



## Conceptual Stream Mitigation Plan

### SCI-823 Portsmouth Bypass (PID 19415) Scioto County, Ohio

**June 2014**

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## Introduction

The Ohio Department of Transportation's (ODOT) Portsmouth Bypass Project (SCI-823, PID 19415, the "Project") involves the construction of 16 miles of new, four-lane, divided, limited-access highway in Scioto County, Ohio. This facility will connect U.S. 52 near Wheelersburg, Ohio, to U.S. 23 north of Lucasville, Ohio, bypassing approximately 26 miles of U.S. 52 and U.S. 23 through the City of Portsmouth. The new roadway will include interchanges with U.S. 52, S.R. 140, Shumway Hollow Road, Lucasville-Minford Road, and U.S. 23. The Project will involve the construction of a modified version of the NEPA Preferred Alternative (the Hill Alignment), which will result in permanent and temporary impacts to 67,535 linear feet of streams. Please see Table 1 and Table 2 for a summary of stream impacts resulting from the Project. In accordance with Section 404(b)(1) guidelines, impacts to streams were avoided and minimized to the maximum extent practicable through a variety of means. The public notice for Phases 2 and 3 of the project was issued by U.S. Army Corps of Engineers, Huntington District on April 3, 2014 (LRH 2011-646-OHR).

*Table 1. Project Stream Impacts Summary by Flow Regime*

Flow Regime	Length (linear feet)
Ephemeral	28,493
Intermittent	33,003
Perennial	6,039
<b>Total Impacts</b>	<b>67,535</b>

*Table 2. Project Stream Impacts Summary by Aquatic Life Use Designation*

Aquatic Life Use Designation	Length (linear feet)
Modified Class I	12,760
Class I	15,505
Modified Class II	12,231
Class II	22,962
Class IIIa	1,722
WWH	2,355
<b>Total Impacts</b>	<b>67,535</b>

No stream mitigation banks or in-lieu fee programs are in operation within the 8-digit hydrologic unit code (HUC) watersheds where the project is located (Lower Scioto-05060002 and Little Scioto-Tygarts-05090103). ODOT examined the potential to perform on-site mitigation along the Project length. However, the majority of the streams proposed to be impacted by the Project are being culverted or filled, and relocation is not possible.

Relocation may be possible in limited instances, but not practicable for mitigation purposes as streams within the right-of-way would have limited potential for natural channel design and protection for long-term maintenance is not possible. Also, since Portsmouth Bypass is being designed and constructed with a design-build approach, it is possible that some of these streams will not be impacted to the degree permitted; therefore, on-site restoration may not be possible. This cannot be anticipated.

Therefore, off-site permittee-responsible mitigation is the only practicable option available to provide compensation for stream impacts from the Project. In addition to the proposed mitigation documented herein, a portion of the stream mitigation required for the Project (Phase 1) is being provided through the preservation of 36,029 linear feet of high-quality headwater streams and riparian buffers at the General Electric Test Operations Facility near Peebles, Adams County, Ohio in the Scioto Brush Creek watershed (10-digit HUC 05060002-15).

This document provides a conceptual plan to provide the remaining portion of the compensatory mitigation required for stream impacts resulting from Phases 2 and 3 of the Project. Per the contract with ODOT, Wetlands Resource Center (WRC) is required to provide a minimum of 65,296 linear feet of stream mitigation. This plan demonstrates that the minimum required amount of mitigation will be exceeded through the following means:

- Preservation of 46,619 linear feet of streams, including Frederick Creek, Skull Creek and associated headwater tributaries, on a 601.69-acre property located on Frederick Road in Bloom Township, Scioto County in the Little Scioto-Tygarts watershed;
- Restoration of 13,507 linear feet of Candy Run, a severely degraded, perennial, warmwater habitat (WWH, Ohio Administrative Code 3745-1-09) stream and preservation of 8,344 linear feet of headwater streams located in Valley and Jefferson Townships, Scioto County in the Lower Scioto watershed; and
- Restoration of 10,200 linear feet of the riparian buffer of the Scioto River, a WWH stream (Ohio Administrative Code 3745-1-09), Section 10 water, and traditional navigable water.

These projects are proposed due to their ability to: replace lost stream functions and values; provide an ecological lift to streams in the impacted watershed HUCs; and permanently protect equivalent or better streams. Furthermore, the landowners are all willing and able to utilize their properties as mitigation sites for the Project. Additionally, the proposed mitigation sites are in close proximity to the impacts associated with the Project (within 1.5 to 3.3 miles). The Candy Run and Scioto River sites will be able to significantly reduce sediment and nutrient loading within the Lower Scioto watershed.

All of the sites will provide sustainable compensatory stream mitigation with minimal long-term maintenance and active management needs per 33 CFR 332.7(b). Please see Appendix A for a map showing the location of the Frederick Road, Candy Run, and Scioto River sites in relation to the Project's alignment. Additional details regarding existing conditions, proposed mitigation activities, and long-term management and stewardship details are provided herein.

## Site Selection and Background Information

### Frederick Road Site

A total of 46,619 linear feet of streams will be preserved at the 601.69-acre Frederick Road site located in Bloom Township, Scioto County (Appendix B), approximately 3.3 miles east of the Project. The vast majority of the site lies north of Fredrick Road (555.44 acres) with a smaller portion of the site lying just south of Fredrick Road (46.25 acres). The property is located in the Frederick Creek 12-digit HUC subwatershed (05090103-06-04) within the Lower Scioto-Tygarts watershed. Frederick Creek, a WWH, perennial stream, flows across the site from east to west, receiving drainage from Skull Creek, a WWH, perennial stream (OAC-3415-1-16), which flows through the site from the northeast. Frederick Creek continues flowing to the west, eventually entering the Little Scioto River approximately 1.5 miles west of the Fredrick Road site. The site is located 3.3 miles east of the Project corridor.



**Photograph 1 (4-22-14).** The Frederick Road site contains 46,619 linear feet of high-quality headwater streams, many of which have exposed sandstone bedrock substrate.

Streams on the Frederick Road site were mapped on April 22 and 23, 2014 using GeoXH™ Trimble® GeoExplorer® 6000 series Dual-frequency Global Navigation Satellite System and were assessed using the Qualitative Habitat Evaluation Index (QHEI, Rankin 1987 and Ohio EPA 2006) and Headwater Habitat Evaluation Index (HHEI, Ohio EPA 2012), as developed by Ohio EPA.

The Frederick Road site contains 42,905 linear feet of Class II, Class III, and WWH streams and 3,714 linear feet of Class I stream. Please see Table 2 for a breakdown of stream lengths and classifications on the site, and Appendix B for a map identifying the streams mapped on the property. Many of the headwater streams contain extensive amounts of boulder, cobble, and bedrock substrates which provide valuable potential habitat for aquatic vertebrates and macroinvertebrates.

*Table 3. Frederick Road Site Stream Length Totals*

Stream Classification	Length (linear feet)
Class I	3,714
Class II	27,629
Class III	6,327
WWH	8,949
<b>Total</b>	<b>46,619</b>

Based upon visual observations, the Frederick Road site was estimated to have been logged approximately 30 years ago. Today it contains a plant community assemblage typical of southern Ohio. The floodplain of Frederick Creek and Skull Creek are dominated by *Acer negundo* (box elder), *Platanus occidentalis* (sycamore), *Aesculus flava* (yellow buckeye), *Juglans nigra* (black walnut), and *Betula nigra* (river birch). There is a diverse assemblage of wildflowers in the understory including *Mertensia virginiana* (bluebells), *Erythronium umbilicatum* (adders tongue), *Stylophorum diphyllum* (wood poppy), and *Viola* spp. (violets). The steep slopes contain a plant community dominated by *Quercus rubra* (red oak) and *Q. alba* (white oak) on the south and west facing slopes.



**Photograph 2 (4-22-14).** Skull Creek, a WWH stream, joins Frederick Creek on the Frederick Road site.

North and east facing slopes contain species such as *Acer rubrum* (red maple), *Liriodendron tulipifera* (tulip tree), and *Acer saccharum* (sugar maple) as well as oaks. The north and east facing slopes have a good diversity of spring wildflowers including *Claytonia virginiana* (spring beauty), *Trillium grandiflorum* (large white trillium), *Thalictrum thalictroides* (rue anemone), *Viola* spp. (violets), and *Dentaria diphylla* (toothwort). The dry ridge tops are dominated by *Quercus prinus* (chestnut oak) with a sparse understory of *Smilax* sp. (greenbriar). Some of the ridgetops are capped with large sandstone blocks, a few of which have *Kalmia latifolia* (mountain laurel) growing nearby. The sandstone also contains plants specially adapted to growing on cool, moist rock including *Polypodium virginianum* (polypody fern), and *Epigaea repens* (trailing arbutus).

Today, the Frederick Road site is primarily utilized for private hunting. Unauthorized all-terrain vehicle (ATV) access has led to the degradation of a few of the streams and creeks on the site, resulting in small segments of bank failure, resulting in increased downstream siltation. The preservation of the streams and associated riparian buffers will help ensure that Frederick Creek, Skull Creek and their associated headwater tributaries will no longer be impacted by unauthorized ATV use or logging. Benefits to on-site and downstream water quality will be realized through the prevention of unauthorized ATV use, and the cessation of future clear-cut logging or mining activities that could potentially impact the integrity of the streams on the site.

Preservation of headwater streams on the Frederick Road site meets the requirements of preservation as presented in 33 CFR 332.3(h). Specifically:

- **Important Functions:** The Frederick Road site streams provide important physical (storm water retention and infiltration), chemical (nutrient cycling), and biological (habitat for wildlife, including fish, aquatic vertebrates, and macroinvertebrates) functions for the Little Scioto-Tygarts watershed.

- **Threat of Destruction:** Some of the streams on the Frederick Road site suffer periodic degradation from unauthorized ATV use, while the entire site is under the threat of adverse modification from potential future clear-cutting, oil and gas recovery, and possible mining activities. Preservation of the site will protect these aquatic resources from existing and future threats of this nature.
- **Permanent Protection:** The entire Frederick Road site will be protected by a third-party conservation easement and a long term stewardship provider.

## Candy Run Site

A total of 13,507 linear feet of Candy Run will be restored and 8,344 linear feet of associated headwater streams will be preserved at the Candy Run site located east of the Scioto River and south of Cook Road in Valley and Jefferson Townships, Scioto County. The site is located on a portion of a 1,220-acre property located in the Bear Creek-Scioto River 12-digit HUC subwatershed (05060002-16-13) within the Lower Scioto watershed. The property is owned by the State of Ohio, Department of Rehabilitation and Correction (DRC).

Candy Run, a WWH, perennial stream, flows across the property from east to west. The Candy Run site is located 1.3 miles east of the Project corridor. In fact, the Project will impact several headwater streams that are tributaries to Candy Run. The Candy Run site was mapped and assessed on April 16 and May 22, 2014 (using GeoXH™ Trimble® GeoExplorer® 6000 series Dual-frequency Global Navigation Satellite System).

Per 33 CFR 332.2, activities at the Candy Run site meet the definition of restoration as they involve re-establishment of lost aquatic resource area (in-stream habitat, morphology, and floodplains) and the rehabilitation of historic aquatic resource functions of the riparian buffer of the stream through reforestation efforts.

The restoration of Candy Run is comprised of two sections. Candy Run East (9,207 linear feet), located east of U.S. 23, will be restored using the principles of natural channel design, and will involve the re-establishment of appropriate channel structure, morphology, habitat, and adjacent floodplains, and the rehabilitation of the riparian buffer. Candy Run West (4,300 linear feet), located west of U.S. 23, will be restored via rehabilitation by performing targeted invasive vegetation control and revegetation of the riparian buffer.

### Candy Run East

The Candy Run East site was historically utilized for cattle grazing. According to DRC staff, the site has contained as many as 800 head of beef cattle at a time. The cattle raised onsite were processed and utilized as food for inmates of the DRC. In addition to non-point source water quality issues related to the livestock operation (fecal coliform bacteria, nutrient runoff), the cattle had unrestricted access to the stream, resulting in active lateral erosion and bank failure (Photograph 3).



**Photograph 3 (4-16-14).** Candy Run East, a WWH stream, has been heavily impacted by cattle.

The Candy Run East floodplain has been previously open pastured, that is, allowed free access by cattle to the bed and banks. This, along with flood events has developed a head cut or the downcutting of the channel invert and associated abandonment of the floodplain area. The segment proposed for restoration is now in the third stage of evolution, which involves active lateral erosion and widening to rebuild a new floodplain at the lower elevation.

Active erosion has created large volumes of sediment and silt to embed the substrate in the lower third of the project creating glide conditions with little habitat heterogeneity. Nearly the entire riparian corridor of the stream is devoid of trees and shrubs (Photograph 4). Candy Run received a QHEI score of 53 (Appendix D) within the project restoration area, indicative of fair habitat quality, with major impairments caused by the aforementioned bank erosion, and limited riparian buffer. A total of 9,207 linear feet of Candy Run is suitable for restoration and protection on the Candy Run East site.



**Photograph 4 (4-16-14).** Candy Run East impairments include sedimentation, fecal coliform bacteria, and habitat modification. Work on the Candy Run East site will restore a natural channel and riparian corridor to this degraded stream.

Restoration activities on the Candy Run East site will follow the principles of natural channel design, and will involve the re-establishment of appropriate channel structure, morphology, habitat, and adjacent floodplains, and the rehabilitation of the riparian buffer of Candy Run. The restoration concept for Candy Run East would involve both the raising of the channel invert (priority 1) in the lower two-thirds of the project area and a lowering of the floodplain (priority 2) in the upper one-third of the project to restore the width/depth ratio and reconnect the bankfull flow to the floodplain. This will stabilize the channel profile and meander pattern allowing for stable habitat features such as riffles, pools and coarse substrate to develop. The substrate and riffle/pool complex is critical for pollutant assimilation. Other in-stream habitat features will be included such as boulders, large woody debris and root wads. Woody debris and root wads will be made from available onsite materials. Finally, cattle fence exclusion and crossings would be installed that would protect the channel and banks from future degradation while allowing the DRC to continue livestock operations.

Water quality within Candy Run East will be substantially improved by the restoration work, as sedimentation resulting from bank failure and erosion will be addressed and livestock access will be restricted. This mitigation project will create a stable channel form within a vegetated active floodplain. Addition of coarse sand, gravel and cobble substrates and the creation of defined riffle-pool features should increase the biological diversity. In-stream habitat will be further improved with deeper pools, woody debris and a reconnection to existing stream bank vegetation that provides overhanging cover and root wad habitat.



Using the final design plan along with project goals, estimates of potential QHEI metrics will be made to develop feasible performance criteria for this restoration project over a 5-year monitoring period. It is expected that the proposed design will provide the necessary habitat to meet WWH use attainment.

### *Candy Run West*

After flowing beneath U.S. 23, Candy Run West continues an additional 4,300 linear feet to the southwest, eventually joining the Scioto River at river mile 11.95. This portion of the stream has a somewhat intact riparian buffer, and has not suffered the same level of physical degradation from unrestricted livestock access experienced by the east side. The riparian buffer at the Candy Run West site will be permanently protected and targeted invasive vegetation will be controlled. Additionally, existing cropland within the buffer will have native trees, shrubs, and seed mixes installed.

The restoration of this 4,300-foot reach of Candy Run West will also benefit from the restoration efforts conducted on the 9,207-foot reach of Candy Run East as the restoration project east of U.S. 23 will substantially reduce sediment and nutrient loads by stabilizing Candy Run and by excluding cattle from the stream with fencing and establishment of a permanent riparian buffer. Candy Run West will further benefit from permanent protection and buffer rehabilitation.

### *Scioto River Site*

The Scioto River forms the western boundary of much of the Ohio DRC property. The property is located in the Bear Creek-Scioto River 12-digit HUC subwatershed (05060002-16-13) within the Lower Scioto watershed. The existing riparian buffer along a substantive portion of the Scioto River mainstem is relatively narrow (varying from approximately 50-150 feet in width), providing only limited protection from runoff and non-point source pollution originating from adjacent agricultural fields located within the river's floodplain. A portion of the buffer in the center of the site is much wider (approximately 600 feet). However, based upon an evaluation of recent aerial photographs, it appears that this portion of the riparian buffer was logged between 2006 and 2009, degrading its quality and function. Restoration via rehabilitation of the riparian buffer, including reforestation efforts and permanent protection, will be completed as part of the stream mitigation efforts for the Project.

Restoration will involve extensive reforestation efforts throughout the Scioto River riparian buffer on the site. This work will improve water quality of the Scioto River by enhancing the ability of the riparian corridor to intercept sediments, nutrients, and pesticides contained within runoff originating from adjacent agricultural fields. The work proposed on the Scioto River site meets the definition of rehabilitation as presented in 33 CFR 332.2; the biological (woody cover) and physical characteristics (width) of the riparian buffer of the Scioto River will be manipulated in order restore historic functions to this aquatic resource that were lost with the establishment of agriculture to the east. Although one-sided, this mitigation project, due to the proposed generous buffer width, will provide tangible benefits to the Scioto River due to the extensive length of the riparian corridor that will be rehabilitated and permanently protected.

The Scioto River has historically supported a number of federal or state listed threatened or endangered species of freshwater mussels, including the federally endangered fanshell (*Cyprogenia stegaria*), the endangered pink mucket (*Lampsilis abrupta*), the endangered sheepsnose (*Plethobasus cyphus*), and the endangered snuffbox (*Epioblasma triquetra*). The proposed riparian buffer rehabilitation will help to improve water quality issues (siltation) in the Scioto River that could preclude the successful reestablishment of these species. Improving the riparian corridor of the Scioto River will also provide a myriad of other ecological benefits, including improved stormwater infiltration rates and providing habitat for wildlife, including threatened, endangered, or proposed endangered species such as the Indiana bat (*Myotis sodalis*), northern-long eared bat (*Myotis septentrionalis*), or bald eagle (*Haliaeetus leucocephalus*). These species may utilize the Scioto River and its riparian buffer for roosting, foraging habitat, or as a travel corridor.

## **Mitigation Work Plans and Long Term Management**

### **Frederick Road Site**

The Frederick Road site will be acquired fee simple and timber, oil and gas, and mineral rights will be secured. Additionally, the streams and associated riparian buffer on the Frederick Road site will be protected in perpetuity by a third-party conservation easement to be held by an entity meeting the requirements of Ohio Revised Code 5301.69. Signs will be posted along the easement boundaries identifying the streams and buffer as protected conservation areas. Annual monitoring of the easement area on the Frederick Road site will be conducted by the easement holder, and will include documentation of unauthorized activities occurring within the preservation area that negatively impacts the protected site. Included within the terms of the conservation easement will be methods by which unauthorized activities will be remedied by Wetlands Resource Center. Please see Appendix F for draft conservation easement text.

### **Candy Run Site**

The Candy Run site is located on property owned by Ohio DRC, where it operates the Southern Ohio Correctional Facility. WRC will establish a long-term management agreement with Ohio DRC for the Candy Run site. Per 33 CFR 332.7(a), the long-term management plan for the Candy Run site will, to the extent appropriate and practicable, prohibit incompatible uses that might otherwise jeopardize the objectives of the mitigation project. The project site will require little to no active management once the installed woody plants and seed becomes established within the mitigation area.

### **Candy Run East**

Restoration activities on the Candy Run East site will follow the principles of natural channel design. Watershed appropriate channel and floodplain parameters such as bankfull dimensions, sinuosity, channel pattern, width/depth ratios, riffle-pool sequence, in-stream and near-stream habitat features, and expected biological indicators will be developed from statewide reference reaches. A map of the Candy Run East site is provided in Appendix C.

These parameters will be analyzed and adjusted with the use of a horizontal and vertical field survey of the project site. Bankfull discharge and dimension estimates will be calculated using established U.S. Geological Service equations. These estimates will be calibrated with Ohio Department of Natural Resources regional curve data and existing hydraulic studies where available or developed.

The restoration concept for Candy Run East includes both priority 1 and priority 2 restoration along the entire 9,207-foot length on the project site. The primary restoration activities will include: raising the channel invert (priority 1) in the lower two-thirds of the project area; and lowering of the floodplain (priority 2) in the upper one-third of the project area.

These restoration activities will restore the width/depth ratio and reconnect the bankfull flow to the floodplain, thereby stabilizing the channel profile and meander pattern. The addition of bank run substrate materials throughout the restored channel will allow for the development of stable habitat features, such as riffles, pools, and coarse substrate. These features are critical for effective pollutant assimilation and provide important habitat for fish and aquatic macroinvertebrates. Other in-stream habitat structures, including boulders, large woody debris, and root wads will also be installed in the channel. Woody debris and roots wads will be harvested from available on-site materials, as appropriate.

In addition to in-stream restoration work, the riparian buffer of Candy Run East will also be restored. Cattle exclusion fencing and limited livestock crossings will be installed at the mitigation site. These features will protect the channel and banks of Candy Run from future degradation while allowing the Ohio DRC's livestock operation to continue. Additionally, the riparian buffer will be revegetated through extensive plantings of native trees, shrubs, and seed mixes. Please see Appendix G for lists of species proposed for planting and seeding. The proposed stream and floodplain re-establishment and riparian buffer rehabilitation activities will create a stable channel-floodplain relationship and will improve in-stream habitat, ensuring Candy Run meets its WWH aquatic life use designation.

### *Candy Run West*

The riparian buffer at the Candy Run West site will be permanently protected and targeted invasive vegetation will be controlled. Additionally, existing cropland within the buffer will have native trees, shrubs, and seed mixes installed. Please see Appendix E for a map depicting the site and Appendix G for proposed species lists.

### *Scioto River Site*

A riparian buffer containing approximately 100 acres, with an average width of nearly 500 feet, will be restored via rehabilitation along approximately 10,200 linear feet of the Scioto River. Riparian corridor rehabilitation efforts at the Scioto River site will include installation of native trees, shrubs, and seed mixes within the buffer area. Please see Appendix G for proposed species lists for planting and seeding. The map in Appendix E shows the approximate location of the riparian area to be protected along the Scioto River. Additionally, non-native invasive species within the riparian buffer will be removed through physical or chemical removal.

The Scioto River site is located on property owned by Ohio DRC. Similar to Candy Run, WRC will establish a long-term management agreement with Ohio DRC for the Scioto River site. Per 33 CFR 332.7(a), the long-term management plan for the Scioto River site will, to the extent appropriate and practicable, prohibit incompatible uses that might otherwise jeopardize the objectives of the mitigation project. The buffer rehabilitation work along on the Scioto River site will require little to no active management once the trees, shrubs, and seed installed in the rehabilitation area have become established and the targeted non-native invasive species have been controlled.

## Conclusions

The preservation at the Frederick Road and Candy Run sites combined with the restoration at the Candy Run and Scioto River sites are proposed to provide the necessary stream mitigation to satisfy Section 404 and 401 requirements as a result of the proposed stream impacts on Phases 2 and 3 of Portsmouth Bypass. The mitigation projects proposed herein will provide a total of 67,704 linear feet of preservation of high-quality Class II, III and WWH headwater streams, which includes approximately 23,707 linear feet of restoration. Additionally, approximately 10,966 linear feet of Class I primary headwater streams will also be preserved on the Frederick Road and Candy Run sites, thereby further protecting water quality and improving the value of these mitigation projects. The proposed mitigation sites are located within the same 8-digit HUC watersheds traversed by the Project, and are all less than 3.3 miles from the project corridor. Please See Table 4 for a summary of the Frederick Road, Candy Run, and Scioto River mitigation sites.

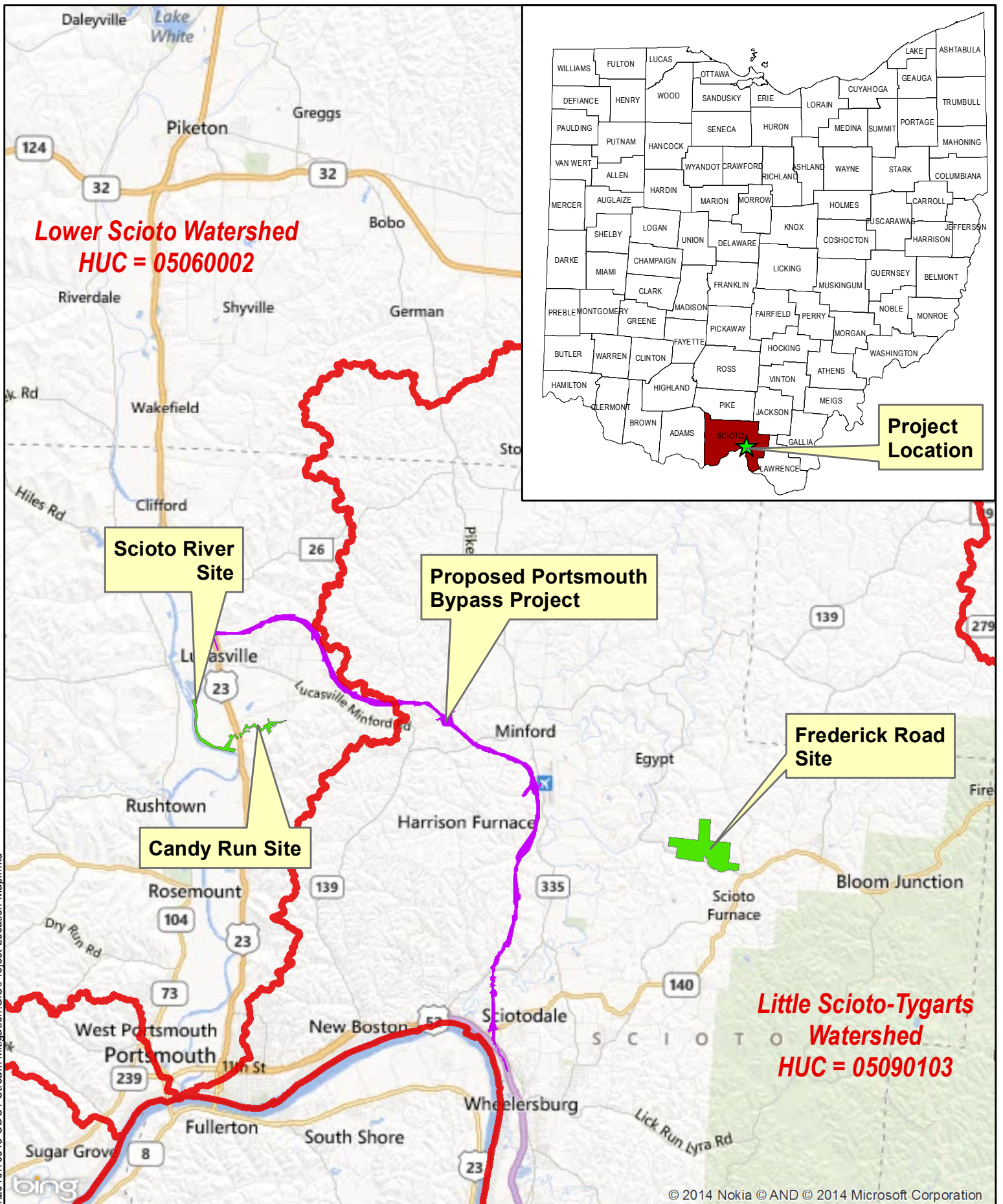
*Table 4. Mitigation Summary*

Mitigation Site	Location	Mitigation Method	Resources	Mitigation Length
Frederick Road	38.81848 -82.77663	preservation	Class I headwater streams	3,714
			Class II, III headwater streams	33,956
			WWH streams	8,949
Candy Run	38.85980 -82.97578	restoration	WWH stream	13,507 <sup>1</sup>
		preservation	Class I headwater streams	7,252 <sup>1</sup>
			Class II, III headwater streams	1,092 <sup>1</sup>
Scioto River	38.86432 -83.00708	restoration	WWH/Section 10/TNW	10,200
<b>Total</b>				<b>78,670</b>

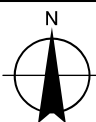
<sup>1</sup> This length is an estimate, and may change after detailed mitigation design has been completed.

The vast majority of stream impacts resulting from the Project (see Table 1 and Appendix H for proposed stream impact details) are to ephemeral (28,493 feet) or intermittent headwater streams (33,003 feet). Although cumulatively these streams provide important water quality and habitat functions and values, individually their loss results in minimal adverse impacts to the aquatic environment. Post construction BMPs along the Project will also provide compensation for Class I stream functions and values lost.

The restoration work proposed on the Candy Run East site will substantially improve the water quality of a severely degraded, perennial stream. In addition to ensuring that the Candy Run East meets its aquatic life use designation (WWH), the restoration work will provide improved habitat for aquatic organisms, improved storm water routing capabilities due to reconnection of floodplain area, improved peak flow attenuation, and will remove large amounts of sediment and other pollutants from Candy Run and the Scioto River. The aquatic resources restoration and preservation completed under these proposed projects will provide an important ecological lift for streams in very close proximity to the Project's impacts.



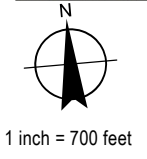
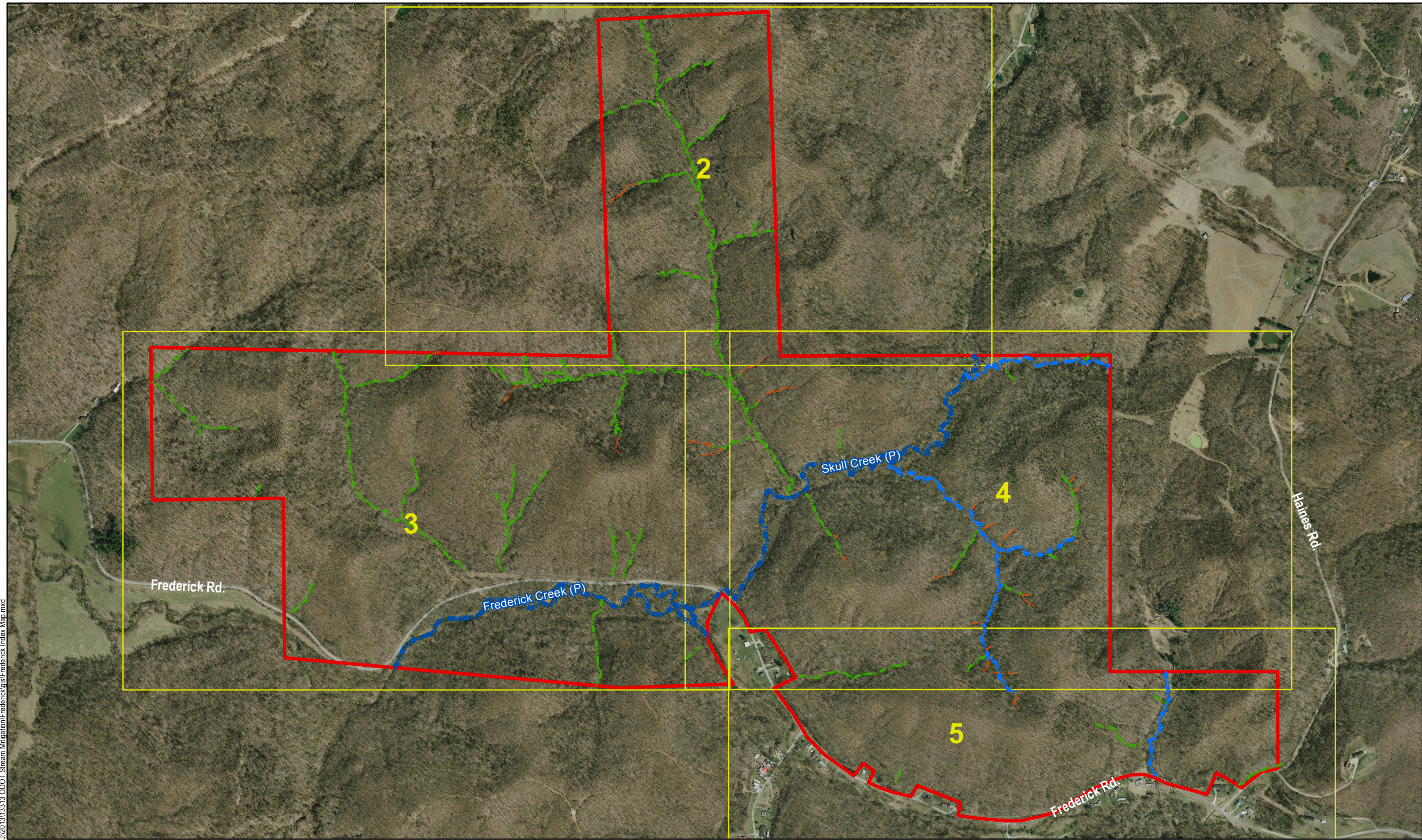
# APPENDIX A PROJECT LOCATION MAP



1 in = 3 miles

***Appendix B***  
***Frederick Road Site Map and Stream Data Table***

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**Legend**

- Class I (orange dashed line)
- Class II (green dashed line)
- Class III (blue dashed line)
- Warm Water Habitat (blue solid line)
- Property (red outline)
- Detail Sheet (yellow outline)

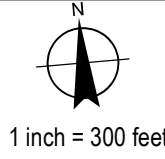
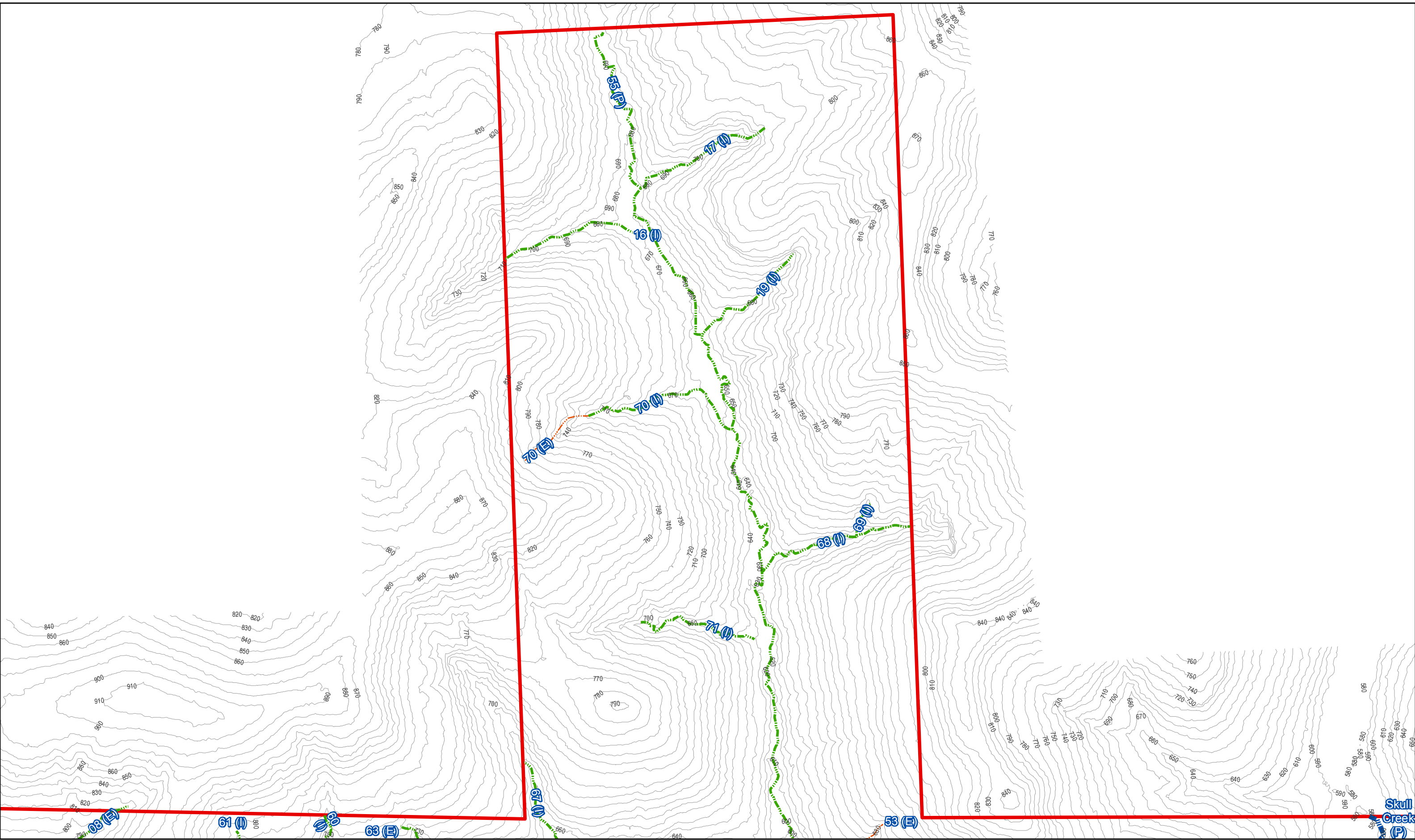
**Stream Naming Convention:**

- Stream Name: 12(E)
- Flow Regime
  - I=Intermittent
  - E=Ephemeral
  - P=Perennial

# FREDERICK ROAD SITE INDEX MAP



J:\2013\1333\13.0DOT Stream Mitigation\Frederick\is\Frederick Detail Sheets.mxd



**Legend**

- Class I
- Class II
- Class III
- Warm Water Habitat
- Property
- road

**Stream Naming Convention:**

Stream Name **12(E)**

- Flow Regime
- I=Intermittent
- E=Ephemeral
- P=Perennial

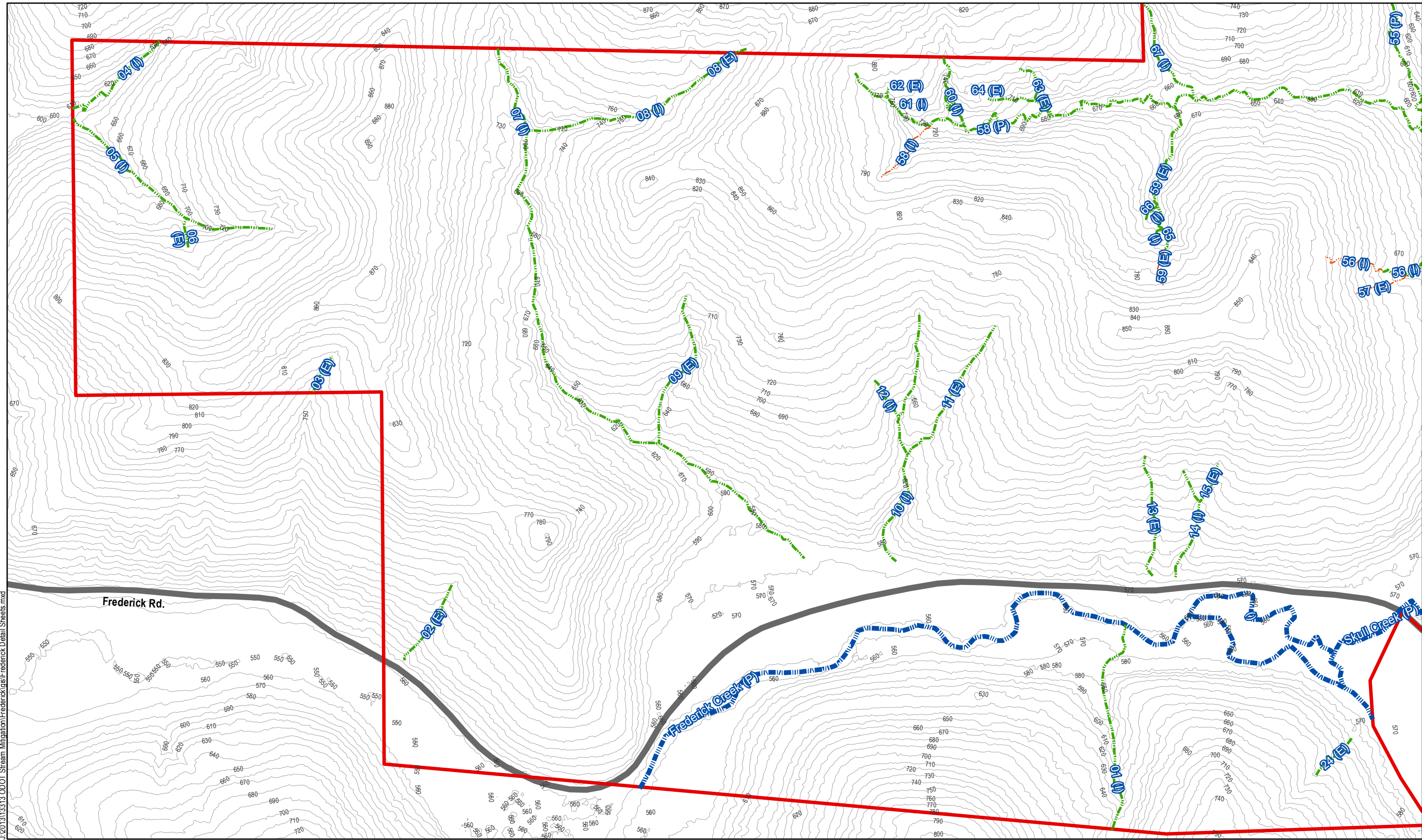
# FREDERICK ROAD SITE

## DETAIL SHEETS

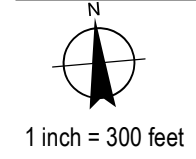
**Jobs Henderson & ASSOCIATES**  
Engineering | Surveying | Environmental

**DAVEY RESOURCE GROUP**  
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J:\2013\13313\_ODOT Stream Mitigation\Frederick\GIS\Frederick Detail Sheets.mxd



**Legend**

- Class I
- Class II
- Class III
- Warm Water Habitat
- Property
- road

**Stream Naming Convention:**

Stream Name **12(E)**

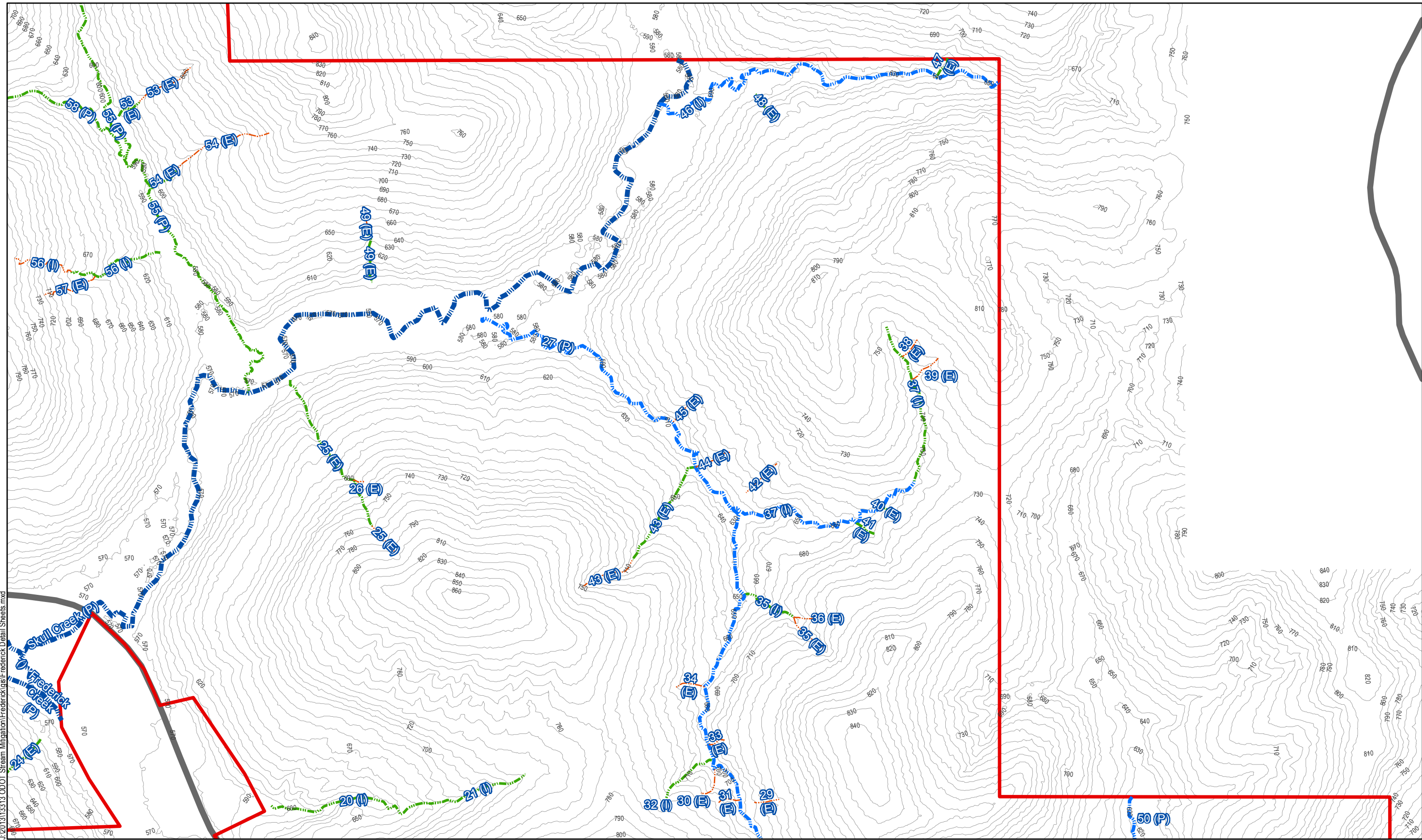
- Flow Regime
- I=Intermittent
- E=Ephemeral
- P=Perennial

# FREDERICK ROAD SITE

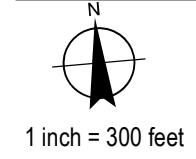
## DETAIL SHEETS

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**Legend**

- Class I
- Class II
- Class III
- Warm Water Habitat
- Property
- road

**Stream Naming Convention:**

Stream Name 12(E)

- I=Intermittent
- E=Ephemeral
- P=Perennial

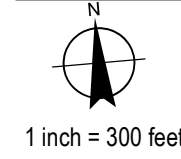
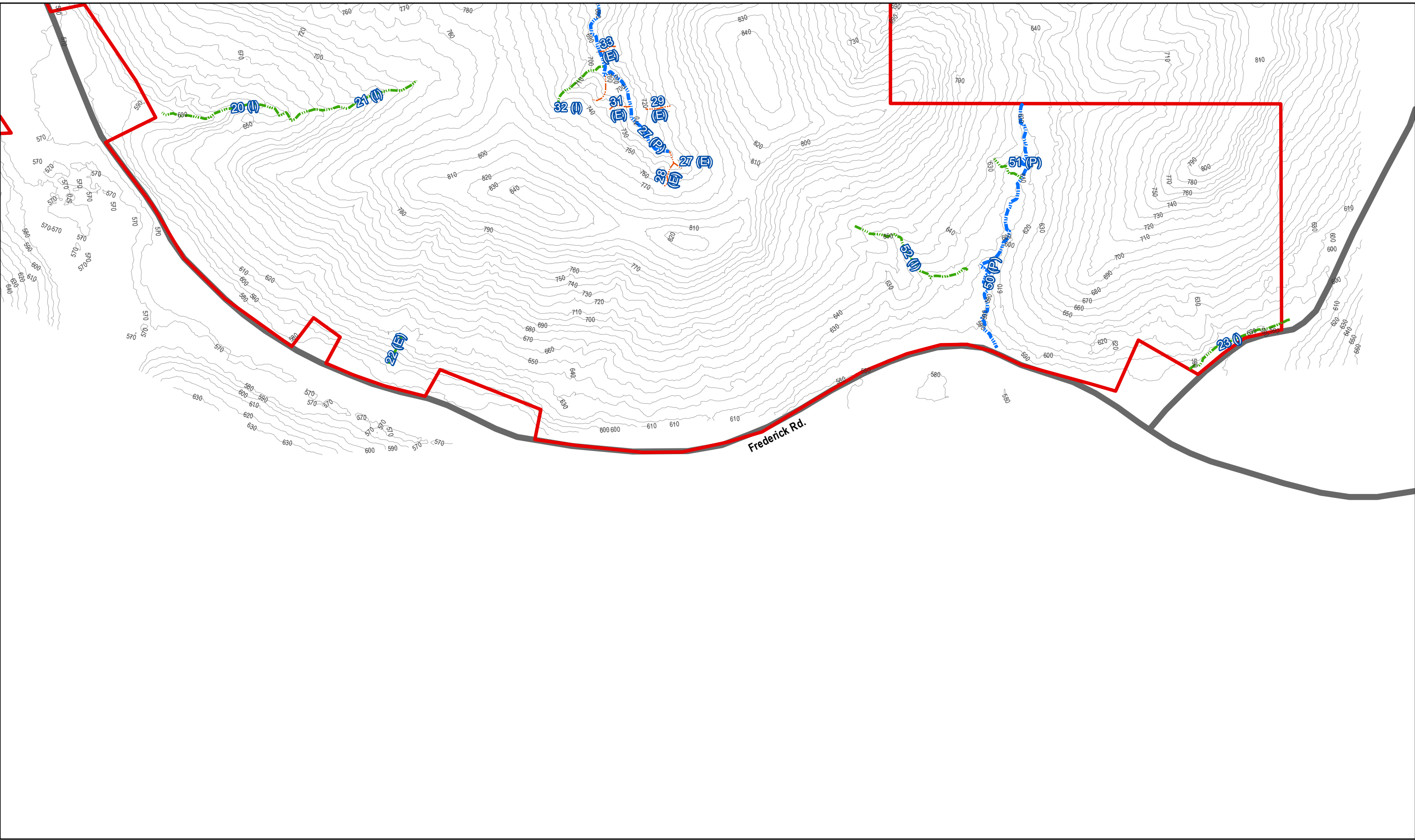
# FREDERICK ROAD SITE

## DETAIL SHEETS

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**DAVEY RESOURCE GROUP**  
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**Legend**

- - - Class I
- - - Class II
- - - Class III
- - - Warm Water Habitat
- Property
- road

**Stream Naming Convention:**

Stream Name 12(E)

Flow Regime  
 I=Intermittent  
 E=Ephemeral  
 P=Perennial

# FREDERICK ROAD SITE

## DETAIL SHEETS

**Jobs Henderson & ASSOCIATES**  
 Engineering | Surveying | Environmental

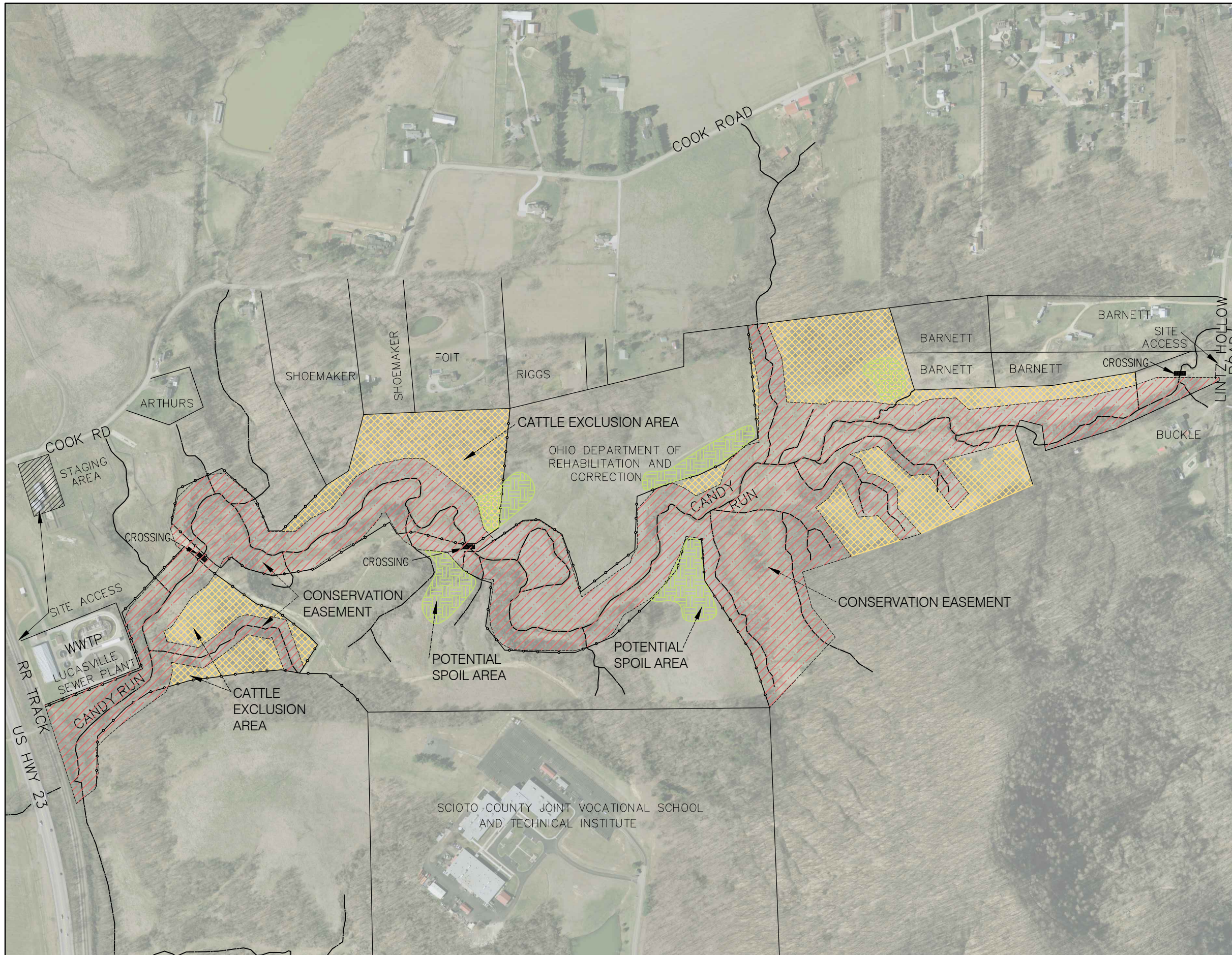
**DAVEY RESOURCE GROUP**  
 A Division of The Davey Tree Expert Company

*Frederick Road Site Stream Data*

Stream I.D.	Flow Regime	Use Designation	Length (linear feet)
Frederick Creek	perennial	WWH	4,350
Skull Creek	perennial	WWH	4,599
1	intermittent	Class II	779
2	ephemeral	Class II	335
3	ephemeral	Class II	140
4	intermittent	Class II	459
5	intermittent	Class II	855
6	ephemeral	Class II	107
7	intermittent	Class II	2,394
8	intermittent	Class II	649
8	ephemeral	Class II	217
9	ephemeral	Class II	580
10	intermittent	Class II	947
11	ephemeral	Class II	571
12	intermittent	Class II	153
13	ephemeral	Class II	449
14	intermittent	Class II	411
15	ephemeral	Class II	154
16	intermittent	Class II	490
17	intermittent	Class II	522
19	intermittent	Class II	456
20	intermittent	Class II	613
21	intermittent	Class II	365
22	ephemeral	Class II	115
23	intermittent	Class II	405
24	ephemeral	Class II	186
25	ephemeral	Class II	626
25	ephemeral	Class I	144
26	ephemeral	Class I	44
27	perennial	Class III	2,883
27	ephemeral	Class I	75
28	ephemeral	Class I	91
29	ephemeral	Class I	92
30	ephemeral	Class I	121
31	ephemeral	Class I	81
32	intermittent	Class II	230
33	ephemeral	Class I	62
34	ephemeral	Class I	105
35	intermittent	Class II	204
35	ephemeral	Class I	166
36	ephemeral	Class I	77
37	intermittent	Class III	848
37	intermittent	Class II	598
38	ephemeral	Class I	85
39	ephemeral	Class I	122

Stream I.D.	Flow Regime	Use Designation	Length (linear feet)
40	ephemeral	Class II	41
41	ephemeral	Class II	75
42	ephemeral	Class I	148
43	ephemeral	Class II	404
43	ephemeral	Class I	208
44	ephemeral	Class I	137
45	ephemeral	Class I	133
46	intermittent	Class III	1557
47	ephemeral	Class II	85
48	ephemeral	Class II	118
49	ephemeral	Class II	180
49	ephemeral	Class I	54
50	perennial	Class III	1039
51	perennial	Class II	133
52	intermittent	Class II	509
53	ephemeral	Class II	96
53	ephemeral	Class I	224
54	ephemeral	Class II	125
54	ephemeral	Class I	366
55	perennial	Class II	5,004
56	intermittent	Class II	377
56	intermittent	Class I	271
57	ephemeral	Class I	217
58	intermittent	Class I	258
58	perennial	Class II	2,314
59	ephemeral	Class II	588
59	ephemeral	Class I	144
60	intermittent	Class II	364
61	intermittent	Class II	346
62	ephemeral	Class II	42
63	ephemeral	Class II	242
64	ephemeral	Class II	172
65	intermittent	Class II	61
66	intermittent	Class II	76
67	intermittent	Class II	415
68	intermittent	Class II	596
69	intermittent	Class II	137
70	ephemeral	Class I	289
70	intermittent	Class II	630
71	intermittent	Class II	489

***Appendix C***  
***Candy Run East Site Maps and Stream Table***



OXBOW RIVER & STREAM RESTORATION, INC.



Water Resource Engineering  
and Restoration

2905 Klondike Road  
Delaware, Ohio 43015  
(740) 362-4134  
www.oxbowriver.com

**PROJECT**

**CANDY RUN STREAM  
RESTORATION CONCEPT**  
HUC #05060002-160

Cook Road  
Lucasville, Ohio

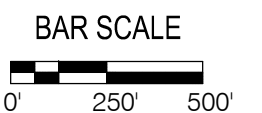
**OHIO DEPARTMENT of  
REHABILITATION and  
CORRECTION**

**LEGEND**

- FENCE ————
- CONSERVATION EASEMENT [Red diagonal hatched box]
- CATTLE EXCLUSION [Yellow cross-hatched box]
- POTENTIAL SPOIL [Green grid hatched box]
- STREAM CENTERLINE - - - - -

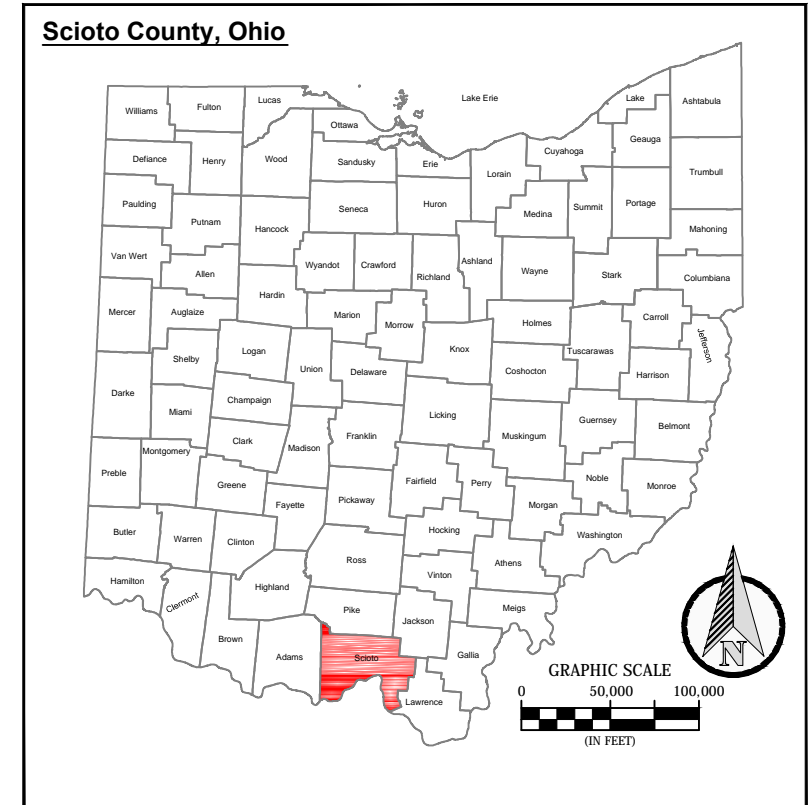
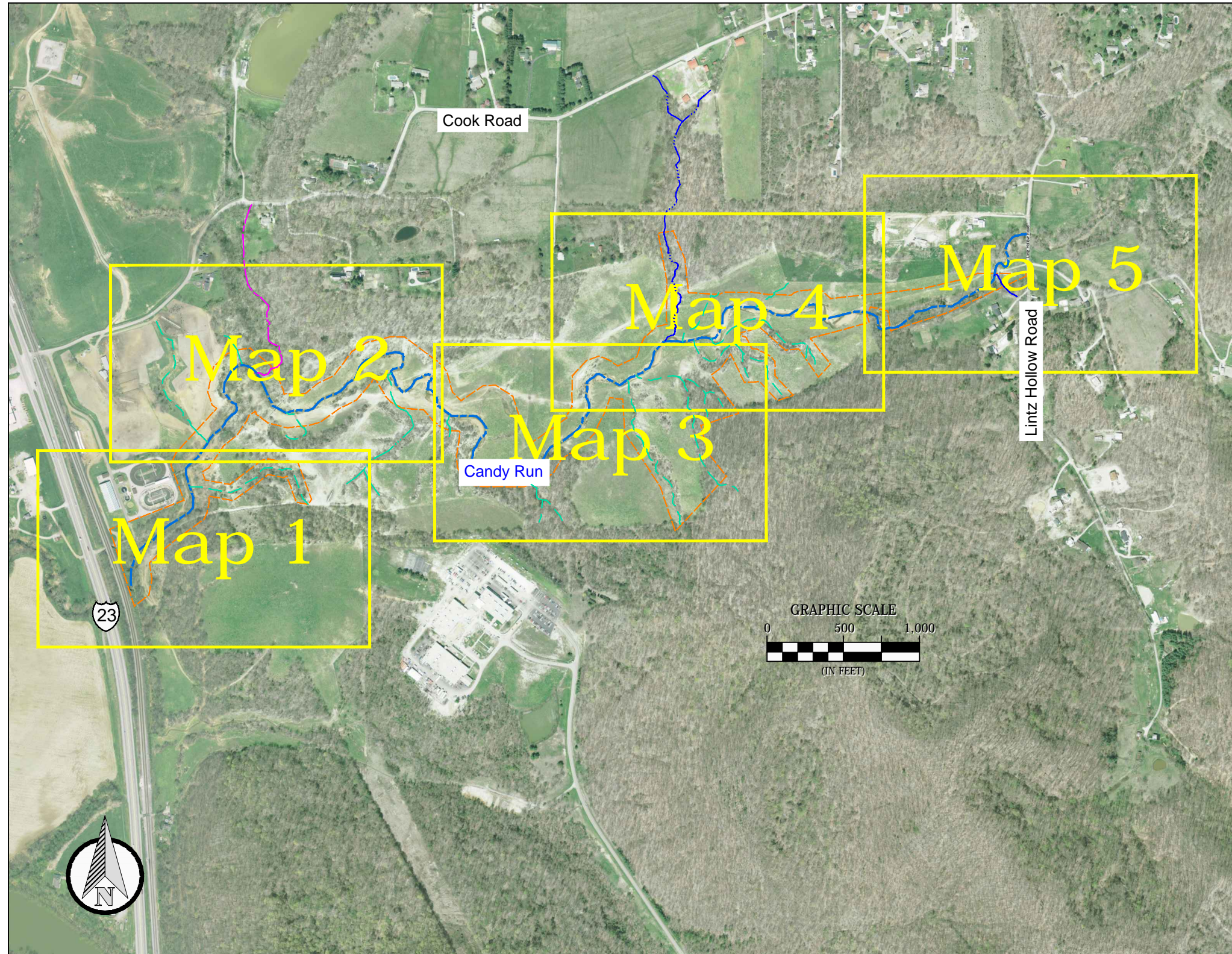
**NOTES**

Parcel lines shown are approximate.  
Proposed Fence locations to be field  
verified.  
Cattle would be excluded from  
Conservation Easement area.  
Cattle waters to be added at multiple  
locations.



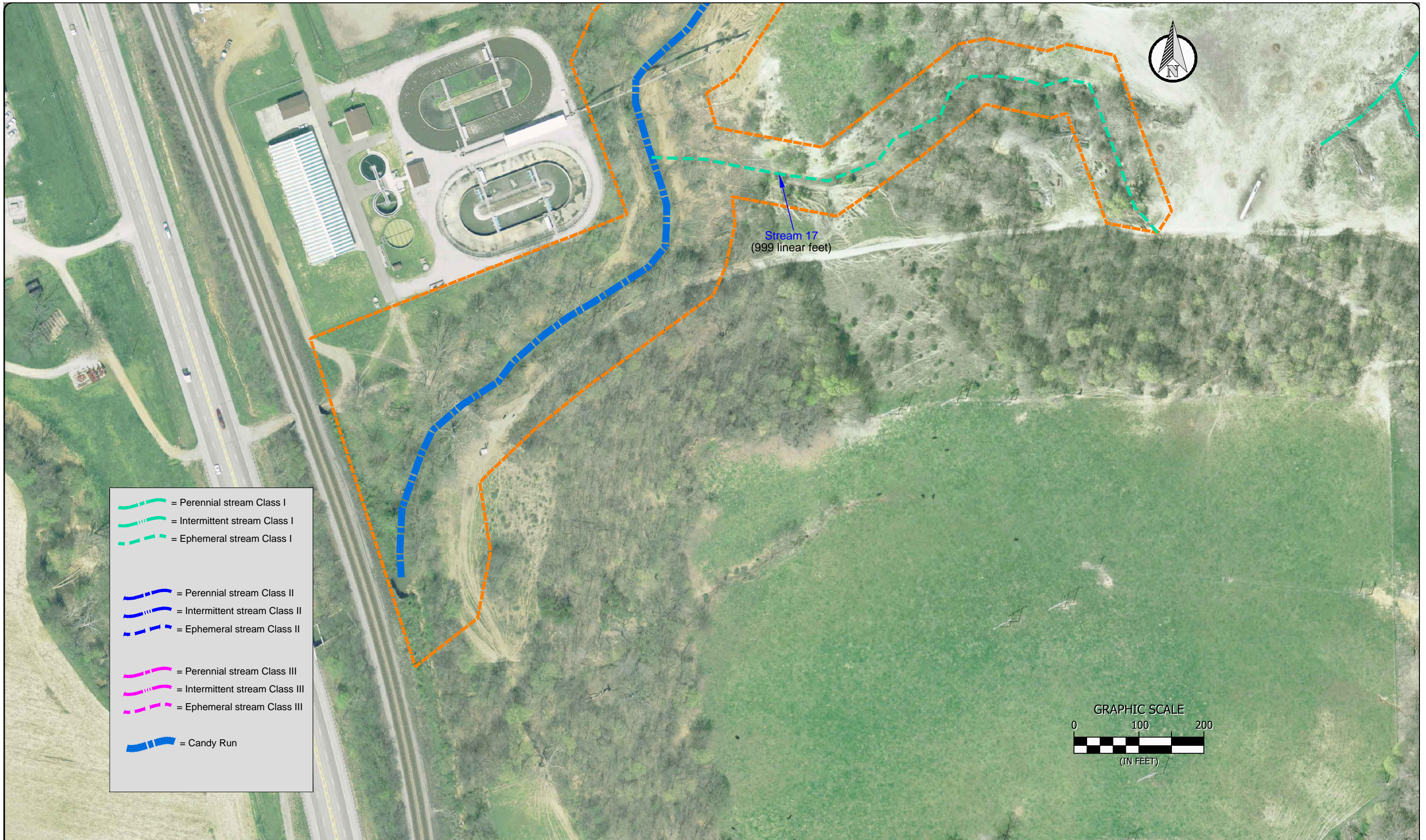
SCALE	SHEET NUMBER
1"=500'	<b>1/1</b>
PLOT DATE	
6/27/14	
FILE NAME	
<b>SITEPLAN</b>	











# Map View Location Map

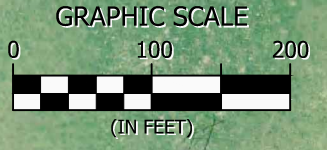


= Approximate study area





-  = Perennial stream Class I
-  = Intermittent stream Class I
-  = Ephemeral stream Class I
  
-  = Perennial stream Class II
-  = Intermittent stream Class II
-  = Ephemeral stream Class II
  
-  = Perennial stream Class III
-  = Intermittent stream Class III
-  = Ephemeral stream Class III
  
-  = Candy Run



 = Approximate Candy Run Conservation Area

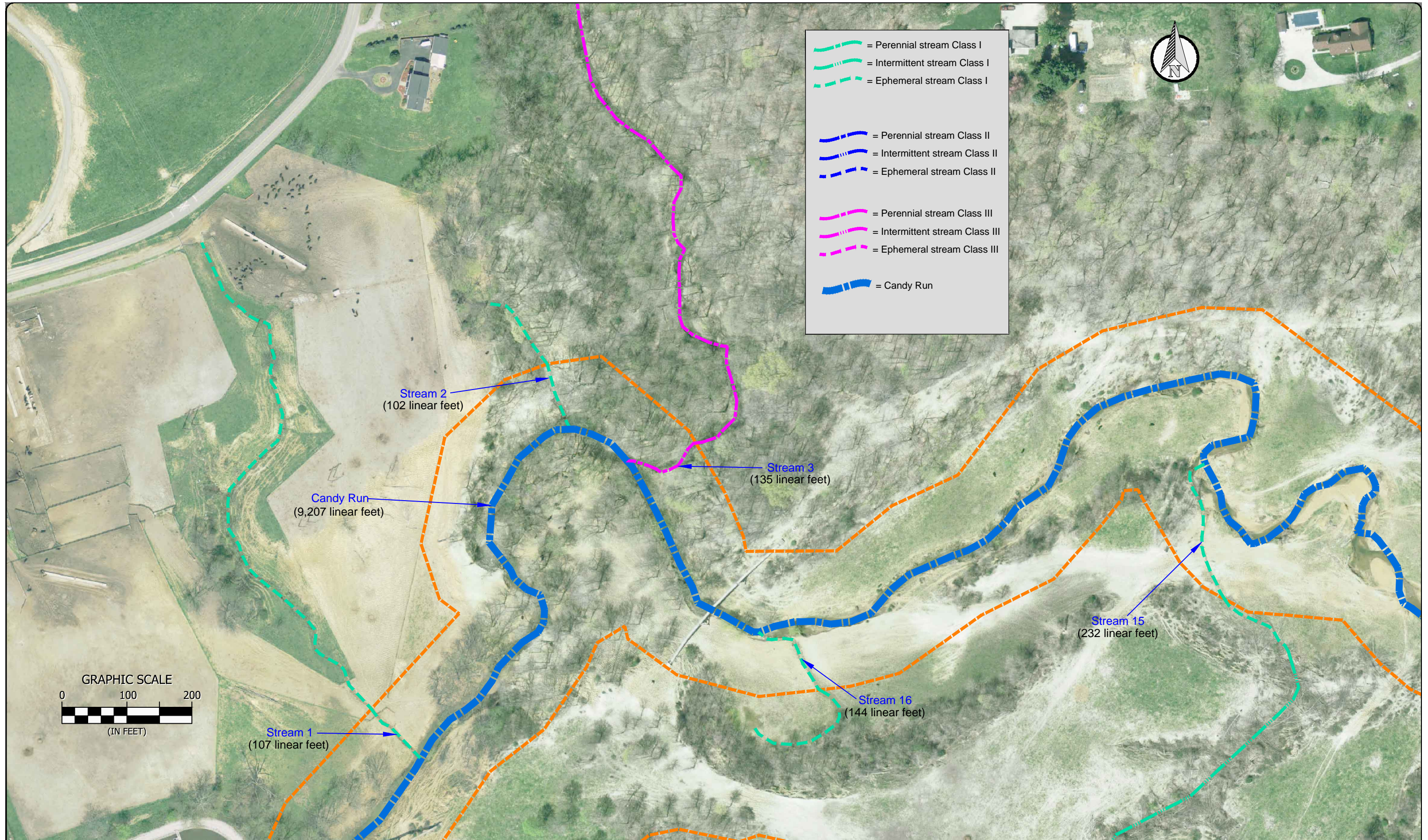
Prepared by  
**DAVEY**  
 RESOURCE GROUP  
*A Division of The Davey Tree Expert Company*

Prepared for  
**OWF**

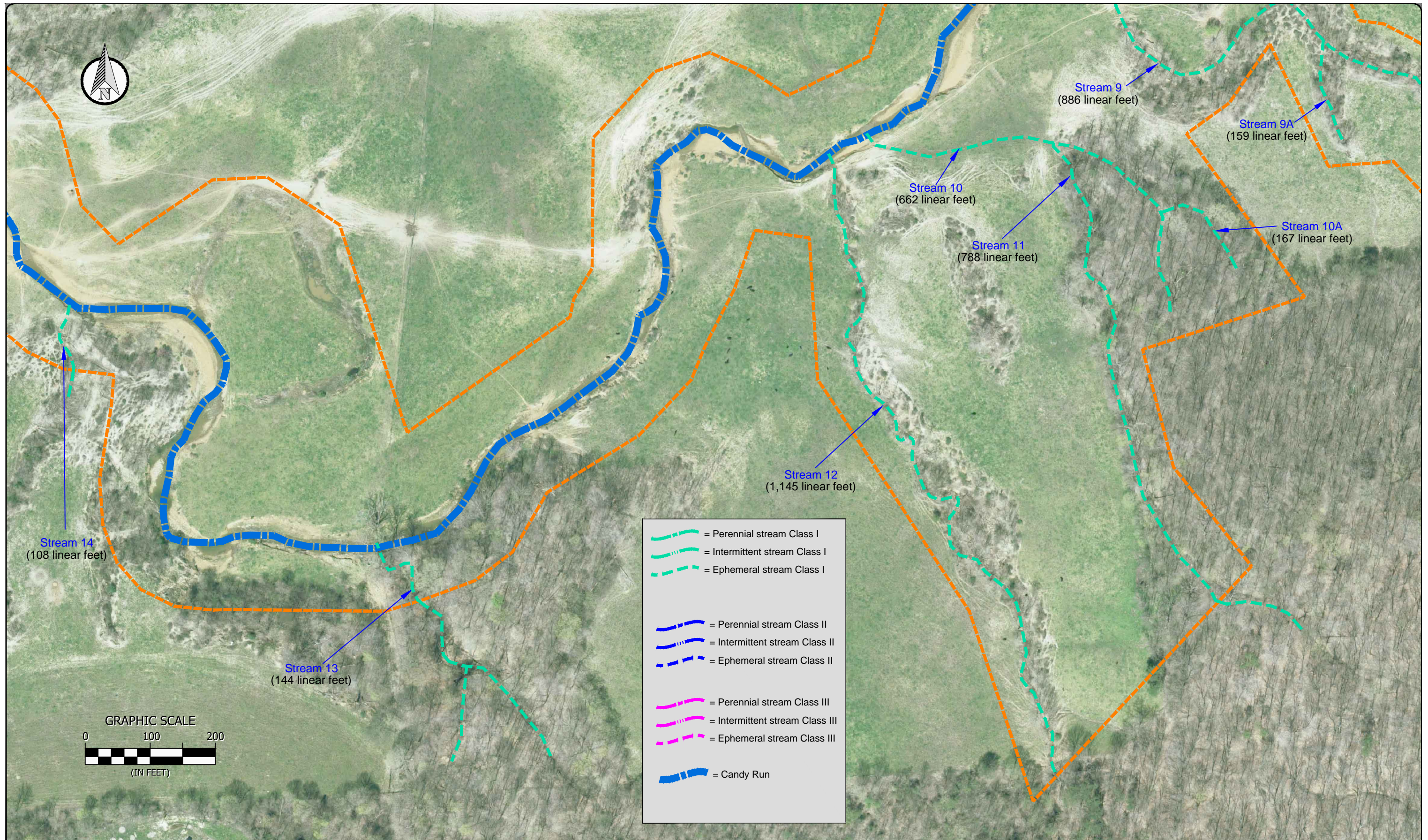
Candy Run  
 Canon Road

Data used to  
 produce this map  
 were collected  
 May 20-22, 2014

Map 1  
 of 5













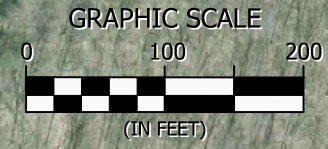
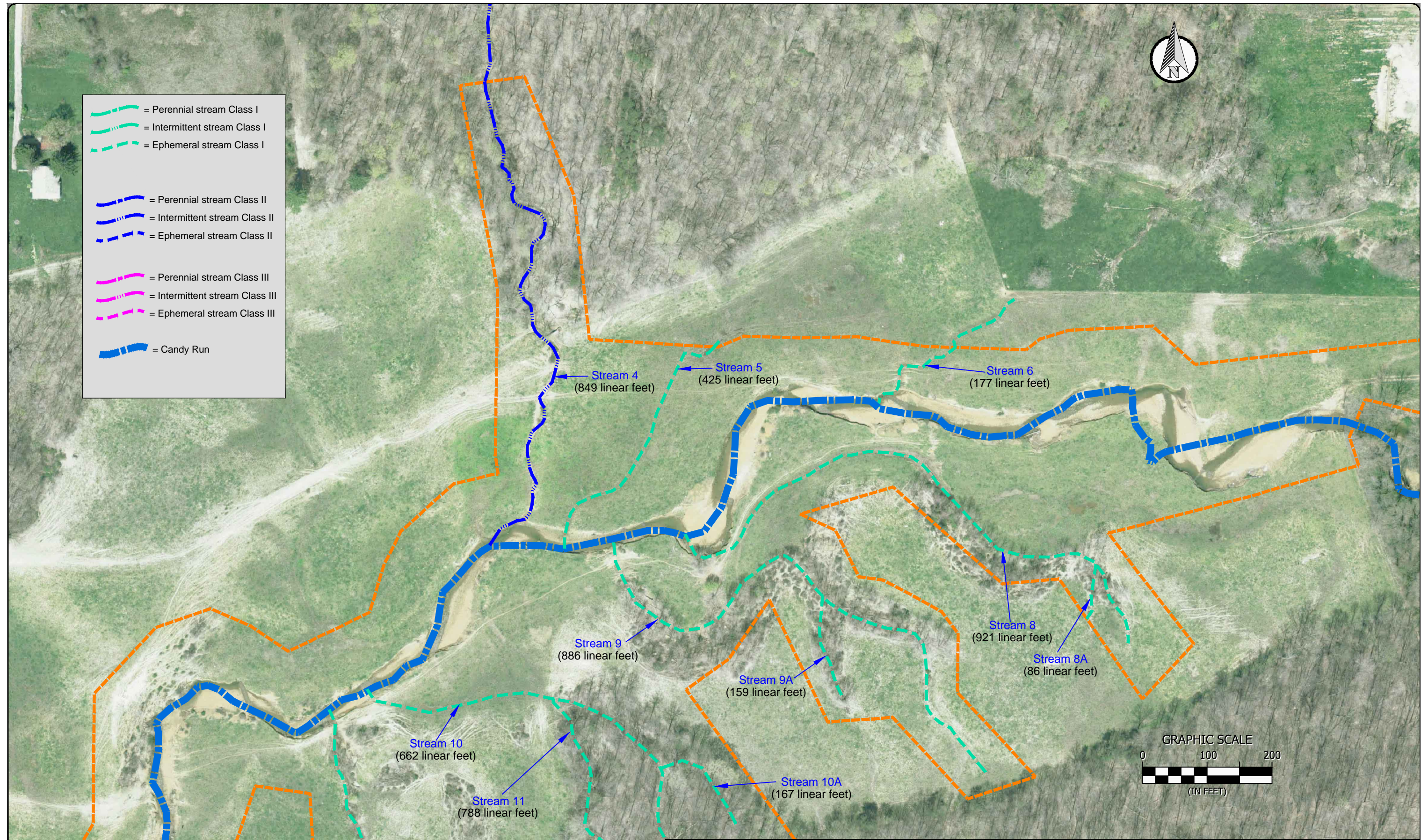
----- = Approximate Candy Run Conservation Area



— = Approximate Candy Run Conservation Area



-  = Perennial stream Class I
-  = Intermittent stream Class I
-  = Ephemeral stream Class I
  
-  = Perennial stream Class II
-  = Intermittent stream Class II
-  = Ephemeral stream Class II
  
-  = Perennial stream Class III
-  = Intermittent stream Class III
-  = Ephemeral stream Class III
  
-  = Candy Run



 = Approximate Candy Run Conservation Area

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**DAVEY**  
 RESOURCE GROUP  
*A Division of The Davey Tree Expert Company*











Prepared for  
**OWF**

Candy Run  
 Canon Road

Data used to  
 produce this map  
 were collected  
 May 20-22, 2014

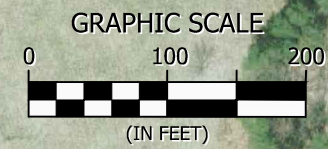
Map 4  
 of 5



-  = Perennial stream Class I
-  = Intermittent stream Class I
-  = Ephemeral stream Class I
  
-  = Perennial stream Class II
-  = Intermittent stream Class II
-  = Ephemeral stream Class II
  
-  = Perennial stream Class III
-  = Intermittent stream Class III
-  = Ephemeral stream Class III
  
-  = Candy Run

Lintz Hollow Road

Stream 7  
(108 linear feet)



 = Approximate Candy Run Conservation Area

Prepared by  
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*A Division of The Davey Tree Expert Company*

Prepared for  
**OWF**

Candy Run  
 Canon Road

Data used to  
 produce this map  
 were collected  
 May 20-22, 2014

Map 5  
 of 5

*Candy Run Site Stream Data*

Stream I.D.	Flow Regime	Use Designation	Length (linear feet) <sup>1</sup>
Candy Run	perennial	WWH	13,507
1	ephemeral	Class I	107
2	ephemeral	Class I	102
3	perennial	Class III	135
4	intermittent	Class II	849
5	ephemeral	Class I	425
6	ephemeral	Class I	177
7	intermittent	Class II	108
8	ephemeral	Class I	921
8A	ephemeral	Class I	86
9	ephemeral	Class I	886
9A	ephemeral	Class I	159
10	ephemeral	Class I	662
10A	ephemeral	Class I	167
11	ephemeral	Class I	788
12	ephemeral	Class I	1145
13	ephemeral	Class I	144
14	ephemeral	Class I	108
15	ephemeral	Class I	232
16	ephemeral	Class I	144
17	ephemeral	Class I	999

<sup>1</sup> Ephemeral stream lengths are approximate and may potentially be utilized for additional restoration. Totals presented in the text do not include these lengths.

***Appendix D  
Candy Run East QHEI Form***

Stream & Location: Candy Run ODRC East US Hwy 23 RM: 2.0 Date: 5/16/14 Scorers Full Name & Affiliation: N Seger Oxbow R:SR River Code: STORET #: Lat./ Long.: 18 Office verified location

1] SUBSTRATE Check ONLY Two substrate TYPE BOXES; estimate % or note every type present

Substrate assessment grid with categories: BEST TYPES (BLDR/SLABS, BOULDER, COBBLE, GRAVEL, SAND, BEDROCK), OTHER TYPES (HARDPAN, DETRITUS, MUCK, SILT, ARTIFICIAL), POOL RIFFLE, ORIGIN (LIMESTONE, TILLS, WETLANDS, HARDPAN, SANDSTONE, RIP/RAP, LACUSTURINE, SHALE, COAL FINES), QUALITY (HEAVY, MODERATE, NORMAL, FREE, EXTENSIVE, MODERATE, NORMAL, NONE), and SILT/EMBEDDEDNESS.

2] INSTREAM COVER Indicate presence 0 to 3: 0-Absent; 1-Very small amounts or if more common of marginal quality; 2-Moderate amounts, but not of highest quality or in small amounts of highest quality; 3-Highest quality in moderate or greater amounts (e.g., very large boulders in deep or fast water, large diameter log that is stable, well developed rootwad in deep / fast water, or deep, well-defined, functional pools.

Instream Cover assessment grid with categories: UNDERCUT BANKS, OVERHANGING VEGETATION, SHALLOWS (IN SLOW WATER), ROOTMATS, POOLS > 70cm, ROOTWADS, BOULDERS, OXBOWS, BACKWATERS, AQUATIC MACROPHYTES, LOGS OR WOODY DEBRIS, and AMOUNT (EXTENSIVE >75%, MODERATE 25-75%, SPARSE 5-<25%, NEARLY ABSENT <5%).

3] CHANNEL MORPHOLOGY Check ONE in each category (Or 2 & average)

Channel Morphology assessment grid with categories: SINUOSITY (HIGH, MODERATE, LOW, NONE), DEVELOPMENT (EXCELLENT, GOOD, FAIR, POOR), CHANNELIZATION (NONE, RECOVERED, RECOVERING, RECENT OR NO RECOVERY), STABILITY (HIGH, MODERATE, LOW), and Channel Maximum (8).

4] BANK EROSION AND RIPARIAN ZONE Check ONE in each category for EACH BANK (Or 2 per bank & average)

Bank Erosion and Riparian Zone assessment grid with categories: EROSION (NONE/LITTLE, MODERATE, HEAVY/SEVERE), RIPARIAN WIDTH (WIDE > 50m, MODERATE 10-50m, NARROW 5-10m, VERY NARROW < 5m, NONE), FLOOD PLAIN QUALITY (FOREST, SWAMP, SHRUB OR OLD FIELD, RESIDENTIAL, PARK, NEW FIELD, FENCED PASTURE, OPEN PASTURE, ROWCROP, CONSERVATION TILLAGE, URBAN OR INDUSTRIAL, MINING / CONSTRUCTION), and Riparian Maximum (2).

5] POOL / GLIDE AND RIFFLE / RUN QUALITY

Pool / Glide and Riffle / Run Quality assessment grid with categories: MAXIMUM DEPTH (> 1m, 0.7-<1m, 0.4-<0.7m, 0.2-<0.4m, < 0.2m), CHANNEL WIDTH (POOL WIDTH > RIFFLE WIDTH, POOL WIDTH = RIFFLE WIDTH, POOL WIDTH < RIFFLE WIDTH), CURRENT VELOCITY (TORRENTIAL, VERY FAST, FAST, MODERATE, SLOW, INTERSTITIAL, INTERMITTENT, EDDIES), and Pool / Current Maximum (11).

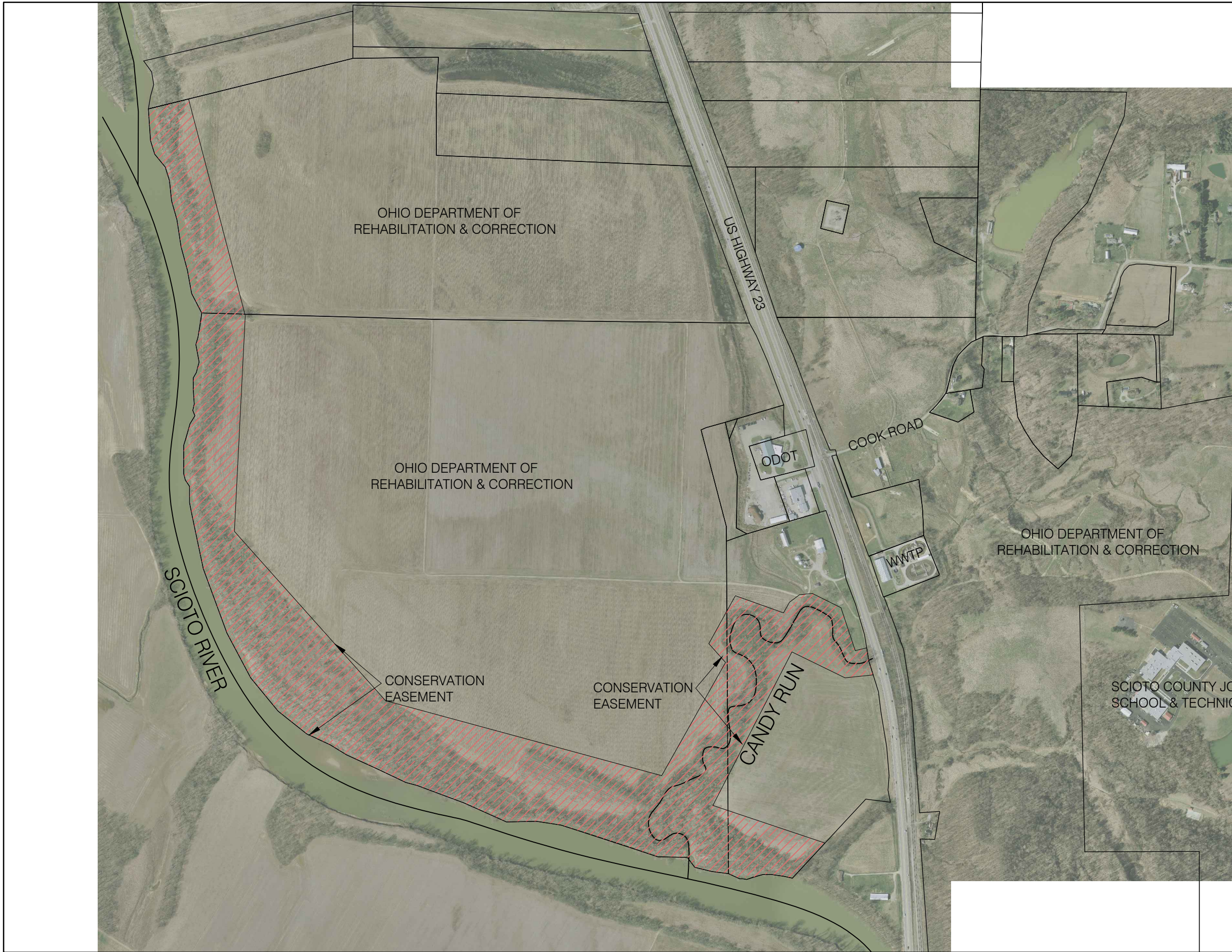
Indicate for functional riffles; Best areas must be large enough to support a population of riffle-obligate species: Check ONE (Or 2 & average). NO RIFFLE [metric=0]

Riffle / Run Quality assessment grid with categories: RIFFLE DEPTH (BEST AREAS > 10cm, 5-10cm, < 5cm), RUN DEPTH (MAXIMUM > 50cm, MAXIMUM < 50cm), RIFFLE / RUN SUBSTRATE (STABLE, MOD. STABLE, UNSTABLE), RIFFLE / RUN EMBEDDEDNESS (NONE, LOW, MODERATE, EXTENSIVE), and Riffle / Run Maximum (3).


6] GRADIENT (3) ft/mi DRAINAGE AREA (8) m2 VERY LOW - LOW [2-4] MODERATE [6-10] HIGH - VERY HIGH [10-6] %POOL: %GLIDE: %RUN: %RIFFLE: Gradient Maximum 8



***Appendix E***  
***Candy Run West and Scioto River Site Map***



OXBOW RIVER & STREAM RESTORATION, INC.





**Water Resource Engineering  
and Restoration**  
2905 Klondike Road  
Delaware, Ohio 43015  
(740) 362-4134  
www.oxbowriver.com

**PROJECT**

**CANDY RUN WEST &  
SCIOTO RIVER STREAM  
PRESERVATION**  
HUC #05060002-160  
  
Cook Road & US HWY 23  
Lucasville, Ohio  
  
**OHIO DEPARTMENT of  
REHABILITATION and  
CORRECTION**

**LEGEND**

CONSERVATION EASEMENT   
 STREAM CENTERLINE 

**NOTES**  
Parcel lines shown are approximate.

N 

BAR SCALE  
0' 400' 800'

SCALE	SHEET NUMBER
1"=800'	<b>1/1</b>
PLOT DATE	
6/27/14	
FILE NAME	<b>SITEPLAN</b>

# Appendix F

## Draft Conservation Easement

### DEED AND AGREEMENT OF EASEMENT

This Deed and Agreement of Easement is made this \_\_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_, by and between \_\_\_\_\_ (Grantor), having and address at \_\_\_\_\_ and \_\_\_\_\_ (Grantee), having an address at \_\_\_\_\_

**WHEREAS**, \_\_\_\_\_ is engaged in the business of providing mitigation credits to clients in order for them to obtain 401 Water Quality Certification and a 404 Permit for their projects; and

**WHEREAS**, in order to protect the quality of the surface waters, the Ohio Environmental Protection Agency (EPA) and the United States Army Corp of Engineers (COE) (herein after referred to as "Agencies") have required that \_\_\_\_\_ as a condition of being issued a 401 Water Quality Certification and a 404 Permit, for \_\_\_\_\_ provide an Easement in and to a portion of the Grantor's real property, which is more specifically identified on Exhibit A, a map showing the easement area of \_\_\_\_\_, for a total of \_\_\_\_\_ acres.

**WHEREAS**, Grantee agrees by accepting this grant to honor the intentions of Grantor stated herein and to preserve and protect the conservation values of the property for the benefit of this generation and generations to come. Grantee will to periodically inspect the Property for compliance with requirements of the Easement.

**NOW THEREFORE**, in consideration of the foregoing premises and the mutual promises and covenants contained herein, the parties hereto agree as follows:

1. **GRANT OF EASEMENT:** Grantor hereby grants and conveys to Grantee, its successors and assigns, an estate, interest, easement and servitude in and to the Property of the nature and character and to the extent hereinafter expresses, to be and to constitute a servitude upon the Property, which estate, interest, easement and servitude will result from the covenants and restrictions set forth herein and hereby imposed upon the use of the Property by Grantor, and to that end and for the purpose of accomplishing the interest of the parties hereto, the Grantor covenants on behalf of himself, his heirs, successors and assigns with the Grantee, its successors and assigns to do and refrain from doing, severally and collectively, upon the Property, the various acts hereinafter described, it being hereby agreed and expressed that the doing and the refraining from said acts, and each thereof, is and will be for the benefit of the Grantee.
2. **TERMS OF EASEMENT:** The easement granted hereunder shall be perpetual and shall have no expiration date.
3. **CONSERVATION VALUES:** The property possesses substantial value in conserving and protecting the physical, biological and chemical integrity and is important for the protection of the existing or designed use of the waters of the state pursuant to section 303 of the Clean Water Act, 33 U.S.C. 1313 and Section 6111.041 of the Ohio Revised Code.
4. **PROHIBITED ACTIONS:** Any activity on or use of the Property inconsistent with the purposes of this Easement or detrimental to the conservation values expressed herein is expressly prohibited. By way of example, and not of limitation, the following activities and uses are explicitly prohibited:
  - a. **Commercial Activities:** Commercial development or industrial activity is prohibited.
  - b. **Construction:** The placement or construction of any man-made modification such as building, structures, fences, roads and parking lots is prohibited; except as provided in Paragraph 6-b;
  - c. **Cutting Vegetation:** Any cutting of trees, ground cover or vegetation, or destroying by means of herbicides or pesticides is prohibited; except as provided in Paragraph 6-e;
  - d. **Land Surface Alteration:** The removal of soil, sand, gravel. Rock, minerals or other materials from the Property, or doing that which would alter the topography of the Property shall be prohibited;
  - e. **Dumping:** Waste, garbage and unsightly or offensive material are not permitted and may not be accumulate on the Property;
  - f. **Water courses:** Natural water courses and streams and adjacent riparian buffers may not be dredged, straightened, filled, channelized, impeded, diverted or otherwise altered;
  - g. **Other Activities:** Each and every other activity or construction project, which might endanger the natural, scenic, biological, or ecological integrity of the Property, shall be prohibited.

5. **RIGHTS OF GRANTEE:** The Grantor confers the following rights upon the Grantee to perpetually maintain the conservation values of the property:
  - a. **Right to Enter:** The right to enter the Property at reasonable times to monitor or to enforce compliance with this Easement; provided that such entry shall be upon prior reasonable notice to Grantor. The Grantee may not, however reasonably interfere with the Grantor's use and quiet enjoyment of the Property. The Grantee has no right to permit others to enter the Property. The general public is not granted access to the property under this Easement.
  - b. **Right to Preserve:** The right to prevent any activity on or use of the Property that is inconsistent with the terms or purposes of the Easement.
  - c. **Right to Require Restoration:** The right to require restoration of the areas or features of the Property which are damaged by any activity inconsistent with this Easement.
  
6. **PERMITTED USES:** Grantor reserves to himself, and to all his personal representatives, heirs, successors and assigns, all right accruing from his ownership of the Property, including the right to engage in or permit or invite other to engage in all uses of the Property that are not expressly prohibited herein and are not inconsistent with the purposes of this Easement. Without limiting the generality of the foregoing, the following rights are expressly reserved:
  - a. **Right to Convey:** The Grantor retains the right to sell, mortgage, bequeath, donate or otherwise convey the Property. Any conveyance shall remain subject to the terms and conditions of the Easement and the subsequent interest holder shall be bound by the terms and conditions hereof.
  - b. **Right to Maintain:** The Grantor retains the right to maintain, renovate and replace any existing structure(s), fence(s), or drainage tile(s), if any, on the Property in substantially the same location and size. Any expansion or replacement may not substantially alter the character or function of the structure, and requires the Grantee's prior written approval.
  - c. **Right to Access:** The Grantor shall retain the right to unimpeded access to the Property.
  - d. **Right to Hunt Wildlife:** The Grantor retains the right to enter upon the Easement property for the purpose of hunting wildlife.
  - e. **Right to Cut Vegetation:** The Grantor specifically retain the right to cut or trim any dead or diseased standing timber that presents a risk to public health or safety to persons outside the conservation easement area. Stump removal is prohibited. Grantor may not sell wood removed from the Easement area.
  - f. **Right to Maintain Paths:** The Grantor specifically retains the right to maintain existing paths.
  
7. **GRANTEE'S REMEDIES:** In the event of a breach of this Easement, the Grantee shall have the following remedies and shall be subject to the following limitation:
  - a. **Delay of Enforcement:** A delay in enforcement shall not be construed as waiver of the Grantee's right to enforce the terms of this Easement.
  - b. **Acts Beyond Grantor's Control:** The Grantee may not bring an action against the Grantor for modification occurring to the Property which result causes beyond the Grantor's control. Examples include, without limitation: Unintentional fires, storms, natural earth movement, trespassers, or the Grantor's well-intentioned actions in response to an emergency which results on changes to the Property. The Grantor has no responsibility under this Easement for such unintended modification. The Grantee may, however, bring an action against another party for modifications that impair the conservation values identified in this Easement.
  - c. **Notice and Demand:** If the Grantee determines that the Grantor is in violation of the Easement, or that a violation is threatened, the Grantee shall provide written notice to the Grantor unless the violation constitutes immediate and irreparable harm. The written notice shall identify the violation and request corrective action to cure the violation or restore the Property.
  - d. **Failure to Act:** If, for a twenty-eight (28) day period after the date of written notice provided pursuant to subparagraph c., above, the Grantor continues violating this Easement, or if the Grantor does not abate the violation, begin to implement corrective measures within the foregoing twenty-eight (28) day period requested by the Grantee, or fails to continue diligently to cure such violation until finally cured, the Grantee may bring an action in law or in equity to enforce the terms of the Easement.
  - e. **Unreasonable Litigation:** If the Grantee initiates litigation against the Grantor to enforce this Easement, and if the court determines that the litigation was without reasonable cause or in bad faith, then the court, may require the Grantee to reimburse the Grantor's reasonable costs and attorney's fees incurred in defending the action.
  - f. **Grantor's Absence:** If the Grantee determines that this Easement is or is expected to be violated, the Grantee will make a good faith effort to notify the Grantor. If, through reasonable efforts, the Grantor cannot be notified, and if the Grantee determines that circumstances justify prompt action to mitigate or prevent impairment of the Easement, then the Grantee may pursue its lawful remedies without prior notice and without awaiting the Grantor's opportunity to cure.

8. **OWNERSHIP, COSTS AND LIABILITIES:** In accepting the Easement, the Grantee shall have no liability or other obligation for costs, liabilities, taxes or insurance of any kind related to the Property. The Grantee and its trustees, officers, employees, agents and members have liability arising from injury or death to any person or from physical damage to any other property located on the Property otherwise. The Grantor agrees to defend the Grantee against such claims and to indemnify the Grantee against all costs and liabilities relating to such claims during the tenure of the Grantor's ownership of the Property. The Grantor is responsible for posting the Property's boundaries and for discouraging any form of trespass that may occur.
9. **CESSATION OF EXISTENCE:** If the Grantee shall cease to be authorized to acquire and hold conservation easements, then this Easement shall become vested in another qualified entity that is eligible to acquire and hold a conservation easement under Ohio Law, upon the mutual consent of Grantee, the U.S. Army Corp of Engineers and Ohio EPA.
10. **TERMINATION:** This Easement may be extinguished only by an unexpected change in condition which causes it to be impossible to fulfill the Easement's purpose, or by exercise of eminent domain.
  - a. **Unexpected Change in Conditions:** If subsequent circumstances render the purpose of this Easement impossible to fulfill, then this Easement may be partially or entirely terminated only by judicial proceedings.
  - b. **Eminent Domain:** If the property is taken, in whole or in part, by power of eminent domain, then the Grantee will be entitled to compensation in accordance with applicable laws and in proportion to the Grantee's interest in the Property at the effective date of this Easement.
11. **RECORDATION:** Grantee shall record this instrument in a timely fashion in the official records of \_\_\_\_\_ County, Ohio, and may re-record this instrument at any time as may be required to preserve its rights in this Easement.
12. **ASSIGNMENT:** This Easement is transferable, but Grantee may assign its rights and obligation hereunder only to an organization or entity that is qualified to hold conservation easements under Ohio Law, and any applicable federal tax law, at the time of transfer. As a condition of such transfer, the Grantee shall require that the conservation purposes that this grant is intended to advance continue to be carried out.
13. **LIBERAL CONSTRUCTION:** This Easement shall be liberally construed in favor of maintaining the conservation value of the Property. The section headings and subheadings identified herein are for reference purposes only and shall not be used to interpret the meaning of any provision hereof.
14. **NOTICES:** For purposes of the Easement, notice may be provided to either party, by personal delivery or by mailing a written notice to that party at the address shown at the outset of this agreement, or at the last known address of the party, by first class mail, postage prepaid. Delivery will be complete upon depositing the properly addressed notice with the U.S. Postal Service.
15. **SEVERABILITY:** If any portion of the Easement is determined to be invalid or unenforceable, the remaining provisions of this agreement will remain in full force and effect.
16. **SUBSEQUENT TRANSFERS:** This Easement shall be a covenant running with the land and shall constitute a burden on the Property and shall run to the benefit of the parties hereto and their successors in interest. All subsequent owners of the Property shall be bound to all provisions of this Easement to the same extent as the current parties. Grantor shall incorporate the terms of this Easement in any deed or other legal instrument by which they divest themselves of any interest in all or a portion of the Property, including, without limitation, a lease hold interest.
17. **TERMINATION OF RIGHTS AND OBLIGATION:** A party's future rights and obligations under this Easement shall terminate upon the transfer of that party's interest in the Property. Liability for acts or omissions occurring prior to transfer shall survive any such transfer.
18. **APPLICABLE LAW:** This agreement shall be governed by, and construed in accordance with the substantive laws of the State of Ohio, irrespective of its conflict of laws.
19. **ENTIRE AGREEMENT:** This Easement sets forth the entire agreement of the parties and supersedes all prior discussions and understandings.

EXECUTED by us this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_.

By: \_\_\_\_\_

Its: \_\_\_\_\_

By: \_\_\_\_\_

Its: \_\_\_\_\_

**STATE OF OHIO,**  
**COUNTY OF \_\_\_\_\_, SS:**

On this \_\_\_\_ day of \_\_\_\_\_ 20\_\_, before me, a Notary Public, personally appeared \_\_\_\_\_, know to me to be the person who executed the foregoing instrument, and acknowledged to me that they executed the same.

\_\_\_\_\_  
Notary Public

**STATE OF OHIO,**  
**COUNTY OF \_\_\_\_\_, SS:**

On this \_\_\_\_ day of \_\_\_\_\_ 20\_\_, before me, a Notary Public, personally appeared \_\_\_\_\_, know to me to be the person who executed the foregoing instrument, and acknowledged to me that they executed the same.

\_\_\_\_\_  
Notary Public

## Appendix G Plantings and Seed Mix Lists

### Seed Mix (Dependent on Availability)

Botanical Name	Common Name	Indicator Status <sup>1</sup>	C of C <sup>2</sup>
<i>Asclepias incarnata</i>	swamp milkweed	OBL	4
<i>Bouteloua curtipendula</i>	sideoats gramma	UPL	8
<i>Chamaecrista fasciculata</i>	sleepingplant	FACU	3
<i>Coreopteris tripteris</i>	tall tickseed	UPL	5
<i>Echinacea purpurea</i>	purple coneflower	UPL	6
<i>Elymus canadensis</i>	nodding wild-rye	FACU	6
<i>Elymus riparius</i>	riverbank wild-rye	FACW	5
<i>Lespedeza capitata</i>	round-head bush-clover	FACU	5
<i>Lobelia siphilitica</i>	great blue lobelia	FACW	3
<i>Mimulus ringens</i>	Allegheny monkey-flower	OBL	4
<i>Monarda fistulosa</i>	oswego-tea	UPL	3
<i>Penstemon digitalis</i>	foxglove beardtongue	FAC	2
<i>Physostegia virginiana</i>	obedient plant	FAC	5
<i>Pycnanthemum virginianum</i>	Virginia mountain-mint	FAC	4
<i>Rudbeckia hirta</i>	black-eyed-susan	FACU	1
<i>Rudbeckia triloba</i>	brown-eyed-susan	FACU	5
<i>Schizachyrium scoparium</i>	little false bluestem	FACU	5
<i>Solidago nemoralis</i>	gray goldenrod	UPL	2
<i>Solidago rigida</i>	hard-leaf flat-top-goldenrod	UPL	8
<i>Sporobolus heterolepis</i>	prairie dropseed	UPL	8
<i>Symphyotrichum novae-angliae</i>	New England American-Aster	FACW	2
<i>Symphyotrichum oolentangiense</i>	sky blue aster	UPL	7
<i>Tradescantia ohiensis</i>	bluejacket	FAC	5
<i>Verbesina alternifolia</i>	wingstem	FAC	5
<i>Zizia aurea</i>	golden alexanders	FAC	6

<sup>1</sup> Obtained from Licvhar et al. (2014).

<sup>2</sup> Obtained from Andreas et.al. (2004).

### Trees (Dependent on Availability)

Scientific Name	Common Name	Indicator Status <sup>1</sup>	C of C <sup>2</sup>
<i>Acer rubrum</i>	red maple	FAC	2
<i>Acer saccharum</i>	sugar maple	FACU	5
<i>Aesculus glabra</i>	Ohio buckeye	FACU	6
<i>Asimina triloba</i>	common pawpaw	FAC	6
<i>Betula nigra</i>	river birch	FACW	9
<i>Carya laciniosa</i>	shell-bark hickory	FAC	7
<i>Carya ovata</i>	shagbark hickory	FACU	6
<i>Fagus grandifolia</i>	American beech	FACU	7
<i>Juglans nigra</i>	black walnut	FACU	5
<i>Liriodendron tulipifera</i>	tuliptree	FACU	6
<i>Nyssa sylvatica</i>	black tupelo	FAC	7
<i>Platanus occidentalis</i>	American sycamore	FACW	7
<i>Quercus alba</i>	white oak	FACU	6
<i>Quercus bicolor</i>	swamp white oak	FACW	7
<i>Quercus macrocarpa</i>	burr oak	FAC	6
<i>Quercus palustris</i>	pin oak	FACW	5
<i>Quercus rubra</i>	northern red oak	FACU	6
<i>Salix nigra</i>	black willow	OBL	2

<sup>1</sup> Obtained from Licvhar et al. (2014).

<sup>2</sup> Obtained from Andreas et. al. (2004).

### Shrubs (Dependent on Availability)

Scientific Name	Common Name	Indicator Status <sup>1</sup>	C of C <sup>2</sup>
<i>Alnus serrulata</i>	brookside alder	OBL	6
<i>Aronia melanocarpa</i>	black chokeberry	FAC	5
<i>Cephalanthus occidentalis</i>	common buttonbush	OBL	6
<i>Cornus alba</i>	red osier	FACW	3
<i>Cornus amomum</i>	silky dogwood	FACW	2
<i>Hamamelis virginiana</i>	American witch-hazel	FACU	5
<i>Ilex verticillata</i>	common winterberry	FACW	6
<i>Lindera benzoin</i>	spicebush	FACW	5
<i>Rosa palustris</i>	swamp rose	OBL	5
<i>Salix discolor</i>	pussy willow	FACW	3

<sup>1</sup> Obtained from Licvhar et al. (2014).

<sup>2</sup> Obtained from Andreas et. al. (2004).



## Appendix H

### SCI-823 (PID 19415) Phase 2 and 3 Stream Impacts

Stream I.D.	Phase	Flow Regime	HHEI Score	Use Designation	Impacts (linear feet)
Stream 1	2	intermittent	30	Modified Class II	2,187
Stream 2	2	intermittent	26	Modified Class I	1,472
Stream 3	2	intermittent	34	Modified Class II	1,098
Stream 4	2	intermittent	38	Modified Class II	341
Stream 5	2	perennial	59	Modified Class IIIA	469
Stream 5A	2	intermittent	21	Class I	237
Stream 5B	2	ephemeral	12	Class I	249
Stream 5C	2	ephemeral	11	Modified Class I	153
Stream 6	2	perennial	50	Class II	731
Stream 6A	2	intermittent	45	Class II	620
Stream 6B	2	intermittent	45	Class IIIA	689
Stream 6B1	2	ephemeral	10	Class I	198
Stream 6B2	2	ephemeral	18	Class I	294
Stream 7	2	intermittent	20	Modified Class I	441
Stream 8	2	intermittent	10	Modified Class I	1,170
Stream 9	2	intermittent	34	Class II	789
Stream 10	2	intermittent	37	Modified Class II	1,020
Stream 10A	2	ephemeral	22	Modified Class I	229
Stream 10B	2	ephemeral	10	Modified Class I	708
Stream 10C	2	ephemeral	12	Modified Class I	112
Stream 10D	2	ephemeral	23	Modified Class I	128
Stream 11	2	intermittent	46	Class II	1,050
Stream 11A	2	ephemeral	22	Class I	606
Stream 11B	2	ephemeral	18	Class I	379
Stream 11C	2	ephemeral	28	Class I	431
Stream 11D	2	ephemeral	13	Class I	570
Stream 11E	2	ephemeral	32	Class II	317
Stream 11F	2	ephemeral	12	Class I	742
Stream 12	2	intermittent	32	Class II	671
Stream 13	2	ephemeral	44	Class II	624
Stream 14	2	ephemeral	23	Modified Class I	697
Stream 15	2	ephemeral	22	Class I	1,040
Stream 15A	2	ephemeral	21	Class I	330
Stream 15B	2	ephemeral	11	Class I	317
Stream 16	2	intermittent	41	Class II	1,042
Stream 16A	2	ephemeral	26	Modified Class I	310
Stream 17	2	intermittent	61	Class II	1,018
Stream 17A	2	ephemeral	29	Class I	91
Stream 17B	2	ephemeral	32	Class II	783
Stream 17C	2	ephemeral	37	Class II	551
Stream 17C1	2	ephemeral	28	Class I	130
Stream 18	2	ephemeral	37	Class II	712
Stream 18A	2	ephemeral	11	Class I	79

Stream I.D.	Phase	Flow Regime	HHEI Score	Use Designation	Impacts (linear feet)
Stream 18B	2	ephemeral	24	Class I	172
Stream 19	2	ephemeral	37	Class II	917
Stream 19A	2	ephemeral	12	Class I	210
Stream 19B	2	ephemeral	27	Class I	631
Stream 20	2	intermittent	43	Modified Class II	1,014
Stream 20-1	2	ephemeral	12	Modified Class I	204
Stream 21	2	ephemeral	41	Modified Class II	717
Stream 21A	2	ephemeral	12	Class I	102
Stream 22	2	intermittent	46	Class II	913
Stream 22A	2	ephemeral	22	Modified Class I	710
Stream 22B	2	ephemeral	12	Modified Class I	189
Stream 22C	2	ephemeral	12	Class I	382
Stream 23	2	intermittent	46	Class II	863
Stream 23A	2	ephemeral	22	Class I	467
Stream 23B	2	ephemeral	12	Class I	231
Stream 24	2	ephemeral	46	Class II	775
Stream 24A	2	ephemeral	11	Class I	66
Stream 25	2	intermittent	12	Modified Class I	298
Stream 26	2	intermittent	12	Modified Class I	934
Stream 26A	2	ephemeral	12	Modified Class I	472
Stream 27	2	intermittent	46	Modified Class II	727
Stream 27B	2	intermittent	22	Class I	652
Stream 28	2	ephemeral	23	Class I	231
Stream 29	3	perennial	83	Class IIIA	564
Stream 30	3	ephemeral	38	Class II	440
Stream 31	3	ephemeral	52	Modified Class II	511
Stream 31A	3	ephemeral	27	Modified Class I	189
Stream 32	3	intermittent	32	Class II	830
Stream 32A	3	ephemeral	24	Class I	160
Stream 32B	3	ephemeral	13	Class I	142
Stream 32C	3	ephemeral	24	Class I	186
Stream 32D	3	ephemeral	22	Class I	245
Stream 32D1	3	ephemeral	22	Class I	245
Stream 33	3	intermittent	51	Class II	999
Stream 33A	3	ephemeral	23	Class I	145
Stream 33A1	3	ephemeral	13	Class I	3
Stream 33A2	3	ephemeral	13	Class I	106
Stream 33B	3	ephemeral	12	Class I	41
Stream 34	3	perennial	QHEI 65	Warmwater Habitat	2,084
Stream 34A	3	intermittent	56	Class II	405
Stream 34B	3	ephemeral	19	Class I	391
Stream 34B1	3	ephemeral	13	Class I	348
Stream 34B2	3	ephemeral	13	Class I	309
Stream 35A	3	ephemeral	33	Class II	435
Stream 35A1	3	ephemeral	10	Class I	111
Stream 36	3	intermittent	50	Class II	1,054

Stream I.D.	Phase	Flow Regime	HHEI Score	Use Designation	Impacts (linear feet)
Stream 36A	3	ephemeral	21	Class I	1,233
Stream 36A1	3	ephemeral	13	Modified Class I	86
Stream 36C	3	intermittent	36	Class II	1,146
Stream 36C2	3	ephemeral	43	Modified Class II	386
Stream 36C3	3	ephemeral	24	Class I	184
Stream 36C4	3	ephemeral	13	Class I	41
Stream 37	3	intermittent	32	Class II	691
Stream 37A	3	ephemeral	19	Class I	549
Stream 38	3	intermittent	48	Class II	1,600
Stream 38A	3	intermittent	33	Class II	1,755
Stream 38A1	3	ephemeral	12	Class I	247
Stream 38A2	3	ephemeral	11	Class I	72
Stream 38A3	3	ephemeral	12	Class I	111
Stream 38A4	3	ephemeral	23	Class I	161
Stream 38A5	3	ephemeral	13	Modified Class I	134
Stream 38A6	3	ephemeral	12	Class I	107
Stream 38B	3	ephemeral	47	Modified Class II	681
Stream 38B1	3	ephemeral	23	Modified Class I	398
Stream 38D	3	ephemeral	32	Modified Class II	548
Stream 39	3	intermittent	30	Modified Class II	1,095
Stream 39A	3	ephemeral	12	Modified Class I	925
Little Scioto River	3	perennial	–	Warmwater Habitat	0
Stream 40	3	intermittent	14	Class I	810
Stream 40A	3	ephemeral	11	Class I	188
Stream 40B	3	ephemeral	11	Class I	183
Stream 41	3	ephemeral	12	Modified Class I	215
Stream 42	3	ephemeral	18	Modified Class I	510
Stream 42A	3	ephemeral	10	Modified Class I	142
Stream 43	3	intermittent	22	Modified Class I	1,044
Stream 44	3	intermittent	44	Modified Class II	1,436
Stream 45	3	ephemeral	13	Modified Class I	438
Stream 46	3	perennial	57	Class II	1,231
Stream 46A	3	ephemeral	12	Modified Class I	205
Stream 47	3	intermittent	48	Modified Class II	470
Stream 48	3	perennial	QHEI 61.5	Warmwater Habitat	271
Stream 48A	3	ephemeral	17	Modified Class I	247
Stream 49	3	intermittent	25	Class I	350
Total					67,535 <sup>1</sup>

<sup>1</sup> 1,316 linear feet of stream is already within pre-existing culverts or pipes; the total length of streams requiring mitigation is 66,219 linear feet.

## Appendix I References

- Andreas, Barbara K., John J. Mack, and James S. McCormac. 2004. *Floristic Quality Assessment Index (FQAI) for vascular plants and mosses for the State of Ohio*. Ohio Environmental Protection Agency, Division of Surface Water, Wetland Ecology Group, Columbus, Ohio. 219 pp.
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- Ohio Environmental Protection Agency. 2012. *Field Evaluation Manual for Ohio's Primary Headwater Habitat Streams* Version 3.0. Ohio EPA, Division of Surface Water. Columbus, OH. 117.
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