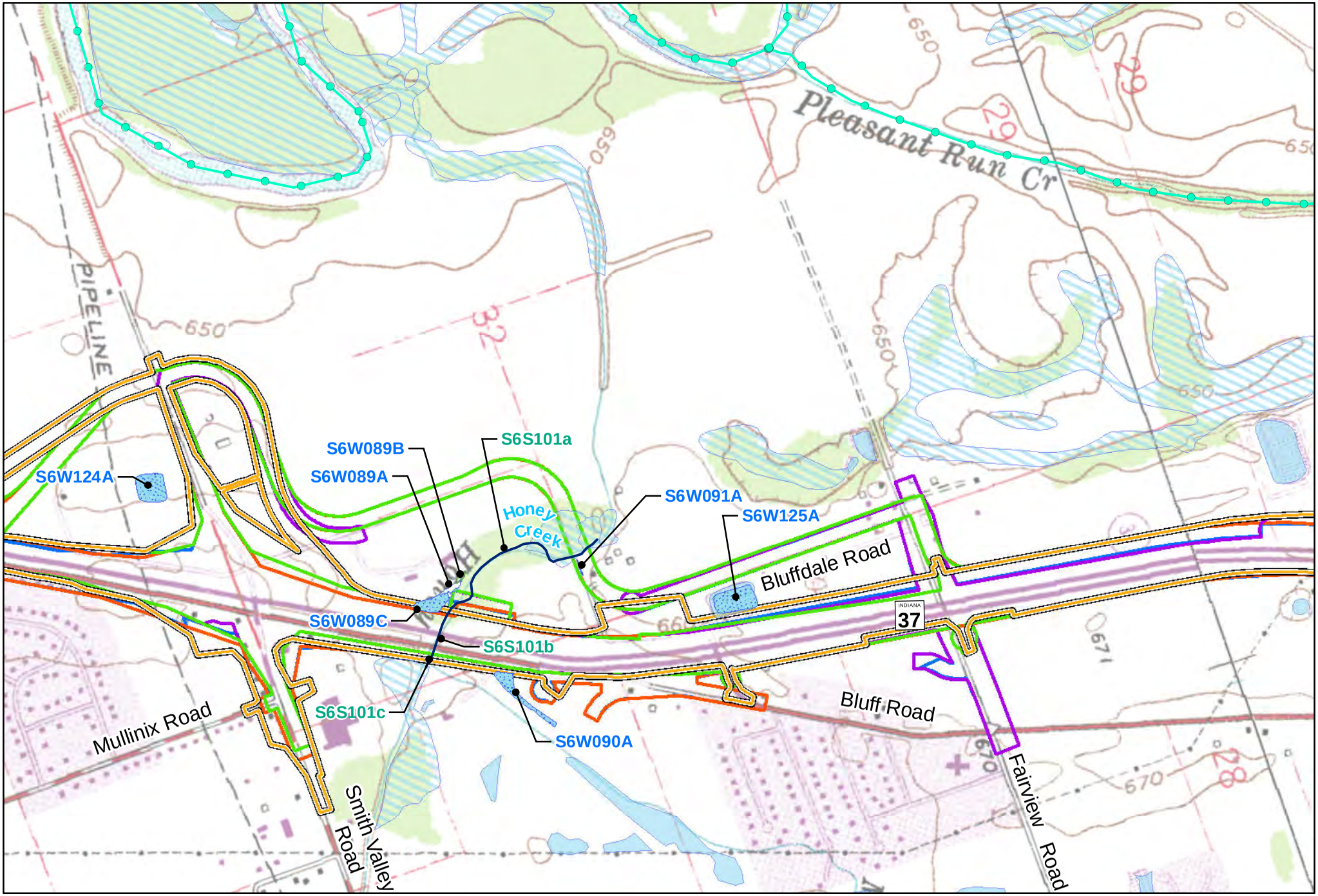

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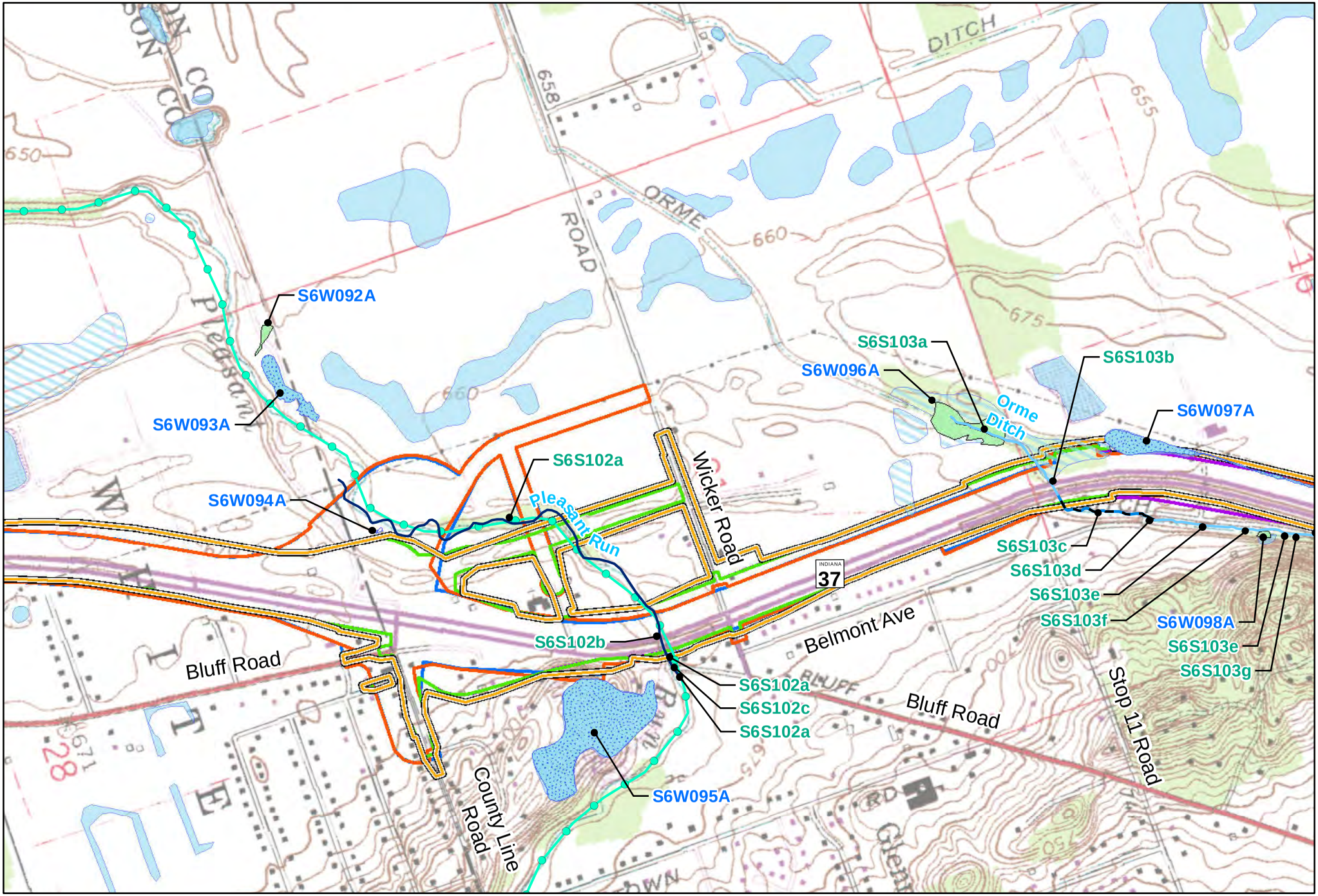

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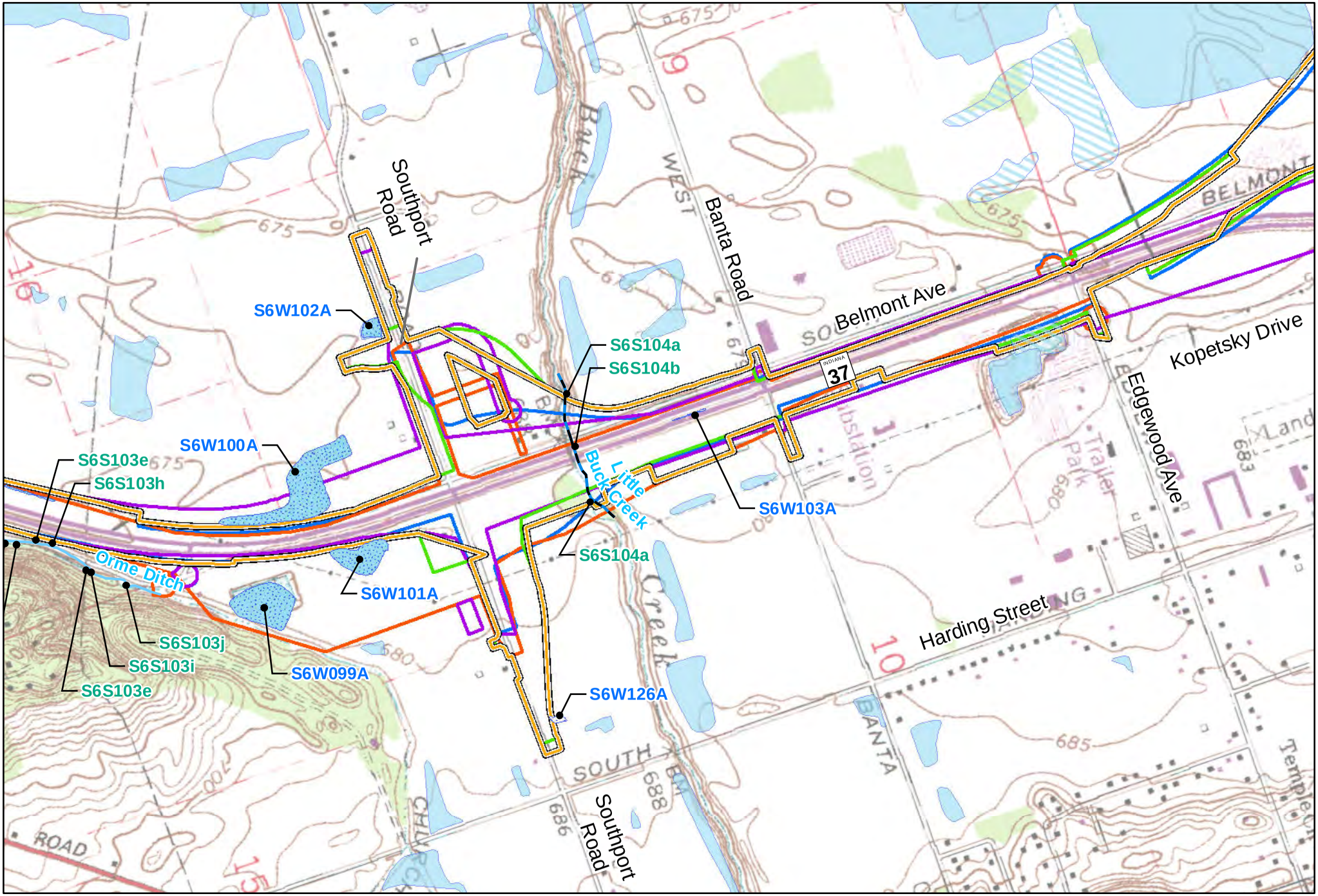

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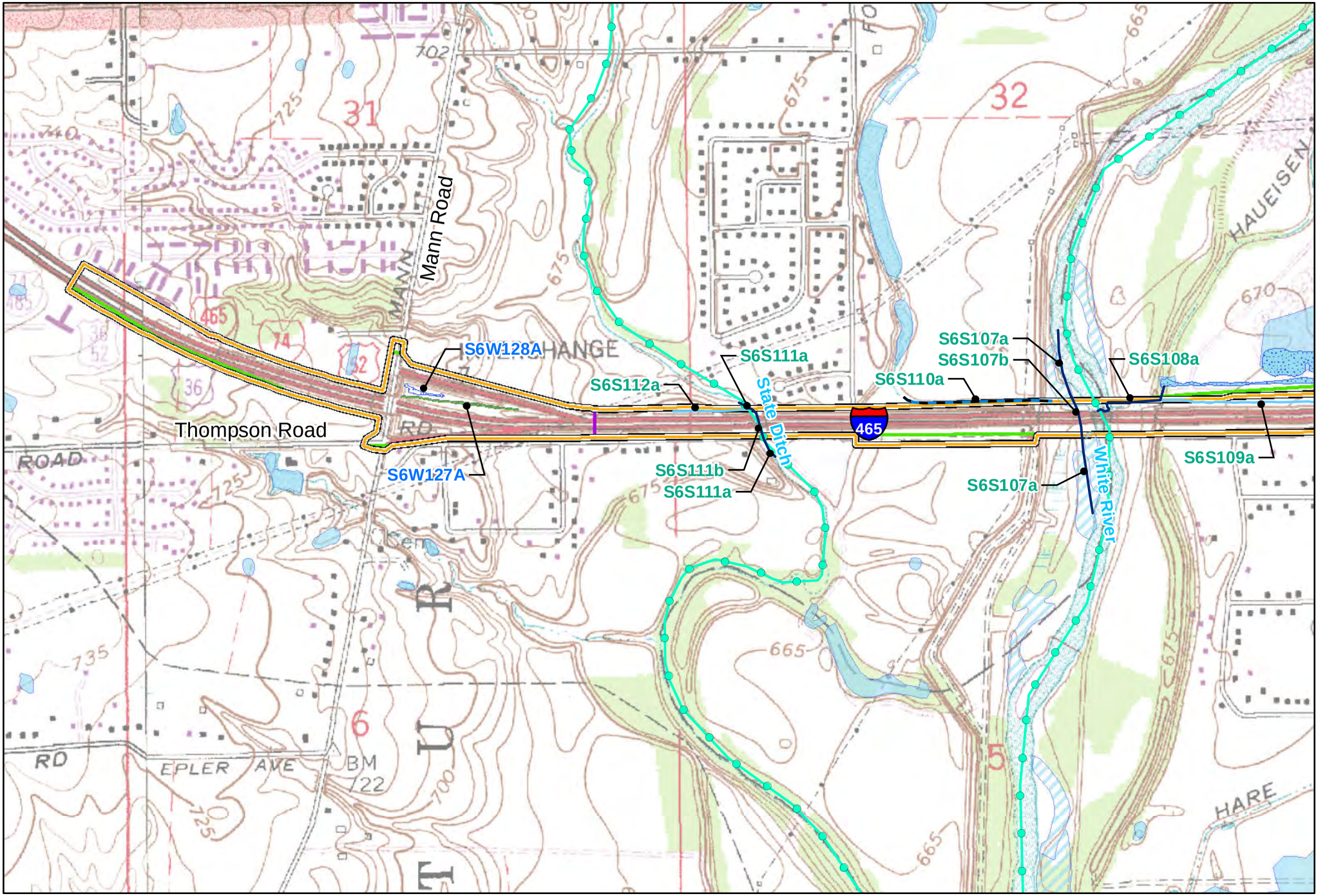

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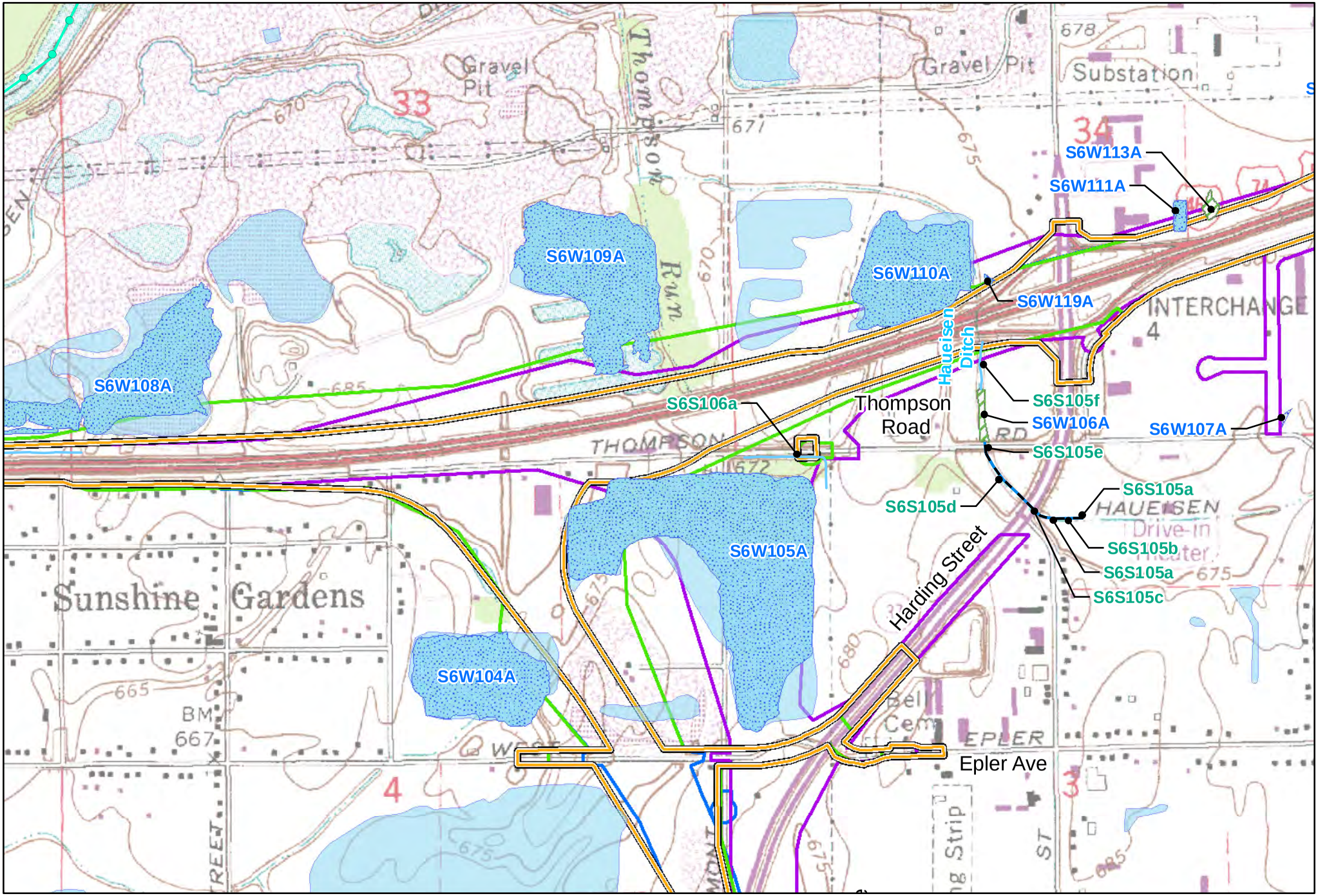

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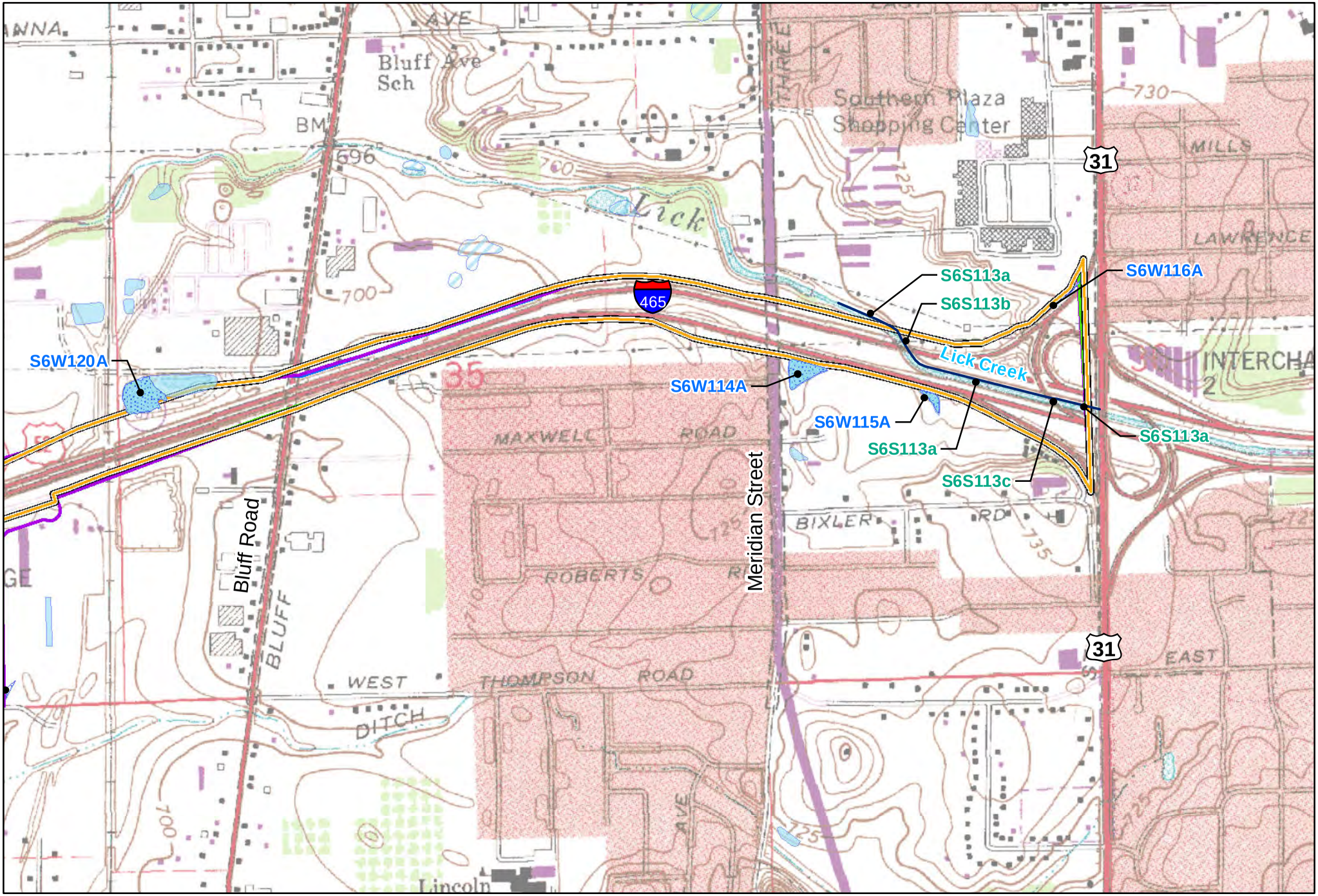

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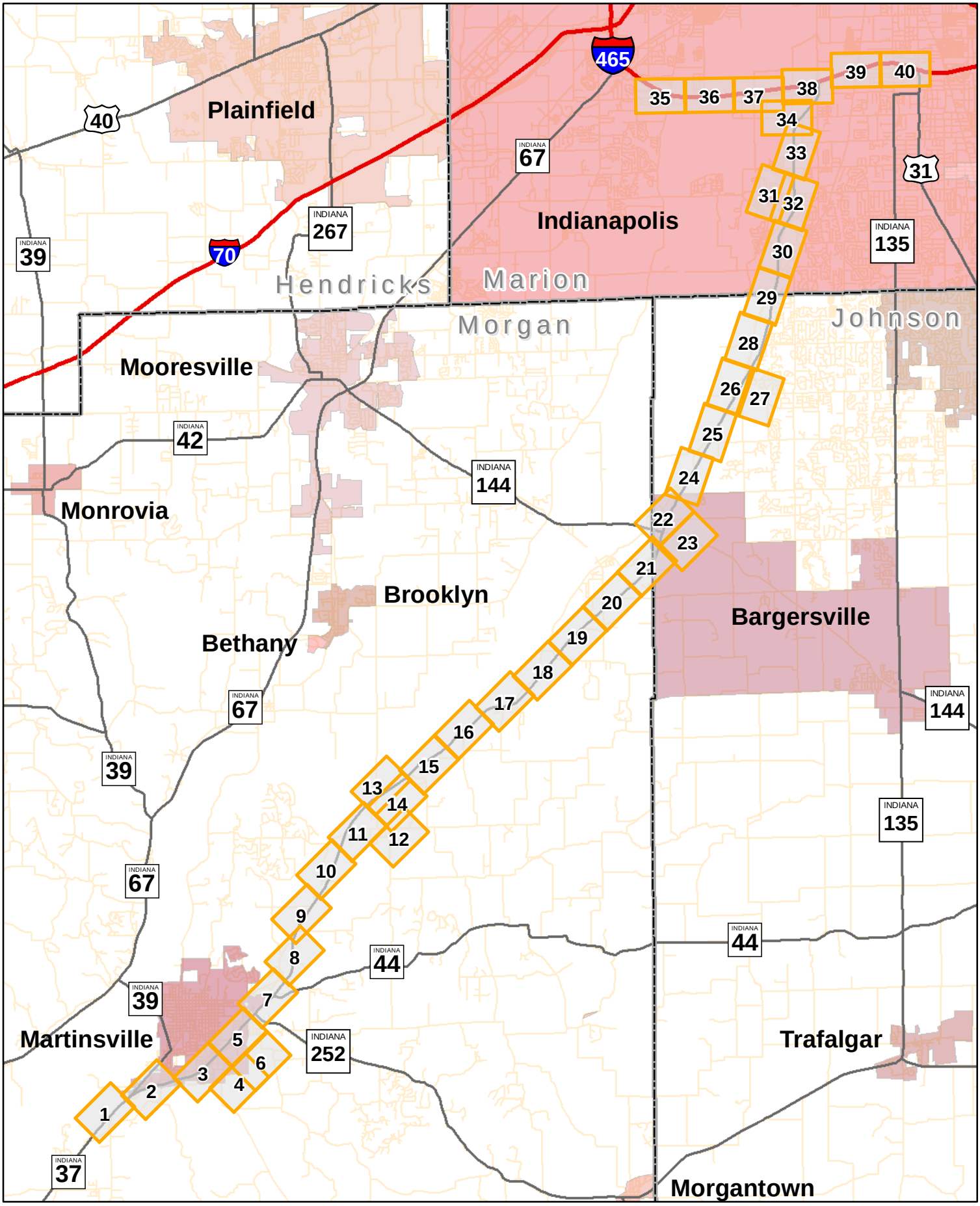

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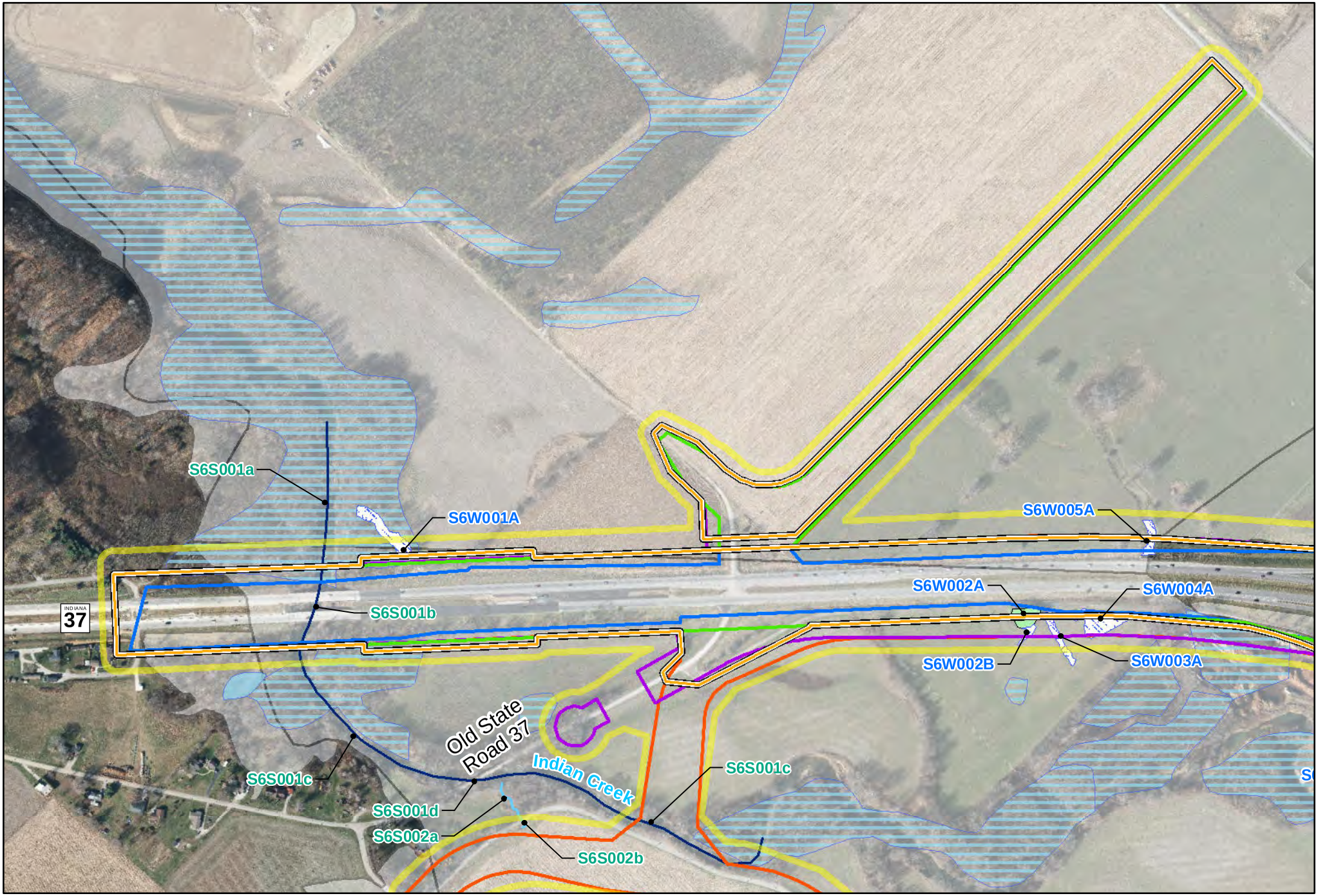

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- Floodplain

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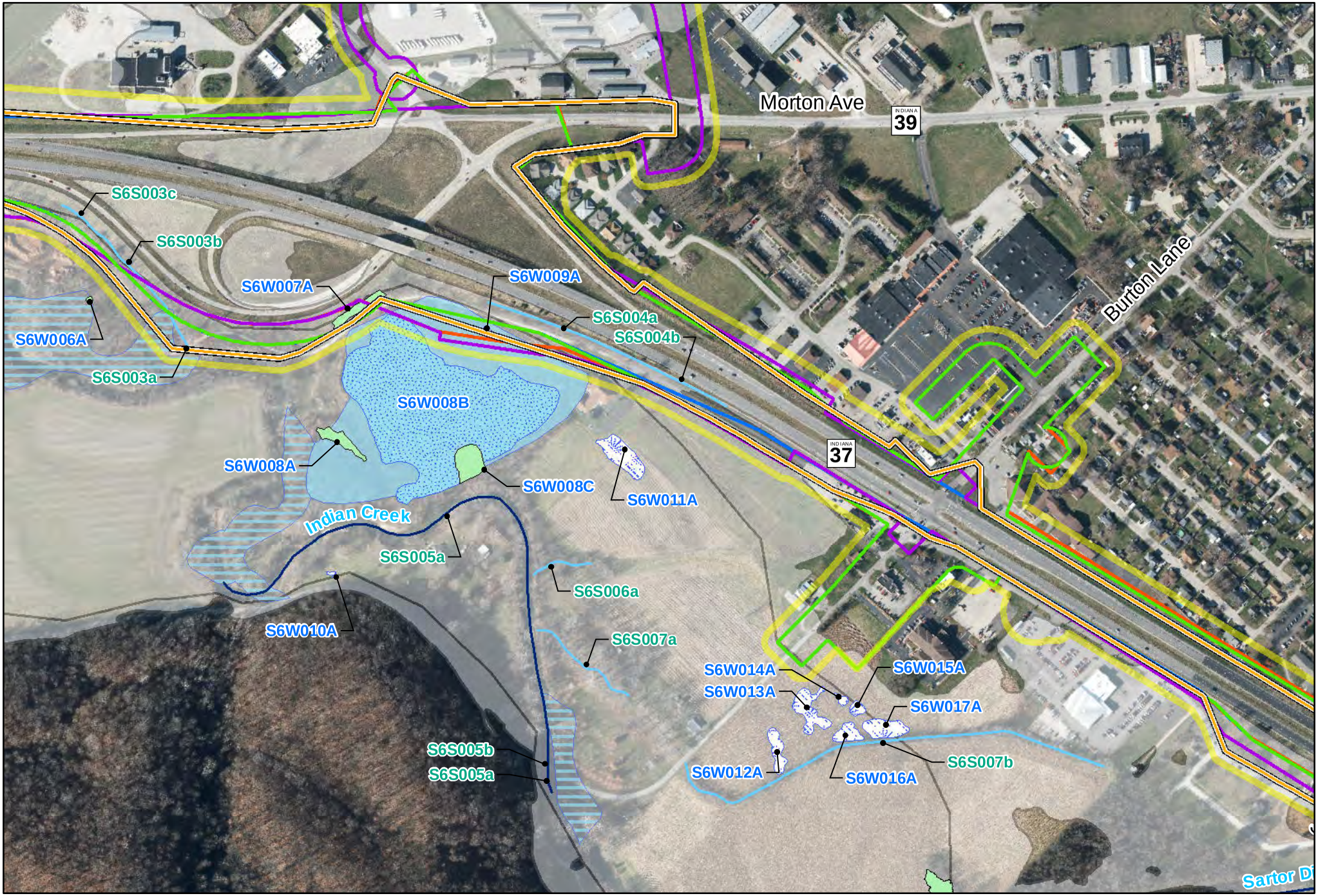

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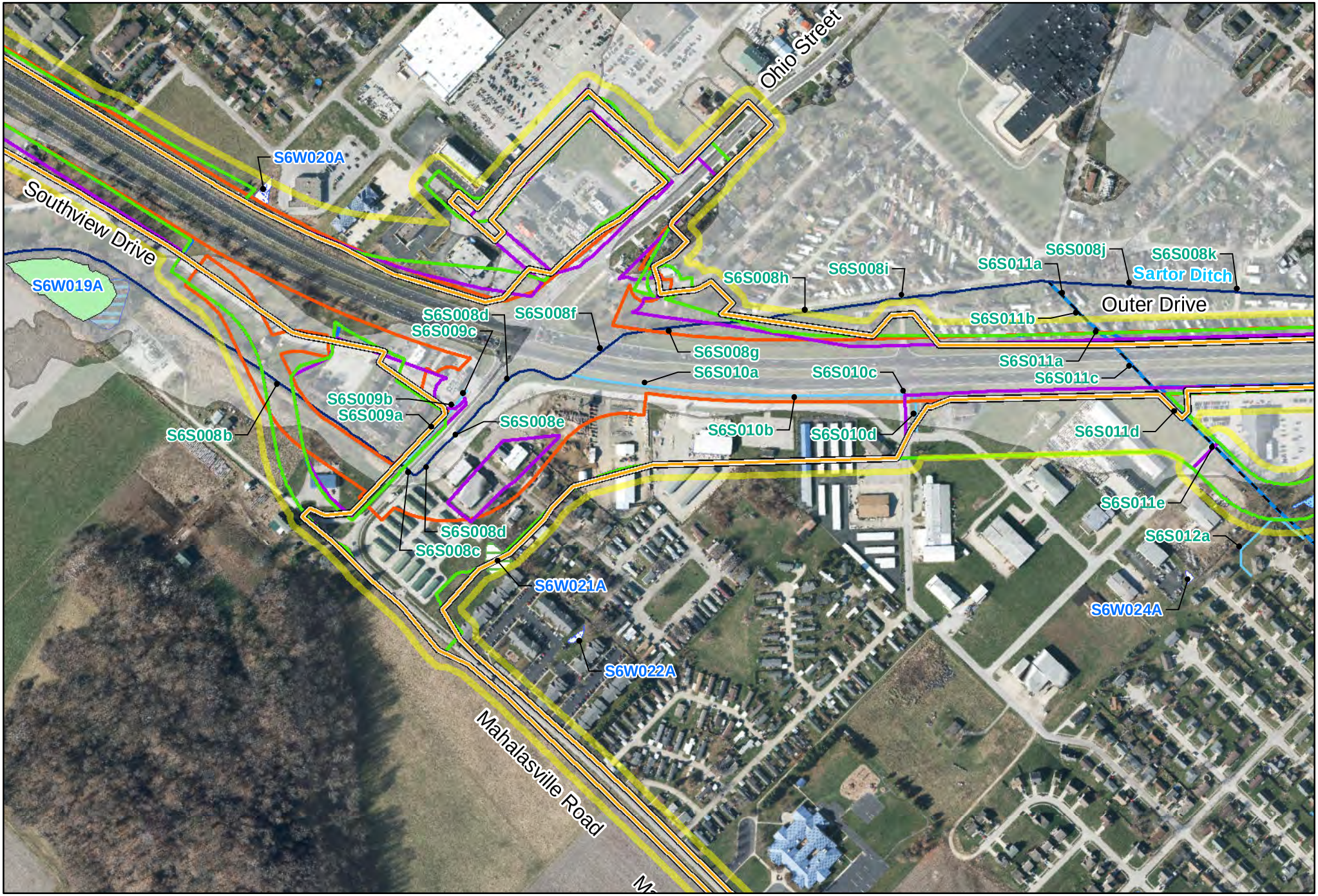

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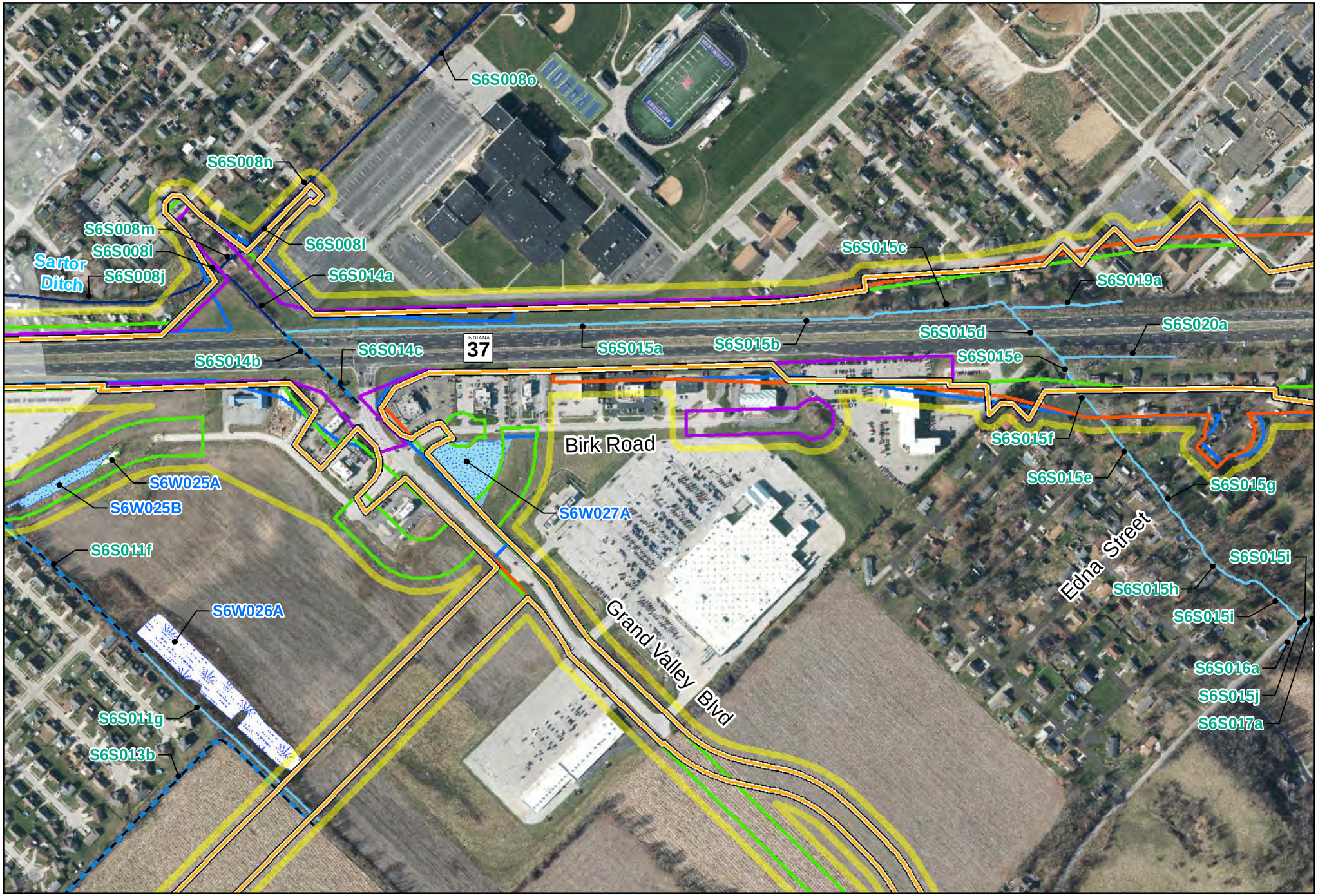

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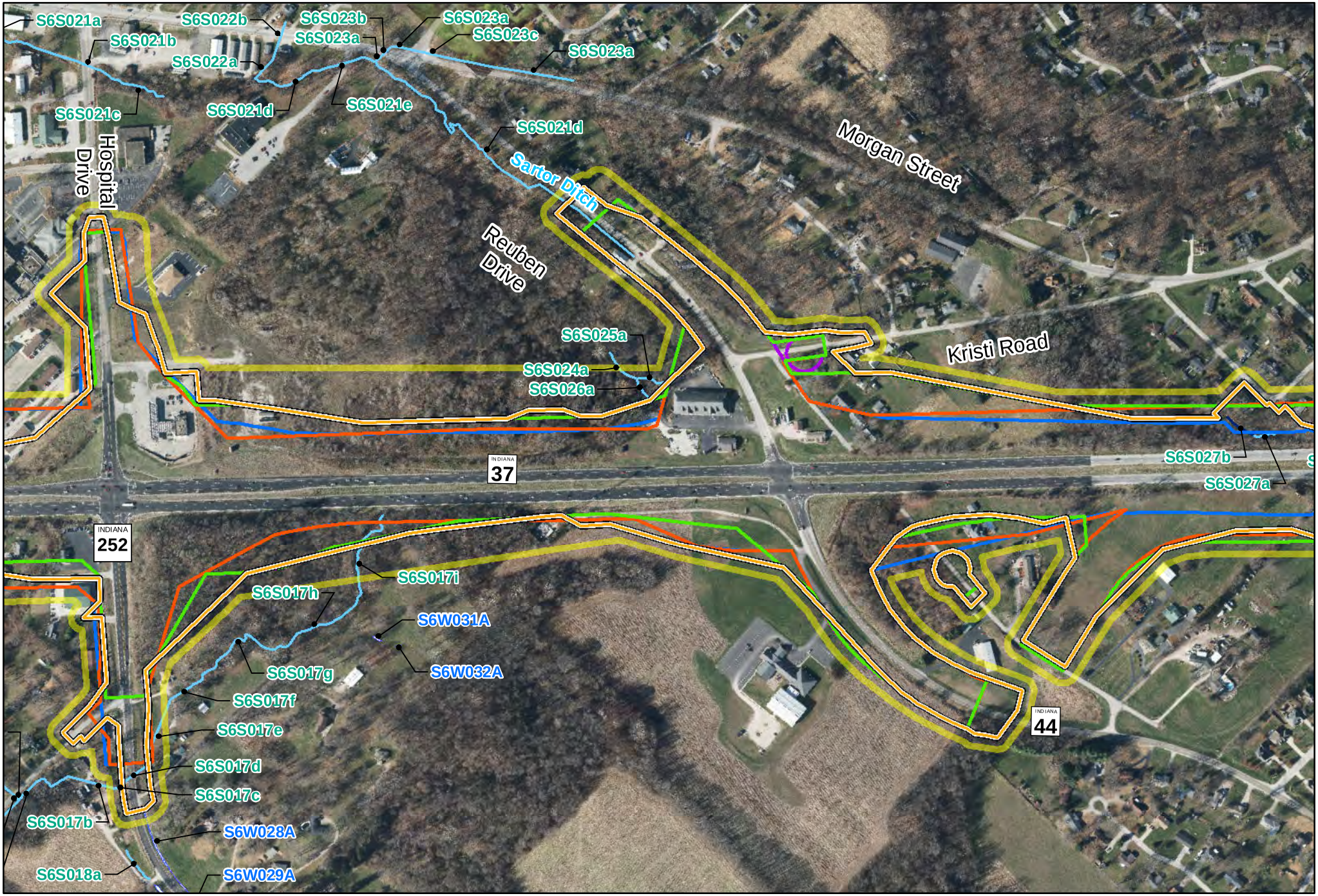

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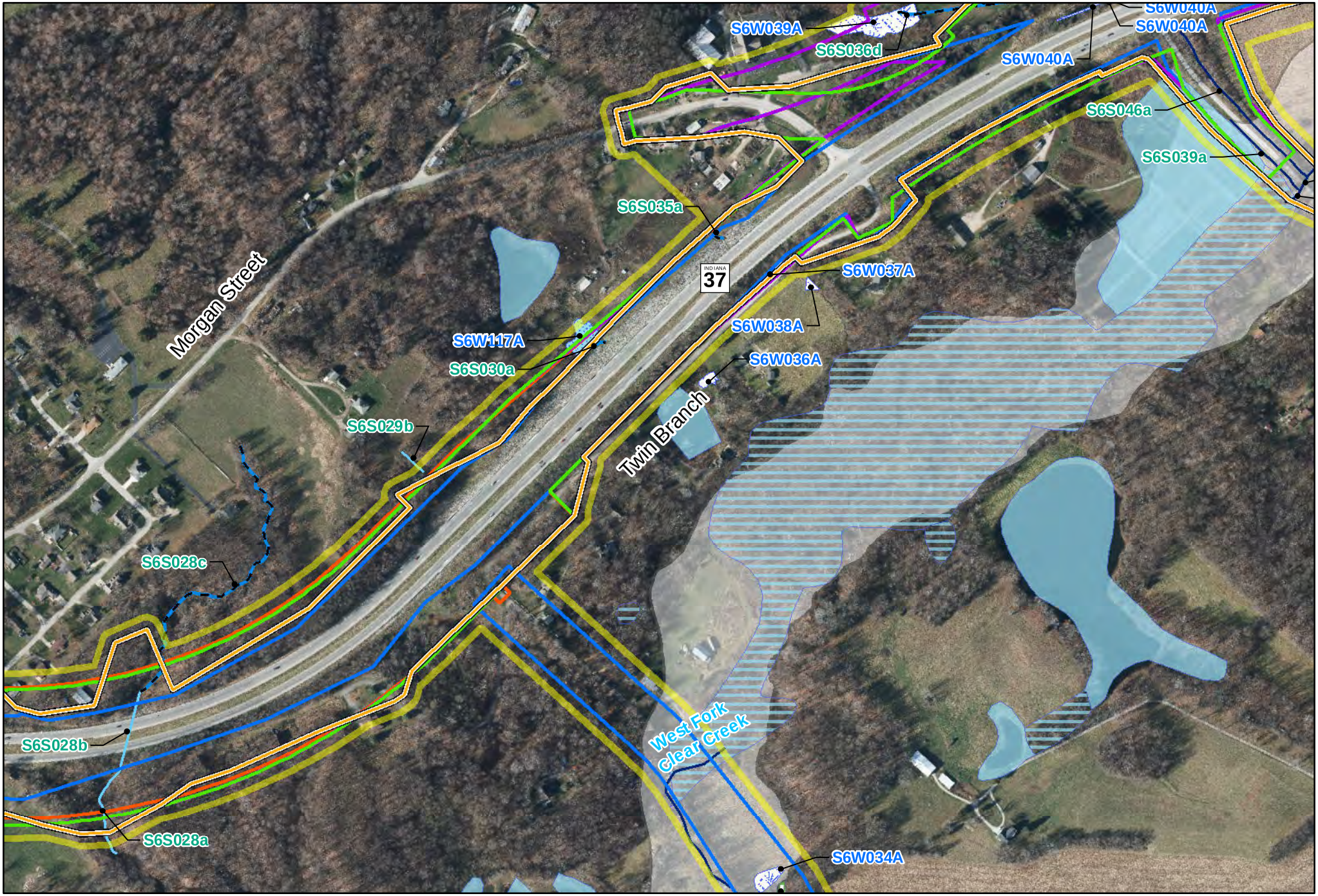

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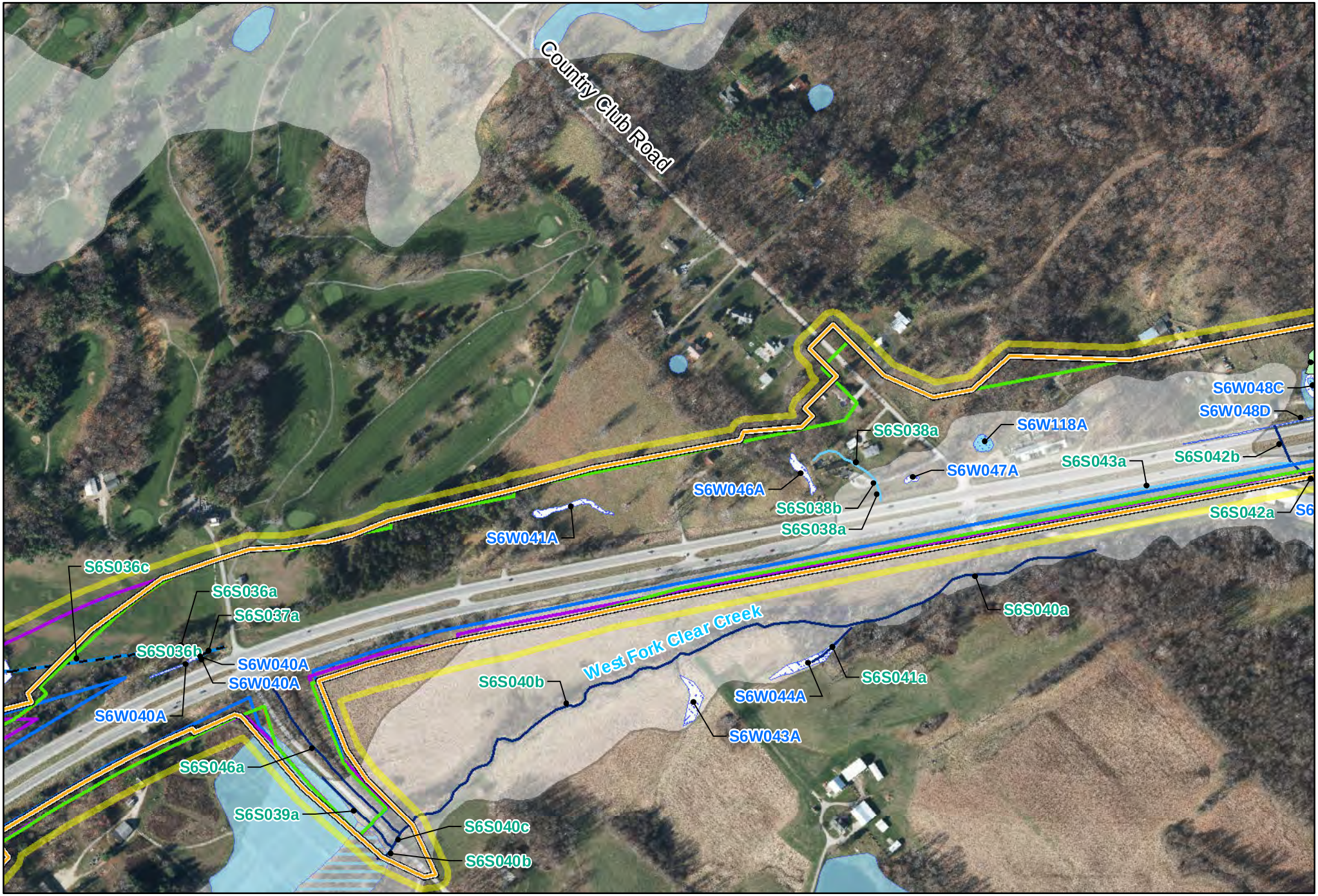

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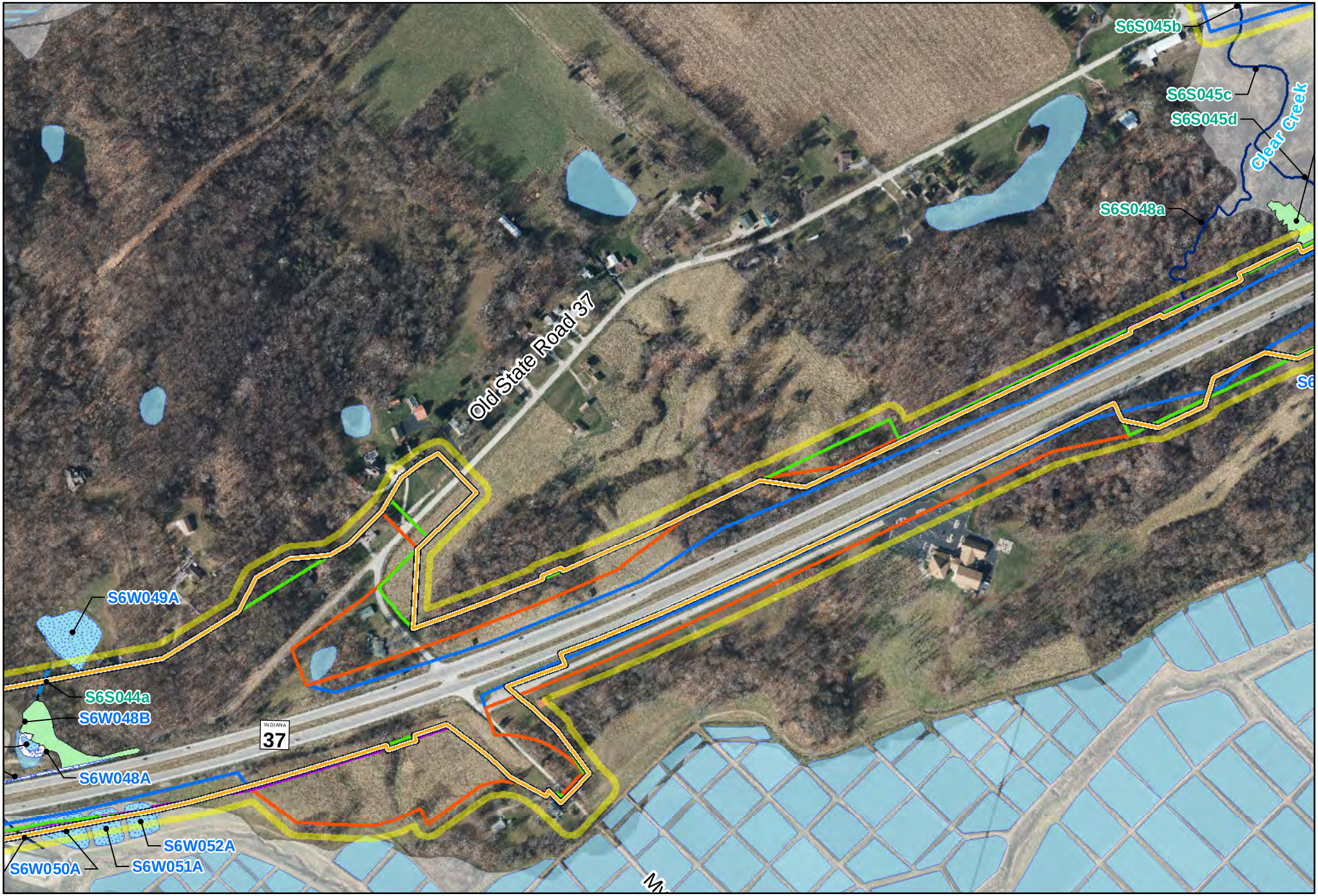

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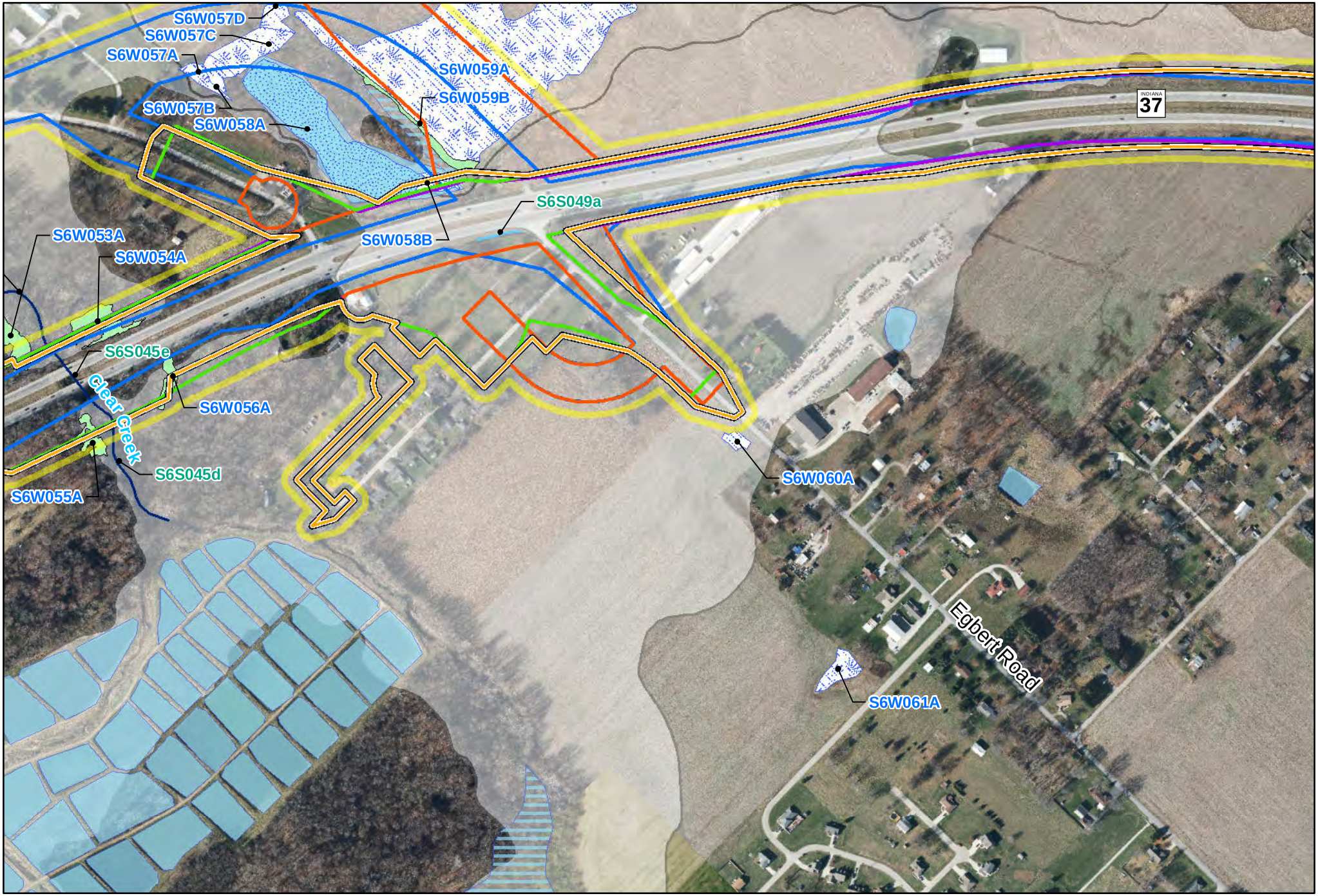

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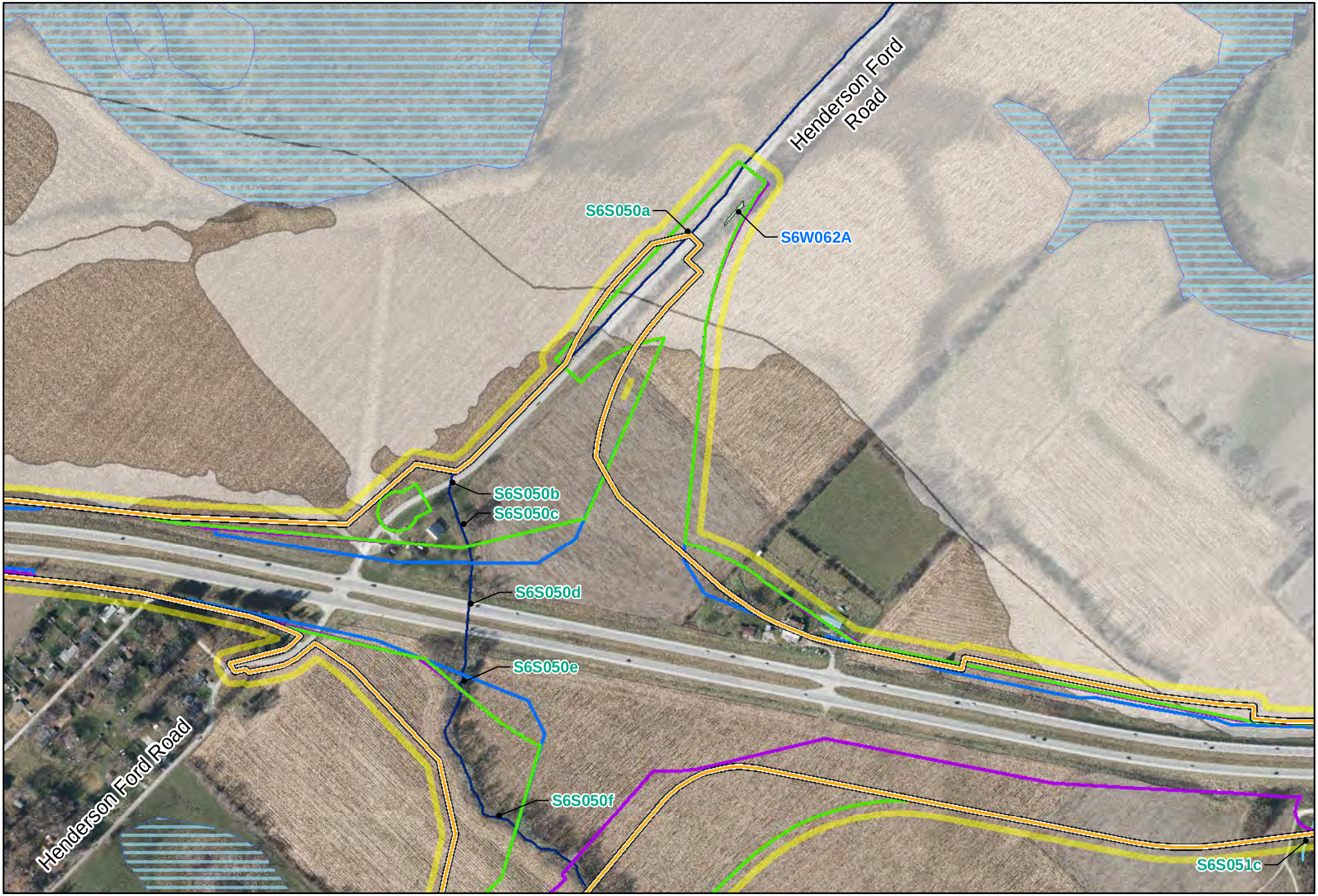

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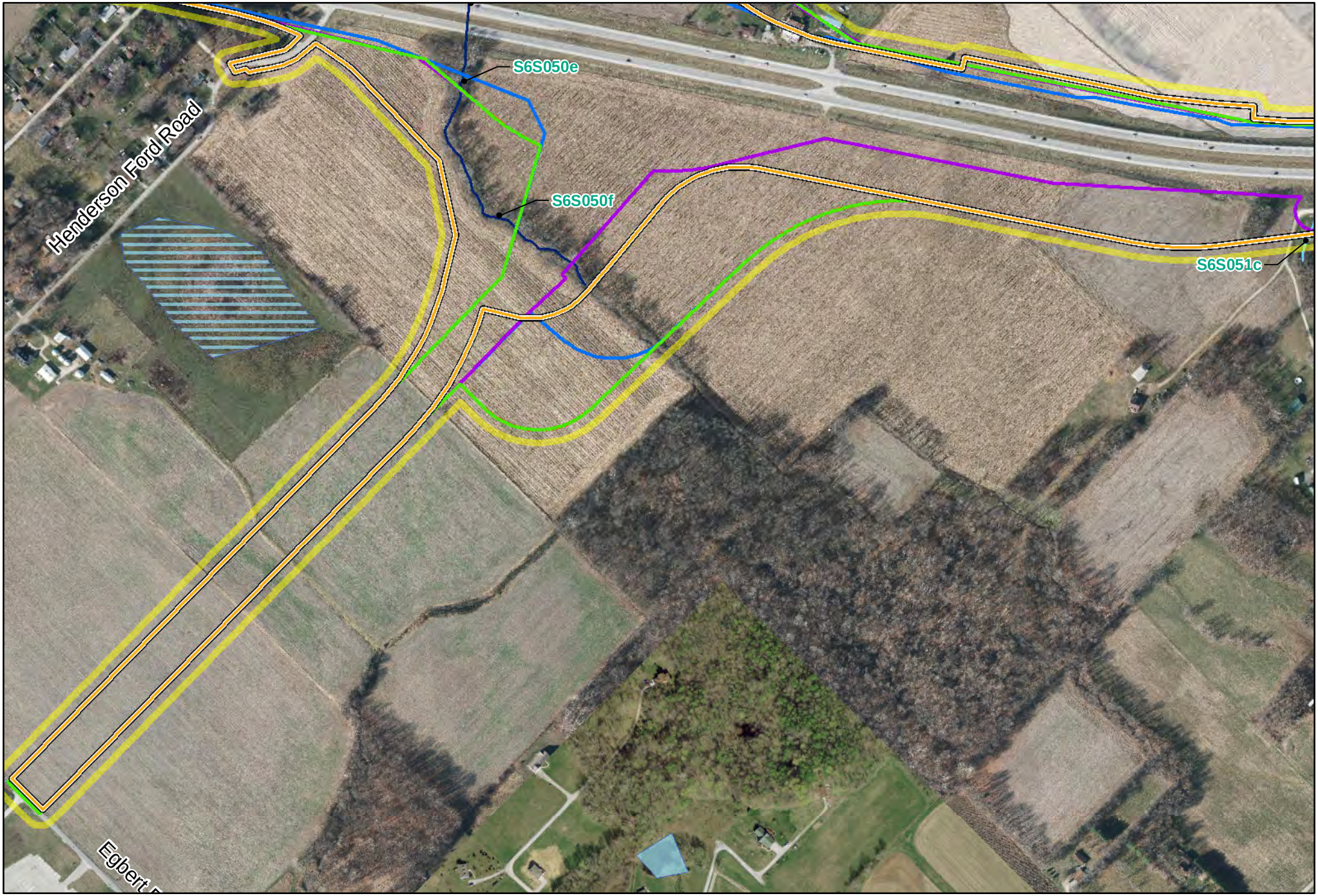

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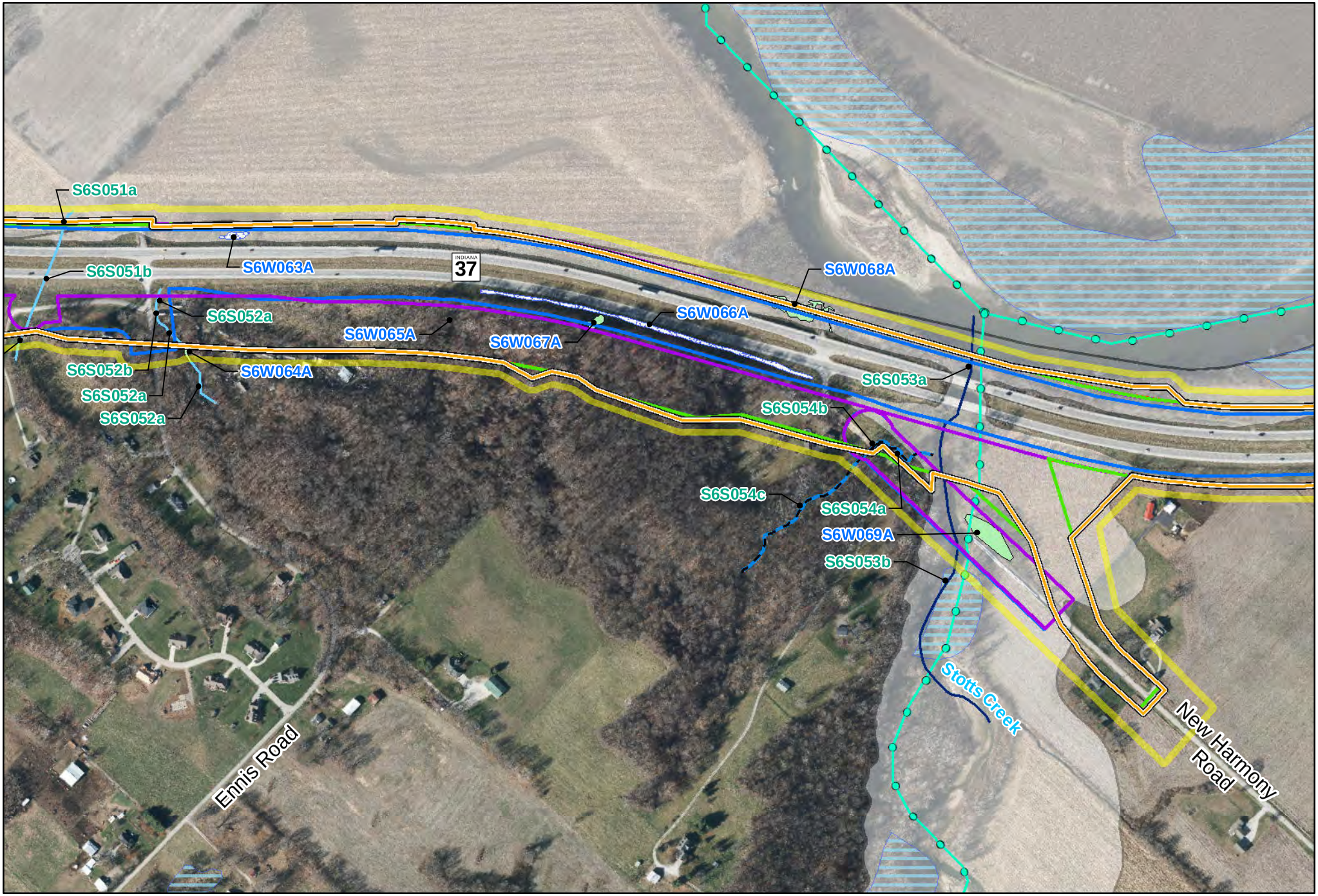

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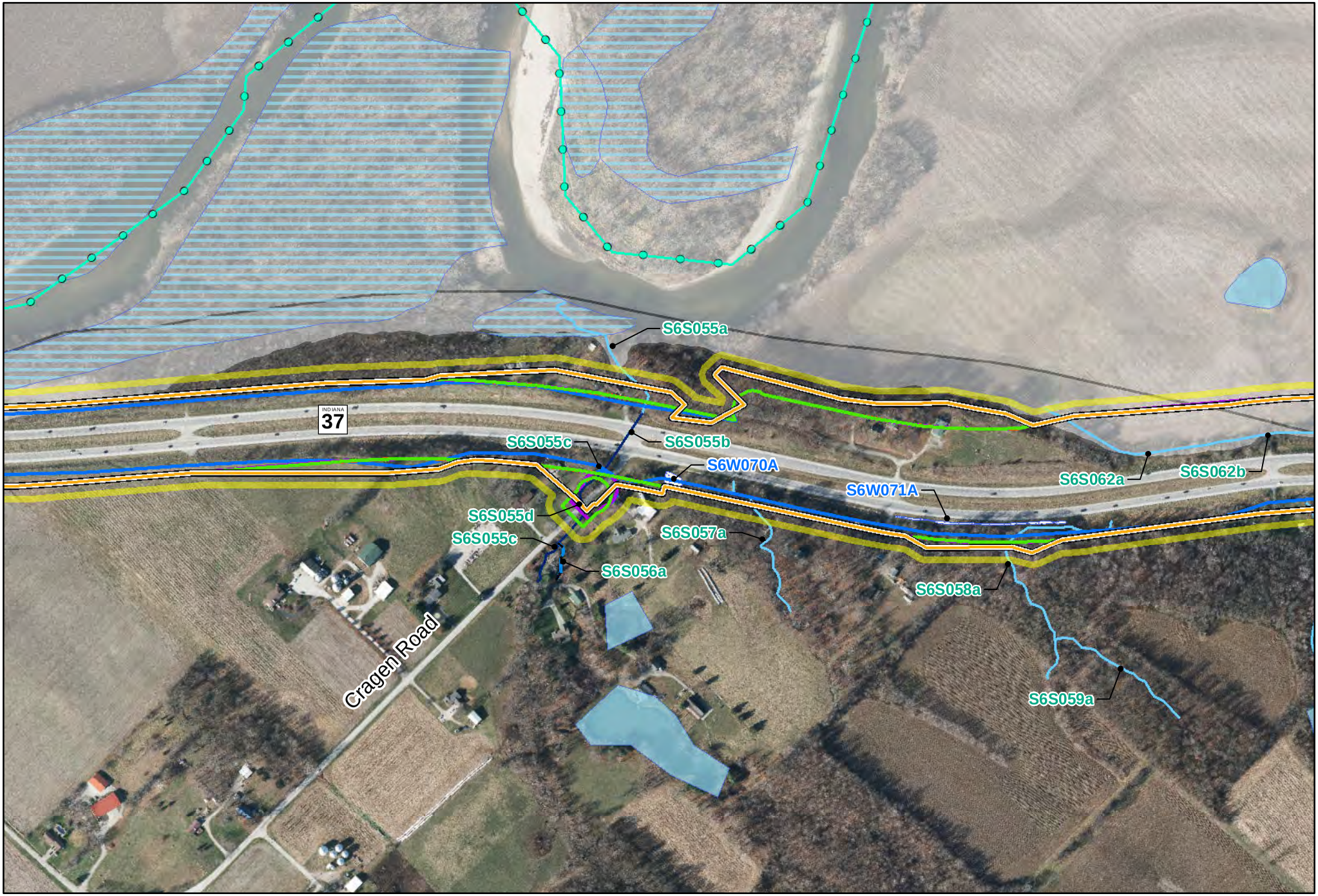

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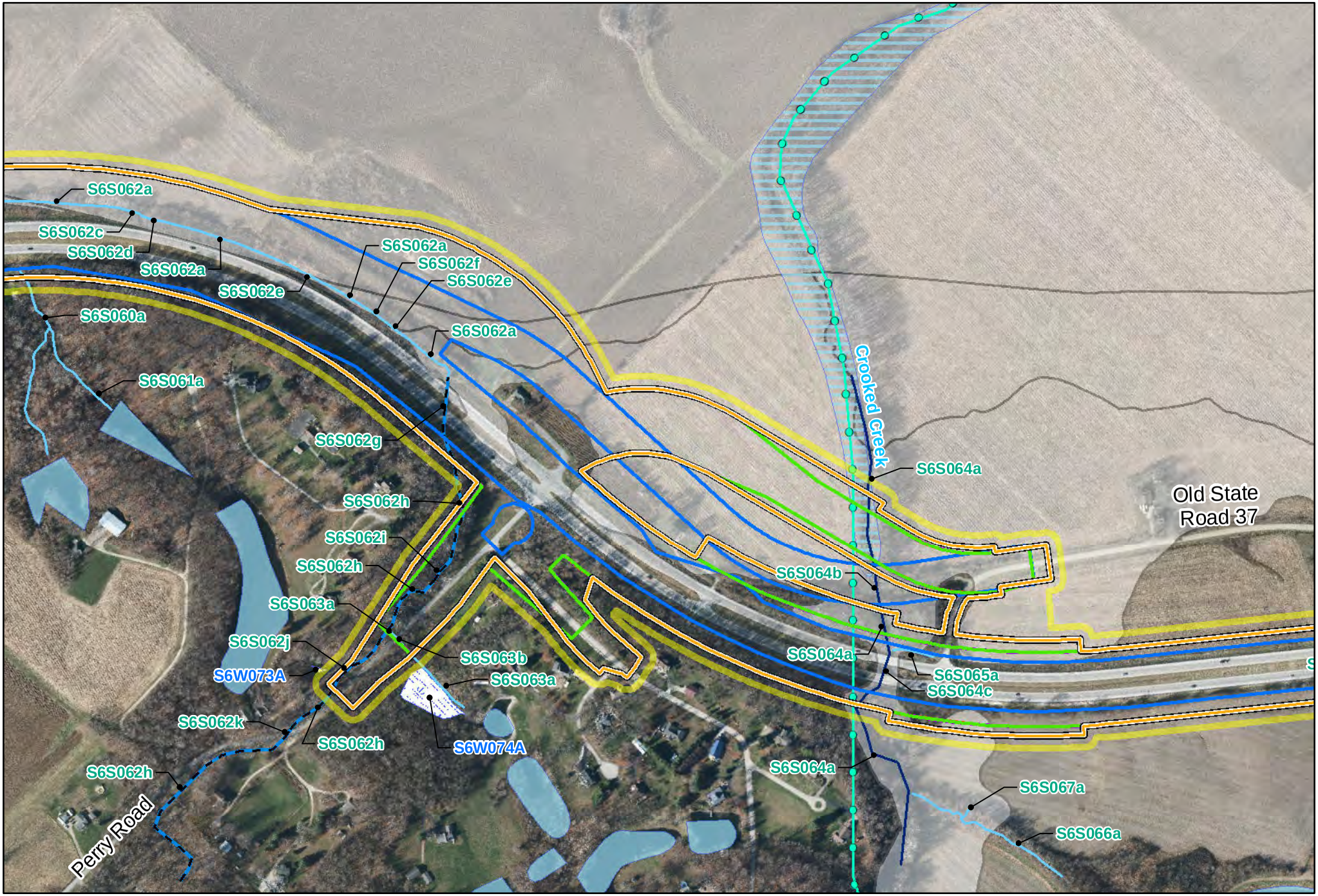

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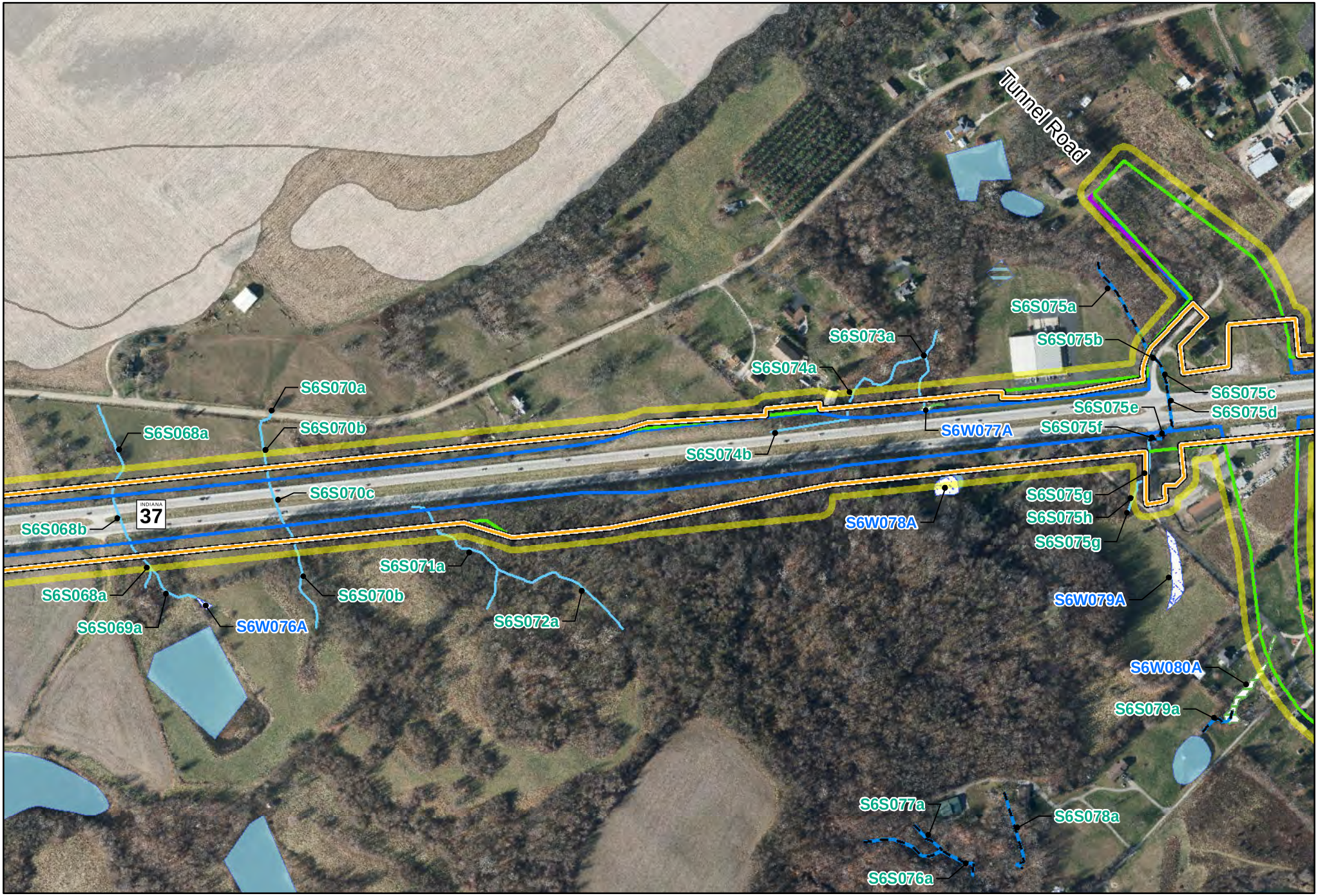

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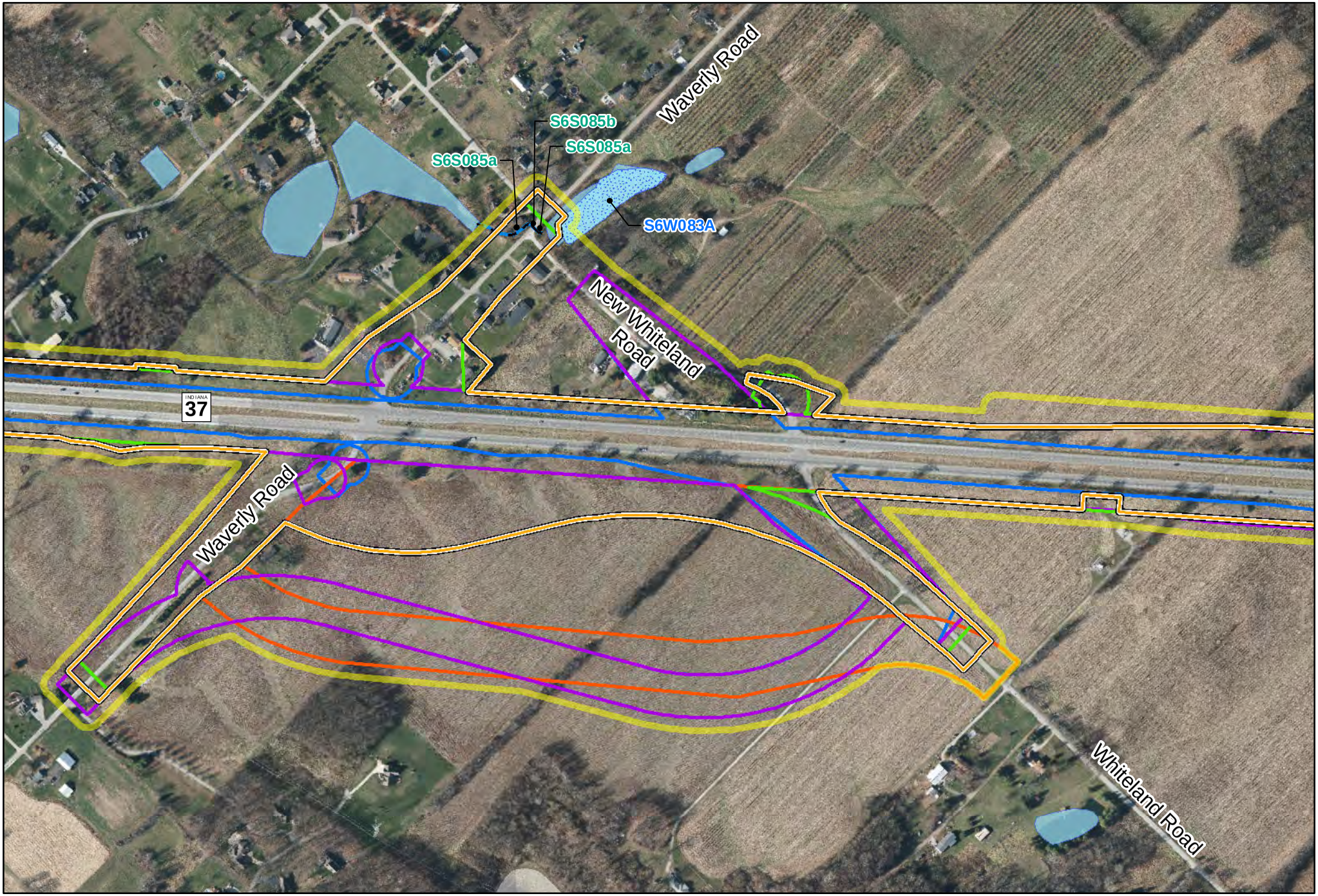

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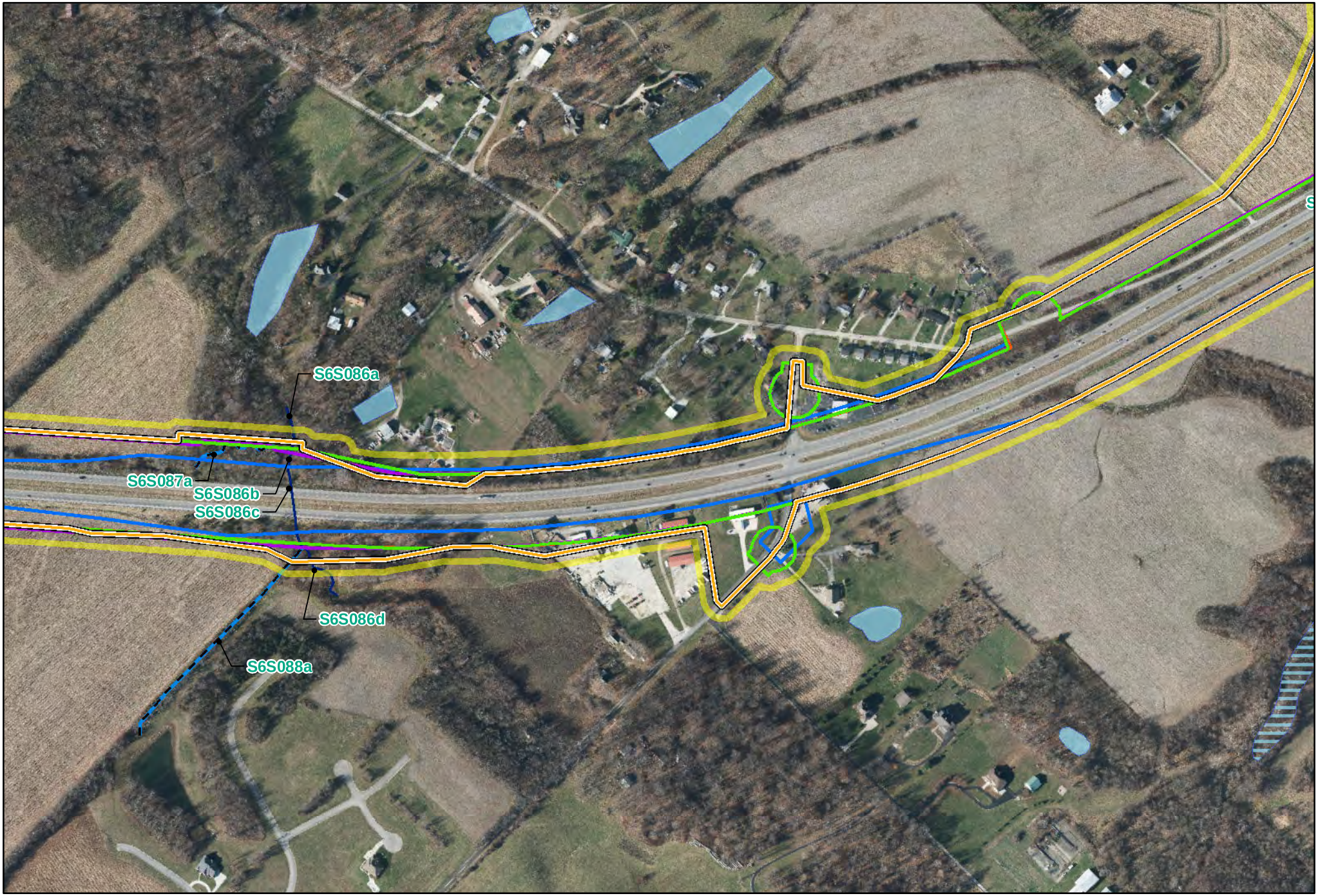

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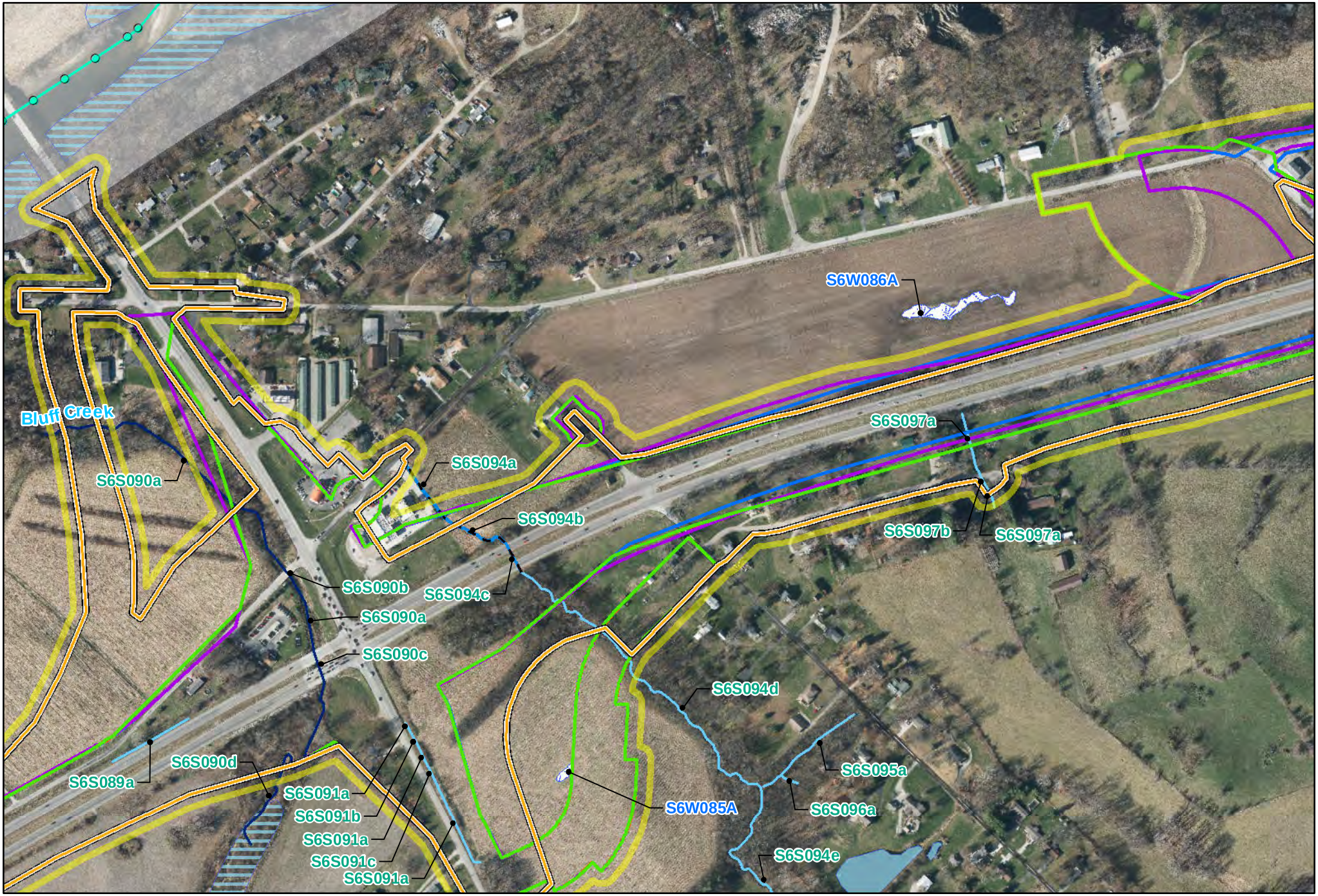

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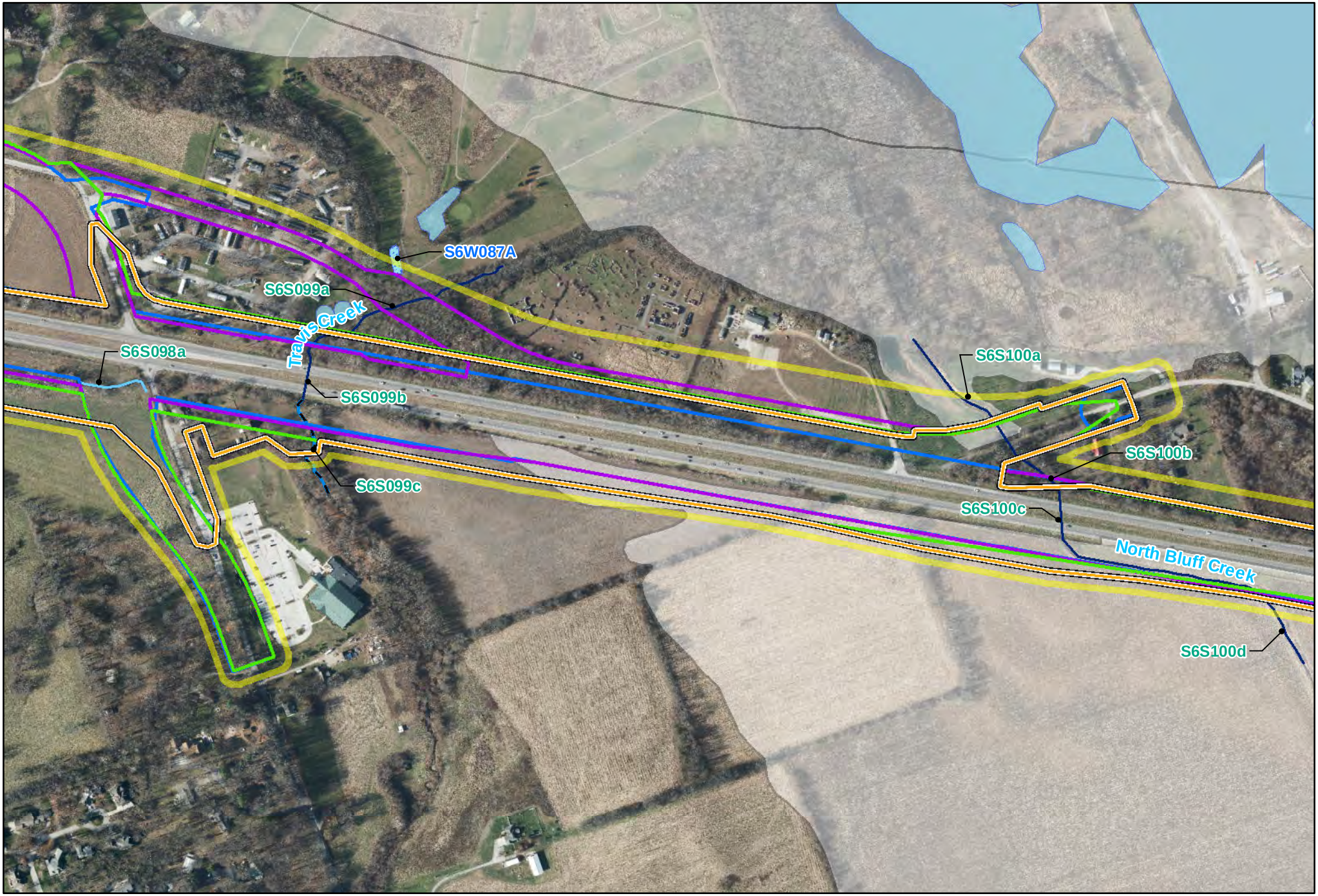

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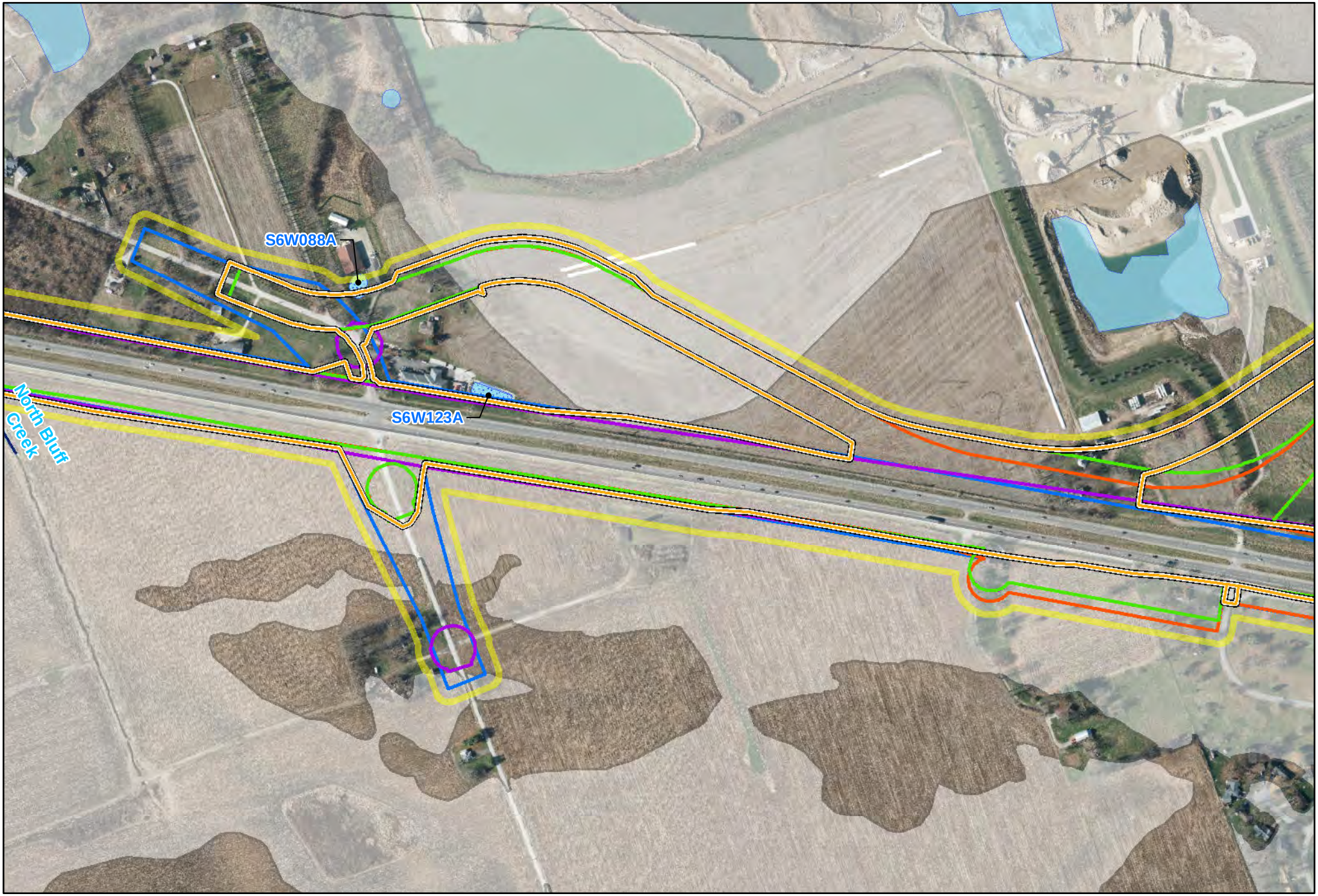

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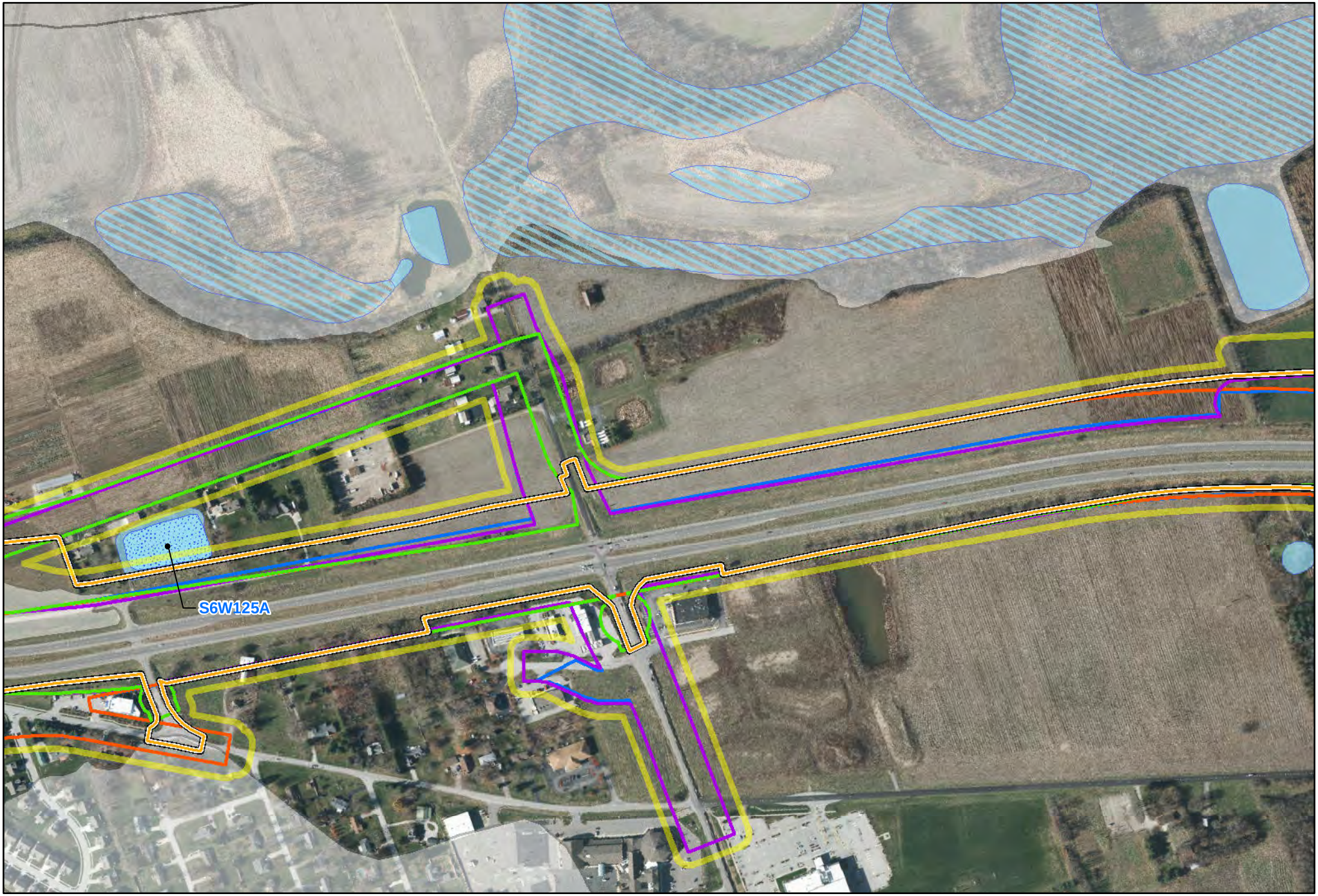

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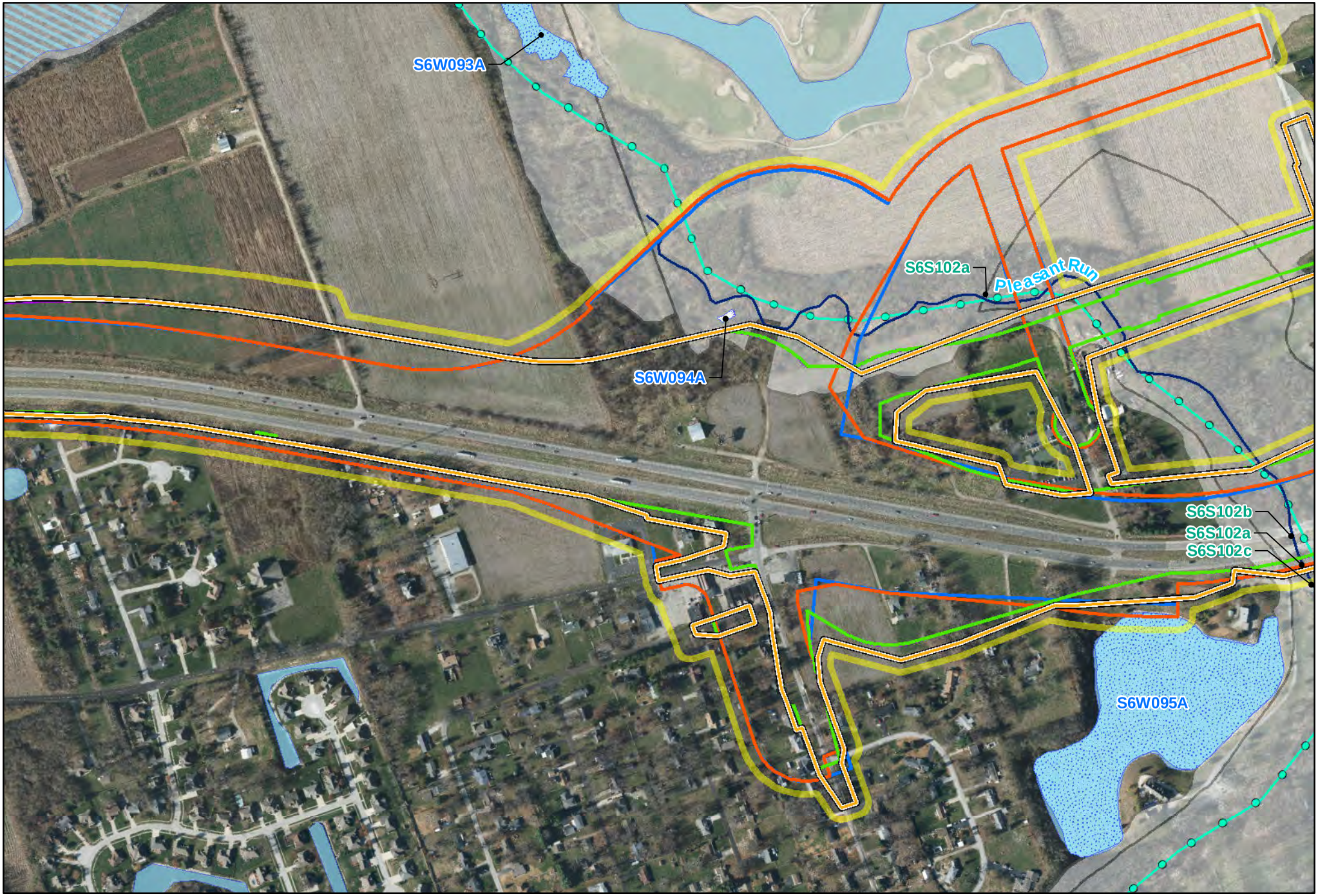

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1 inch = 500 feet

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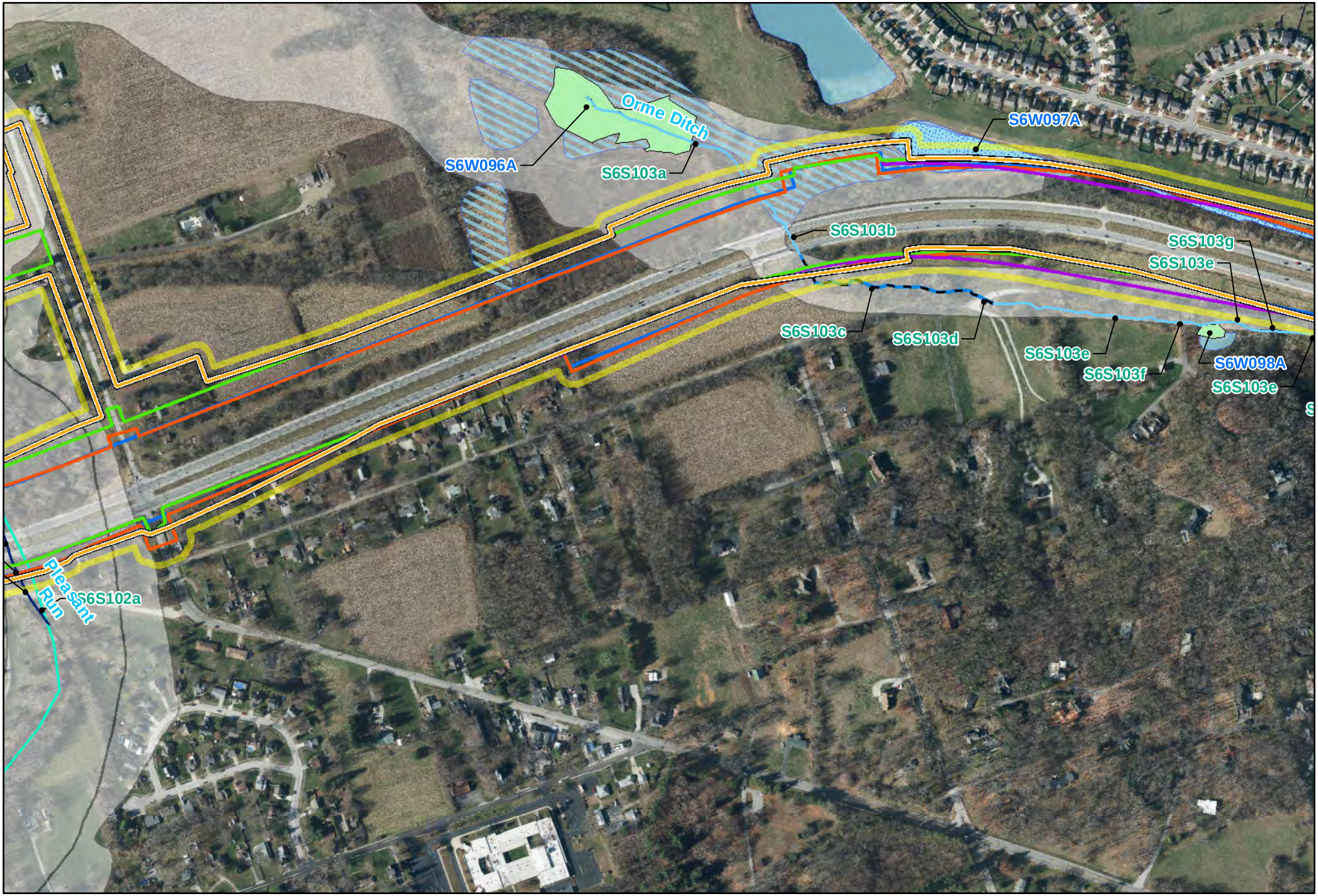
Feet



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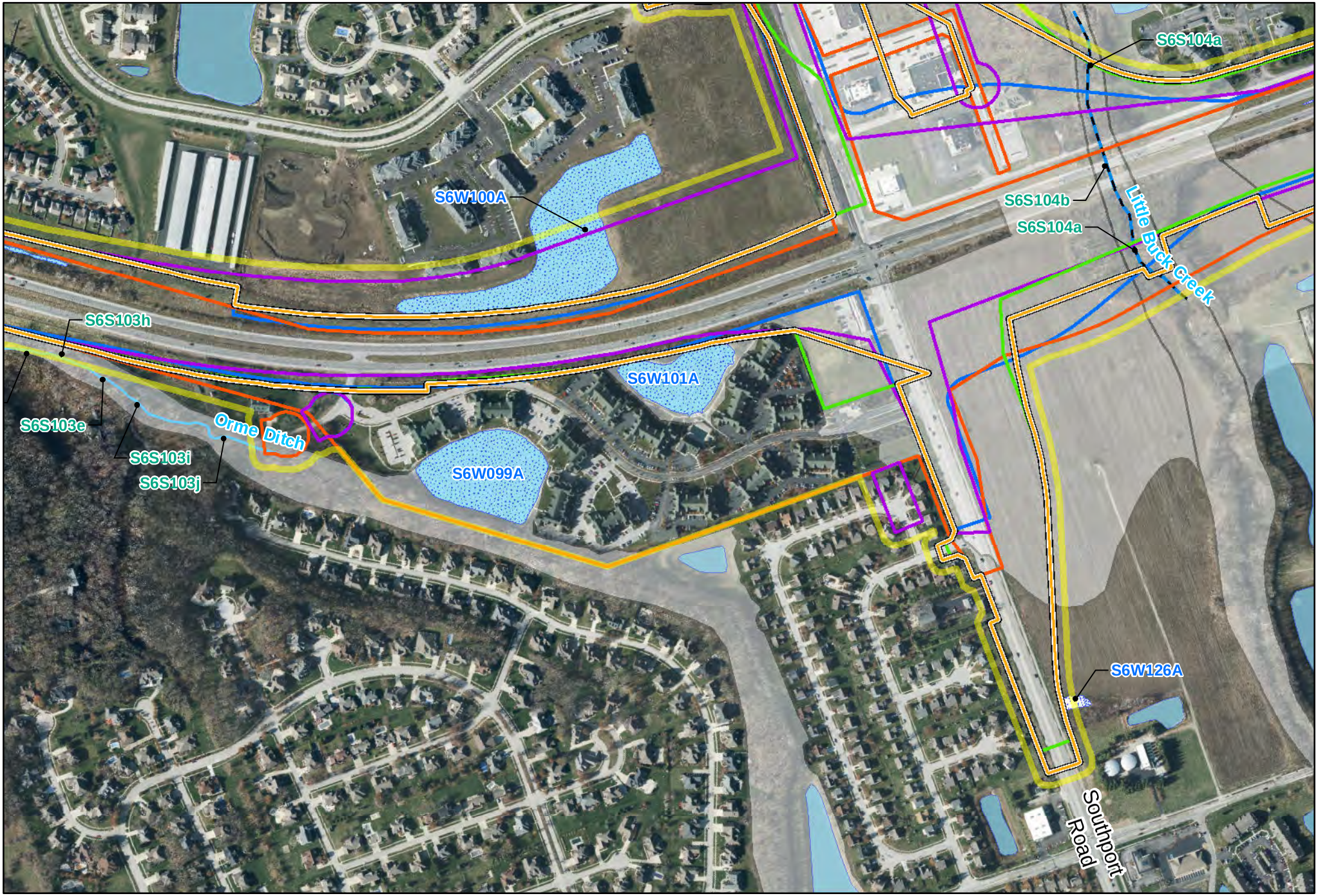

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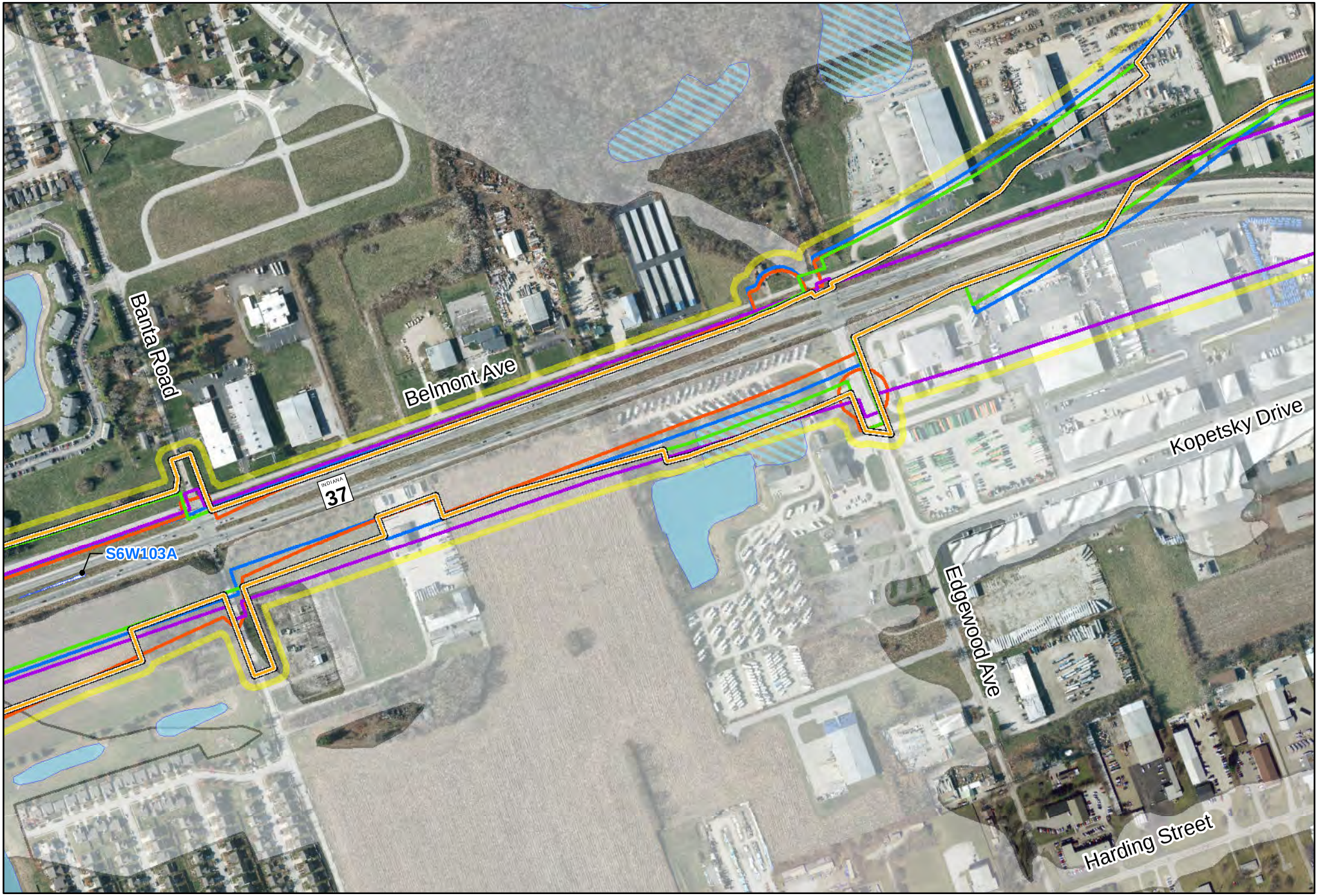

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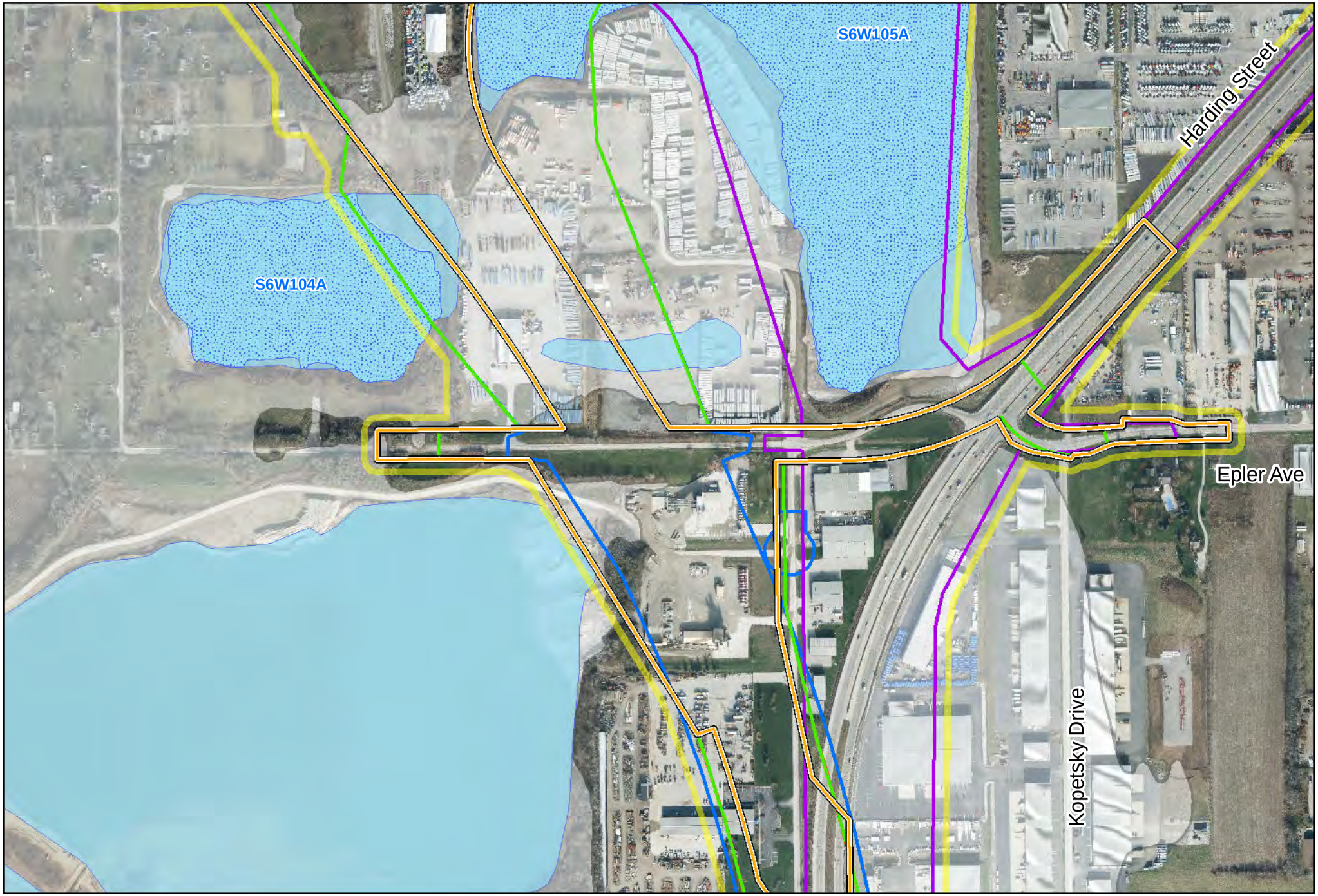

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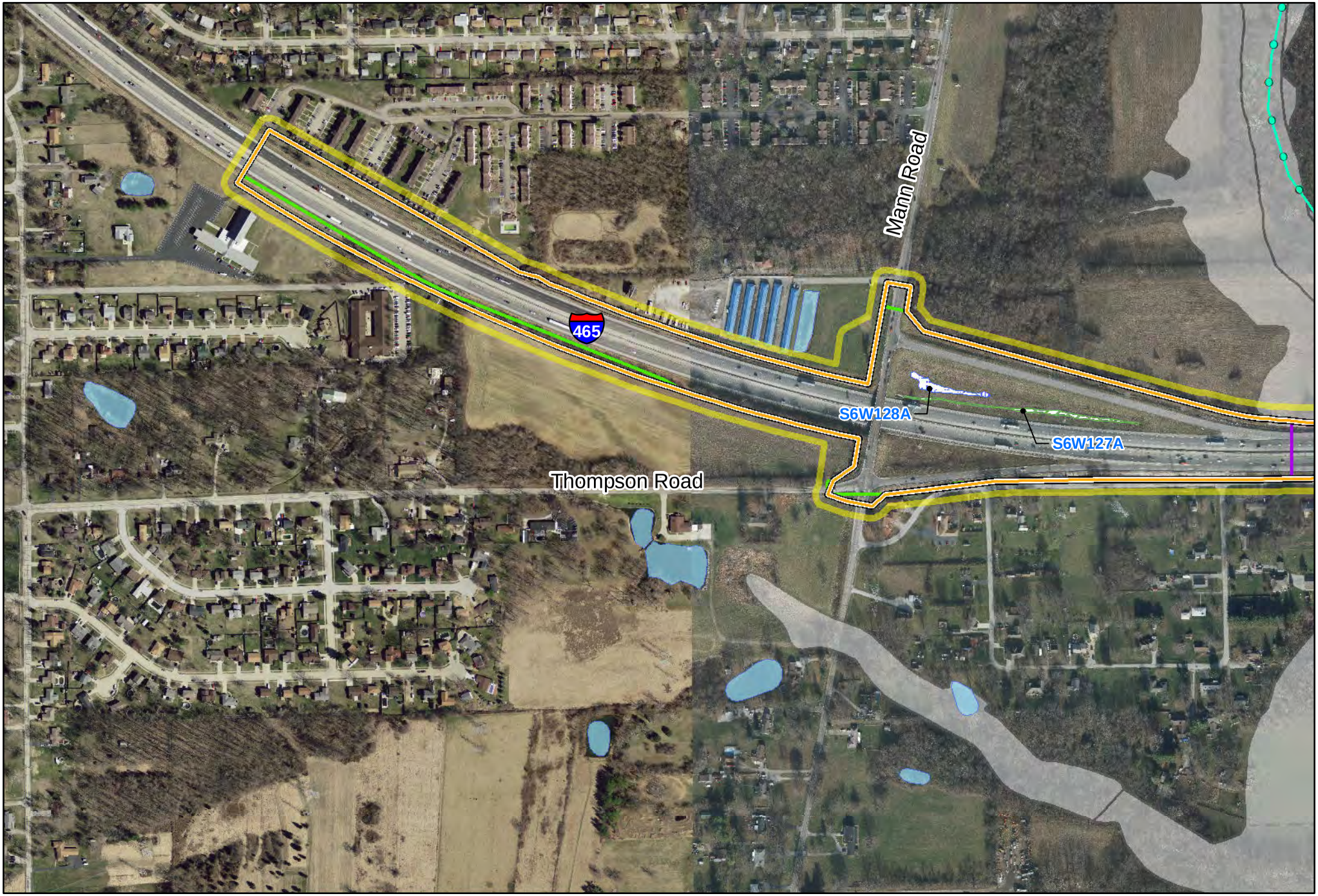

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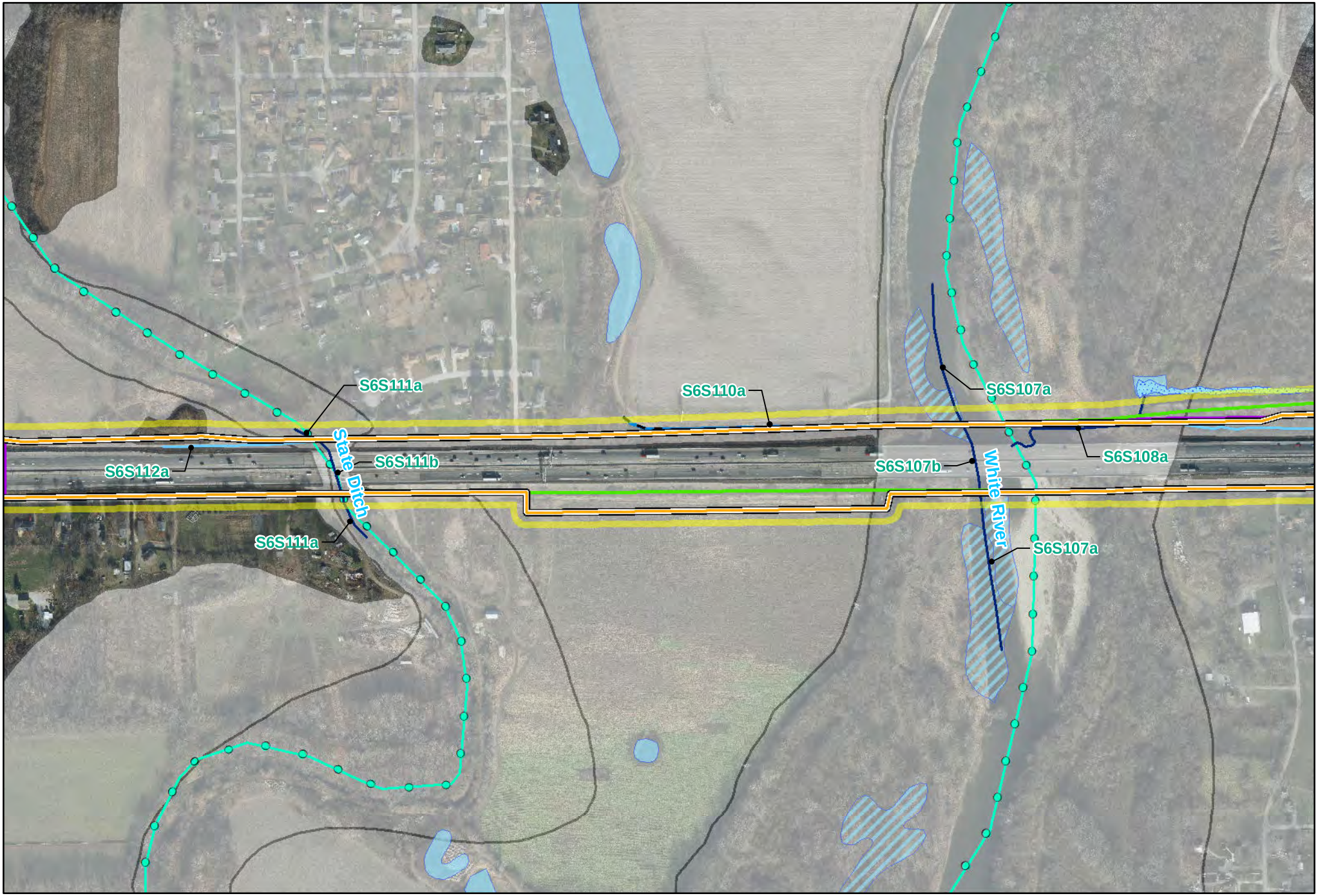

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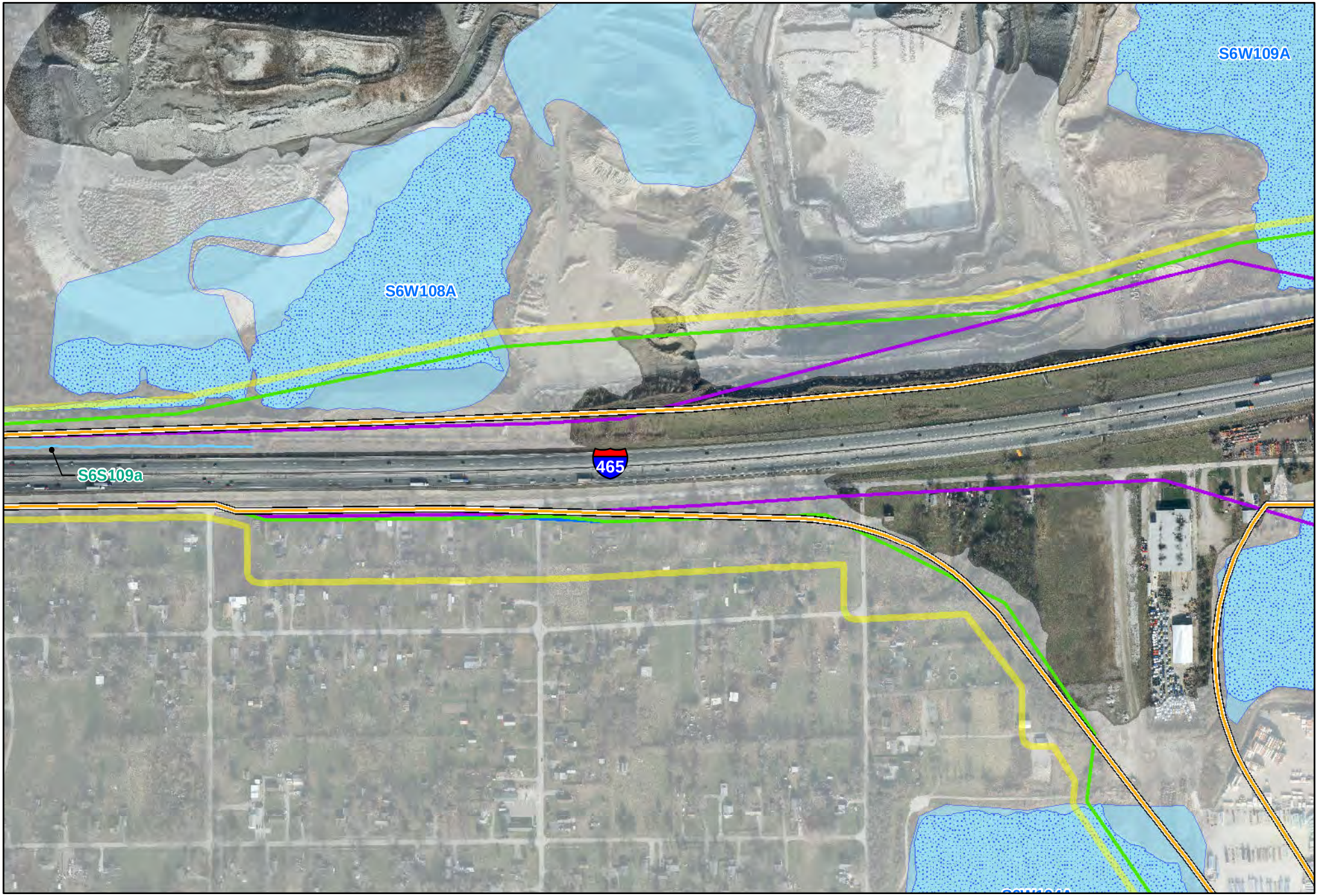

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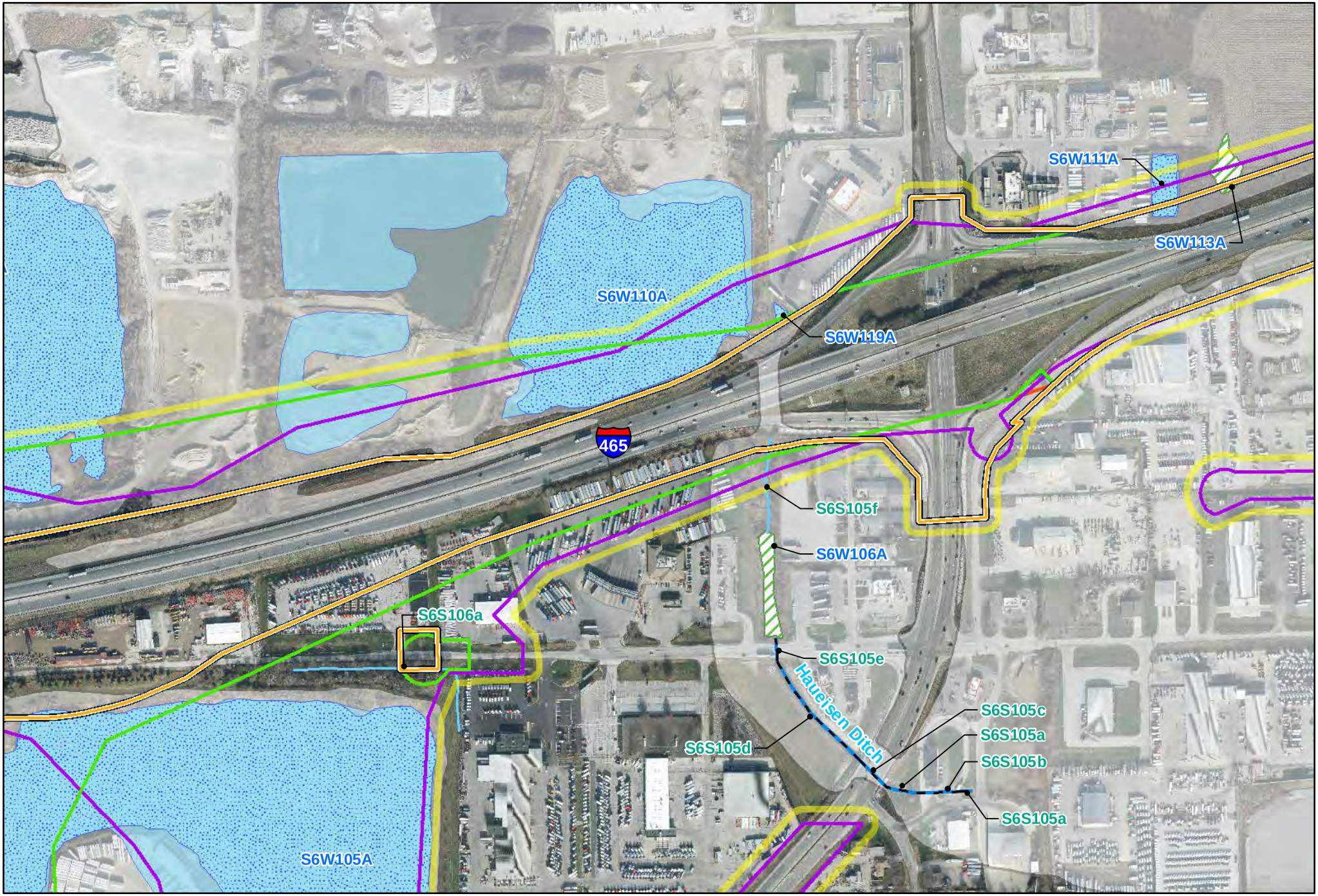

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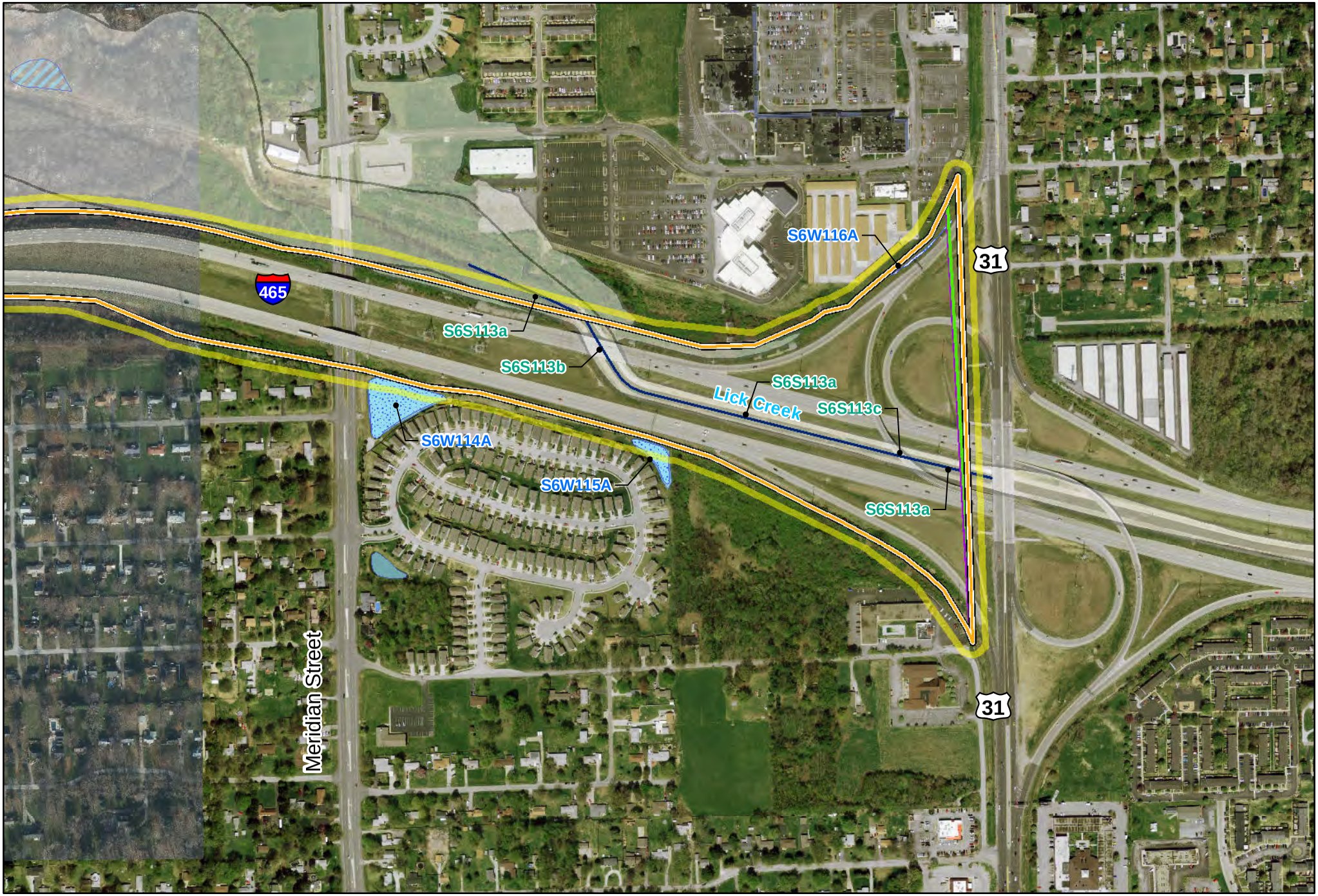

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